



TYPES OF INTERACTION BETWEEN ENVIRONMENT, RURAL ECONOMY,
SOCIETY AND AGRICULTURE IN EUROPEAN REGIONS

TERESA

CASE STUDY REPORT

Deliverable D 2.3

Specific targeted research or innovation project

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Abbreviations

For abbreviations of the project partners' organisations please see the imprint at the beginning of the report!

a.s.l.	above sea level
ADAS	Agricultural Development and Advisory Service
AOP	Appellation d'origine protégée
bn	billion
CAP	Common Agricultural Policy
CAP	Common Agricultural Policy
CMO	Common Market Organisation
Com.	European Commission
Defra	Department for Environment, Food and Rural Affairs
DG Agri	European Commission, Directorate-General for Agriculture and Rural Development
DEM	Deutsche/German Mark
DOC	Denominazione di origine controllata, Dénomination d'origine contrôlée
EAGGF	European Agriculture Guidance and Guarantee Fund
efm	cubic metre
ERDF	European Regional Development Fund
ESF	European Social Fund
ESPON	European Spatial Planning Observation Network
ESU	European Size Unit
EU	European Union
EUR	Euro
FADN	Farm Accountancy Data Network
ft	foot/feet
FUA	Functional Urban Area (result of the ESPON 1.1.1 study)
GBP	Great Britain Pound/Pound Sterling
GDP	Gross Domestic Product
GORs	Government Offices for the Regions
GVA	Gross Value Added
GVA	Gross Value Added
h	hour
ha	hectare
hl	hectolitre
HUF	Hungarian Forint
IUCN	The World International Union for the Conservation of Nature
kg	kilogramme
km ²	square kilometre
kw	kilowatt
l	litre

LFA	Less Favoured Areas
LFA	Less Favoured Areas
m	metre
m ²	square metre
m ³	cubic metre
mio	million
NACE	Nomenclature générale des activités économiques dans les Communautés Européennes (United Nations classification of economic activities)
NUTS	“Nomenclature des unités territoriales” – Geocode standard for referencing the administrative division of countries for statistical purposes
NUTS	The Nomenclature of Territorial Units for Statistics
ONS	Office for National Statistics
PGI	Protected Geographical Indication
PPS	Purchasing Power Standards
PSE	Producer Support Estimate
RICS	Royal Institute for Chartered Surveyors
RPA	Rural Payments Agency
RSPB	Royal Society for the Protection of Birds
SEEDA	South East England Development Agency
t	ton
Toe	Tonnes of oil equivalents
TWh	Terawatt hour
UAA	Utilisable Agricultural Area
UAA	Utilised Agricultural Area
USD	United States Dollar
vfm	solid cubic metre
WP	work package
WSCC	West Sussex County Council
y	year

Country abbreviations

AT	Austria
DE	Germany
ES	Spain
FR	France
HU	Hungary
IE	Republic of Ireland
IT	Italy
NO	Norway
PL	Poland
RO	Romania
UK	United Kingdom

0 INTRODUCTION

TERESA ("Types of Interaction between Environment, Rural Economy, Society and Agriculture in European Regions") is a rural development research project co-funded under the 6th Framework Programme for Research and Technological Development and conducted by 12 research institutions from all over Europe.

The goal of TERESA

Rural development policy and the new CAP increasingly place agriculture in a wider context taking into account the diversification of rural economy, the quality of the environment and food safety to gain higher competitiveness of the farming sector. Combining expertise in agricultural sciences and regional policies TERESA aims to shed light on these interrelations and the impact of policies on it, focusing on three goals:

- **Goal A** "identifying interrelationships in rural areas": to identify typical interrelationships between farming activities, rural economy, rural society and the environment.
- **Goal B** "modelling": to develop a model demonstrating the typical interrelations between agriculture, the rest of rural economy and the environment in different types of rural areas in Europe and the impact of policies on its development.
- **Goal C** "assessing policies": to identify and to assess different integration policies regarding their effectiveness in generating positive externalities for farming activities and rural development.

The case studies investigate the different ways of rural development. The present deliverable "D 2.3 CASES STUDY REPORT" presents and summons up the 11 case studies that were done for **TERESA** by rural development experts in 11 different countries. The **main methodological parts** of the case studies are:

- A statistical enquiry of European databases;
- A selection of representative regions;
- An enquiry of statistical data on national and regional level;
- Expert interviews in the regions concerned;
- Interpretation of the enquiries by the national case study authors;
- Qualitative additions by the national case study authors.

The results serve as an input for an agent based model that captures systemically the relationships between the diverse actors of rural areas and visualises potential impacts of policies.

Part A of this deliverable includes a summary and first interpretation of the case studies, **part B** presents the **methodology** of the case study enquiry. **Part C** contains the **case studies** themselves, in **part D** the annexes can be found.

Extensive interpretations of the case study results will be included in all deliverables from WP 3 "Modelling" and WP 4 "Synopsis".

PART A

SUMMARY

1 THE REGIONS AT A GLANCE

This summary is based on the case study reports, a first comparative analysis of the statistical profile data and additional use of statistical data on European level. An overview can also be visited at www.teresa-eu.info/regions.html. This summary picks up some important and representative topics to illustrate the case studies landscape as a whole; the main analysis will be done in the forthcoming workpackages.

In the extensive selection process it was tried to get an as diverse picture of the rural European landscape as possible. The result was a mixture of regions that pictures coastal to mountaineous regions, intensive and extensive agricultural structures, from regions that are more strongly influenced by urban agglomerations to far-off regions. Map 1 pictures the selected regions on the European territory.

Map 1 Location of the case study regions



Source: ÖIR based on EuroGeographics 2001 for the administrative boundaries

All regions were supposed to be NUTS 3 statistical regions, the Spanish and the Italian region also being NUTS 2 regions at the same time. Table 1 gives an overview on regions and NUTS codes of the selected regions.

Table 1 Overview on the case study regions

Country	Region	NUTS 3 code	NUTS 2 code
Norway	Hedmark	NO021	-
United Kingdom	West Sussex	UKJ24	-
France	Savoie	FR717	-
Germany	Barnim	DE412	-
Poland	Chelmsko-zamojski	PL312	-
Spain	Murcia	ES620	ES62
Romania	Timiș	RO424	-
Austria	Lungau	AT321	-
Italy	Bolzano-Bozen	ITD10	ITD1
Hungary	Bács-Kiskun	HU331	-
Ireland	South West (IE)	IE025	-

Savoie, Bolzano-Bozen and Lungau are Alpine regions. French *département* **Savoie**, located in the Western Alps, is situated not far away from the Rhône Valley, one of France's major urbanised regions. The Italian autonomous region of **Bolzano-Bozen** is a part of the South-Eastern Alps and lies along one of Europe's major freight transit routes, the Brenner corridor between Munich and Verona. **Lungau**, part of Austrian *Bundesland* Salzburg, on the contrary, is characterised inner Alpine periphery and mountainous, although profiting from the *Tauern* motorway.

West Sussex, Murcia and South-West Ireland are coastal regions. English **West Sussex** can be characterised by being located in the outermost influence ring around Europe's largest urban area, Greater London. **Murcia** is an Autonomous Region at the Spanish Mediterranean coast, also a popular tourism destination and known for large-scale, export-orientated vegetable and fruit growing. **South-West Ireland** is one of the westernmost European areas at the Atlantic coast.

Hedmark is a Scandinavian region in the broader northern hinterland of Norway's capital Oslo. **Barnim** is a *Landkreis* in the German province of Brandenburg, adjacent to the capital city Berlin, which used to be part of the German Democratic Republic before 1990.

Three regions are situated in New Member States. **Chelmsko-zamojski** is part of the Polish *Województwo* Lubin and is located at the Eastern border of the European Union, close to Ukraine and Belarus. Hungarian *megye* **Bács-Kiskun** is placed between the capital Budapest and the southern Hungarian-Serbian border, close to **Timiș**, the most Western province of Romania, the most recent EU member of all case study regions.

2 BASIC INFORMATION ABOUT THE CASE STUDY REGIONS

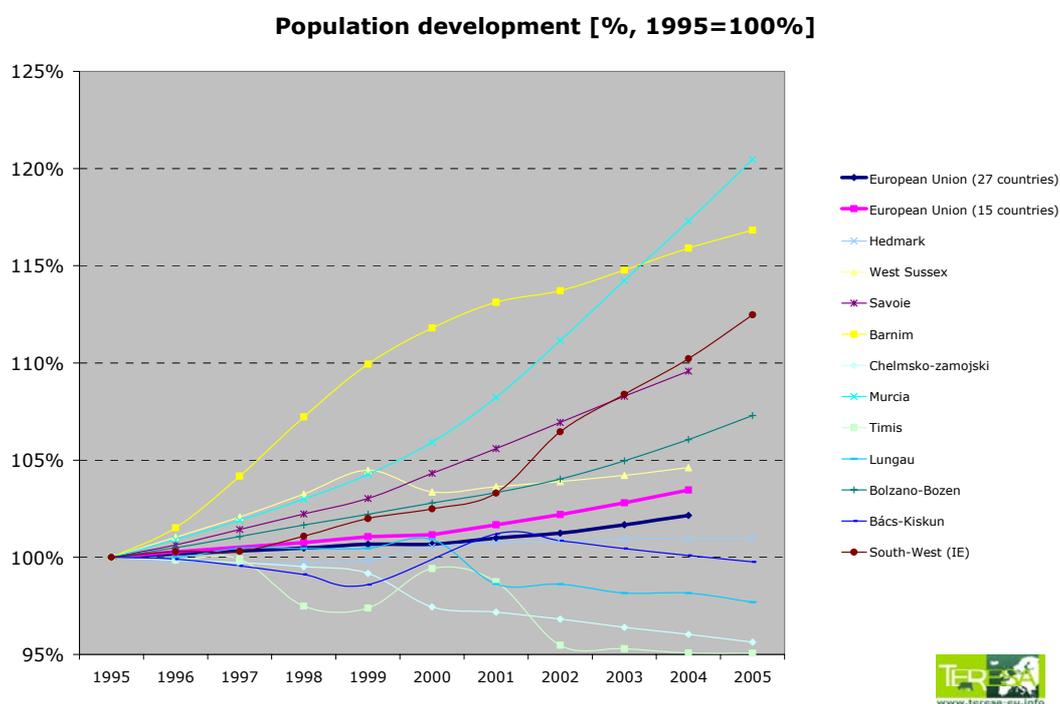
2.1 Statistical data

This section of indicators serves as a first rough comparison of the eleven regions. It shall provide a reader friendly and vivid impression of the regions selected going beyond the only one-dimensional first data that was presented during the case study selection process. (See deliverable D.2.1 "LIST OF REGIONS ANALYSED".)

Population

When it comes to **population development**, we already can picture a very diverse development as can be seen in Figure 1. Three of the regions significantly lost inhabitants between 1995 and 2005, Romanian Timiș, Polish Chelmsko-zamojski and Austrian Lungau, while Spanish Murcia, German Barnim, South-West Ireland and French Savoie all registered population increase noticeably above the European average of around 3% during the last 10 years. The other case study regions are more or less around the European average values.

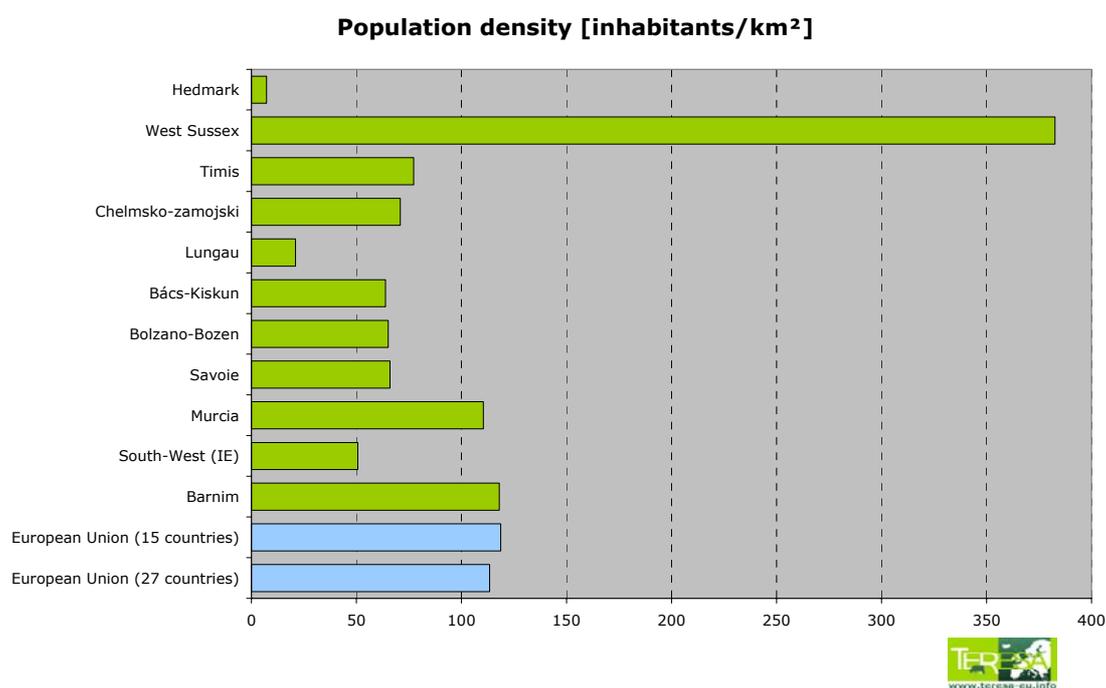
Figure 1 Population development, 1995-2005



Source: Eurostat regional statistics (missing values interpolated)

Looking at **population density** in Figure 2 (data from 2003-2004 according to availability), West Sussex is ahead by far with nearly 400 inhabitants per km², which is extremely high for "rural" standards. It is being followed with some distance by Barnim and Murcia which are pretty much in the European average over all regions rural and urban. Far off are the more peripheral regions, the northern Hedmark and the inner Alpine Lungau. All other regions in between are considerably below the European average, already a sign of "ruralness" if measured by population density.

Figure 2 Population density, 2003/2005



Source: Eurostat regional statistics (*Data from 2003-2005 used according to availability*)

Urbanisation

So, the most densely populated areas have also the most dynamic population increase (bar South-West Ireland), the sparsely populated Lungau and Hedmark suffer from population decrease as do Timiș and Chelmsko-zamojski, though they show a comparatively high density.

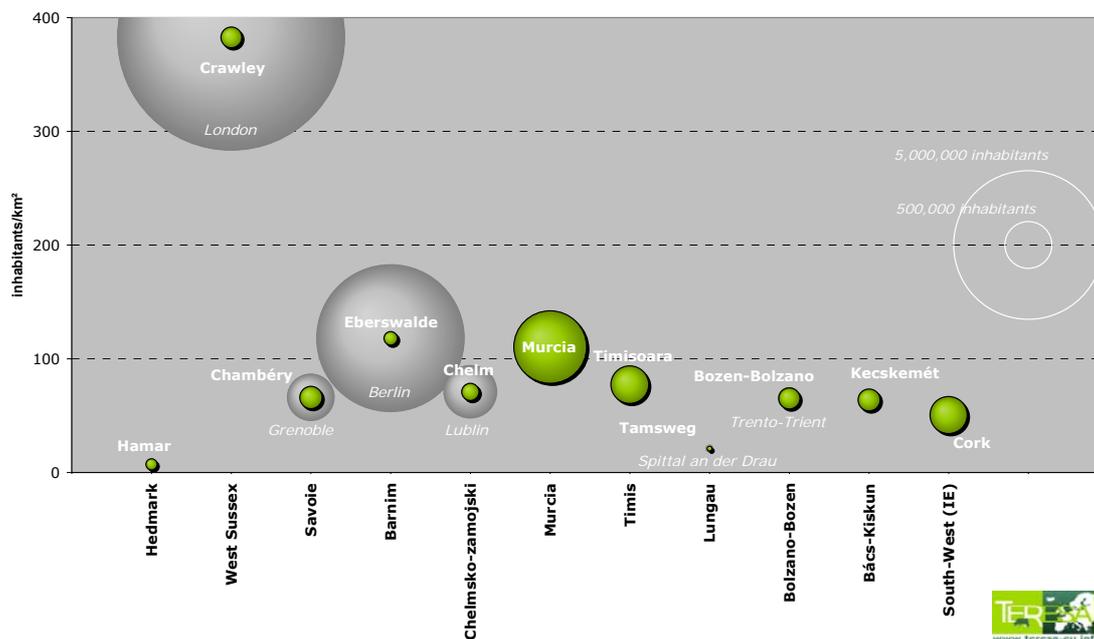
The major **urban agglomerations** in the case study regions are Murcia city (1 mio+ inhabitants), Timișoara and Cork in Ireland (both about 300,000 inhabitants). All other regions do not have cities much larger than 100,000 inhabitants. However, as major urban cores could be located just outside the regions' borders, in Table 2 the largest agglomerations that can be reached in 1 hour's driving time are shown. Figure 3 pictures all these agglomerations and puts them in a context to the population density from above.

Table 2 Largest agglomerations in the case study regions and within 1 hour driving time

country	case study region	largest agglomeration in the region	inhabitants	largest agglomeration within 1 hour ^{a)}	inhabitants
United Kingdom	West Sussex	Crawley	99,900	London	11,624,807
Germany	Barnim	Eberswalde	41,787	Berlin	4,935,524
Spain	Murcia	Murcia	1,190,378	-	-
Poland	Chelmsko-zamojski	Chelm	68,160	Lublin	651,578
France	Savoie	Chambéry	113,457	Grenoble	514,559
Romania	Timiș	Timișoara	318,807	-	-
Ireland	South-West	Cork	311,479	-	-
Hungary	Bács-Kiskun	Kecskemét	109,847	-	-
Italy	Bolzano-Bozen	Bozen-Bolzano	100,562	Trento-Trient	112,142
Norway	Hedmark	Hamar	29,077	-	-
Austria	Lungau	Tamsweg	5,830	Spittal a. d. Drau	15,952

^{a)} driving time from the region's main city; calculated with maps.google.com

Source: case studies, Eurostat Urban Audit

Figure 3 Largest agglomerations in the case study regions and within 1 hour driving time opposed to population density (inh./km²)

(Green spheres: largest agglomerations inside the region, names in bold letters; grey spheres: largest agglomerations within 1 hour driving time, names in italic letters. Sphere areas correspond to population numbers)

Source: case studies, Eurostat Urban Audit

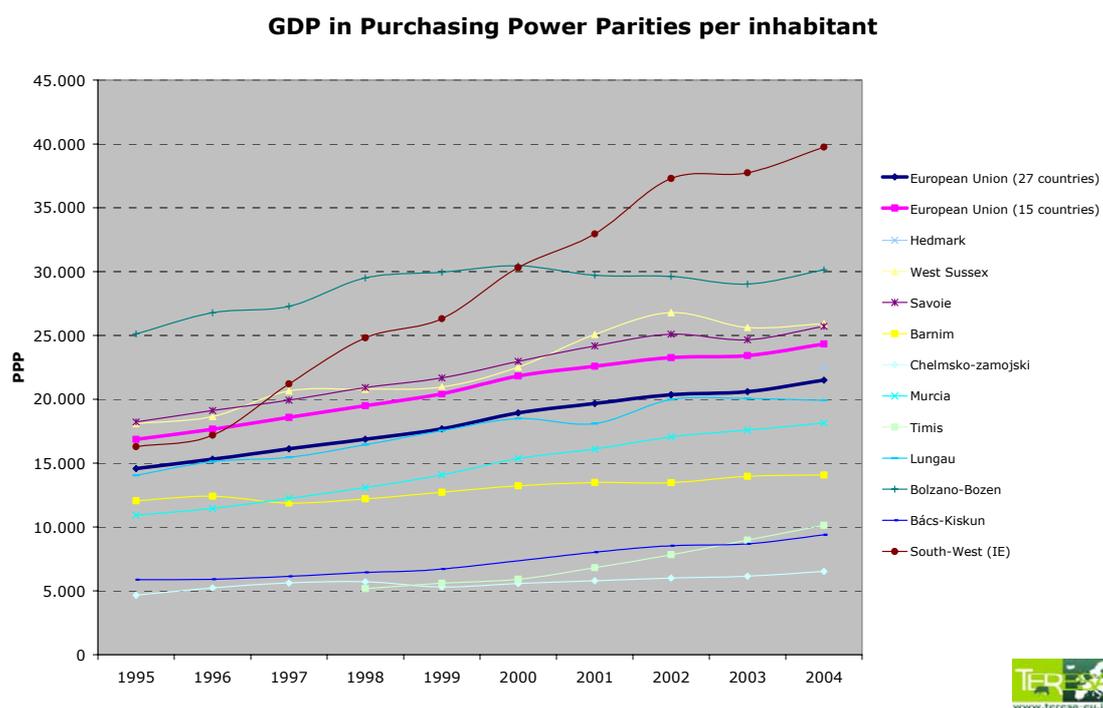
In most cases the population density depends on the size of the main agglomerations nearby, no matter if inside or outside the region. Nonetheless, the differences are not extreme. (Except from the case of West Sussex being in the influence of the global metropolis of London). But the correspondance of larger

agglomeration areas as London, Berlin and Murcia to the population density of surrounding areas allows at least some first conclusions: suburbanisation is supposed to take place in rural areas in the influence spheres by big agglomerations, bearing the danger of urban sprawl and land use conflicts between agriculture and building land.

Economy

South-West Ireland is the clear champion when comparing the **GDP development**, as it has more than doubled over the last 10 years in Power Purchasing Parities and is now in the amazing leading position of almost EUR 50,000 per head (Eurostat regional statistics). All other regions developed more or less as the EU average – albeit on very different levels, with Barnim a noteworthy exception with a mid-term stagnation from 1995 to 2004. The new Member State regions have a rather hogenous common level of below 10,000 PPP per year and inhabitant, while the Western European Member State regions (except for Ireland) showed a wide range between EUR 10,000 and EUR 30,000 in recent years.

Figure 4 GDP development per inhabitant, 1995-2004

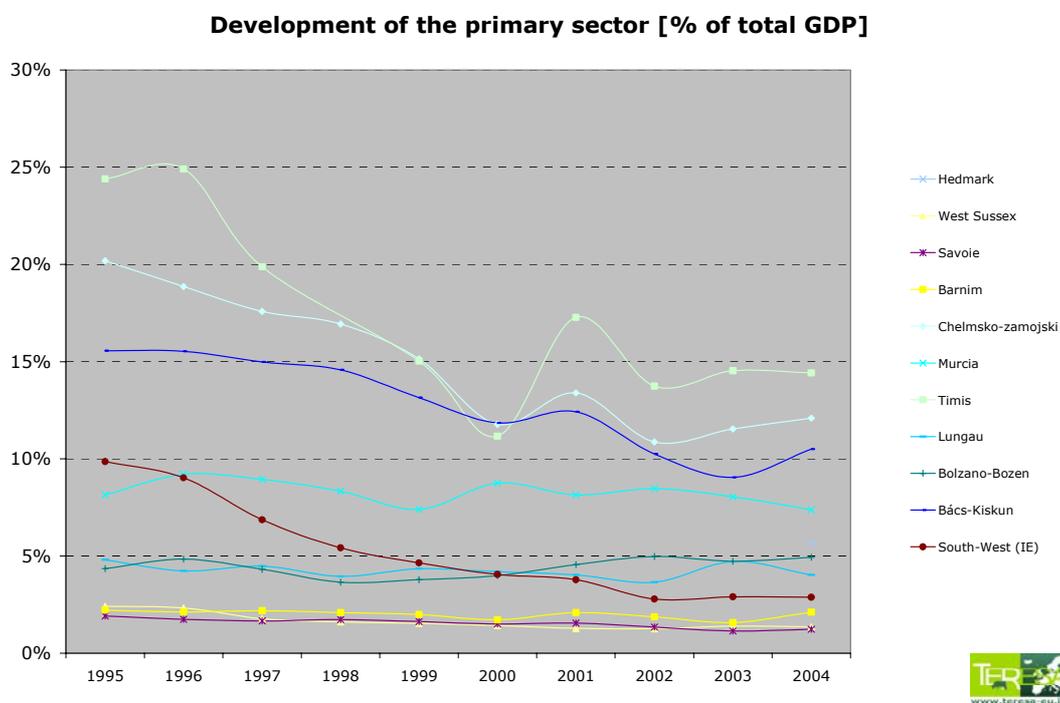


Source: Eurostat regional statistics (missing values interpolated)

Having a look at the economic sectors there are quite similar development in all regions. The importance of the agricultural sector decreases in all cases, the industry sector to a lesser extent and the service sector shows a rapidly growing significance. Still, this emanates from very different starting points and at very different levels which can all be seen in Figure 5, Figure 6 and Figure 7. Within most indicators, a certain East-West gradient can be observed.

There are some noteworthy outliers in the **primary sector**: The new Member States' regions' (Chelmsko-zamojski, Timiș, Bács-Kiskun) primary sectors declines much more rapidly, also starting from a much higher level. The exception to some extent is ex-GDR-region Barnim, where the large-scale collective farm system dissolved rapidly after the German reunion and was already on a low level from 1995 onwards. In Norway, the relatively high level of the farming sector was very stable which can be explained by the highly regulated quota and price system for Norwegian agricultural products and severe import restrictions, which eliminates competition¹. In the old Member States, the South-West-Irish farming sector was the clear *underdog* in this period with only a third of 1995 GDP share remaining after 10 years.

Figure 5 Development of the primary sector, 1995-2004

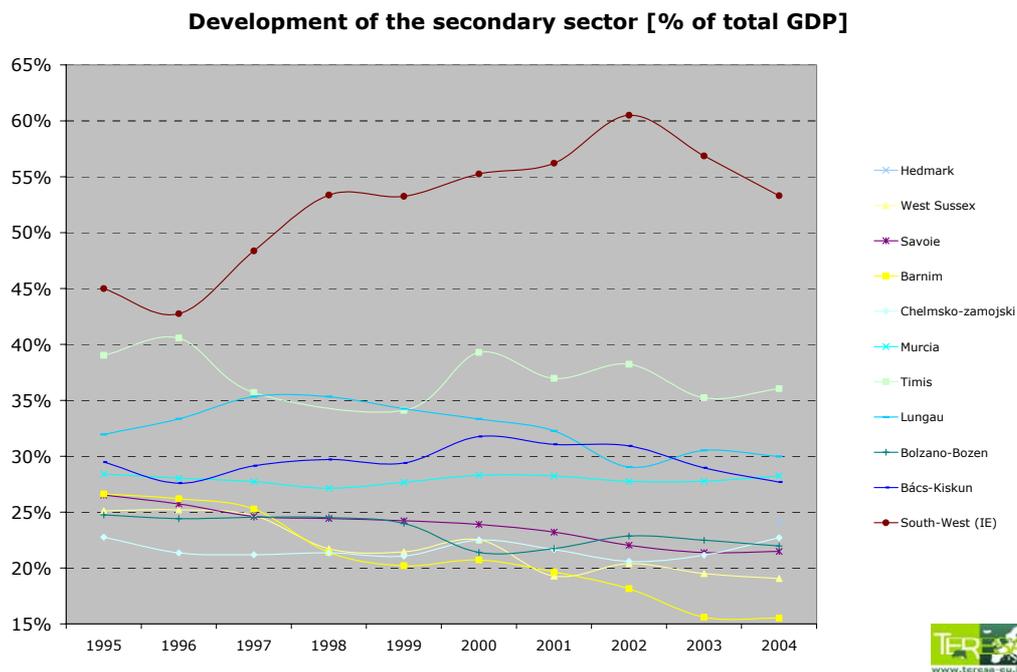


Source: Eurostat regional statistics (missing values interpolated)

¹ see Hedmark case study

In the **secondary sector** South-West Ireland has strengthened its position to the same extent as primary production has weakened: Cork City is at the heart of manufacturing in the south of Ireland holding an important harbour and a prospering pharmaceutical and high end computer industry. All other regions recorded a similar minor decline at a level of around 20%, with Timiș, Lungau, Murcia and Bács-Kiskun being ahead of the pack, and Barnim's industry heading towards economic insignificance. There is no clear evidence of the connection between higher urban influence and strengths of the industry sector, notably.

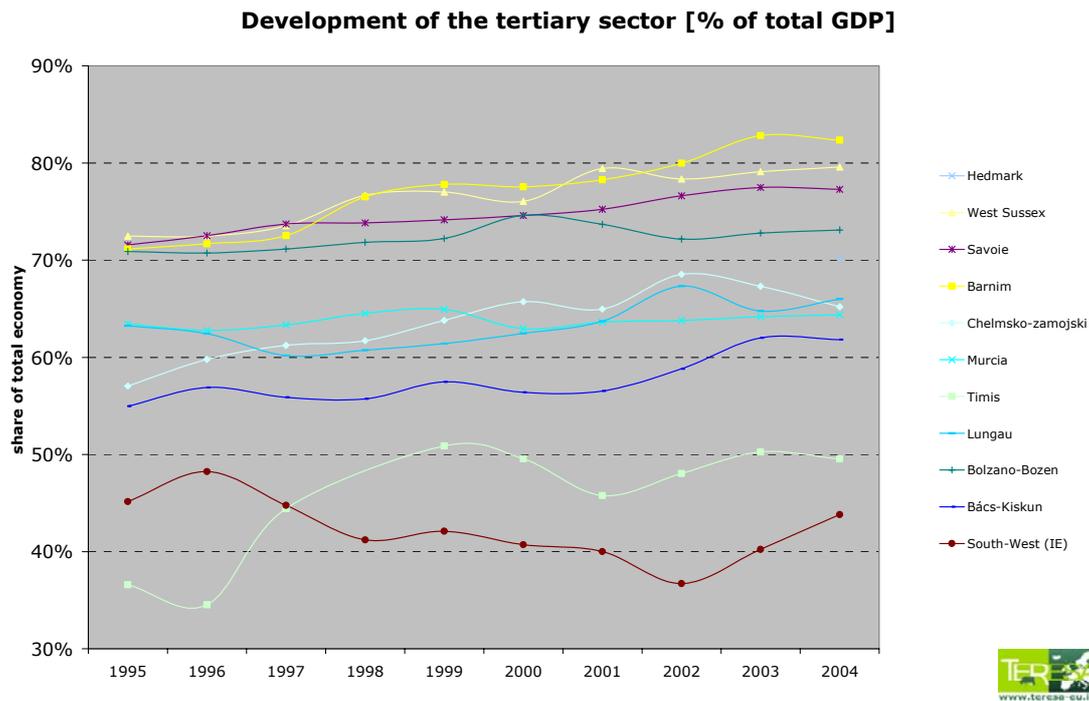
Figure 6 Development of the secondary sector, 1995-2004



Source: Eurostat regional statistics (missing values interpolated)

In the **tertiary sector** the picture is pretty much opposed to the primary sector: the new Member States' regions (together with Lungau) are trailing behind the Western states in the ever-ascending service sector with the exception of South-West Ireland, where the manufacturing sector is overshadowing other activities (see above).

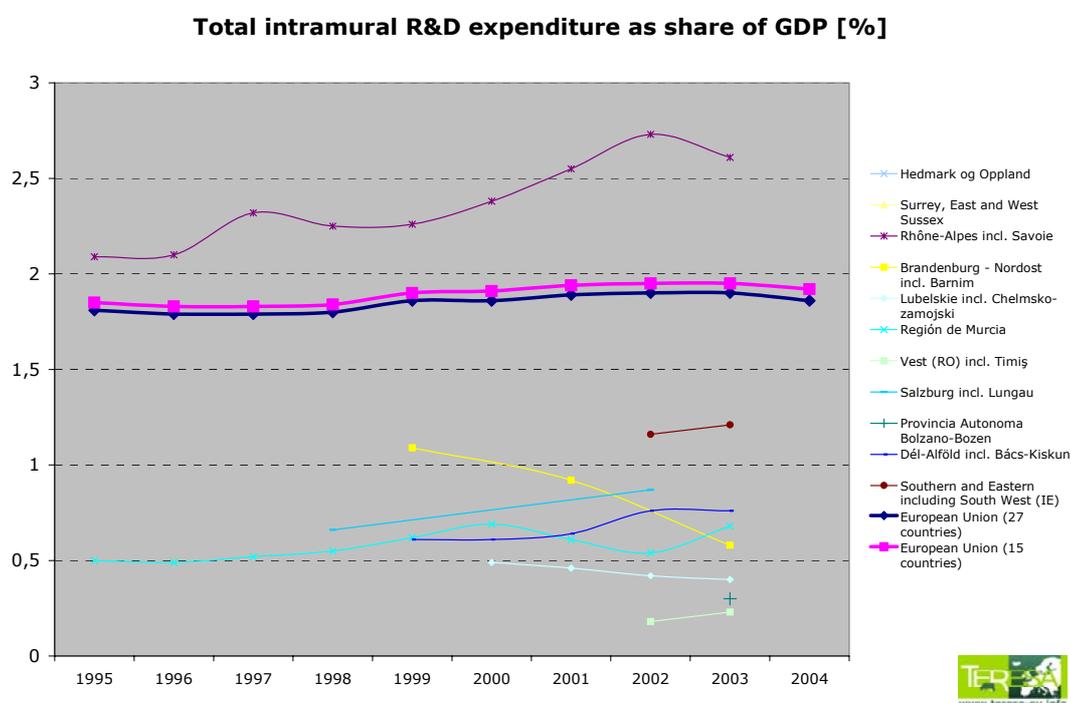
Figure 7 Development of the tertiary sector, 1995-2004



Source: Eurostat regional statistics (missing values interpolated)

To have a first look at the major driving forces for the Lisbon Process – innovation and economy of knowledge – the **R&D expenditure** of the NUTS 2 regions² the case studies are included were compared. Conclusions are not very significant as the NUTS 2 areas are partly extremely different from the case study regions and the influence of urban agglomerations on R&D expenditure is high – e.g. the Rhône-Alpes region includes a major urban agglomeration of Lyon (1.7 mio. Inhabitants) while Brandenburg Nordost – though on the outskirts of German capital Berlin – does only include minor urban centers; for London’s neighbouring NUTS 2 region “Surrey, East and West Sussex” there is no data at all.³ What can be said is that with the exception of the special French case all the under-average population density regions are als unter-average when it comes to R&D expenditure.

Figure 8 Total intramural R&D expenditure as share of GDP



Source: Eurostat regional statistics (NUTS 2!; missing values interpolated)

² no NUTS 3 data available

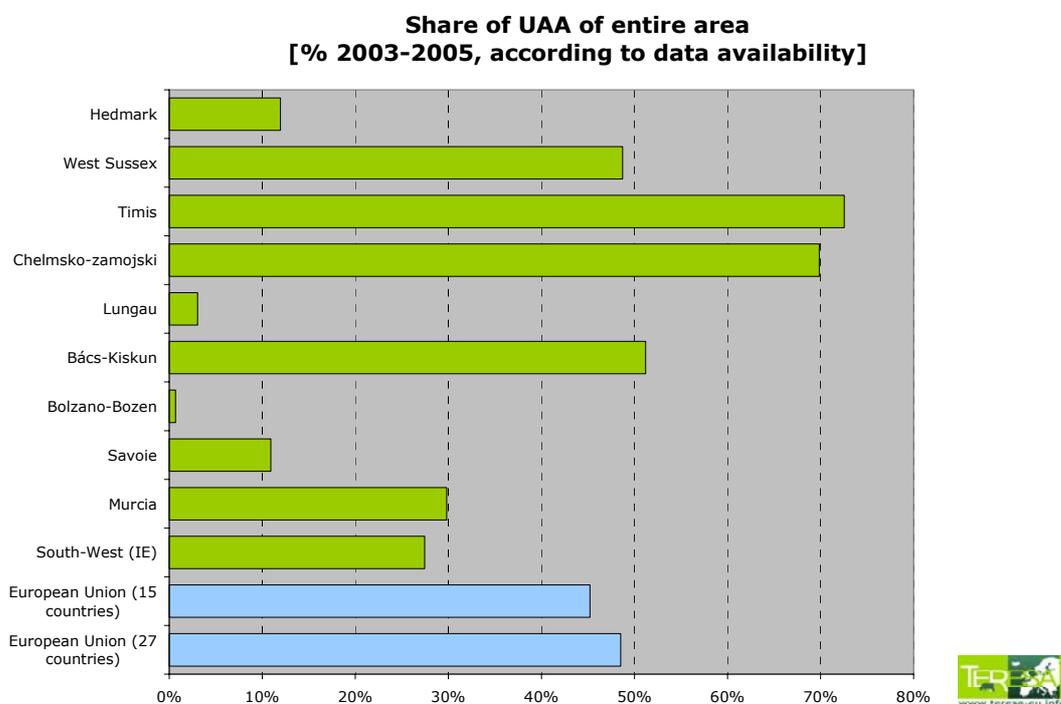
³ However, in 2002, total R&D expenditure in the South East region (NUTS1) was among the highest in the country (around 3% of total GDP; source: West Sussex case study).

Agriculture

As the selection process of case study regions was already intended to be very diverse as regards agriculture, the comparison of basic indicators is as well.

The topographically more planar regions in the new Member States together with the countries influenced by big cities as Sussex and Barnim⁴ have very high shares of **agricultural area** compared as a share of the whole region, as Figure 9 pictures. Savoie, Murcia, Lungau, Bozen-Bolzano and Hedmark as mountaineous regions have all under-average shares. Only South-West Ireland stands out a little bit underaverage taking into account its apt topography and over-average population numbers.

Figure 9 Share of utilisable agricultural area



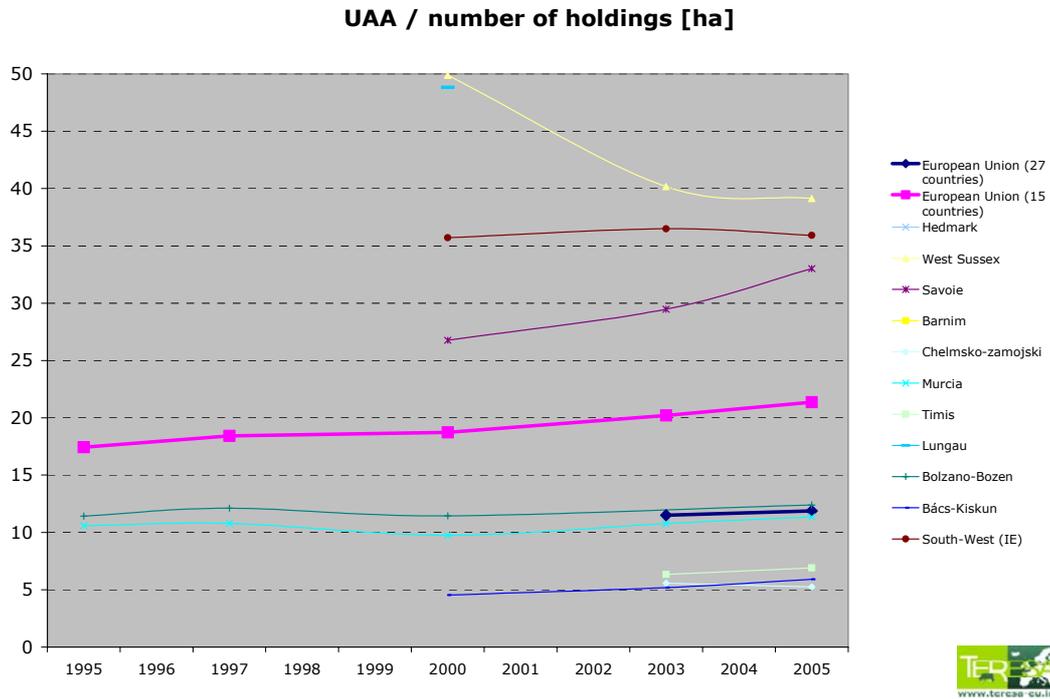
Source: Eurostat regional statistics

The **size of the average agricultural holdings** is also very diverse, with West Sussex, South-West Ireland and Savoie being noticeably over European average, the rest below (Figure 10). The **Least Favoured Area** eligible shares (Figure 11) give a hint at both the effort that has to be shouldered for agricultural activities as well as at the funding schemes of the European Union. Hedmark as a non-EU member, West Sussex and Timiș⁵ have all no LFA area, Alpine regions Bozen-Bolzano, Lungau and Savoie all (in Savoie's case nearly) 100%.

⁴ No NUTS 3 data for Barnim available, the NUTS 2 region Brandenburg Nordost has a share of around 78%, though (Eurostat).

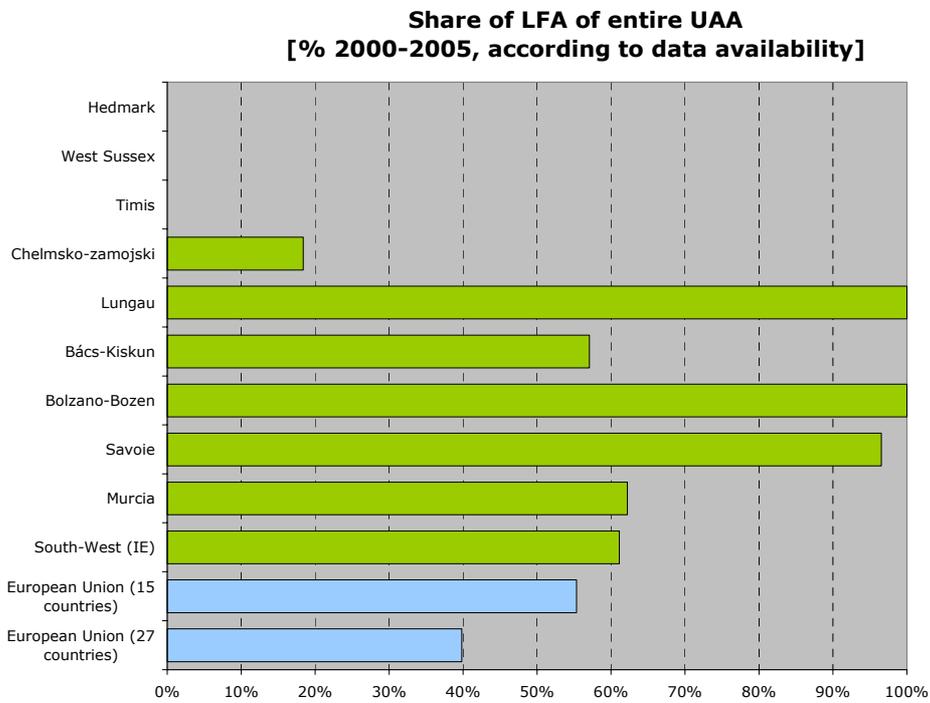
⁵ Not yet a member of the EU 2005; no data for Barnim available.

Figure 10 Average farm size



Source: Eurostat regional statistics

Figure 11 Share of Least Favored Areas

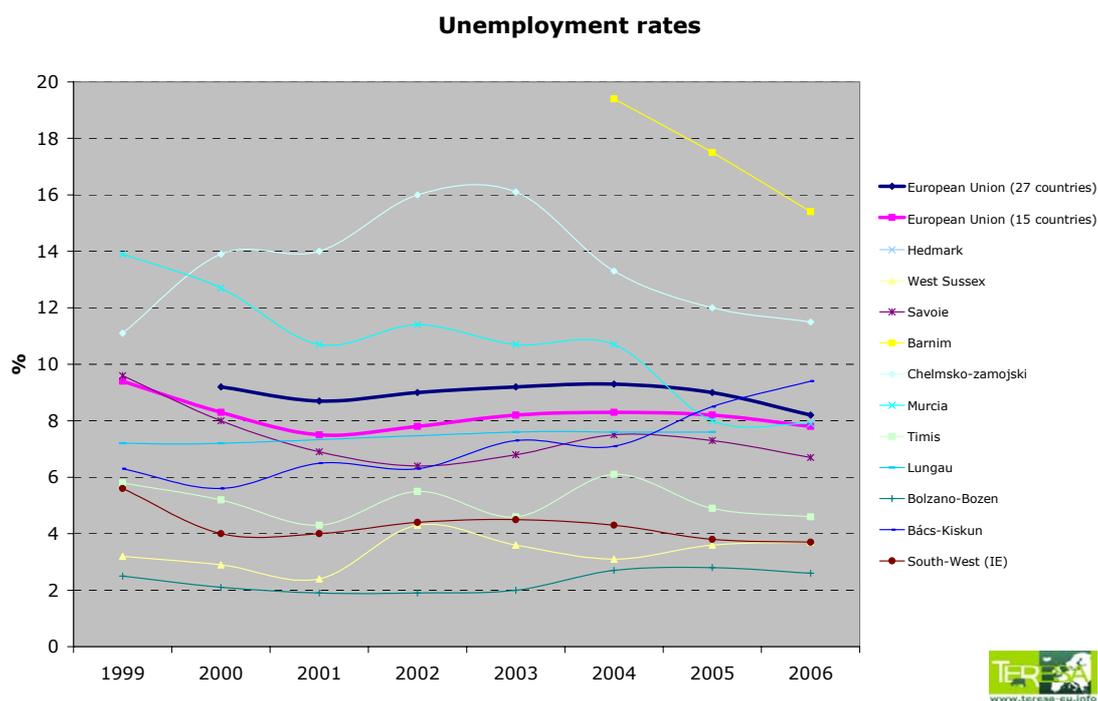


Source: Eurostat regional statistics

Employment

The development of unemployment rates as shown in Figure 12 provides a first glance on social issues. Most of the regions followed in their development the European average, with those that started on the highest level (Barnim, Chelmsko-zamojski and Murcia) had the strongest reduction on unemployed in a remarkably convergent development. Besides, there is no obvious east/west or new/old Member State divide to be spotted in these rural regions.

Figure 12 Unemployment rates 1999-2006 [%]



Source: Eurostat regional statistics, Lungau case study (missing values interpolated)

2.2 Policy intervention

Funding

Table 3 shows an overview on the relevant **European structural policy interventions** in the case study regions in recent years, which will be analysed in more detail in WP 3 and 4.

Table 3 Overview on European structural policy interventions

	Region										
	Hedmark	West Sussex	Savoie	Barnim	Chelmsko-zamojski	Murcia	Timiș	Lungau	Bolzano-Bozen	Bács-Kiskun	South West (IE)
EAGGF 2004-2006		X	X	X	X	X		X	X	X	X
EAGGF 2007-2013		X	X	X	X	X	X	X	X	X	X
Compensatory EAGGF paym. (LFA)			X	X	X	X		X	X	X	X
SAPARD/TRDI 2000-2006					X		X			X	
ERDF & ESF Objective 1 2000-2006				X	X ^(c)	X				X ^(c)	X ^(a)
ERDF & ESF Objective 2 2000-2006								X	X ^(b)		
ERDF & ESF Convergence 2007-2013				X	X	X ^(a)	X			X	
ERDF & ESF R. Competitiveness and Employment 2007-2013		X	X					X	X		X

a) phasing-out

b) partly

c) from 2004

Besides, there is als a vast variety of **national and regional funding** that has been identified in the case studies. Some regional characteristics, once again highly diverse over European space:

- **Hedmark** as all Norwegian rural regions are influenced by highly regulated subsidy regime which includes quotas, prices and import restrictions (which is of course possible because Norway is not a Member of the EU).
- **West Sussex** puts a strong emphasis on national environmental subsidies not only for soil, water and food quality, but also cultural landscape and structure of farms.
- In the former German Democratic Republic regions such as **Barnim** the national "Aufbau Ost" program will put 156 billion Euros in regional development up to 2019.

Legislative restrictions

Legislative restrictions are also very diverse and will be investigated in the forthcoming workpackages. To name but a few regional characteristics:

- Protection of nature and biodiversity plays a major role in **Savoie** as about 1/5 of the total department area are under NATURA 2000 protection besides a national park and several regional protected areas.
- In **Murcia** a special emphasis has to be put on soil protection and land use management as the pressure on agricultural land is very high due to tourism development and the strongly increasing demand for residential land. Also in Murcia, water management is a major issue because of the dry climate and the very high demand for irrigation of the regions' important fruit and vegetable plantations.
- In **(South-Western) Ireland** companies (as opposed to natural persons) are offered substantial tax relief and tax freedom in the establishment of new industries and job creation, which led to a boom of industries and services being established.

2.3 Supply chain networks

A number of supply chains has been analysed in more detail than on NUTS 3 level using extensive questionnaires in various interviews in each region: regularly three supply chains of existing products plus potential future alternatives for farmers to be identified, if yet existing or not. The analysis of "alternatives" as it was planned in the case study standardised design led to the following insights:

- In only a few regions there exist rational alternatives within agriculture (e.g. Barnim: switch from construction wood to energy wood, West Sussex: procession of milk to local cheese, Bacs-Kiskun: change from fodder maize to processed sweet corn).
- In some regions relevant alternatives are rather situated in loosely agriculture-related activities or outside the agricultural sector, as e.g. in tourism, giving up farming in favour of wage work etc. This can be grounded in the existing conditions as e.g. climate, soil quality, average gradient, or in the structure of agriculture, as e.g. high specialisation, farm size, economic strength of farms, etc. (e.g. Savoie, Murcia and Lungau which head towards tourism and Timiș and South-Western Ireland which are getting strongly industrialised).
- In some regions the interviewed actors could only imagine very marginal alternatives (as minor meliorations in the production process) or no alternatives to the existing production structure at all (marginal alternatives in Lungau, Bozen-Bolzano, Murcia, Hedmark, no alternatives in South-Western Ireland, Timiș).
- This results partly in switches in the typology of the supply chains (see D 2.2 STANDARDISED DESIGN FOR THE CASE STUDIES chapter 2.3.1.1; e.g. a switch from conventional apple production to organic apple production in

Bozen-Bolzano, from raw lettuce to processed packaged lettuce in Murcia or from raw milk to local cheese specialities in West Sussex).

Thus, alternative agricultural production still seems to be relevant but rather for niche actors than for the majority of rural agriculture. The major shifts – if there are any at all – will head towards a more diversified rural economy. If there are not yet any major developments in certain regions a future rural policy – main target of TERESA investigation – will of course have to deal with that.

The supply chain questionnaires with lots of ratio and ordinal scale information plus qualitative details also serve as a basis for the forthcoming workpackages. Table 4 gives an overview on the supply chains.

Table 4 Supply chains analysed

Region	chain 1	alternative?	chain 2	alternative?	chain 3	alternative?
Hedmark	UHT milk	fresh milk	Synnøve cheese			
West Sussex	wheat	oilseed rape	Milk	unique cheese	lettuce	processed lettuce
Savoie	Beaufort cheese	milk	goat cheese			
Barnim	Eberswalder processed meat	organic processed meat	Borodwin milk	milk standard	wood	energy wood
Chelmsko-zamojski	milk		rapeseed		hop	
Murcia	pork	unique labelled pork	tomatoes	unique tomatoes	lettuce	processed lettuce
Timiș	pork		cereals		milk	
Lungau	Milk		wood	energy wood	schnapps	
Bozen-Bolzano	wine		apples	organic apples	Speck (bacon)	
Bacs-Kiskun	sunflower oil		maize fodder	sweet corn	pig meat	
South West (IE)	export butter		beef		mussels	

2.4 Social networks

In all case study regions questionnaires have been completed to receive some standardised information on rural networks of administration, representations of interests, lobbies, economic groups of interest etc.. This information will be used in the forthcoming workpackages – especially Agent-based modelling WP 3 – to picture relations. The standardised information can be translated into a network matrix in each region; Table 5 shows the example of German region Barnim.

Table 5 Actor’s matrix, example Barnim

Barnim		relation to																		
 www.teresa-eu.info 2: strong cooperative relation 1: light cooperative relation 0: no relevant relation -1: light controversial relation -2: strong controversial relation		Ministry for Rural Development, Environment and Consumer Protection	Biosphärenreservat Schorfheide-Chorin	Fachhochschule Eberswalde	Regionalpark Barnimer Feldmark	Barum 111	Netzwerk Metall	Department for Agriculture	Forstamt Eberswalde	WITO Wirtschafts- und Tourismusentwicklungsgesellschaft mbH	local councils	local administration	Association for organic agriculture Berlin Brandenburg	Naturpark Barnim	Buckow e.V.	gesukom e.V. – Netzwerk Gesundheit und Kommunikation	Farmers' association	Eberswalder Informationszentrum	Terra Naturkost	DEMETER association
relation from																				
public outside	Ministry for Rural Development, Environment and Consumer Protection	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
public inside	Biosphärenreservat Schorfheide-Chorin	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
	Fachhochschule Eberswalde	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
	Regionalpark Barnimer Feldmark	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
	Barum 111	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Netzwerk Metall	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Department for Agriculture	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Forstamt Eberswalde	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	WITO Wirtschafts- und Tourismusentwicklungsgesellschaft mbH	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0
	local councils	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
local administration	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
representation of interest outside	Association for organic agriculture Berlin Brandenburg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
representation of interest inside	Naturpark Barnim	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
	Buckow e.V.	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	gesukom e.V. – Netzwerk Gesundheit und Kommunikation e.V.	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
	Farmers' association	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
	Eberswalder Informationszentrum Holzenergie E.I.C.H.E	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
private outside	Terra Naturkost	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	DEMETER association	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
private inside	Regional managements (RegionAktiv, ILE, LEADER AG Barnim)	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	Private forest owner association	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0
	Ökodorf Brodowin	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	Biocompany	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Wald-Solar-Heim	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	local farmers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	local companies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Source: case study Barnim

Generally, the networks in the case study regions are widely ramified and hard to be judged for people from outside, although there similar functions usually get fulfilled by similar actors.

PART B

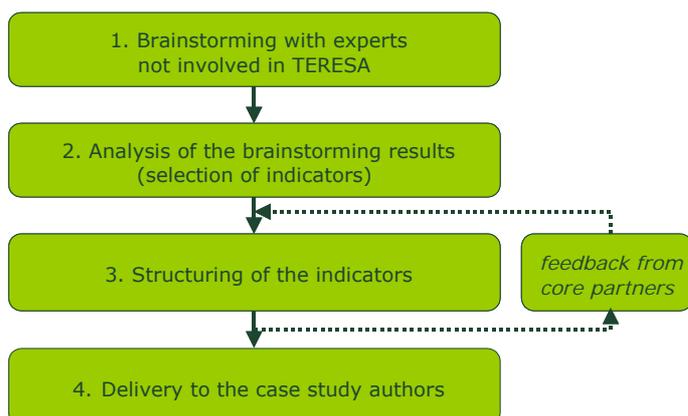
METHODOLOGY

1 PROCESS OF THE CASE STUDY SELECTION

The selection of the regions to be analysed has been done along the following steps:

1. In order to picture the large variety of rural regions in Europe and to secure that different regions represent the variety in Europe, a **criteria grid** was developed reflecting the existing different concepts and typologies of rural areas. It used 15 different indicators in the fields of environment, rural economy, agriculture and rural society. The relevant data for deciding upon the selected case study regions were set up in a workshop with external experts (Figure 13).
2. Alongside the set of criteria and indicators for each of the 11 case studies a profile ("**case study profile**") was developed, enabling to cover the variety of rural areas in Europe. The set of criteria and the proposed case study profile was forwarded to the each partner conducting a case study.

Figure 13 Creation of the criteria grid



Source: ÖIR

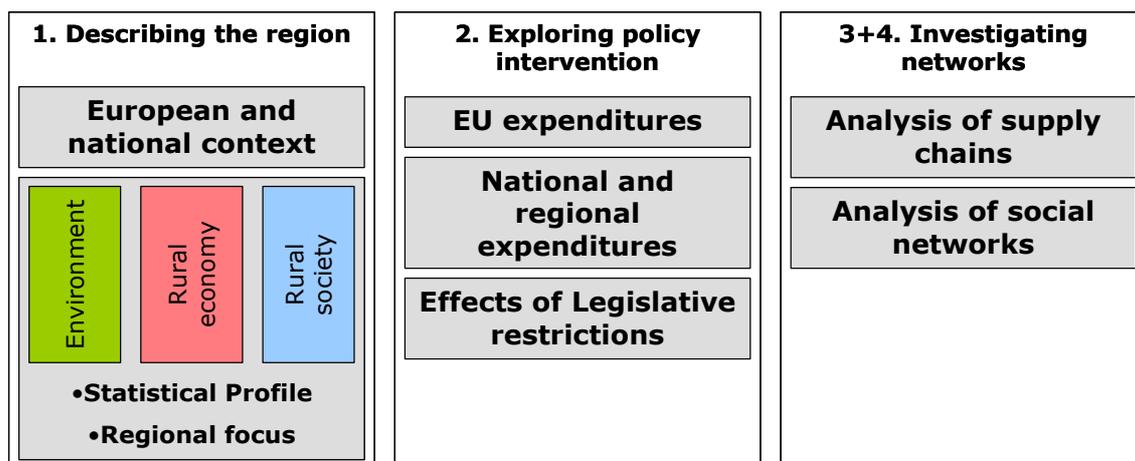
3. Each partner suggested a case study region that largely complied with the proposed profile. In order to picture the rural system, the region generally had to be a **NUTS 3** region.
4. Furthermore, each partner provided a short description of the case study region according to a pre-defined template. Additionally, partners explained, why some indicators did not comply with the suggested "case study profile".
5. Finally the partner conducting the case studies and the WP leader commonly agreed upon the region for the case studies.

The filled-in short templates of the 11 case study regions and a more detailed methodology description of the process of the case study selection is provided in deliverable "D 2.1 LIST OF REGIONS ANALYSED".

2 CASE STUDY REPORT TEMPLATE

The template for the case study report itself is provided in deliverable "D 2.2 STANDARDISED DESIGN FOR THE CASE STUDIES". It consists of the disposition structure of the report, listings of requirements for the contents and further suggestions. The three main topics are "Describing the region", "Exploring policy intervention" and "Investigating networks".

Figure 14 Case study structure



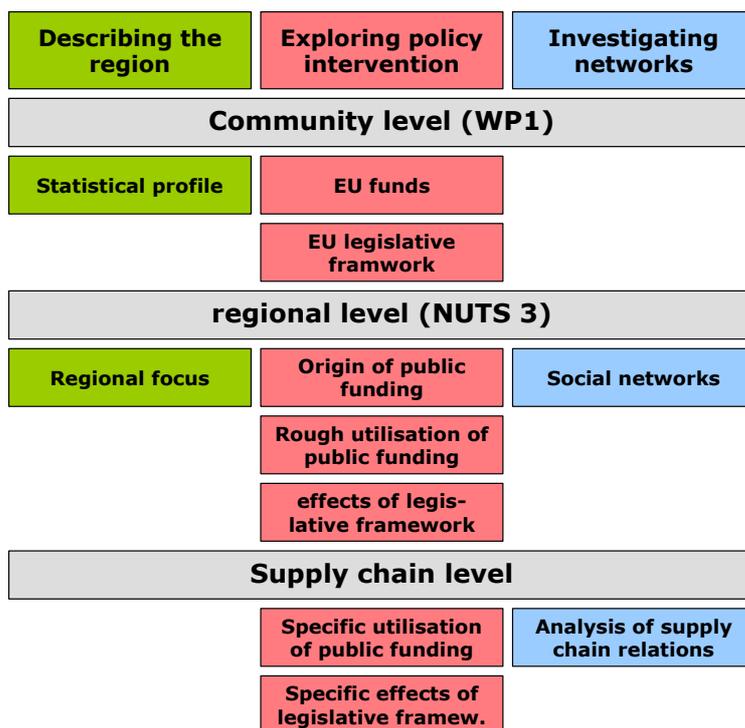
Source: ÖIR

The report is therefore divided into four chapters:

1. **Describing the region** summons and interprets statistical data from European and national sources together with a general description of the regions.
2. **Exploring policy intervention** includes on one hand the effects of subsidies from European and national level on the region and counts on the other hand legislative restrictions especially crucial for rural development locally.
3. **Investigating networks – supply chains** takes out three to six representative supply chains of rural production with a reference to the agricultural sector.
4. Finally, **Investigating social networks** describes the various local institutional actors and how they are linked with each other.

The case study template is based on different levels of analysis. EU information is provided by WP 1, the case studies themselves deal on one hand with interpretation of the effects of the EU framework, on the other hand regional specifics shall be analysed on regional (NUTS 3) level and in more depth on the level of various supply chains for specific regional products, aimed mainly at WP 4's Agent Based Modelling.

Figure 15 Analysis levels



Source: ÖIR

The analysis of the case studies combines various methods in order to get a holistic picture about the interrelations between agriculture, other parts of the economy, rural society and the environment. It combines methods as:

- Desk research;
- Investigation of European, national and regional databases;
- Semi structured interviews along an interview guide;
- Investigation of funding systems;
- Basics on social network analysis.

The detailed process of the template methodology can be taken from "D 2.2 STANDARDISED DESIGN FOR THE CASE STUDIES".

PART C

CASE STUDIES

1 NORWAY: HEDMARK

1.1 Describing the region

The region chosen for the Norwegian case study is Hedmark county. This is one of in total 19 Norwegian counties and is situated in the south-eastern part of the country, bordering to Sweden in the east.

Map 2 Map of Norway incl Svalbard



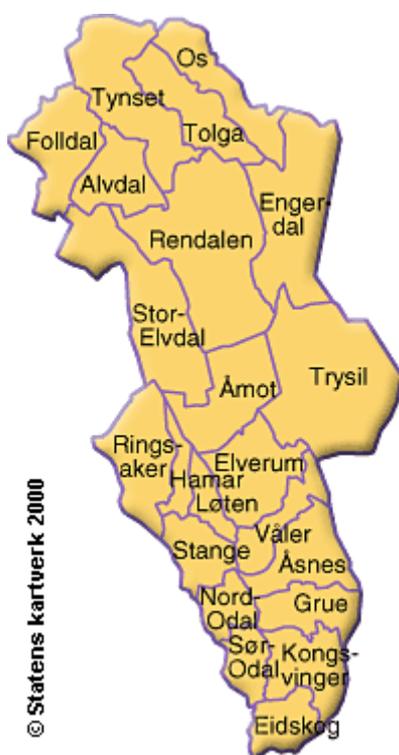
Source: Norwegian mapping and cadastre authority: norge.no

Hedmark is geographically the third largest county covering more than 8% of total area but only 4% of total population. The landscape is varied including mountain areas, vast forest areas and level agricultural areas. Within the county borders we find Norway's largest lake, Mjøsa, and longest river, Glomma, in addition to five national parks. The Euro Asian taiga has its starting point in the region and stretches east through Sweden, Finland and Russia all the way to the Pacific. The taiga is recognised by coniferous forests with a floor of heath and moss.

Hedmark is a nationally important region for agriculture and forestry. Agriculture is represented in all parts of the region and in all varieties but because of the vast forest resources, forestry is even more present. In at European context, both forestry and agricultural production is, however, quite moderate. Export has never been an ambition for the Norwegian agricultural production and little Norwegian timber is used in the paper processing industry but rather as timber for the building industry.

The region consists of 22 municipalities as shown in Map 3. Both the region as a whole and the municipalities are administrative units with county and municipal councils elected every fourth year. The regional elections fall between the national elections for parliament, which implies that elections, either regional or national, take place every second year in Norway.

Map 3 Municipalities of Hedmark county



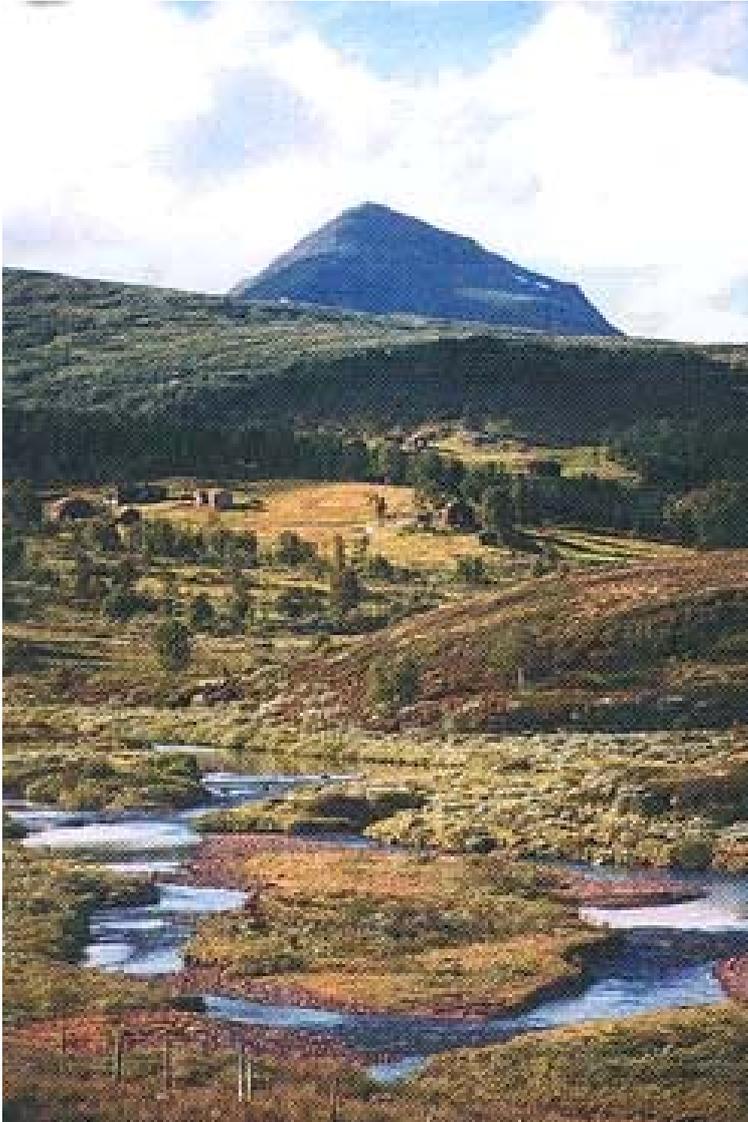
Source: Statistics Norway/Norwegian mapping and cadastre authority

There are three cities within the case region, all of them with less than 30,000 inhabitants. The cities are located in the municipalities of Hamar, Elverum and Kongsvinger. The other municipalities have smaller administrative centres. Most people live in the south-eastern part of the region. The north is mountainous and sparsely populated.

The mountains in Hedmark are for the most part not very steep and make excellent destinations for recreation and hiking. In this area there are many mountain farms involved in farm tourism and local food production. Traditional food consists to a

large part of dairy products, like clabbered milk, thin breads and cured meat, but also of game like elk and grouse, and freshwater fish like trout, zander, pike and powan. Figure 16 shows a view of the mountain plateau near Spellmovollen mountain farm in the municipality Os.

Figure 16 Spellmovollen, Os



Source: Norsk seterkultur/Spellmovollen

Figure 17 shows a view from Rena, the municipality centre of Åmot. There are 2,300 inhabitants in Åmot and almost half of them live in the centre area. The picture offers a glimpse of the vast forest areas in the region. Both in the forests and on the mountain plateaus there is a variety of game, but also predators like bear, wolves, glutton and lynx.

Figure 17 Scene from Rena, the municipality centre of Åmot



Source: Rena tourist office

There is evidence of settlements in the case region as far back as the Stone Age and the region prospered during the Viking era. There are several sites of rock carvings and many traces of the Viking settlements around the lake Mjøsa and in the south-western part of the region and in Hamar, the regional centre, there is a cultural heritage site of one of the earliest stone cathedrals and medieval farms in combination with modern architecture.

In the time when waterways offered the most efficient means of transportation, both Mjøsa and Glomma were important for the region's prosperity. Timber was easily accessible and in the southern parts, the land was easy to cultivate.

The position of agriculture and forestry has always been strong in the region and since industrialisation also manufacturing industries of all varieties has been present. The last decades, the region does, however, experience many of the same challenges as less central regions in Norway. Manufacturing industries are shut down or moved abroad, employment in agriculture diminishes, important public workplaces, like military defence, disappear and population decline in many parts of

the region. The region as a whole still has positive net migration, but only because of immigration from abroad.

In 1994, Hedmark and Oppland together hosted the Winter Olympic Games. This event increased economic activity, particularly during the construction period and to some degree in the years following the event. The long term effects are more questionable. Even so, tourism is a growing industry as it is in many other regions. Skiing resorts experience the strongest increase of both domestic and foreign tourist, but many areas in the region are also popular for hiking, game and fishing.

The regional centre, Hamar, is the most densely populated area. This is also the location of many of the more modern, and growing, service industries. There is a potent knowledge based sector and generally a varied economic activity. There is also a university college which, in addition to other academic disciplines, offer degrees in several agricultural, forestry and natural environment studies. Because of the ageing population structure, health and social services will probably be the strongest growing sector in years to come.

The regional differences in Norway are almost non-existent when we consider factors such as household income and social welfare. Also unemployment rates are low and relatively equal in all parts of the country. The most evident differences are thus the variety of services available and accordingly the variety of the labour market. When we consider socio-economic factors, the case region does not differ from any other part of the country but because of strong centralisation in later years, depopulation is becoming a challenge in many smaller communities.

1.1.1 European and national context of the region

The highest political body in the region is the County Council governed as a parliamentary system with a County Government and a County Mayor. The County Government has four members and is led by the County Councillor. After the election in 2007, the county is led by a multi-party government with representatives from The Labour Party, The Socialist Left Party and The Centre Party. The Labour Party holds the post of County Councillor and The Centre Party the post of County Mayor.

The most important responsibilities delegated to the County Councils are Regional and industry development including interregional and international cooperation, upper secondary education and regional transport and communication. In addition, the County Councils are concerned with cultural matters, cultural heritage, and public health.

The municipalities are led by Municipal Councils. Most of the public service provision is delegated to the municipalities. The two most resource demanding responsibilities are nursing and care (34% of net expenses) and primary and secondary schooling (31% of net expenses). Other responsibilities are

administration, social welfare, community health service, culture, kindergartens, child welfare, local transport and communication, and fire and disaster preparedness.

The National Government is represented by the County Governor. The County Governor is appointed by the National Government for a fixed period of time. The most important responsibilities are to ensure that local and regional politics are practised pursuant to the national body of laws. The County Governor also holds a superior responsibility for environmental issues and to implement national rural and agricultural policy.

The national state is also present through a number of government services like police, hospitals, Court of Appeal, conciliation boards, social security offices, employment agencies etc.

The administrative centre of the case region is Hamar. The city of Hamar has 28,000 inhabitants and is the largest of the three cities in the region. Both the County Council and the County Governor is located in Hamar. The two other cities are Elverum with 19,000 inhabitants and Kongsvinger with 17,000 inhabitants.

There is a close cooperation between the two inland counties Hedmark and Oppland. The lake Mjøsa lies between the southern part of the counties and the cities around Mjøsa are closely connected. In Hedmark this city area consists of Hamar and the surrounding area and in Oppland of the cities Lillehammer and Gjøvik.

The southern part of the case region is well within commuting distance to the Oslo region while the northern part is closer to Trondheim. Most of the region itself and the surrounding areas are scarcely populated. There are, however, good communications by train to both Oslo and Trondheim, and also to Stockholm. The cities in the case region are also within a hour's travel distance from the national airport.

The County Council is deeply concerned with matters of cultural heritage. This is a vast responsibility covering cultural heritage from different periods even from 8,000 B.C., but also natural resources, water resources, mining history and several cultural sites of national importance. Another aspect of the cultural heritage work is the responsibility to restore cultural impacts and to uphold the historical ethnicity in the region. Part of the region is heavily influenced by the Finnish immigration in the 17th century.

The nationally most important cultural heritage sites in the region are medieval farms, the excavations of the medieval town in Hamar, fortifications from the 17th and 18th centuries and Domkirkeodden in Hamar. Figure 18 shows a piece of the medieval stone cathedral at Domkirkeodden. The cathedral was a part of a prosperous monastery but decayed and has been in ruins for centuries before restoration. Many houses and farm buildings in the area is built on stone from the

ruins. The cathedral is restored as a ruin and one of Norway's most celebrated architects, Sverre Fehn, has built a glass cathedral around the ruins. The glass cathedral is in occasional use.

Figure 18 Hamardomen. Glass cathedral in Hamar



© Øistein Lia

1.1.2 Environment

1.1.2.1 Spatial structures

The spatial structure is described by indicators 01-07 in the indicator data sheet. The statistical profile data file shows available data for years 1993-2006. Heterogeneous agricultural areas is not an available variable in the Norwegian statistics.

Hedmark is a geographically large region covering 27,388 km² and is the third largest county in Norway (only smaller than Finnmark and Nordland). A large share of the area is sparsely populated and covered by either mountains or forests. Hedmark is one of the two Norwegian counties without shoreline and does consequently have an inland climate with strong but snowy winters and warm

summers. Because of its size and topography, there is also a marked regional division in agricultural production within the region.

Almost half of the total land area is covered by forests, mostly Norway spruce, that stretches through Sweden, Finland and Russia, and all the way to the Pacific. It is common to divide Hedmark into four geographic (and economic) regions that also represent different production regions in agriculture and forestry.

Nord-Østerdal consists of six municipalities in the north-western part of Hedmark. This region is sparsely populated (less than 3 people per km²) and is to a large part mountainous and/or covered by woods. The highest mountain in the region is *Rondaslottet*, 2,17 m above sea level. Part of the area in the north and west are protected national park areas. Forestry and agriculture is an important part of the regional economic base. Primary production employs between 14 and 24% of the workforce in the six municipalities in comparison with 7% at county level and 2.6% at national level. Forests and coarse fodder livestock production are the major production types.

Sør-Østerdal consists of the five municipalities Elverum, Trysil, Åmot, Stor-Elvdal, and Engerdal and is the largest region in Hedmark. The region borders to Sweden and is part of a large mountain and forest area with several national parks populated with both game and predatory animals. The third largest lake in Norway, Femunden, is situated in this region with three national parks along its shoreline. The primary sector is dominated by forestry and livestock production with cow milk as the most important produce. Agriculture is an important industry in most parts of the region and employs approximately 10% of the workforce except in the most densely populated municipality. There are conflicting interests between wildlife preservation and animal husbandry in this region. Farmers claim that predatory animals are a serious threat to grassing livestock.

Glåmdalen in the south is dominated by combination farms. Both forestry and arable farming are important. Potatoes is the most important produce and production in this region alone covers one third of national demand. Outside the region centre, Kongsvinger, population density is low and the landscape is dominated by forests and flat fields. There are excellent conditions for arable farming in the flat fields area due to the rich moraine soil.

The richest agricultural land is found in the area called **Hedmarken**. Most production types are well represented in this region and production is intensive and profitable. This region is dominant in production of vegetables and white meat, but also milk, other livestock production and arable farming are important. This is the most densely populated and central region in Hedmark. The moraine soil is rich and the flat fields have been intensively cultivated for centuries. The major city in Hedmark, Hamar, has 28,000 inhabitants and is located in this region at the shore of the lake Mjøsa which is Norway's largest lake and historically an important means of transportation. Approximately half of the population in Hedmark is located

in this, its geographically smallest region. Except in the most central areas, land use conflicts are not likely to be a major problem.

The agricultural sector is the most highly regulated sector in the economy. One implication of this is that agricultural land and property can not be traded freely. Farm properties are usually passed on from one generation to the next within the family by use of allodium rights. Most often there exists both obligation of residence and obligation of keeping up production. When farm properties are up for sale, both prices and terms for succession are regulated. Farm properties are thus traded at lower prices than the potential market price might have been. The same regulations are not present for small farm units less than 2 ha. Such properties may reach high market values given that there are no obligations of residence or production present, and if the property is located in popular recreational areas (like skiing resorts) or close to major cities. Generally, trade in farm properties is heavily regulated and there are no obvious regional differences in prices.

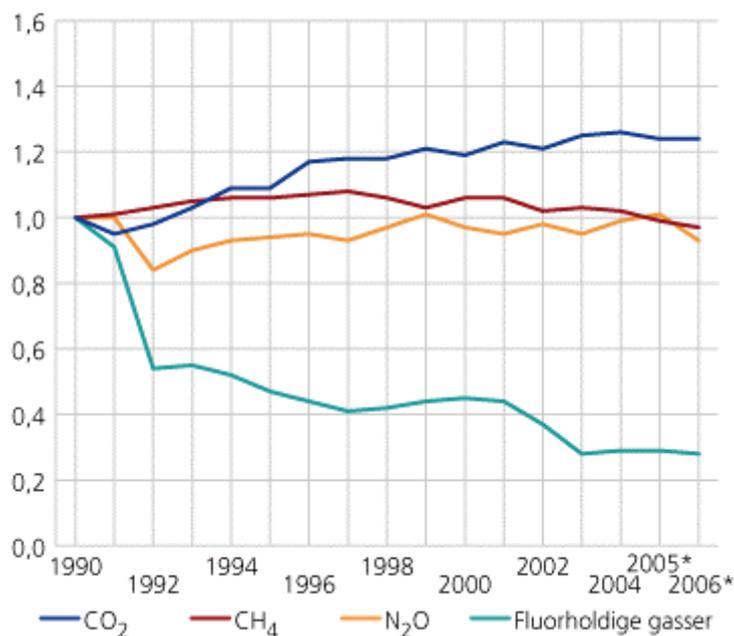
1.1.2.2 Environmental protection

The statistical profile of energy consumption is only reported in national figures. We have thus kept the data reported to Eurostat in order to ascertain comparability with data for the other case regions. Most years, Norway produces more electricity in water power plants than what is consumed during the year. In this respect, the nation's total energy consumption is based on renewable energy. Since the energy market was deregulated in 1991, Norway has been a member of the Nordic power market, Nord pool, and electricity, from renewable or non-renewable energy, floats across the national borders according to market prices and demand. A small and only marginally increasing share of the Norwegian electricity production (from renewable energy) comes from wind power and thermal power plants. Electricity produced in remote heating plants reached 2,500 GWh (1% of total energy consumption) in 2006 which is twice the level produced ten years earlier.

In addition to electricity, firewood is an important source of energy for heating in Norwegian households. Average national consumption was 300 kg wood per inhabitant in 2005 while in the case study region, which is a forest county, consumption was more than three times the national average.

Figure 19 shows that emissions of carbon dioxide is still increasing in Norway and is projected to increase further in near future while there has been a decrease in emissions of other greenhouse gases. Emissions has since 1995 been (approximately 5%) above the level agreed in the Kyoto protocol. The most important reason for the increase in CO₂-emissions is the increased activity in the petroleum sector including a new gasfield in the Barentz Sea (producing LNG) and a new gasworks at Kårstø (with estimated production of 3.5 TWh per annum).

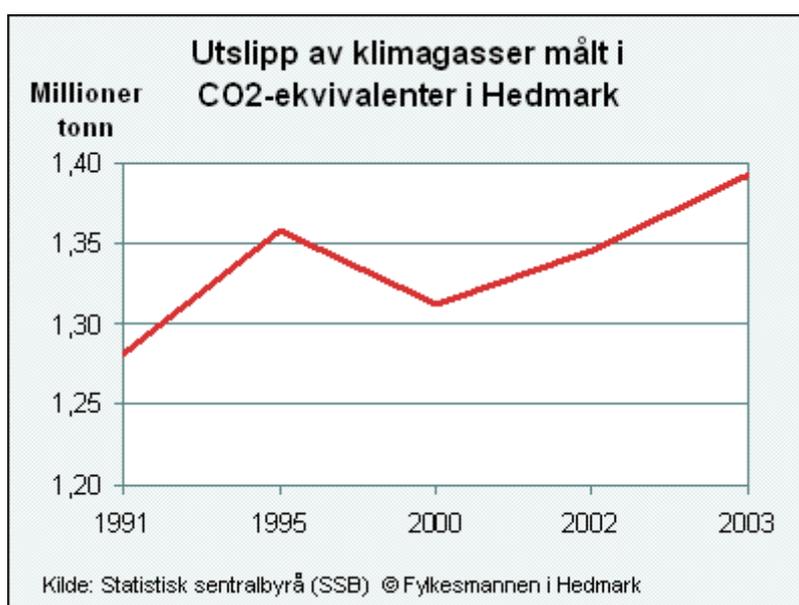
Figure 19 Emissions of greenhouse gases

Utslipp av klimagasser. 1990-2006*. Indeks 1990=1,0

Kilde: Utslippsregnskapet til Statistisk sentralbyrå og Statens forurensningstilsyn.

Source: Statistics Norway

Figure 20 shows that emissions are also increasing in the case study region. 80% of the greenhouse emissions are caused by carbon dioxide, but also methane (CH₄) and nitrous oxide (N₂O) are important sources. Regional measures to reduce emissions include increased appliance of heating pumps and bio energy, transport sector measures and measures for agriculture and waste disposal sites.

Figure 20 Emissions of greenhouse gases in Hedmark. Mio tons CO₂-equivalents

Kilde: Statistisk sentralbyrå (SSB) © Fylkesmannen i Hedmark

Source: The county governor in Hedmark/Statistics Norway

Norway does not participate in the NATURA 2000 programme and there are hence no data available for indicator 11. Nature, wild life and landscape preservation is, however, an important and extensive national policy area. There are a total of 36 national parks in Norway. In addition, as Norway is sparsely populated, there are vast areas of outfields, mountain areas, forests and coastline areas more or less uninhabited. Data for share of area under national park protection are obtained at NUTS 3 level. Legislation has been made more rigorous the last few years so the area under protection has increased. Five national parks are (partly) within the county borders and in 2005 approximately 10% of Hedmark was under national park protection. In addition to the national parks there are several smaller areas with weaker (or equally strong) protection of nature, wild life, waterways, and cultural landscape.

Agricultural intensity is defined as output divided by intermediate consumption. This information is available at NUTS 3 level. In Hedmark, output is approximately twice the value of intermediate consumption which implies that gross value added (GVA) is only marginally different from intermediate consumption.

The Government has an expressed policy goal of organic farming reaching a share of 15% of total agricultural production by 2015. This objective has released special support schemes for organic farming. According to statistics released from the county governor, organic farming has increased from 1% of UAA in 1997 to more than 4% in 2005. Of the 4,330 farm holdings in Hedmark, 249 are organic. Regional meat production include 2,600 cattle, 3,000 winter fed sheep and some hundred goats and hens which approximates 10% of national organic meat production.

1.1.2.3 Preconditions for agriculture

As a non Member State, the Norwegian less favoured and mountainous areas are not eligible for regional development support from the EAGGF fund. Only national support schemes are available. There exists no support schemes directed specifically towards less favoured, mountainous areas in Norway, but the areas are eligible for regional support and agricultural support if the prerequisite conditions are met. Approximately 44% of total land cover is mountainous area according to national definitions. When applying EU, OECD or UNEP definitions, almost the entire country is defined as mountain area. The differences in demarcation may be a result of different choices of regional level of analysis but often other criteria are added such as climatic conditions, steepness of slopes and accessibility for (agricultural) machinery.

Large parts of the case study region are relatively flat with fertile soil and agreeable climate by Norwegian standards. The south-western part is an important region for arable farming, but all types of agricultural production take place within the region.

The northern part of the region is the most pronounced mountainous area. Population density is here extremely low (approximately one person per km²) and

agriculture is an important base of the economy, employing approximately 25% of the workforce. Preconditions for agriculture are not particularly good when we consider topography and climate. Even so, the agricultural sector is diversified representing mountain dairy farming, sheep and goats farming, poultry farms, summer mountain pastures and fur farms. Organic food production and local food initiatives are also present. The region is famous for its production of mountain grown almond potatoes.

Table 6 shows temperature and precipitation at the observation point Rena, the geographic centre of the case study region. The average temperature during the year is 2 degrees Celsius with temperatures below zero in five winter months and above zero from April through October. Average temperature has been higher than normal in 2005 and 2006.

Table 6 Percipitation and temperature in Hedmark. Observations made in Rena (Haugedalen)

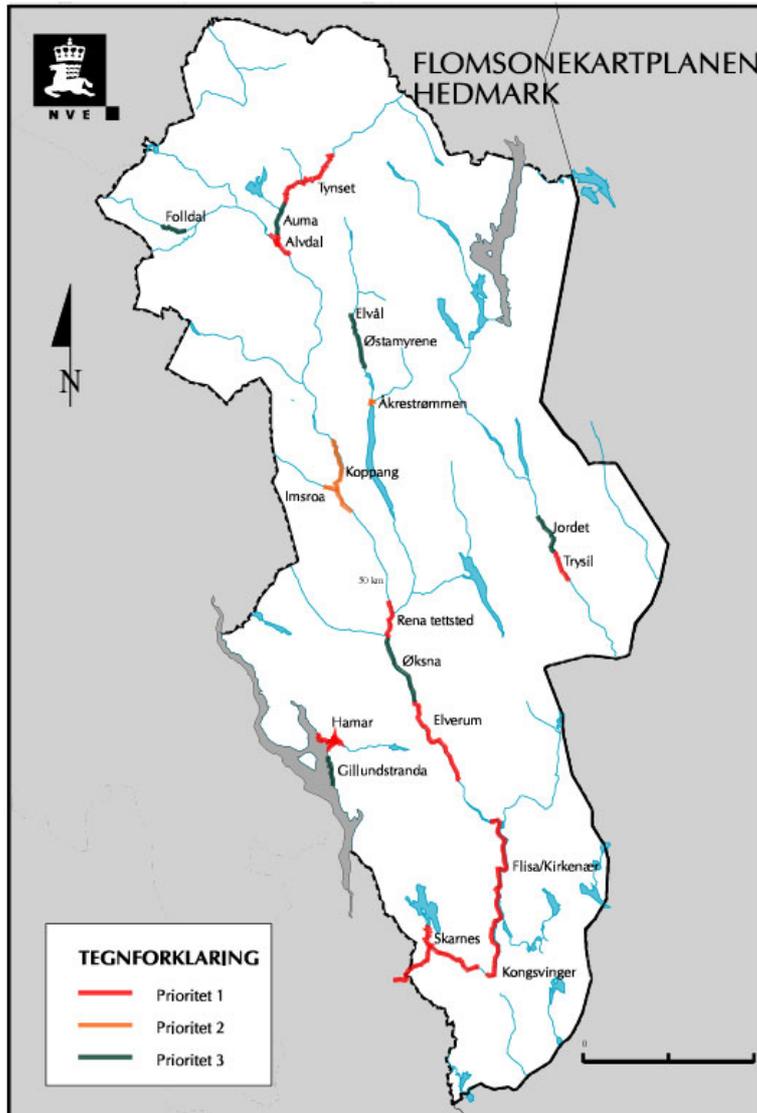
	Whole year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Precipitation in mm													
Normal 1961-1990	766	50	38	40	42	62	78	90	79	85	80	67	55
2006	919	44	52	32	57	96	42	72	95	91	159	118	62
2005	691	62	25	24	32	76	60	72	100	40	83	73	45
Temperature in Celsius													
Normal 1961-1990	1.9	-11.2	-9.6	-3.7	1.7	8.2	13.2	14.3	12.5	7.7	2.9	-4.3	-9.4
Average 2006	4.3	-6.3	-7.5	-7.7	2.5	8.4	14.9	17.7	15.5	12.2	5.3	-1	-2.1
Max. "	31.3	5.3	9.6	6.6	14.2	24.4	31.3	29.8	29.2	22.5	17.2	9.9	8.9
Min. "	-25	-16.3	-22.9	-25	-8.7	-5	-1.6	5.4	4.5	1.2	-8.4	-16	-12.6
Average 2005	4.1	-2.7	-5.5	-4.6	4.2	7.2	12.7	16.7	13.3	9.8	3.7	1.2	-7.1
Max. "	31.7	7.5	4.9	14.5	17	20	25.1	31.7	24.6	22.2	16.9	12.1	3.1
Min. "	-30	-15.9	-23.1	-30	-7.6	-5	-2.7	5.1	0.6	-4	-11.1	-15.4	-21.6

Source: Statistics Norway, statistical yearbook

Map 4 is a flooding zone map for Hedmark. The potential for flooding is generally highest in spring when the winter snow is melting in the mountains but floods may also occur in autumn when rain is heavier. Several large waterways run through the region and the map shows that flooding will cause greater physical damage in the south where the landscape is flat (colour red). The last major flood (Vesleofsen) in the region was in 1995 when the water washed out 1 mio m³ of agricultural soil in addition to physical damage on infrastructure like houses and roads. Less damaging flooding episodes are registered for the years 1997, 2000, 2005 and 2006.

The last great forest fire occurred in June 2006 when an area of 3 km² forest burnt down.

Map 4 Map for Flood zones in Hedmark



Source: Norwegian Water Resources and Energy Directorate

1.1.2.4 Preconditions for rural development

The indicators describing accessibility to airports, seaports and rail stations were available at regional level in the European databases, although only for one year. The national airport (Oslo Airport Gardermoen) is located immediately south of the case region, easily accessible by both train and motorway. The distance from the regional capital Hamar to the Oslo Airport is 80 km and to the city of Oslo it is 125 km. There is also an hourly train service between Hamar and Oslo Airport with travelling time of 55 minutes. Just north of the case region there is a small airport operated by a minor national airline. This airport only offer flights to Oslo and Trondheim (not daily) and may attract some travellers from the northern part of the case region. In addition there are several small private and old military aerodromes within the region where chartered planes may land and which serve as

base for execution of public responsibilities like meteorological observations, liming of lakes and extinguishing of forest fires.

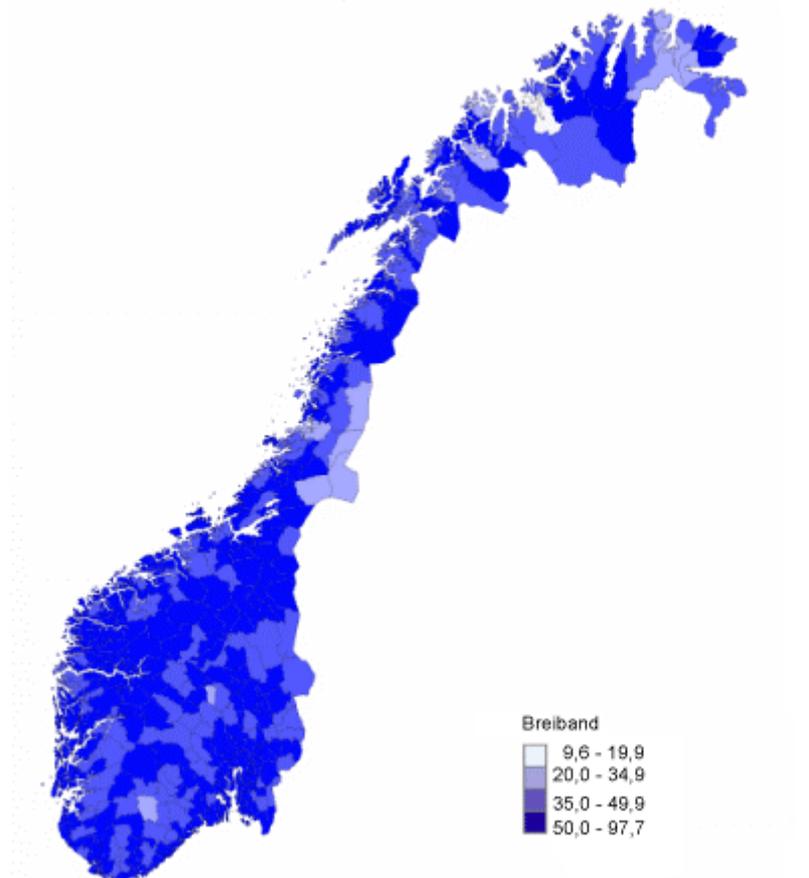
The national rail service reaches most of the more densely populated areas in the region. Two train lines between Oslo and Trondheim runs through the region, both with stops in Hamar. *Dovrebanen* has a western route along Mjøsa to Lillehammer, through Gudbrandsdalen and over Dovrefjell. The eastern line, *Rørosbanen*, runs through the less populated Østerdalen to Røros and Trondheim. There is also a line running eastwards from Oslo to Kongsvinger and further to the Swedish border, and eventually to Stockholm. *Kongsvingerbanen* is connected to *Rørosbanen* in Elverum. The urban centres in the region are thus relatively well connected, both within the case region and with the cities in neighbouring regions.

Only two of the 19 Norwegian counties are without coastline and Hedmark is one of these. Transport of goods through the region is thus by train or road. The main roads follow the same routes as the rail tracks, with smaller roads connecting the smaller towns and villages. Roads cover approximately 14.4 km² of the land surface. If we assume that the average road width is about 7 m we get a road length of 2,057 km or a density of 7.5 km road per 100 km².

Because large parts of the case region are sparsely populated broadband internet access will not be available to all inhabitants. On national level, the share of households with internet access is closing up on 70%. It is reason to believe that this share applies for the case region as well since the share of inhabitants living in the central areas and towns is of approximately of the same magnitude. Recent statistics show that 53% of the population in Hedmark subscribe to broadband connection. It is particularly in the north and east along the Swedish border that fewer people have broadband access as can be seen in Map 5.

Map 5 Private household market. Subscribers of broadband internet access (transmission > 128 kbit/s) as share of all households in the region. 3. quarter 2007. Municipalities

Privatmarknaden. Breibandsabonnement (overføringskapasitet over 128 kbit/s) i prosent av hushalda. 3. kvartal 2007. Kommunar



Kartgrunnlag: Statens kartverk.

Source: Statistics Norway/Norwegian mapping and cadastre authority

The data for share of practitioners per 1,000 inhabitants is obtained from the Medical Society and not from official statistics. The data are only given at national level and show that there are 3 to 4 practitioners per 1,000 inhabitants. There will usually be a higher share of medical practitioners in cities and hospital towns, but all municipalities are instructed to supply a casualty ward and a chief municipal medical officer.

Every inhabitant in the region disposed of 443 kg of waste in 2005 which is an increase of 54% since 1998 and above national average. The share of waste recycled is almost doubled during the same time span. The industry sector accounts for about 40% of the waste while private households accounts for 15%. The last decades there has been increased focus on safe waste disposal with an increasing share of waste being recycled and less being burnt or deposited. The focus is now turning towards preventing and minimising waste production. All outdoors burning of rubbish is strictly forbidden except for what is defined as *natural* such as burning

of dead leaves, grass, straw in agriculture and bonfires. There is an ongoing project of registering and dealing with old scrap heaps and private tips, old machines and metal rubbish can, without cost to the farmer, be collected at the farm and households may cost-free deliver all kinds of toxic waste at designated disposal sites.

Half the population have groundwater as drinking water. Some of these have private wells on their own land. Most of the inhabitants who get their drinking water from surface water get it from Mjøsa. Although this lake still contain too high concentrations of mercury and other heavy metals and organic pollution from manufacturing, mining and agriculture, the water holds high quality most of the year. However, in contrast to the groundwater, surface water needs purification before drinking. Approximately 95% of the population in the region has access to drinking water with an acceptable level of bacteria, but fewer have access to water without discolouring or with satisfactory pH level.

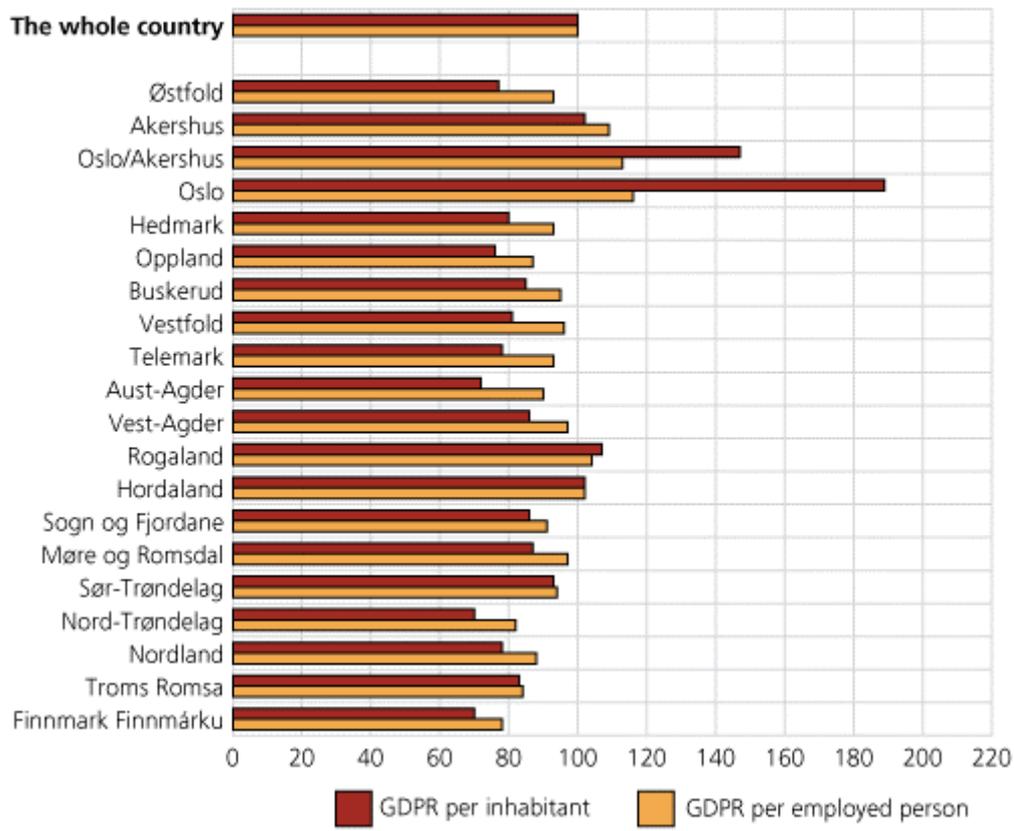
1.1.3 Rural economy

1.1.3.1 Regional performance

Norway is an egalitarian country. All citizens have legally established rights to welfare services and there are small regional differences in income and employment. There has, however, in later years been a small but unambiguous increase in differences between regions as well as between individuals and social groups. Figure 21 shows regionalised value added per inhabitant and per employee in 2004. The regionalised indexes of GDP are compared to the national average. The capital region, Oslo and Akershus, has much higher GDP per inhabitant than average but also higher labour force as share of total population and positive in-commuting. Hedmark is an out-commuting region and performs better per employed person than per inhabitant. The table also shows that GDPR does not differ much between the regions in the south-eastern part of the country.

Figure 21 Value added per inhabitant and per employee, by county. 2004. Whole country exclusive Norwegian shelf and Svalbard=100

Gross Domestic Product per Region per inhabitant and per employed person



Source: Statistics Norway

The Eurostat database could only supply regionalised GDP per capita in PPS for one year (2004). In Table 7 we thus present a time series of GDP per capita for the case region in domestic currency, measured in both current and fixed prices.

Table 7 GDP per capita in Hedmark

GDP per capita in NOK	1995	1997	1998	1999	2000	2001	2002	2003	2004
Current prices	242,978	275,350	299,235	310,496	331,849	352,321	363,621	386,539	409,423
Fixed prices	257,938	281,544	299,235	303,516	314,549	324,122	330,264	342,677	361,362

Source: Statistics Norway

We have already discussed that Hedmark is an agricultural region in the sense that agriculture is a more important base of the economy and share of regional employment is higher than country average. Primary sector accounts for 6% of production and 8% of employment which is twice the national average.

Contribution to GDP in secondary and tertiary sector was obtained from Statistics Norway. The data shows that the relative share of GVA from each of the aggregated

sectors have changed little during the seven year period. Secondary sector accounts for almost 25% of regional production while the share of regional employment goes down from 16% in 1998 to 13% in 2004. During the same time span, labour productivity, at national level, was reported to have increased from EUR 116 to EUR 149 per person employed.

Average household income on regional level was only available for year 2002 and 2005 from Statistics Norway. The household income is given per *household* and not per *inhabitant* (as for the other case regions), which explains the relatively high income level in the Norwegian region. The national average is 2.2 persons per household. If we divide net household income with average household size we get net household income per inhabitant equal to EUR 17,300 which is a better measure in comparison with the other case regions.

There are no tax systems, venture capital or policy interventions that are specific to the case region. Both commercial and local/regional savings banks offer loans to the regional businesses but risk capital may be scarce in the more rural parts when the secondary value of physical investment is small or non-existent. The rural municipalities are entitled to regional industry support schemes but the magnitude of these support schemes is not substantial. More effective support schemes are the regionally differentiated employers' tax on employment, which allow employers in rural regions to pay reduced tax on labour, and skatteFUNN, which is a tax deduction scheme for R&D expenses in approved projects, but these support schemes are both nationally available. The county council cooperate with regional university colleges and research institutions, and with entrepreneurial networks and the regional business community in order to stimulate and ease innovation and the founding of new businesses. These regional networks are established to offer training and advise on legal, economic, planning, management, and marketing matters more than contributing with financial support.

1.1.3.2 Structure of agriculture

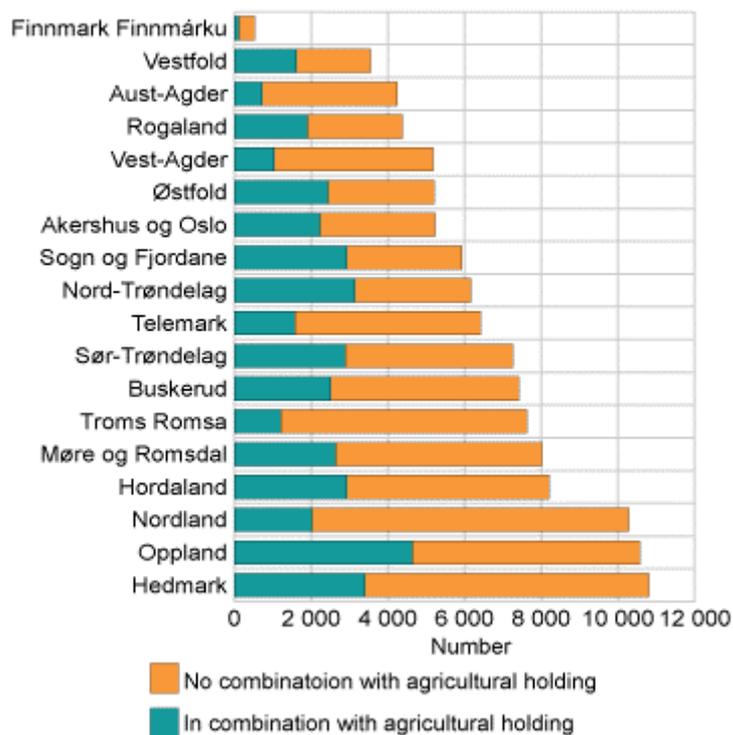
The statistical profile includes 13 indicators to describe the structure of agriculture. Of these, only three were available for the Norwegian case region in the Eurostat databases. Indicators 38-40, share of utilised agricultural area (UAA) for arable crops, permanent pastures and permanent crops, respectively, is reported for year 2000 in the Eurostat Regio database. The aggregation over uses of agricultural area differs from the standard applied in national statistics and it is thus difficult to complete the time series. The data show that permanent crops are practically not produced in the region (0.1%), while permanent pasture covers 14% and permanent crops 86% of UAA. Compared to the forest area, the agricultural area is small and only covers 4% of total area.

Forests of pine and spruce are the dominant land cover in Hedmark. Productive forest areas cover almost 50% of total area and as much as 88% of the productive forest area is considered commercially exploitable. In addition to the productive area there will also be some forest areas that are not considered to be productive.

For the whole country, forests cover 38% of all land area but productive forest areas only cover 24%. We do not have any record of the size of the unproductive forest area in the case region but it is obviously smaller than for the country as a whole. The forests increase by 25 mio m³ every year and the cubic content of the forests has increased by 70% the last 40 years.

Figure 22 Forestry properties with and without agricultural holding. 2006

Forest properties with and without combination with agricultural holding. 2006



Source: Statistics Norway

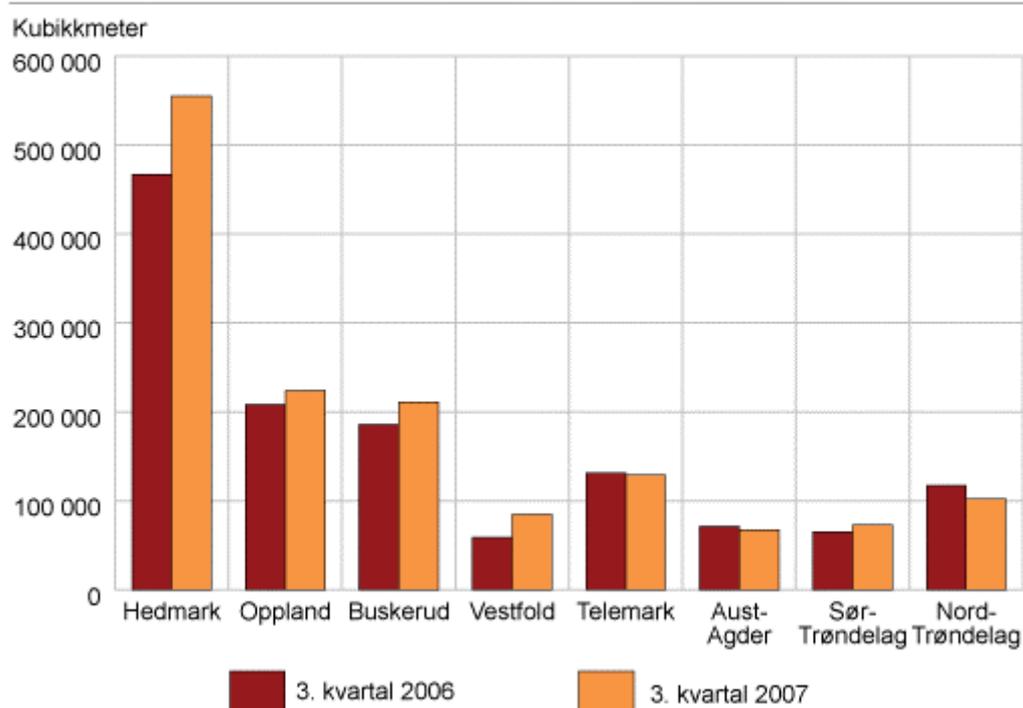
Forestry is a relatively important industry in the case region and almost 20% of all productive forest areas in Norway are found within its boundaries. There are some state owned forests in the north-eastern part of the region but the forest areas are mainly privately owned. In total there are 11,000 forestry properties of which one third is run in combination with agricultural production as seen in Figure 22. The average size of forest properties at national level is below 60 ha but in the case region, average size is almost 120 ha. Most properties (71%) are below 50 ha while 85 properties (1%) are more than 2,000 ha.

Total removals for sale in Hedmark were close to 2 mio m³ in 2003. This is twice as much as in any other region and one fourth of total removals for sale in Norway. Figure 23 shows that Hedmark has an even larger share of removals of roundwood. The selling price for sorted saw logs increased by 30% from 2005 to 2006 when it reached EUR 45 per m³ but the longer trend is an incessant fall in the real price for removals to half the price attained 30 years ago. Income from forestry is not an

important component of the forest owners' total income. In 2003 only 5% of gross income originates from forestry. Forest owners in the case region have higher income from forestry than owners in other regions, but we see from Figure 24 that income from agriculture is far more important than income from forestry. Compared with the EU countries, Norway does not have a very high share of the European forest resources and an even smaller share of the total European removals.

Figure 23 Removals of roundwood for sale 3rd quarter 2006 and 3rd quarter 2007. Pine, spruce and broadleaf. Selected counties

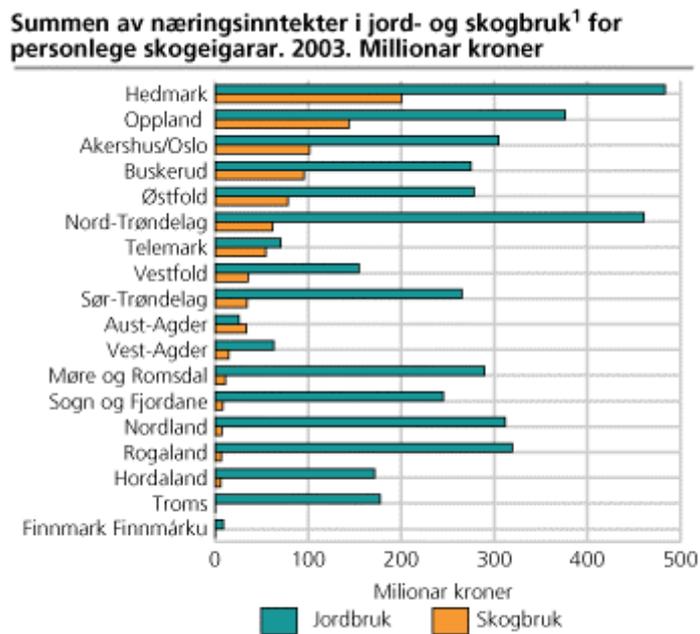
**Avvirket kvantum industrivirke for salg. 3. kvartal 2006* og 3. kvartal 2007*.
Alle treslag. Utvalgte fylker**



Source: Statistics Norway

Forestry is often combined with other forest based industries like fishing, hunting, leasehold of ground, lease of cabins, production of Christmas trees etc. Gross income from such forest activities was EUR 13 mio in the case region in 2003 of which lease of hunting and fishing rights and lease of cabins and ground were the most important activities. In total, 1,610 (15%) of the forest holdings in the county, received income from other forest activities.

Figure 24 Income from self-employment in agriculture and forestry for individual forest owners. 2003. Millions of NOK



¹ Gjeld personlege skogeigarar med minst 25 dekar produktivt skogareal. Jordbruksinntektene er etter at jordbruksfrådraget er trekt frå.

Source: Statistics Norway

National accounts are not fully regionalised every year, but it is possible to attain time series at a certain level of aggregation. At the disaggregated level NACE A01-*Agriculture, hunting and related service activities* and of NACE A02-*Forestry, logging and related service activities* we have only been able to supply 1997 data for contribution to regional GDP. Since indicators 29 and 30, contribution to regional GDP by secondary and tertiary sector is stable over the observed years there is reason to believe that also primary sector industries are relatively stable over the same years. In official statistics we find that contribution to GDP in primary sector decreases from eight to 6% between 1998 and 2004.

Employment in primary sector decreases throughout the observation period from almost 7,000 full-time equivalents in 1993 to 5,700 in 2006. Indicator 36 shows that the average farm unit in the region has increased from 15 to 24 ha between 1999 and 2005. These results reflect the ongoing structural changes in the agricultural sector. Since 1990 the number of operative farms has decreased from 6,000 to 4,000 units while there has been a small increase in utilised agricultural area. Some of the exiting farmers sell out while most choose to rent land and outbuildings to neighbouring farms while they continue to reside at the farm. There has also been growth in establishments of joint operations. It is mainly dairy farmers that have been stimulated to cooperate. Between 2002 and 2006 the number of joint operations has increased from 2.5 to 5.1%.

Table 8 Number of agricultural holdings in Hedmark by size of area in use. 2005

Total number of holdings	Size classes. Hectares				
	-4.9	5.0-9.9	10.0-19.9	20.0-49.9	-50.0
4,330	408	729	1,199	1,535	459

Source: Statistics Norway, Agricultural statistics 2005, table 1.2

Table 8 show the number of agricultural holdings in Hedmark by size and area in use. We see that in 2005, every second farm holding was at least 20 ha and average farm size was 25 ha as can be seen in Table 9. Average agricultural area per holding in 2005 is more than twice the area in 1989. The farm holdings are, on average, larger in Hedmark than in the country as a whole and the increase in size has been more pronounced.

Table 9 Agricultural area per holding. Hectares. 2005

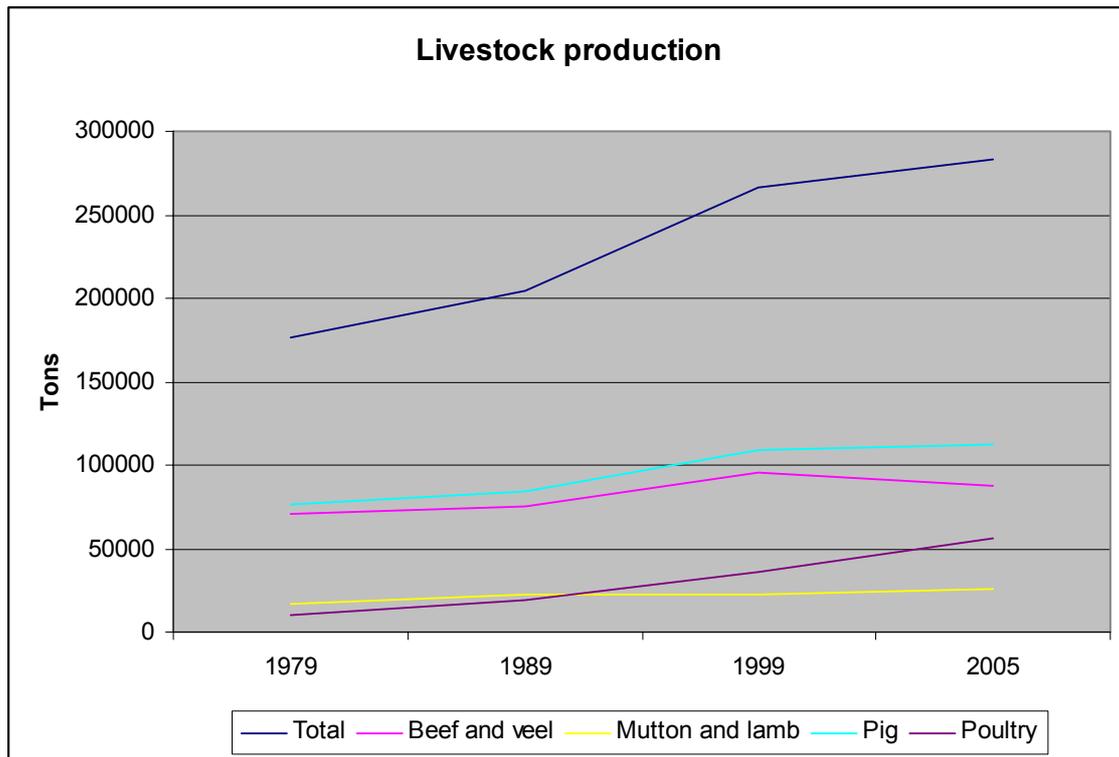
	1989	1999	2004	2005
Norway	9.97	14.68	18.73	19.54
Hedmark	11.75	18.18	23.61	24.75

Source: Statistics Norway, Agricultural statistics 2005, table 1.4

Because of the strong regulation of the agricultural sector, the composition of production output is both a reflection of governmental policy and of changes in consumer preferences. The degree of self-sufficiency in food production has been approximately 50% the last 25 years (varying from 3% for sugar, honey etc. to 99% for eggs), but the composition has changed over the years. The most pronounced changes are the decrease in dairy farms and the increase in meat production. The number of dairy farms is down by 60% in the last 25 years (and production down by 19% in litres).

Figure 25 shows the quantities of livestock production for sale and home consumption in Norway. The increase in total livestock production was high during the 1980s and 1990s in response to the households' improved financial conditions and change in preferences, and the growth continues throughout the period. In later years, the growth in beef production is replaced by stronger growth of pig and poultry. The total livestock production is closing on 300,000 t, or approximately 60 kg per inhabitant.

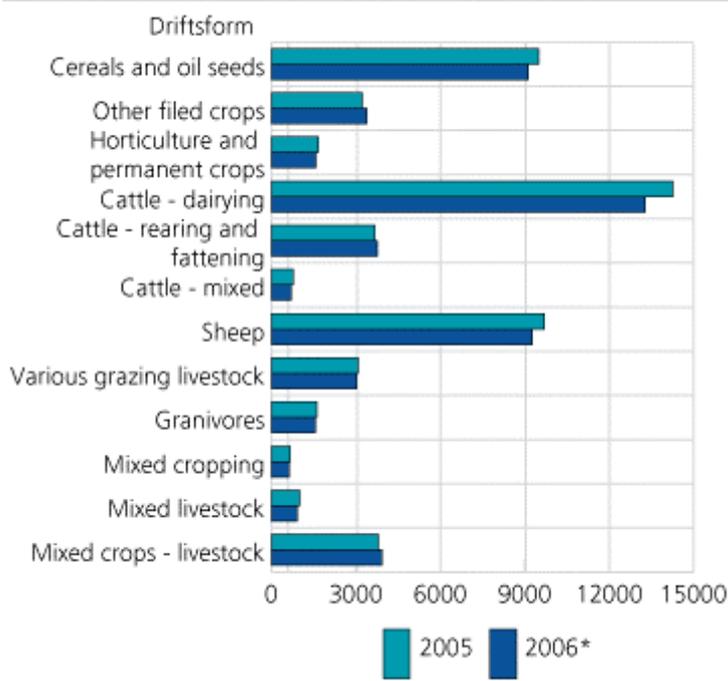
Figure 25 Livestock production in Norway for sale and home consumption. Tons



Source: Statistics Norway

Figure 26 shows the number of farm holdings involved in different types of farm production. Despite the decrease in dairy farms this is still the main produce in 25% of the farm holdings in Norway. Cereals and oil seed and sheep farming are also important produces while mixed output of either crops or livestock is less widespread. Crops and livestock in combination is, however, more common.

Figure 26 Holdings by type of farming. 2005 and 2006

Holdings by type of farming. 2005 and 2006*

Source: Statistics Norway

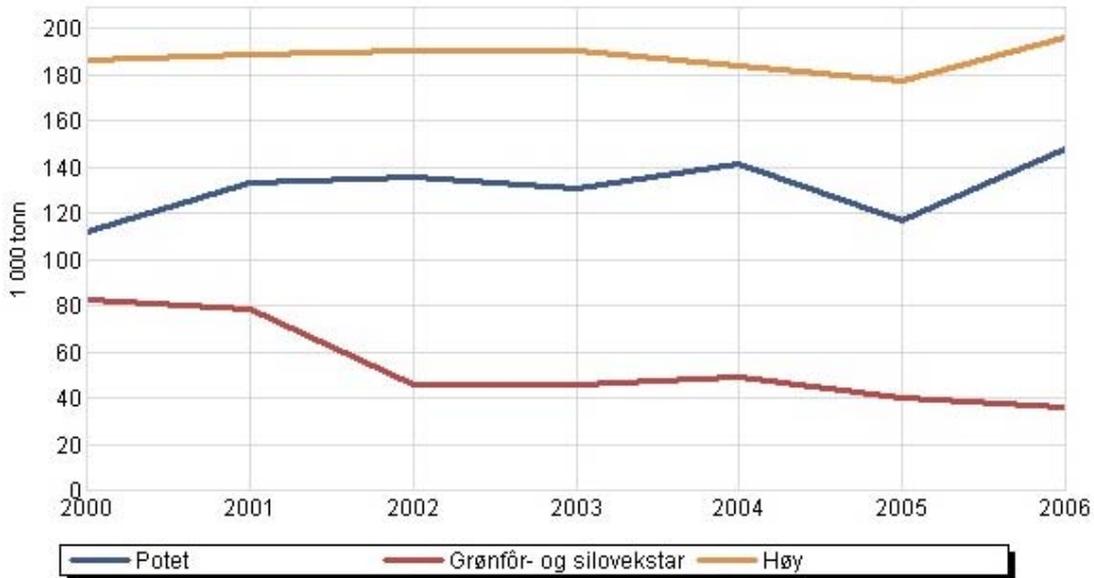
(http://www.ssb.no/english/subjects/10/04/10/stjord_en/fig-2007-01-25-01-en.html)

Figure 27, Figure 28 and Figure 29 show yields of different agricultural produce in the case region. The production of arable crops in the region is approximately 250,000 t, of which 50,000 t is wheat. There has been a strong increase in the quality of wheat produced in Norway in later years and a higher share is milled to flour and less is used as animal feed. Despite the good conditions for arable farming in the case region, wheat production is relatively low (19%), while barley (55%) and oats (25%) is more common. Wheat is more common further south in the area around the Oslofjord where summers are longer and warmer. Rye is not much cultivated, neither in Hedmark nor in the country as a whole.

The production of hay is close to 200,000 t and relatively constant since 2000 while crops for green fodder and silage show a downward trend. The production of potatoes is increasing despite higher imports. In 2006, almost 150,000 t of potatoes were produced in Hedmark. This equals 40% of national production.

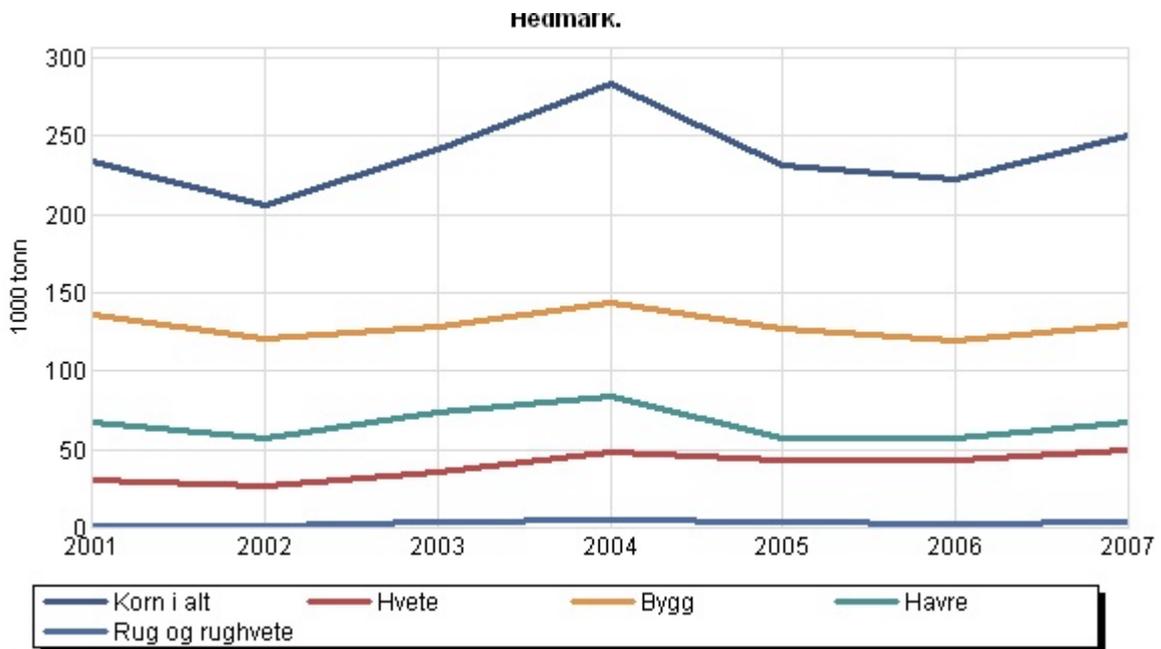
We do not have regionalised data for yields of horticultural crops. With an exception of strawberries, cultivation of fruit and berries is small and falling in Norway. Approximately 95 of all consumption of fruit and berries is based on imports. More farmers produce vegetables. Total yields were more than 150,000 t in 2005 of which cabbage and carrots were the most common produces. (http://www.ssb.no/english/subjects/10/04/10/stjord_en/fig-2007-01-25-01-en.html)

Figure 27 Yield of agricultural crops. Potato, crops for green fodder and silage, and hay. 1,000 t



Source: Statistics Norway

Figure 28 Yields of arable crops. Total arable crops, wheat, barley, oats, rye and triticale. 1,000 t

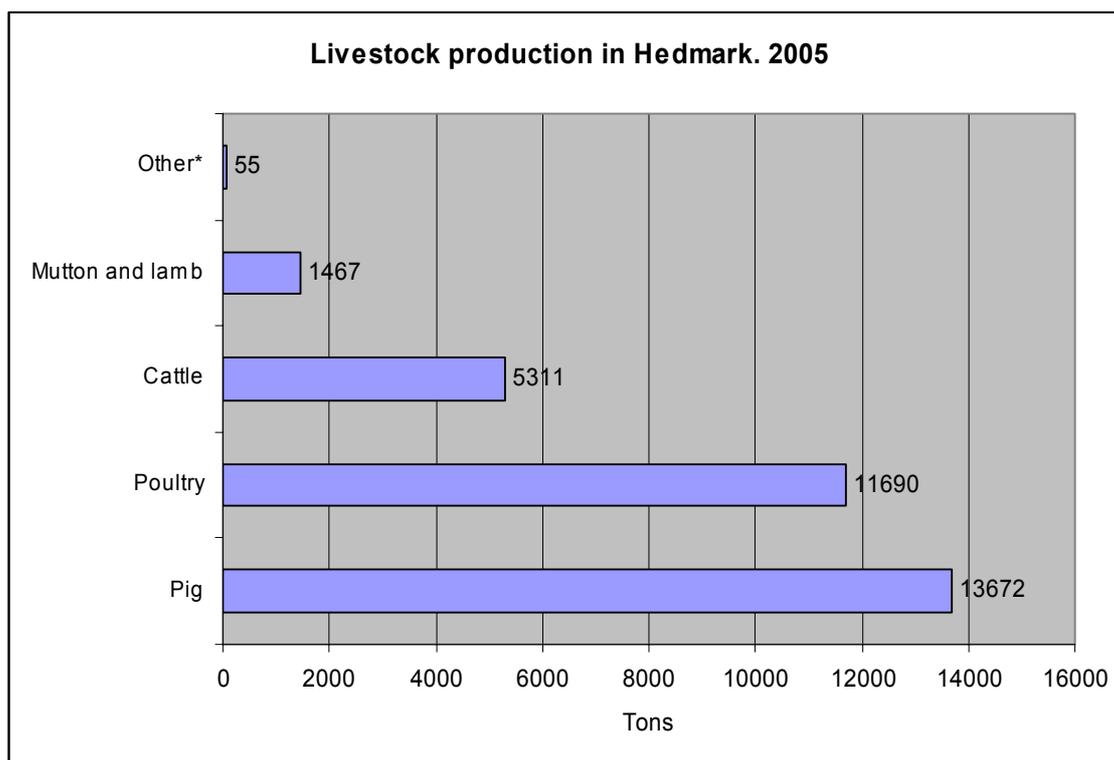


Source: Statistics Norway

Total production of livestock in Hedmark equals 11% of national production, measured in tons. Pig and poultry are the most important produces both measured in tons and as share of national production, as can be seen in Figure 29. Sheep farming is only important in the northern mountainous part of the region and is generally more important in other parts of Norway. Not included in the table is the

production of milk. At national level, production of cow milk increased until it reached 1,854 mio l in 1989 and is since reduced to 1,517 mio l in 2005. As good as all milk is delivered to dairies. Only 4 mio l is consumed at the farms and no litres are sold directly. National goat's milk production was 22 mio l in 2005, of which 96% were delivered to dairies. The number of cow equivalents was 14,000 in 2005 with annual yields of 6,470 kg milk per cow equivalent. This is somewhat below the national average. There were 843 farm holdings with dairy cows in 2005.

Figure 29 Livestock production in Hedmark. Tons. 2005



* Other includes horse, goat and kid, reindeer, game and whale.
Source: Statistics Norway

Table 10 gives information of the number of holdings producing different agricultural crops and the average area per holding. Of the 4,330 agricultural holdings in Hedmark, 2,427 cultivate grain and oil seeds. The grain and oil seeds producing holdings are, on average, the largest farms. The 600 potato farms in the region are, on average, substantially smaller. Particularly the potato farms in the mountainous north tends to be smaller.

Table 10 Holdings in Hedmark cultivating various crops and average area per holding. 2005

Grain and oil seeds	Potato	Meadows for mowing and pastures	Decares per holding		
			Grain and oil seeds	Potato	Meadows for mowing and pastures
2,427	579	2,570	240.7	80.0	157.2

Source: Statistics Norway, Agricultural statistics 2005, table 1.5

The average size of holdings with domestic animals is shown in Table 11. The average number of dairy cows per holding increase every year and were 18.2 in the case region in 2005. This is 1.5 more than national average. Dairy farming is regulated in the sense that the government issues (tradable) milk quotas to avoid overproduction. Dairy farmers may consequently not increase the herd as they please. Approximately 900 farm holdings have sheep and the average size is 60 animals per holding. Sheep farming is the typical farming system in rough terrain and mountainous areas and on part-time farms. The labour intensity is low as the sheep graze in outfields with little or no supervision. Goats also graze in outfields but dairy goats need more attending when they give milk. There are not many farms producing goat milk, but the average number of dairy goats per holding is almost 60 for the 30 holdings involved.

Table 11 Number of various animals in Hedmark, in total and per holding. 2005

Total	Total	Cattle		Sheep 1 year and over	Dairy goat	Pig		Hens
		Dairy cow	Beef cow			Pig for breeding	Pig for slaughtering	
Total	60,191	15,301	6,329	53,657	1,619	12,006	53,777	365,866
Holdings	3,307	843	452	886	30	204	296	196
Animals per holding	18.2	18.2	14.0	60.6	54.0	58.9	181.7	1,867

Source: Statistics Norway, Agricultural statistics 2005, table 3.5

1.1.3.3 Structure of rural economy

Contribution to GDP of

- NACE B15 – Manufacture of food products and beverages,
- NACE B20 – Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials,
- NACE B21 – Manufacture of paper and paper products, and of
- NACE H55 – Hotels and restaurants

were obtained in the regionalised national accounts for the years 1998 to 2004. Neither of the four industry groups gives a large contribution to GDP. Even so, some of them are important in the regional economy.

Within the case region we find some of the largest production units for food products, serving the whole of Østlandet, including Oslo (NUTS 2 region). The agricultural cooperatives have located the major butchery, dairy and poultry and egg plant within Hedmark. In addition, some of the cooperatives' smaller plants and more independent food producers are present. The food industry does, however, only account for 4% of total regional GDP.

Manufacturing of products of wood accounts for 3% of GDP. This is mainly production of woodwork for the building industry. There are internationally active actors within the region producing building articles with a high level of innovation for products like roof trusses and prefabricated houses, but also sawmills, timber, laminated wood, plywood, floorboards, windows, staircases etc are produced within the region. In addition, there are successful producers of furniture including kitchen fittings, children's toys, lathe work and wood carving.

Paper and pulp mills used to be one of the more important industries manufacturing for the export market. Between 1880 and 1980, paper mills was the cornerstone company of many Norwegian towns in Østlandet and in Trøndelag. There is no longer any paper and pulp production within the case study region and only a handful production plants left in the country.

The consolidated group Norske Skog is the leading agent in the Norwegian paper processing industry although they are reduced to three remaining processing plants in Norway. Norske Skog was founded by Norwegian forest owners in 1962 but has since become an international agent with business units in several European countries as well as in Australasia, Pansia and in South America. Norske Skog specialise in newsprint and magazine paper. The two other agents in the Norwegian manufacturing industry is Peterson, which until recently was a family-owned company producing paper and packaging systems and Borregaard, another long-established pulp mill which has merged with businesses in the food manufacturing industry and which, in addition to speciality cellulose, produce products like vanillin, yeast and ethanol from wood sugar, and lignin-based dispersants to the agrochemical industry.

There have been several initiatives for production of bio pellets within the region. So far, the domestic demand for pellets is moderate and producers must compete in the Swedish market. There is, however, a considerable domestic demand for firewood. The larger share of Norwegian households uses firewood for heating, both occasionally or regularly. The daily use of firewood is far more common in the case region than in most other Norwegian regions. The County Council and the County Governor together with Innovation Norway has started a "Green heating" project to increase the use of remote bio heating plants.

Hotel and restaurant services only account for between one and 2% of GDP and seems to be falling in importance. The downward trend can to some extent be explained by the diminishing effects of the Olympic Games in 1994 but more importantly is probably the persistent upswing of the economy and the increased

importance of other service industries. There are however several popular tourist attractions and areas in Hedmark. One of the leading ski resorts in the country is located in Trysil in the eastern part of the region. Because of its closeness to Oslo, this resort attracts a large share of the ski tourist from the capital region. *Sjusjøen* is another popular ski resort in the region. The largest city Hamar hosts several tourist attractions of interest to both domestic and foreign tourists. Among these,

- *Domkirkeodden*: ruins of a stone cathedral from the Viking era, glazed by a modern glass cathedral and beautifully located on the bank of Mjøsa,
- *Skibladner*: a popular paddle steamer from 1856 that in summertime still runs a timetable service between Eidsvold in the south end of Mjøsa to Lillehammer in the north,

and some of the sports arenas from the 1994 Olympics like

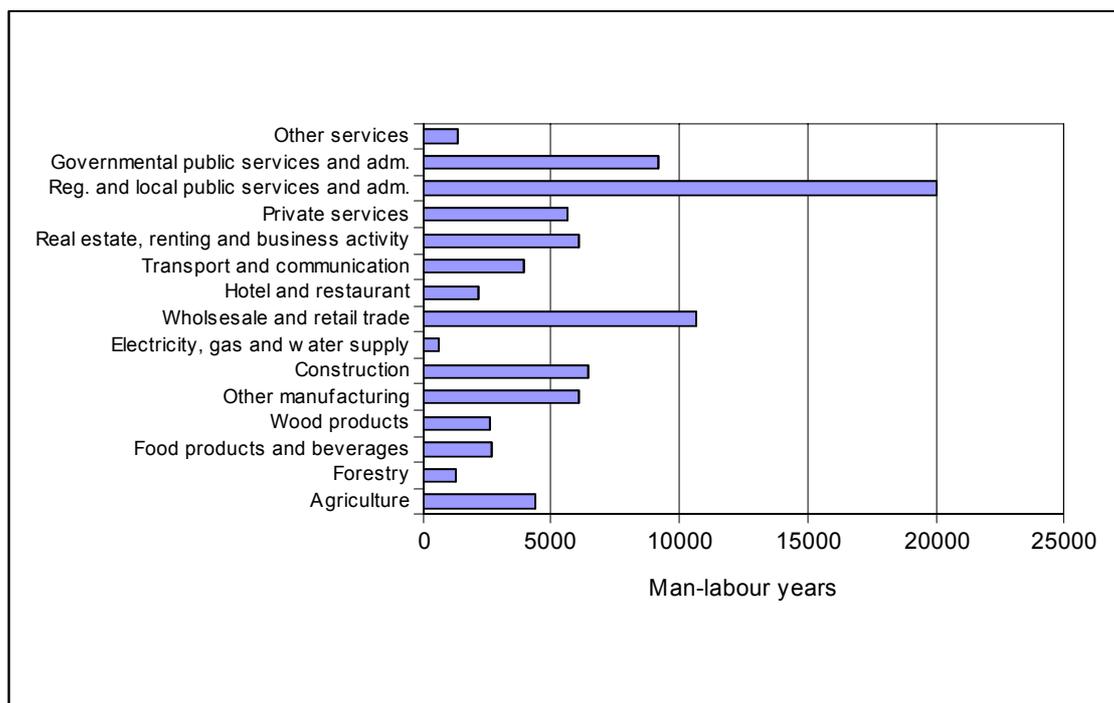
- *Vikingskipet*: a multi-purpose hall built as an upturned Viking ship

are the most popular and appreciated.

Other popular recreational areas are the national park *Femunden* and *Finnskogen*, a forest area in the south-east on the border between Norway and Sweden. The area is named after the Finnish immigrants who settled there in the sixteenth and seventeenth century. The area is popular for camping, cycling, fishing, elk hunting, small game hunting, and cultural heritage. There are also school camps, agrotourism, local food and adventure holiday opportunities in the area.

Data for employment in secondary and tertiary sector is obtained from Statistics Norway. In secondary sector, between 17,000 and 19,000 man-labour years is carried out in the case region over the years 1993 to 2006, peaking in 1997. Tertiary sector is more than three times as large as the secondary sector with almost 60,000 man-labour years in 2006. Employment in tertiary sector has increased throughout the period from 66% of total employment in 1993 to 71% of total employment in 2006. The sole most important employer in the region is the municipal public services. Approximately 20,000 man-labour years are performed each year in this sector. Also governmental services are important and employ more than 9,000. Wholesale and retail trade is the largest private sector with almost 11,000 man-labour years. Construction counts more than 6,000 and business activities counts 5,000 man-labour years. Total employment in the case region is shown by sector in Figure 30.

Figure 30 Employment by sector. Hedmark, 2006

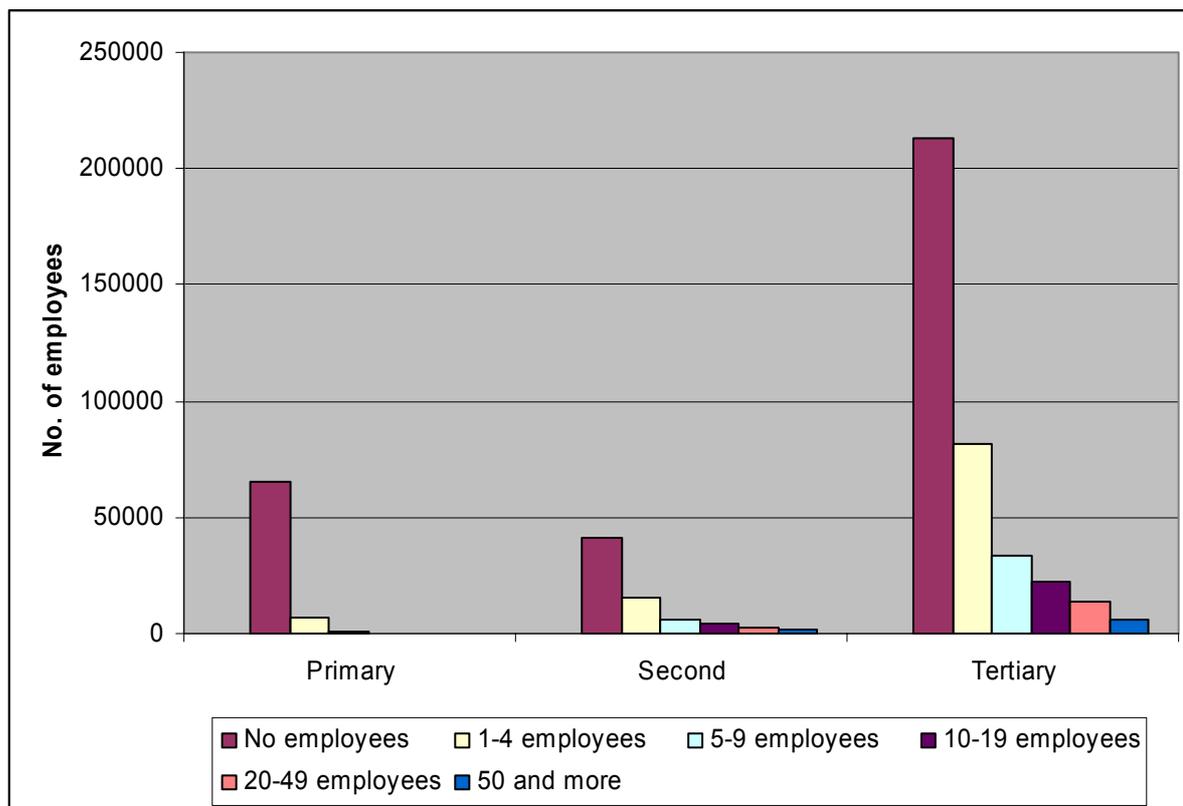


Source: Statistics Norway

The most striking feature is the importance public sector plays in the regional economy. This can be seen as a result of the Scandinavian welfare state model for which a primary objective is to secure equal accessibility to services to the inhabitants irrespective of place of abode. The public sector thus plays an important role in sustaining a regional settlement pattern by offering both employment and services to the inhabitants of the region.

We have not been able to establish regionalised data for the share of SMB-businesses. Norwegian businesses are as a rule small. Most businesses (2 out of 3) are one-man businesses with no employees and 95% of all businesses have less than 20 employees. Figure 31 shows the size of businesses for primary, secondary and tertiary sector, respectively. The share of one-man businesses is higher in primary sector than for the other sectors. For single industries, it is only within extraction and manufacturing of petroleum products, manufacturing of transport equipment and in public administration that the share of businesses with more than 250 employees exceeds 1%.

Figure 31 Number of businesses by number of employees. Norway, 2007



Source: Statistics Norway

For indicators 53 *Number of beds in tourism* and 54 *Number of overnight stays* we have kept the statistics presented in the Eurostat Regio database. The regional number of beds was reported as 27,000 and number of stays was 1.2 mio in 2007. Total consumption in tourism was approximately EUR 325 mio in the case region in 1997. The overnight stays are mainly Norwegian leisure travellers and the business travellers segment is small.

Expenditure on R&D is also obtained from Eurostat and only at national level. It is reason to believe that the registered amount of money spent on R&D is higher in the capital and major city regions than for the country as a whole. Expenditure on R&D is thus probably below 1.5% of GDP in the case region because we know that this is not one of the more R&D-intensive regions. National statistics indicates that R&D-expenditure only amounts to 0.4% of GDP in Hedmark.

1.1.4 Rural society

1.1.4.1 Demography

All demographic data were obtained from Statistics Norway for the years 1993 to 2006. There are somewhat less than 200,000 inhabitants in the case region of which 50.6% are female. In 2006, there were 95,400 females and 93,100 men registered as living in the region. Population is also rather stable over the period varying within 2,000 inhabitants (1%) and increasing every year since 1997.

Children younger than 15 years of age account for approximately 18% of the population. This equals between 32,000 and 34,000 inhabitants, but the young population's share of total population has been decreasing in later years. It is only the share of children aged 0-4 that is decreasing. We find an equivalent but stronger decrease in the number of young adults in age group 20-34 in the region. The number of children aged 10-14 has increased by 15% which is a substantially higher growth than for the population as a whole. Hedmark is one of the Norwegian counties with highest share of old people.

There are more elderly people than young people in the region. Inhabitants aged 65 and elder count approximately 35,000. The share of elderly people is decreasing from 20% in 1993 to 18% in 2006. The share of population aged 65-79 has fallen while the share elder than 80 has increased.

Table 12 shows net migration to Hedmark for different age groups. We see that net migration is positive for all age groups except for young adults aged 20-29. Most moves happen within the municipality borders, and then within the regional borders. There has been positive net migration into the region in later years but only because of positive immigration from abroad. Domestic migration is negative and has been negative most of the last decades. Oslo receives most of the migration out of the region and, except from migration from abroad, supplies most of the migration into the region. Most of the domestic population that move into the region were also born in the region and return to settle down after completing education and early adulthood elsewhere.

Table 12 Net migration to Hedmark by age groups

Age group	2004	2005	2006
0-5	141	200	230
6-15	137	199	131
16-19	8	-29	31
20-29	-398	-382	-375
30-39	134	245	317
40-49	140	164	125
50-59	111	71	53
60-66	81	54	39
Total	354	522	551

Source: Statistics Norway

The last population forecast (for the years 2005-2060) from Statistics Norway was released in December 2005. In Table 13 we present five forecasts for Norway and the case region based on five different combinations of assumptions.

The basic assumptions of the population forecasts consist of four components:

- I. Total fertility rate
- II. Life expectancy at birth for men and women
- III. Net immigration per year
- IV. Domestic mobility: expected number of moves over the life course

The forecasts run a *low*, *medium*, *high* and a 0-alternative for each of the elements. In the starting year, 2005, values of the components were: fertility rate of 1.84, life expectancy of 77.5 years for men and 82.11 for women, net immigration of 16,705, and average number of domestic moves equal to 2.19. Five different combinations of assumptions are presented in the table. The lettering indicates chosen level of the four assumptions. Alternative LLML means that we assume *Low* fertility rate, *Low* life expectancy both for men and women, *Medium* level of immigration, and *Low* domestic mobility.

Generally, the forecast show that total population will increase throughout the period to 2060 and that the population is growing increasingly older, particularly after 2013. From the table, we see that population will continue to increase also in the case region.

Table 13 Population forecasts for Norway and Hedmark. Five alternatives. 2005-2025

	2005	2006	2007	2010	2015	2020	2025
Whole country							
LLML	4,606,363	4,634,879	4,659,432	4,714,620	4,785,671	4,859,475	4,931,334
MMMM	4,606,363	4,636,538	4,665,393	4,748,332	4,889,372	5,045,056	5,210,026
HHMH	4,606,363	4,638,449	4,672,083	4,785,459	5,003,339	5,247,752	5,513,526
MMLM	4,606,363	4,636,535	4,665,403	4,748,443	4,890,078	5,046,694	5,212,590
MMHM	4,606,363	4,636,537	4,665,389	4,748,189	4,888,478	5,043,025	5,206,859
Hedmark							
LLML	188,376	188,406	188,376	188,209	188,124	188,536	189,414
MMMM	188,376	188,493	188,639	189,415	191,688	194,967	199,188
HHMH	188,376	188,583	188,902	190,753	195,621	201,941	209,727
MMLM	188,376	188,526	188,718	189,876	193,081	197,196	202,141
MMHM	188,376	188,459	188,542	189,071	190,874	193,817	197,843

Source: Statistics Norway

A separate immigration forecast predicts a strong increase in the immigrant population to between 1 and 2 mio people (depending on alternative) from a total of 365,000 immigrants residing in Norway in 2005. This increase in immigration does, however, not seem to have a very large effect on total population

development. Fertility rates and life expectancy seems to be far more important in explaining population growth.

1.1.4.2 Education

Data for level of education is obtained from Statistics Norway for the years 1993 to 2006. We distinguish between three levels of education: Ten years of *Compulsory primary and secondary education*, three or more years of *Upper secondary education*, and *College and University education*.

Approximately 39% of the women and 44% of the men aged 16 and above have completed *Upper secondary* as their highest level of education. These figures include all the 16 to 19 year olds who are about to complete their upper secondary education. The share of 20 to 24 year olds who have completed at least upper secondary is, strangely enough, decreasing from 1998 and is 63% in 2006.

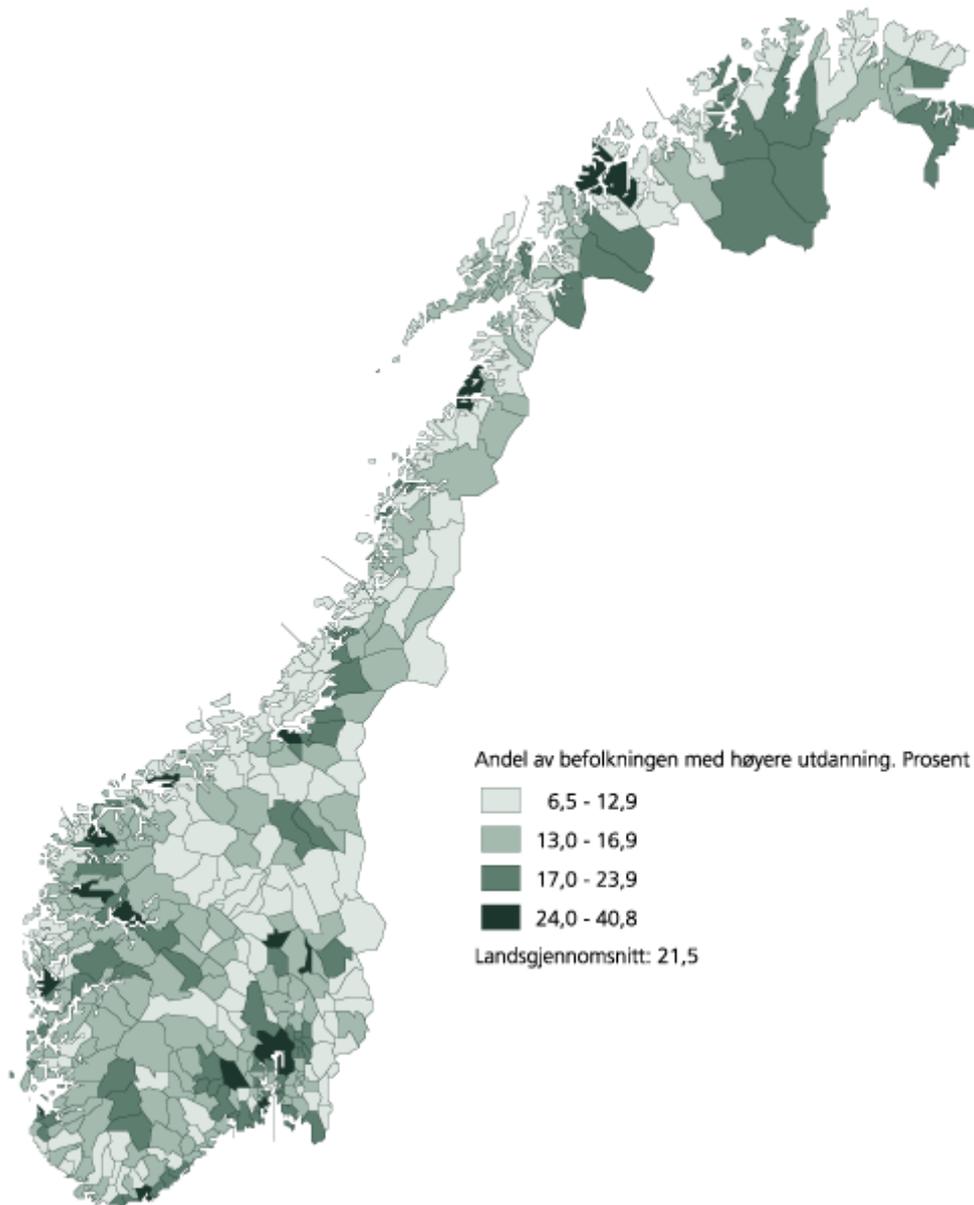
The share of population who have completed *College and University education* is increasing throughout the period. The share of women aged 16 and above with higher education grew from 12.5% in 1993 to 20.4% in 2006. The increase is not equally strong for the male population, 12.6% in 1993 and 16.5 in 2006.

We have not been able to obtain a time series for the share of farmers with agricultural training. The last Census of Agriculture from 1999 show that 42% of the farm operators in the case region have agricultural training, most of them at college or university level.

There are visible regional differences in the level of education in the population. Typically, the share of population with higher education is higher in the major cities than in rural districts. Map 6 shows the share of the population with higher education in all municipalities in Norway. The national average is 21.5%. The case region is thus below country average.

Map 6 Share of population with attained higher education. Municipalities. 2000

Utdanningsnivå, 2000



Kilde: Utdanningsstatistikk, Statistisk sentralbyrå.
Kartgrunnlag: Statens kartverk.

Source: Statistics Norway: Samfunnsspeilet nr 2, 2002

Only one municipality in the case region falls into the category where more than 24% of the population have higher education. This is the regional centre Hamar. The area around the lake Mjøsa with city centres Hamar in Hedmark and Lillehammer and Gjøvik in Oppland county is a university centre region. There are 4,000 students and 400 people working at the college located in Hedmark which offers studies in social sciences, information science, education, health and sports, agriculture and nature, and forestry and wilderness studies. Separate from the university centre region, we see that one municipality, Kongsvinger, by the Swedish border has a 13-16.9% share of population with higher education. This is the location of one of the two offices of Statistics Norway. Approximately 400 of the 900 employees of Statistics Norway work in Kongsvinger.

1.1.4.3 Labour market

The labour market indicators are based on data from the Eurostat regio database to assure comparability with the other case regions. These data are given at NUTS 2 level, i.e. the region consisting of the two counties Hedmark and Oppland. There is no reason to believe that employment rates differ between the two counties so we do not supplement with county level statistics.

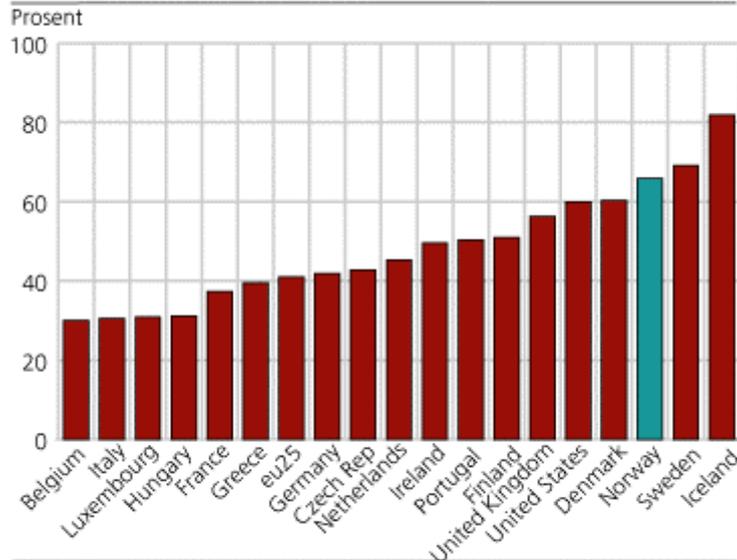
Data are given for years 1999 to 2005 and show that employment rates are approximately 70% for women and 80% for men in the region. This is close to the national average but slightly lower for women and higher for men. Both the labour force and employment has increased in later years. At the same time, there is an increase in the share of people that fall outside the labour force.

The average age for workers is somewhat higher in the case region than for the country as a whole, 42.4 years in Hedmark compared to 41.0 for Norway. Absence from work due to illness is also relatively high with an industry average of 7% of total work days. Women are more often than men absent due to illness and it is workers in health and social services that have the highest sick leave rates.

The employment rate of workers aged 55-64 as share of active population is high in the case region as it is for the whole country. Compared to other European countries, only Sweden and Iceland has a higher share of people aged 55-64 in the work force as can be seen in Figure 32. Almost 50% of all Norwegians in age group 55-74 were in employment in 2004. The growth in the employment rate for this age group is principally due to that a higher share of the women that reach this age group is working compared to previous years. More interesting is perhaps the trend that more people aged 66 and above choose to stay in the labour force. Generally, people with a high level of education work till a higher age than other groups.

Figure 32 Employment rate of workers aged 55-64. 2004

Figur 1. Sysselsatte i alderen 55-64 år. Prosent av alle personer i alderen 55-64 år. 2004



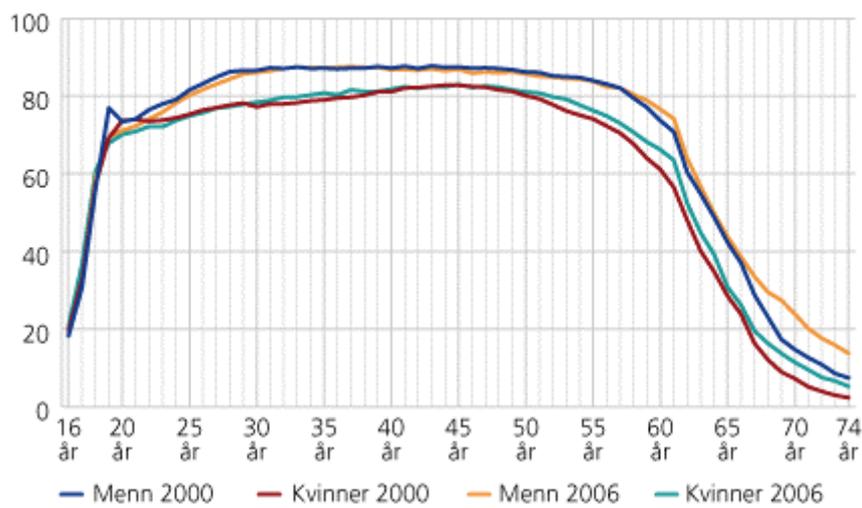
Eurostat har en øvre grense på 64 år i sin sysselsettingsstatistikk. Sammenligningen med europeiske land har derfor ikke med arbeidstakere mellom 64 og 74 år.

Kilde: Labour Force Survey, Eurostat.

Source: Statistics Norway: Labour Force Survey, Eurostat

Figure 33 Employment in percentage of total population. Men and women aged 16-74 – 2000 and 2006

Sysselsatte i prosent av befolkningen. Menn og kvinner 16-74 år, etter ettårige aldersgrupper. 4. kvartal 2000 og 4. kvartal 2006



Source: Statistics Norway

Figure 33 shows employment in share of total population for Norway. Employment rates are high for both young and old age groups. The employment rates of workers aged 15-25 is approximately 50% and above EU average. One possible reason may be that a rather high share of students combines studying with wage work.

Many industries and businesses are suffering from shortage of labour, particularly in the cities. Even so, there are approximately 80,000 unemployed people in Norway and this equals 2.5% of the work force. An increasing share of these is long term unemployed. The long term unemployment as share of total unemployment is 36% for men, 27% for women and 14% for young workers.

The unemployment rate is higher for younger members of the labour force. The youth unemployment rate was 8.6% in 2006. The immigration population also experience higher unemployment than the rest of the labour force although the unemployment rate was reduced by more than 2% from 2005 to 2006 to 6.1%. In total, 60% of all first generation immigrants are in employment.

There is also an existence of underemployment among part time employees and workers without permanent employment. Both these occurrences are more frequent for women than for men and are most common in health and social services.

Average personnel cost per employee is only available for year 2000 and include direct and indirect personnel costs per paid work hour on average for chosen aggregates of industries. In 2000, the average hourly personnel cost was EUR 23 for manufacturing industries (excl petroleum) and EUR 25 for service industries (excl public administration).

In Table 14 we have summarised regional labour market variables in the case region. Active population and employment is increasing throughout the period. In 2006, active population was 93,000 and equals approximately 50% of total population. Total employment in the region was 83,000 at the same time. There are far more people commuting out of than into the region but both out-commuting and in-commuting is increasing. Unemployment does however decrease from 2,100 unemployed in 1999 to 1,500 unemployed in 2006. This implies that only 1.6% of the active population is unemployed in 2006. Indicator 70 *Long term unemployed as share of active population* is obtained from Statistics Norway. Less than 300 people are long term unemployed at any time so the indicator value is close to zero. If we measure long term unemployment as share of total unemployment, we observe an increase from 7% in 2001 to 15% in 2005. This increase must be seen as a result of the low and falling total unemployment rate.

Table 14 Employment variables in Hedmark

	1999	2000	2001	2002	2003	2004	2005	2006
Active population	84,970	85,314	85,532	92,427	91,102	91,745	91,521	93,341
Employment	74,548	74,828	81,130	80,893	80,449	81,867	81,141	83,220
Unemployed	2,112	2,036	2,226	2,347	1,984	1,965	1,987	1,510
Commuting out	11,975	12,388	12,409	14,058	13,403	12,904	13,322	13,666
Commuting in	3,766	4,012	4,237	4,871	4,734	4,991	4,929	5,055
Unemployed as share of active population	2.49	2.39	2.60	2.54	2.18	2.14	2.17	1.62
Long term unemployed as share of active population	0.31	0.21	0.18	0.27	0.17	0.24	0.32	

Source: Statistics Norway

1.1.4.4 Civil society

Indicator 74 *Local Action Groups* is not a relevant indicator for the Norwegian case region. Norway did, however, participate in the Local Agenda 21 programme for sustainable development. In Hedmark, 15 of the 22 municipalities participated in the programme. The Local Agenda programme is terminated, but the focus on sustainability in regional development, industry development, agriculture, forestry, landscape preservation, water resources etc is present in national as well as regional and local planning. In 2003, the government presented a national plan of action for sustainable development and in 2005 an official report introduced a set of indicators for measuring sustainable development at national and regional level.

The county council prepare a *Regional Development Programme* for 4-year periods. The programme for 2007-2010 has three overall perspectives concerning regional planning: Sustainable development, equal rights for both genders and all ethnicities, and the living conditions of children and youth. Another priority is to base regional development on equal partnerships between the concerned public and private partners in the region.

Important network building is to form alliances and interactions with neighbouring counties, including the neighbouring Swedish counties, with the County Governor, with the municipalities, with the regional private sector, and with organisations, but also to participate in relevant international arenas concerning framework conditions for regional and industry development. The formalised inland cooperation with Oppland county is of particular priority.

1.2 Exploring policy intervention

1.2.1 EU policies for agriculture and rural development

1.2.2 Regionally oriented Community policies

Norway is not a Member State of the EU and Norwegian regions are consequently not eligible for receiving regional or agricultural support. Norwegian regions do, however, participate in some trans-national and trans-regional networks and projects. The case region has participated in several INTERREG projects, both in small constellations with the Swedish region across the border and with larger Scandinavian regions. When Norwegian regions participate in INTERREG projects the Norwegian participation is fully financed by the Norwegian government.

EU legislation does, however, have some influence for Norwegian autonomy for policy area like agriculture and regional development. As an EFTA country, Norway has signed an EEA agreement with the EU securing free trade (except some limitations for trade in agricultural and fish products), common EU rules for competition between businesses, access to markets for public procurement of goods and services and a number of other agreements. It is particularly the common EU rules for competition that has impact on Norwegian rural and agricultural policies. The European Surveillance Agency (ESA) has to sanction the Norwegian government's proposals for regional support schemes prior to each programme period. Before programme period 2007-2013 it was uncertain whether the regionally differentiated employers' tax on labour would be accepted as not incompatible with the rules of competition. The regionally differentiated employers' tax on employment is probably the government's most efficient tool for a regionally sustainable labour market. The use of labour is taxed in Norway, but the tax rate varies with rurality. In the most rural parts of the country, the tax rate is zero, while it is 14.1% in central areas. ESA also sanctions the regions eligible for support in agreement with the prevailing EU regional support criteria.

1.2.3 National and regional policies

Regional and rural policies have had a strong standing the last 50 years. Norway has a small population compared to geographic area and it has been a pronounced objective of all governments (partly for reasons of national defence) to maintain the scattered settlement pattern and to secure all inhabitants an equal amount of welfare services. In 1961 the government established a particular funding for rural development (*Distriktenes utviklingsfond*) as a tool to slow centralisation and to support creation of jobs in rural areas. The fund should provide risk capital to businesses in rural areas, establish new businesses and contribute to build necessary infrastructure. The last two decades, regional support has moved away

from investments in physical capital towards soft investments in human capital, network building, incubators, R&D support etc.

The political aims connected to regional development (regional growth and cohesion) are relatively broad and include:

- *Preserve the settlement pattern:*
The settlement pattern varies substantially between different types of regions. The population density, the age structure, and the net migration imply that parts of the country have a risk of being depopulated. Therefore, the major aim of regional policies in Norway is to preserve the settlement pattern.
- *Promote regional economic growth (regional competitiveness):*
This aim is directed towards the regions' themselves and mainly towards endogenous factors behind economic growth. The labour market is an important, and maybe the most decisive, factor influencing the aim of preserving the settlement pattern. Although research shows that the decisive factor behind households' decisions to migrate from the periphery to the core of the country is the job opportunities centrally, substantial effort is being put into influencing both the supply and demand side of the labour market in the peripheries.
- *Similar quantity and quality of welfare services all over the country:*
This aim is defined by the central government. The municipalities' and county councils' capacity for financing welfare production varies substantially. Therefore, the central government transfers resources between richer and poorer municipalities and counties, as well as providing them with additional subsidies from the central government.
- *Income:*
Income equality is an important aim for Norwegian policy generally, and in the regional policy more specifically. The income variation between Norwegian regions is relatively moderate (Johansen et al 2006). Most of the means in the income policy, like progressive income taxes, social security benefits, pensions and so on, are therefore directed towards individuals rather than persons living in certain parts of the country. We do, however, have some specific means for people living in the northernmost parts of the country.

These aims can be split even further into more concrete aims, which we will not do here. We would, however, like to emphasize that the aims are linked together in the sense that all aims can be seen as inputs to the others, and influence the other aims. Regional development is a function of all these aims, and therefore all the aims should be considered together.

We usually distinguish between *broad* and *narrow* regional support. Narrow regional policies might be defined as specific policies directed towards the rural (lagging) regions, the districts or the peripheries. These policies are explicitly defined and include support schemes like

- Business development support
- Entrepreneur bursary
- Investments in physical capital
- Rural district development support
- R&D contracts
- Programmes to increase value added in agriculture and forestry

The regional support schemes only account for EUR 16 mio in the case region each year. The seven most central municipalities in the case region is not eligible for regional support. These are Hamar, Ringsaker, Løten, Stange, Sør-Odal, Elverum and Nord-Odal. The other 15 municipalities are all eligible for support.

In addition to the regional development support, there exists some national industry support schemes. The most important are the *regionally differentiated employers' tax on labour* and *SkatteFUNN*. SkatteFUNN is a 20% tax deduction scheme on R&D expenses given fulfilment of the support scheme criteria. In 2001, the budget for this support scheme was EUR 25 mio on national level. There are 15 municipalities in Hedmark that are eligible for reduced employers' tax on labour. This support scheme amounts to EUR 23 mio within the region and EUR 626 mio at national level.

Broad regional policies include all government sector policies that have regional impacts. In practise, however, the distinction between broad and narrow policy is not that clear. There are policies that would be defined as broad (for instance transfers to the municipalities), but give priorities to certain regions (the peripheries), and there are policies that could be defined as narrow, but are defined as broad because they are the responsibility of the Ministry of Industry (and not the Ministry of Regional Development), like the regionally differentiated employers' tax. The delimitation between narrow and broad policies is therefore not defined once and for all, and is used somewhat ad hoc.

The important thing to remember is that the narrow regional policies are limited, and in money amount to 1-2% of the total sector policies. Therefore, the impacts the broad policies have on regional development (in different regions) are significantly more important than the impacts of the narrow policies. Effort is therefore being put into coordinating narrow and broad regional policies, so they pull in the same direction when regional development is concerned. However, each broad policy also has its sector policy aims to consider, so this coordination is somewhat difficult. The question is, of course, if aims connected to each policy sector's development or to regional development should be given priority or not, when in conflict with each other. There is no clear, scientific answer to that question.

1.2.4 Effects of Legislative restrictions

National legislation prevails on equal terms in all regions and for all citizens. Some restrictions are, however, imposed on regionally demarcated areas like i.e. nature park areas and some regulations needs to be defined more explicitly for each region like acts on drawing of boundaries. Some restrictions can be locally or regionally imposed like i.e. regulations for serving alcoholic beverages and car park regulations. The legislative restrictions explicitly valid for Hedmark can be found at the official web pages for Norwegian laws (Lovdata): <http://www.lovdata.no/for/lf/fylke-HEDMARK.html>.

The regional legislation for the case region are mostly about nature parks and reserves, protection of flora and fauna, hunting regulations in different areas, landscape preservation, cultural heritage etc, and of land use, building and planning.

The land use act, soil protection act, concession acts, fauna and hunting acts, mountain act and most importantly, the plan and building act is of importance for regional development. The food safety and quality act (matloven) regulates entrepreneurship in the agricultural sector in the sense that it regulates what can be processed at the farm. Commercial trade in agricultural products is heavily regulated. Milk is i.e. collected by the dairy (TINE) and the milk producers are not allowed to sell their milk to any other actors, not even in small quanta.

The treaties regulating matters between EU and Norway can be found at Lovdata: <http://www.lovdata.no/traktater/index.html>.

List of relevant legislative restrictions

→ Air pollution and climate change

Legislation include

- Forurensningsloven/Pollution act
- Klimakvoteloven/Climate quotas act

→ Water protection and management

Legislation on water protection and management is imposed to ensure secure and sustainable administration, development and use of water resources. The municipalities are responsible for distribution and the quality of the inhabitant's drinking water and for sustainable management of waste water. Management of ground water, lakes and waterways is also primarily the municipalities' responsibility.

Legislation include

- Vannressursloven/Water resource act
- Vassdragsloven/Water system act

- Lov om motorferdsel i utmark/regulations for use of motorised vehicles in outfields and water systems
- Plan- og bygningsloven/Planning and building act

→ Soil protection

Legislation on soil protection is to secure that land resources (including mountains and forests) are used in agreement with society's interests, for farm production and for future generations. The legislation shall protect the maintenance of cultivated land from other interests, also in an environmental protection perspective. The municipalities usually have the primary responsibility.

Legislation include

- Jordloven/Soil protection act
- Plan- og bygningsloven/Planning and building act
- Jordskifteloven/Land use act

→ Protection of nature and biodiversity

Legislation include

- Naturvernloven/Environment protection act
- Skogloven/Forest act
- Forurensningsloven/Pollution act
- Jordloven/Soil protection act
- Kulturminneloven/Cultural heritage act
- Lov om motorferdsel i utmark/regulations for use of motorised vehicles in outfields and water systems
- Lov om nordisk miljøvernkonvensjon/Nordic environmental convention
- Naturskadeloven/Natural hazard act
- Miljøinformasjonsloven/Environmental information act
- Plan- og bygningsloven/Planning and building act
- Viltloven/Protection of fauna and hunting act

→ Land use management

Land use legislation regulates sales and use of agricultural properties for the benefit of future generations, for landscape preservation, for sustainable agricultural land management, to secure the population's rights to outdoor life and nature experiences, etc.

Legislation include

- Konesjonsloven/Concessions act
- Plan- og bygningsloven/Planning and building act
- Jordloven/Soil protection act
- Jordskifteloven/Land use act

- Fjellloven/Mountain act

- Entrepreneurship

Legislation include

- Matloven/Food safety and quality act
- Odelsloven/Allodium rights act
- Enhetsregisterloven/Registration of businesses act
- Samvirkeloven/Regulations on cooperatives
- Selskapsloven/Business act
- Regnskapsloven/Financial account act
- Aksjeloven/Limited liability act

- Employment and social policy

Basic rights for employees are secured nationally by the government through national regulations. These rights include protection against unjustly dismissal, discrimination, regulated labour hours, minimum wages, physical and psychic working conditions, right to sick leave and maternity leave etc. The government also secures equal rights for all worker irrespective of nationality or residence. Traditionally, employers' and workers' unions negotiated centrally for each industry, thus securing equal agreements in all part of the country. It has in later years become more common with, at least partially, local agreements.

Legislation/regulations include

- Free movement of EU workers
- Arbeidsmiljøloven/Regulations on work place environment
- Tjenestemannsloven/Agreement for civil servants and state employees
- Odelsloven/Allodium rights act
- National, regional and local agreements between workers' unions and employers' unions

1.3 Investigating networks – supply chains

This chapter is about the chosen supply chains of the case study region of Hedmark, Norway. We have investigated two chains, Long Life Milk (Supply Chain 1) and Synnøve Finden Yellow Cheese (Supply Chain 2). Both chains originate from dairy farming.

1.3.1 Supply chain 1 – Long Life Milk

1.3.1.1 General description

There are three (four) stages of this supply chain. Focus of the chain is the processing from natural to long life milk (LLM), rather than the farmers themselves. There are, however, in excess of 800 dairy farmers in Hedmark. The national total is 15,000. There is only one plant processing LLM in Norway, which is located in the heart of Hedmark. This plant is run by Tine, which is a very large cooperative owned by the farmers. Since virtually all Norwegian milk is delivered to and processed by Tine, we do not really know if most of the primary inputs for LLM originate regionally, or in other parts of the country. However, our information source says that the market for primary products for LLM is national rather than regional.

The end consumption actor for LLM is the 4.7 mio private consumers in Norway. All LLM products are sold on a national market.

In between the LLM plant and the end consumption actor, we find four national, vertically integrated, chains of wholesalers and detailists. These chains cover almost all of the detailist market in Norway. They do not share information on prices, logistics or other "sensible" information with anyone. Therefore, we do not know whether the LLM is shipped by Tine, by the chains, or if independent shippers are hired. We do not know the prices the chains pay to Tine for LLM products. This is, unfortunately, missing information in the supply chain questionnaire.

1.3.1.2 Agricultural and forestry production actors

In this section, we focus on the farmers.

Production input

The typical Hedmark dairy farm is a family farm, with one farmer and his/her family. The average farm size is 25 ha, and the turnover is about EUR 60,000. In other words, we talk about relatively small farms. Many farmers and/or their spouses also work off-farm.

The most important production inputs are workforce (estimated 30% of costs), land use (15%), energy (10%), purchased forage (10%), and capital equipment (machinery and storage facilities are estimated at 20% of costs). One should mention that water is in excess supply in Norway and not relevant when costs are estimated.

Although Norwegian farms are small, the farmers do not tend to share equipment. There might be a few farmers that do so, but this is very rare. However, the farms' equipments are rather modern, with modern barns, milking equipment, tractors and other machinery. Norwegian farmers are, in general, reasonably quick at adapting to new technologies. Some of this quickness can, of course, be explained by agriculture policy, which includes investment support.

Most (all) farmers are self-employed. This means that there are almost no employees in farming, although holiday replacements etc exist. We have estimated the numbers of farmers with more than basic training at 100%, with more than secondary education at 50%, and with tertiary education at 20%. This illustrates more that the level of education in Norway is high, than it illustrates the need for higher education in farming. Specialisation of knowledge is, however, very necessary, but this is obtained by on-farm training.

Production output

Norwegian dairy farms, including farms in Hedmark, are regulated. They are given a price, at which they sell milk to Tine. However, they can only sell a given volume (quota) of milk at this price. If a farm's production exceeds the quota, the farmer will be fined. Quotas can be bought and sold between farmers. The farmers also receive subsidies, which to a lesser extent than earlier is based on production volumes. These factors decide the production volumes, incomes, and the farm structure in Norway. The market, and individual farmers' marketing of their own milk, is not very important.

Dairy farming is less than 40% of the share of farming in Hedmark. All produce is sold to Tine (food processor). There is no competition between farmers. Milk is shipped a relatively short distance, although Tine has centralised its production units the last five-ten years. Therefore, the market for Hedmark milk is mostly regional, but also national.

External effects

Our experts have reported that the negative external effects of dairy farming in Hedmark are relatively low. This implies that dairy farming is not very intense, relatively organic, and ok for the environment.

The positive environmental effects are, on the other hand, rated a bit higher. This is probably due to the increasing importance of agricultural multifunctionality; not only food and other produce that is marketed (sold) are the results of farming

activities, but there are also certain public goods and other non-marketed goods that are important. Cultural heritage, cultural landscape, biodiversity and recreation areas are mentioned.

In addition, agriculture's contribution to the rural economy is pointed out. There are 800 dairy farmers in Hedmark. Using standard multipliers, we find that these generate an additional 500-600 man years outside farming. Dairy farming is, in this sense, an important part of the economic base of the rural area of Hedmark. In addition to this, farmers and their spouses working off-farm represent an important part of the workforce and labour supply. They are a part of the human capital in Hedmark, and are used in many parts of the community.

Farming in Norway is still, to a great extent, a man's business. There are fewer female farmers.

External factors

Milk is produced the whole year through in Hedmark. In the summer season, the cows are in the fields and mainly eat grass. In the winter season, however, fresh fodder does not exist, and the cows stay inside. The quality of the milk is influenced by the quality of the soil, and by climate conditions.

There are not many natural hazards in Hedmark. However, there might be seasonal floods, and sometimes drought. Erosion also exists. These hazards have, however, not very important impacts on dairy farming.

Again, we would like to stress that the structure of dairy farming in Norway and Hedmark is highly influenced by a system of regulations, including legislation, subsidies, quotas, prices and the Tine cooperative. There is no ordinary market for milk. Dairy farmers do not compete with other dairy farmers. They all sell their milk to Tine, at a given price and very much at a given volume. The production of milk is, in other words, a political decision when push comes to shove. Since the dairy farmers adapt to the conditions that are provided politically, they have to be presented with conditions that they can accept, so that the goal of producing a certain amount of milk can be fulfilled. If not, they would quit dairy farming.

Every year, there are negotiations between the farmers' unions and the Government on how to set these conditions (for all sorts of farming). Farmers' incomes are of course an important issue in these negotiations, especially for the unions. The political authorities, which also have to look at international treaties etc, have many (multifunctional) goals in their agricultural policies, and these might not coincide with the farmers' income demands. However, strikes are very rare, and there seems to be results from the negotiations every year.

Diversification

We have described the great influence of agricultural policies on farming decisions and structures in Norway. Diversification is, and will be in the future, the offspring of these policies and yearly negotiations. International treaties and agreements will of course influence these negotiations. Today, we do not know to what extent Norway will be able to pursue its own policies in the future. We are not sure what the long-term strategies of the Government are, either. But we do know that agricultural policies will decide future diversification in farming.

Analyses (NOU 2004:2) show that the prices of Norwegian agricultural, compared to world market prices, are very high. Therefore, a more market oriented structure in Norwegian farming, with freer imports, could lead to a substantial decrease in the production of food and the number of farmers in Norway. This is, of course, an extreme scenario. Since agricultural policies are very important in Norwegian agriculture, one would think that the structure of farming could be changed by changing policies.

1.3.1.3 Intermediary production actors

Here, we look only at Tine's LLM plant. This plant processes milk to LLM, and Tine is also an important wholesaler of milk and a part of the distribution chain. We will also mention the four major shop and wholesaling chains, when applicable.

There is, of course, only one plant producing LLM in Norway. It employs 170 hands, with an estimated average turnover of EUR 55 to EUR 70 mio a year. The company is relatively large, for a manufacturing company in the region.

Production input

The by far most important raw material is milk. We have estimated its share of production costs to around two thirds. The work-force is also important. The total quantity of milk used in the plant is 55-60 mio l.

The personnel costs per man year in the plant are estimated at being somewhat above average in the region. This means that the plant would be an attractive place to work for the potential employees in the region. The need for specially trained work-force is on the average. In-house training would be sufficient for most of the operations.

Production output

We have estimated the average output of LLM to be 50-60 mio l, at the estimated average selling price of about EUR 1 a litre from Tine to the wholesalers (detailists). Since the plant is a part of the Tine group, we are not able to get exact figures for the plant's income, nor for its profits. We only know that the in-price for milk is EUR 0.5 and the out-price for LLM is EUR 1. Tine decides its own internal prices,

both on inputs to and outputs from the plant, which of course will influence both the plant's income and profits.

The four major chains of wholesalers and shops are very important customers of Tine. One of the reasons why Tine will not give us information could be that the price from Tine varies among these chains. We do not know that, but the chains' bargaining power versus the monopolist Tine could easily be seen as being variable. In addition, we do not know to what extent Tine transports the LLM, and to what extent the four chains themselves transport it.

External effects

In general, our view is that the external effects of the activities are relatively low.

External factors

Food processing, including production of LLM, is regulated in many ways. The regulations, which concern both protection of human health and of consumers' interests, apply to all producers of food, not only Tine. In this sense, they do not apply exclusively to the production of LLM. This implies that these regulations do not alter the relative competitiveness between different food producers, but they are important framework conditions for all food production.

General regulations on employment and social protection apply to producers in all production sectors, not only food production, and are important regulations in the labour market in Norway. These regulations define employers' and employees' rights and duties in the labour market.

When it comes to the dimensions of sustainability, we would like to point out that Tine traditionally has had an important role in the rural parts of Norway. The cooperative is, as we have mentioned earlier, owned by Norwegian farmers, and is not only a cooperative. It is also an important market regulator in the market for milk products. In addition, Tine supports local communities and local activities, for instance within sports. The *social dimension* of the sustainability dimensions has therefore been a relatively important factor traditionally, but one might argue that this dimension is gradually losing ground to the economic dimension over time.

The *economic dimension* is always an important dimension of sustainability. One might argue that without this dimension playing a basic role, there would be no room for being social or environmental. Our view is that the economic dimension gradually has become more and more important for Tine during the last years. There has been a geographical and structural concentration of dairies and other milk processing factories in Norway, including within the case study region. In this sense, economies of scale, increased efficiency, costs reductions, changes in management structures and other structural reforms have been important strategies for Tine. It has become a more "modern" company, in the sense that it has become more similar to companies in other sectors. At the same time, it is

important to remember that this cooperative originally was established to increase farmers' incomes through market concentration. The economic dimension has therefore been a basic dimension since the start, but has become more important with structural reforms within Tine's company structure the last years.

Although one could argue that the *environmental dimension* has not been all that important in Tine's activities, there are several factors that pull in the other direction. In general, the name Tine is a very well known name in the Norwegian consumers market. Consumers associate Norwegian milk (and Tine) with something very clean and healthy. Milk is good for your health, and is processed in a very healthy and environmentally friendly manner by Tine. With the exogenously given increased focus on sustainability and the environment, we expect that Tine is among the companies that probably could adapt to future regulations relatively easily.

1.3.1.4 End consumption actors

In this section, we look closer at the end consumption actors, which we have defined to be all inhabitants in Norway. Milk, including LLM, is an important part of what Norwegians eat (drink).

Demand

We have estimated the demand for LLM at between 10 and 15 units (litres) per person, at an average price of EUR 1.5. We think that the demand for the product is not very elastic, and would only decrease a little bit if prices went up. This, of course, also depends on how prices of the alternatives to LLM change in the same period. We do not think that changes in income levels influence the demand for LLM, since only a very small portion of the household income is used for buying this product.

The VAT on food is lower than the ordinary VAT rate in Norway, and has been so for the past couple of years when it was reduced as a part of the negotiations between the Government and the farmers' unions. Experts do not agree to what extent the change in VAT has influenced (reduced) the end prices of food in Norway. Some say it has, while others think that the change only increased the profits for the producers and especially for the food chains.

External factors

The most important external factor influencing the end consumer in choosing LLM to alternatives is the unique market position of the product. We also feel that the exclusiveness of the product, or its uniqueness, has an influence on demand. Other external factors are not very important.

1.3.1.5 Dynamics of the supply chain

LLM is a relatively new product (or rather products). Therefore, the supply chain for this product has evolved during the past 15 years, and thus started during the period. Still, our general view is that the characteristics of the supply chain for LLM are not very open. The most important reasons for this are the market positions in the supply chain, with Tine negotiating prices with the main wholesale/detailist chains. Tine is a monopolist, while the four chains negotiate the prices with Tine.

Reasons for major shifts in the past

The primary reason for major shifts in the past is of course that Tine decided to produce LLM, which was a product. They also decided to concentrate their production of LLM to the plant in Hedmark. The main shift is, in other words, on the production side.

Parallel to this, the vertical integration between detailists and wholesalers into four major chains commenced. In the eighties, and also in the nineties, there were still many independent shops in Norway. Most of these have now become parts of these chains, which cover more than 95% of the market in Norway. Unfortunately, they do not provide us with much information, due to the high degree of competition between the chains.

After the production of the LLM started, there seems to have been no significant shifts in supply and/or demand.

Effects of past shifts

The most important effect of the past shifts is that a market for LLM was generated. Say's law, that the supply of a good generates demand, proved to be right for this product.

The short term effect of concentration and vertical integration in the wholesale/detailist market was that prices of some products fell (we do not have info if this applied to LLM). After a period of consolidation, prices have shown a tendency to rise, as the chains have divided the market between them and each of their market power has increased. A very small number of key products' (the products used in consumer surveys) prices seem not to increase.

The increased concentration in this market has also led to fewer specialist products, while the supply of standardised products seems to have increased. There seems to be higher profits connected to selling standardised products. The supply of LLM has not been significantly influenced by this process, but the process is flagged as one of the problems connected to concentration in the market for consumer goods.

Since there have been no other significant shifts in supply and/or demand, there has not been significant additional impacts of such shifts.

Possible reasons for future shifts

Our view is that there probably will not be significant future shifts in the market for LLM. It seems as if this product (products) will continue to be supplied to the consumers by the four main chains, that production of LLM will continue inside the case study region and cover the national market for such products, and that production will be based on Norwegian milk. There will be only minor changes to the quantities of LLM in the market. This is our basic prediction.

However, changes in policies, in Tine's strategies, and/or in the chains' strategies, could imply changes to any parts of the supply chain. In this sense, one could predict a set of futures, depending on the shift. Changes in policies could lead to reduced primary production of milk in Norway. Then, the primary input for LLM production, or the LLM products themselves, would have to be imported. LLM are not fresh products and can be transported over large distances. Increased competition from abroad could lead to decreased production in Norway. Of course, Tine could change their strategies, including the localisation of their production units. There is, in this sense, no guarantee that the plant producing LLM will stay in Hedmark in the future. Increased competition from alternative national producers, like Synnøve Finden, could also result in changes in the structure of the supply chain. As we have pointed out, we do not think that the market for LLM products would increase substantially in Norway. Other structural changes, for instance the structure among the wholesalers/detailists, would have small impacts on the existing market for LLM.

1.3.2 Supply chain 2 – Synnøve Yellow Cheese

1.3.2.1 General description

There are three (four) stages of this supply chain. Focus of the chain is the production of Synnøve Finden Yellow Cheese (intermediate production), which is based on Norwegian milk. The production plant is located in Alvdal, which is in the North of the case study region. Synnøve Finden is not a part of the Tine dairy system, and most of the milk used by this producer is sold from Tine (which also is a regulator in the market for Norwegian milk).

There are in excess of 800, of a national total of 15,000, dairy farmers in Hedmark, which are the primary producers of milk used by Synnøve Finden. The end consumption actors are the 4.7 mio private consumers in Norway.

In between Synnøve Finden and the private consumers, we find four national, vertically integrated chains of wholesalers and detailists. These chains cover almost all of the detailist market in Norway. They do not share information on prices, logistics or other information with anyone (and neither does Synnøve Finden, by the way). Therefore, we neither know the price of yellow cheese from Synnøve to the chains, nor do we know to what extent the products are shipped by the chains,

by independent transporters or by Synnøve. This information, unfortunately, is lacking in the supply chain questionnaire.

1.3.2.2 Agricultural and forestry production actors

In this section, we focus on the farmers. The information here is the same as the information provided in the section on LLM.

Production input

The typical Hedmark dairy farm is a family farm, with one farmer and his/her family. The average farm size is 25 ha, and the turnover is about EUR 60,000. In other words, we talk about relatively small farms. Many farmers and/or their spouses also work off-farm.

The most important production inputs are workforce (estimated 30% of costs), land use (15%), energy (10%), purchased forage (10%), and capital equipment (machinery and storage facilities are estimated at 20% of costs). One should mention that water is in excess supply in Norway and not relevant when costs are estimated.

Although Norwegian farms are small, the farmers do not tend to share equipment. There might be a few farmers that do so, but this is very rare. However, the farms' equipments are rather modern, with modern barns, milking equipment, tractors and other machinery. Norwegian farmers are, in general, reasonably quick at adapting to new technologies. Some of this quickness can, of course, be explained by agriculture policy, which includes investment support.

Most (all) farmers are self-employed. This means that there are almost no employees in farming, although holiday replacements etc exist. We have estimated the numbers of farmers with more than basic training at 100%, with more than secondary education at 50%, and with tertiary education at 20%. This illustrates more that the level of education in Norway is high, than it illustrates the need for higher education in farming. Specialisation of knowledge is, however, very necessary, but this is obtained by on-farm training.

Production output

Norwegian dairy farms, including farms in Hedmark, are regulated. They are given a price, at which they sell milk to Tine. However, they can only sell a given volume (quota) of milk at this price. If a farm's production exceeds the quota, the farmer will be fined. Quotas can be bought and sold between farmers. The farmers also receive subsidies, which to a lesser extent than earlier is based on production volumes. These factors decide the production volumes, incomes, and the farm structure in Norway. The market, and individual farmers' marketing of their own milk, is not very important.

Dairy farming is less than 40% of the share of farming in Hedmark. All produce is sold to Tine (food processor). There is no competition between farmers. Milk is shipped a relatively short distance, although Tine has centralised its production units the last five-ten years. Therefore, the market for Hedmark milk is mostly regional, but also national.

External effects

Our experts have reported that the negative external effects of dairy farming in Hedmark are relatively low. This implies that dairy farming is not very intense, relatively organic, and ok for the environment.

The positive environmental effects are, on the other hand, rated a bit higher. This is probably due to the increasing importance of agricultural multifunctionality; not only food and other produce that is marketed (sold) are the results of farming activities, but there are also certain public goods and other non-marketed goods that are important. Cultural heritage, cultural landscape, biodiversity and recreation areas are mentioned.

In addition, agriculture's contribution to the rural economy is pointed out. There are 800 dairy farmers in Hedmark. Using standard multipliers, we find that these generate an additional 500-600 man years outside farming. Dairy farming is, in this sense, an important part of the economic base of the rural area of Hedmark. In addition to this, farmers and their spouses working off-farm represent an important part of the workforce and labour supply. They are a part of the human capital in Hedmark, and are used in many parts of the community.

Farming in Norway is still, to a great extent, a man's business. There are fewer female farmers.

External factors

Milk is produced the whole year through in Hedmark. In the summer season, the cows are in the fields and mainly eat grass. In the winter season, however, fresh fodder does not exist, and the cows stay inside. The quality of the milk is influenced by the quality of the soil, and by climate conditions.

There are not many natural hazards in Hedmark. However, there might be seasonal floods, and sometimes drought. Erosion also exists. These hazards have, however, not very important impacts on dairy farming.

Again, we would like to stress that the structure of dairy farming in Norway and Hedmark is highly influenced by a system of regulations, including legislation, subsidies, quotas, prices and the Tine cooperative. There is no ordinary market for milk. Dairy farmers do not compete with other dairy farmers. They all sell their milk to Tine, at a given price and very much at a given volume. The production of milk is, in other words, a political decision when push comes to shove. Since the dairy

farmers adapt to the conditions that are provided politically, they have to be presented with conditions that they can accept, so that the goal of producing a certain amount of milk can be fulfilled. If not, they would quit dairy farming.

Every year, there are negotiations between the farmers' unions and the Government on how to set these conditions (for all sorts of farming). Farmers' incomes are of course an important issue in these negotiations, especially for the unions. The political authorities, which also have to look at international treaties etc, have many (multifunctional) goals in their agricultural policies, and these might not coincide with the farmers' income demands. However, strikes are very rare, and there seems to be results from the negotiations every year.

Diversification

We have described the great influence of agricultural policies on farming decisions and structures in Norway. Diversification is, and will be in the future, the offspring of these policies and yearly negotiations. International treaties and agreements will of course influence these negotiations. Today, we do not know to what extent Norway will be able to pursue its own policies in the future. We are not sure what the long-term strategies of the Government are, either. But we do know that agricultural policies will decide future diversification in farming.

Analyses (NOU 2004:2) show that the prices of Norwegian agricultural products, compared to world market prices, are very high. Therefore, a more market oriented structure in Norwegian farming, with freer imports, could lead to a substantial decrease in the production of food and the number of farmers in Norway. This is, of course, an extreme scenario. Since agricultural policies are very important in Norwegian agriculture, one would think that the structure of farming could be changed by changing policies.

1.3.2.3 Intermediary production actors

Here, we look only at Synnøve Finden's dairy plant in Alvdal, which is one of three dairies run by Synnøve Finden. This plant has become one of the largest cheese plants in Norway, with modern production equipment, since it was established in the mid nineties. It produces both yellow (90%) and brown (10%) cheese. Synnøve Finden gets most of (all) its milk from Tine. At the same time, it is Tine's main competitor on the market for yellow (and brown) cheese in Norway.

The Alvdal production plant employs 150 hands. We do not know the turnover, but all together, the company had a turnover of 700 mio NOK in 2005 (around EUR 90 mio).

Production input

The by far most important factors of production are milk (estimated at 60% of costs) and labour (20% of production costs). Other factors of production are of less

importance. The personell costs are about equal to the average labour costs in the region (estimated at EUR 40,000 a year). The use of specially trained employees is around the average of dairies – most are trained on-site, and only a few needs higher education.

There are no substitutes for the use of cow milk in yellow cheese production. If the price of milk increases marginally, we would probably see only minor changes to the production of yellow cheese. Reduced profits are more probable.

Production output

An enzym is added to the milk, which is heated to 30 degrees Celcius, separated, salted and stored for a month or more to become cheese. The plant produces 8,700 mio t yellow cheese and 1,200 mio t brown cheese a year. The products are sold mainly to the four chains of wholesalers/retailers, which sell them to the consumers. There is a national market for yellow cheese in Norway.

This national market is divided between two main producers, Synnøve and Tine. Their yellow cheeses are almost perfect subsitutes, which means that there is high competition, also on the price of yellow cheese. At the same time, Tine is the primary regulator in the milk market. As we have stated above, we do not really know the selling price for milk between different departments of Tine, and we do not know what the right (efficient) price should be. There have been many conflicts between Tine and Synnøve, where Synnøve claimed that they could not get the milk they wanted. In a law suit on this, Synnøve won, and Tine had to deliver the milk Synnøve wanted.

External effects

As is the case for the LLM factory, our experts find that the external effects of the production activities in Alvdal are moderate.

There is, however, one effect that is quite important. The Alvdal factory employs around 150 hands, while the rural community of Alvdal only has around 2,500 inhabitants. This means that the dairy is a very important employer locally. It came to Alvdal in the mid 1990s, when Synnøve bought a closed dairy plant and started employing people that had lost their jobs. This is, of course, very important for the survival of the local community, which is located in a very remote and rural part of Hedmark.

External factors

Synnøve Finden's production of yellow cheese is influenced by many of the same general regulations on food safety and social protection, and in much the same way, as the production of LLM (see above). In addition, Tine is both a producer of dairy products *and* an important quantum and price regulator in the market for milk. Tine, in this sense, acts on behalf of the Government, trying to fulfil the public

goals regarding milk quotas and milk prices, while, at the same time, it is the most important producer of dairy products in Norway. Synnøve Finden has to buy their milk from Tine. As previously mentioned, there is a strong disagreement between Tine and Synnøve what price Synnøve has to pay for milk, as well as to what amount of milk they should be able to buy. This conflict has been taken to court, and Synnøve won it (see above).

Among the dimensions of sustainability, we find that the *economic dimension* is the most important one for Synnøve Finden. It is a public, limited company, which has to make profits in order to secure its survival. Tine too has to do that, but not necessarily in the same way as the company is a cooperative with a diverse range of products, regulatory tasks, a range of factories and so on. How Tine as a conglomerate is organised, including internal pricing between the different sections, is an important factor in deciding which of the factories that are profitable. In Synnøve, however, each factory's profitability is more transparent, at least for the management. Non-profitable factories would probably be shut down in the long run.

We have already pointed to Synnøve's importance in Alvdal's local economy. This is an example of a *social dimension* of sustainability. Of course, this dimension is important in the short run. Another social dimension is that many actors (consumers) feel that Tine's market power is too great. Therefore, they would prefer Synnøve's yellow cheese to Tine's, although the two cheeses are almost similar. In this sense, Synnøve as a producer contributes to reducing Tine's market power, which for some is a benefit by itself. The history behind the brand Synnøve Finden is also a social dimension. Norwegians associate the brand with certain types of moulded cheese (not yellow cheese), made with in relatively small quanta and with its own recipes. Synnøve Finden was originally started as a farm dairy, but the name was sold in the 1980s, and the company expanded in the 1990s. In this sense, the buyers bought a brand and expanded into more (mass) consumer friendly cheeses, trying to become a serious contender to Tine in the cheese market.

The *environmental dimension* has probably not been an all that important external effect of Synnøve's activities. Similarly to Tine, however, Synnøve is probably associated with a clean and healthy production process among consumers. As mentioned earlier, Synnøve (as other Norwegian factories) has to adapt to the environmental regulations set out by the local, regional and national Government.

1.3.2.4 End consumption actors

In this section, we look closer at the end consumption actors, which we have defined to be all inhabitants in Norway. Yellow cheese on bread is an important part of the food Norwegians eat.

Demand

We have estimated the average consumption of yellow cheese per Norwegian inhabitant to 10 kgs a year, at an average price of between EUR 5 and EUR 8. The demand for yellow cheese is not very elastic, and the total consumption of cheese is a very small part of the total food budget. However, yellow cheese is produced by both Tine and Synnøve. Therefore, we think that the price difference between Tine's and Synnøve's products is important. This can also be seen in the shops, where the prices on yellow cheese change very often. Both factories have price campaigns, and some times the one brand of yellow cheese is cheaper than the other in only one of the four large chains of shops. In other words, pricing in the shop chains, the results of price negotiations between the chains and the producers, and the factories' prices on yellow cheese influence the end price of the product. In this sense, the market for yellow cheese (and the price) is much more competitive than the market for LLM, but we think that the total amount of yellow cheese consumed in Norway is not very price sensitive and not very income sensitive.

External factors

The most important external factors other than price differences and income influencing the demand for Synnøve's yellow cheese are probably the media and NGOs for households, as we have mentioned above. Due to Tine's unique market position, many consumers and consumer representatives, as well as the media, have fronted Synnøve Finden's effort at entering the market for mass consumption of yellow cheese. This has been something very new in Norway since the mid 1990s, when production started in Alvdal. Sympathies have not left Synnøve, as they have taken Tine to court and beaten their significantly larger competitor. It is a bit like the story of David versus Goliath, and many Norwegians' sympathies rest with the little guy.

1.3.2.5 Dynamics of the supply chain

Synnøve yellow cheese is a relatively new product. However, it has a perfect substitute in Tine's yellow cheese, which is branded Norvegia. The supply of Synnøve's cheese has evolved during the past ten years, as it has become a well known brand in Norwegian shops.

Reasons for, and effects of, major shifts in the past

Synnøve Finden itself describes its history as a continuing struggle against the large dairy cooperative monopoly, which now is named Tine. They produced smaller amounts of moulded cheese until an entrepreneur bought the brand Synnøve Finden in 1987. The market for milk was still heavily regulated then, but the entrepreneur that bought the brand must have anticipated in that these regulations in the near future would become smaller. In a sense, the milk market was deregulated in 1994 (Tine is, however, still an important regulator, see comments above), and in 1996 Synnøve started mass producing consumer cheese – first

yellow and from 1997 also brown cheese. Since then, the production has grown from a turnover of around EUR 5 mio to today's turnover of almost EUR 100 mio. The *deregulation of the milk market* is, in this sense, the single most important reason for this cheese being produced in the first place.

The growth of Synnøve's production can be explained by several factors. On the one hand, Synnøve was met with sympathy from consumers and their representatives, as we have discussed above. Important underlying factors were of course the general trends towards deregulation and liberalisation, which influenced politics, regulations and markets from the early 1990s on. Efficiency and effectiveness, and the belief in market solutions, replaced the earlier beliefs in more regulated solutions more generally.

However, the milk market is still quite heavily regulated. Tine's monopoly in the consumer market is crushed, but they are still the largest producer of dairy products in Norway. At the same time, Tine is still an important instrument for the Government in regulating the market for milk. Regulations are now mostly quotas and prices. Tine has to sell milk to other producers, not only to their own factories. However, there is a dispute on what the selling price of milk should be.

Possible reasons for future shifts

The single most important reason for future shifts in the market for yellow cheese is probably a further deregulation of the milk market. Tine could lose their regulating powers, or could be forced into splitting the regulative activities totally from production activities. This will make it easier for other producers of dairy products than Tine to enter the market, and for existing producers like Synnøve to get the milk they want. Allowing for increased imports of milk is another example of deregulation. Changes in the support, price and quota system for Norwegian farmers could change the incentives for dairy farming. Reduced dairy farming would for instance easily reduce the market power of their cooperative (Tine), and open for increased imports. These are examples of how the regulatory system could change, which could have large impacts on the structures in this market.

The oligopoly between the four main chains of wholesalers and detailists could of course change, leaving us with more (fewer) chains in the future. This could lead to changes in their bargaining powers, both via the earlier links in the supply chains and via the consumers.

We do not think that the demand for yellow cheese would change substantially in the future.

1.4 Investigating social networks

Rural development in Hedmark is influenced by a set of factors and actors, and the relationship between them. The economic and demographic structures in Hedmark are important factors, which are discussed in some detail elsewhere in the report. Rural development is very dependent on these factors. In addition, policies and the Government structure are important. Traditionally, rural and regional policies in Norway have been of a top-down orientation, based on centralised measures with regional (rural) dimensions. These are discussed elsewhere in the report. However, policies have the past years become more oriented towards endogenous rural development, and are now more network oriented and based on partnerships.

There are many actors that try to influence these factors, nationally, regionally and locally. These actors are public, semi-public and NGOs, as well as industries, businesses and individuals. The relationships between the actors form relatively complex networks. Here, we try to look into some of these networks, focusing on the most important actors and relationships between them.

1.4.1 The Parliament and the central Government

The Norwegian Parliament (Stortinget) and the central Government are the most important public bodies in the Norwegian system of governance. Here, we refer to them together as the Government. The Government is responsible for legislation, long and short term policy strategies, and year-to-year budgets (monetary flows) for all policies influencing regional development. Some tasks are, however, decentralised to lower tiers of government, but the conditions for this decentralisation are decided by the central Government.

In Norway, we have a representative election system. Voters in each region (on NUTS III level) elect a given number of representatives to the Parliament, and the Parliament elects which parties that will be in Government. The number of representatives elected from each region is based on the number of voters in the region. However, each representative from rural regions has fewer voters than a representative elected from central (urban) regions. This means that there are more representatives from rural regions in the Parliament than their respective number of voters should imply. Again, this implies that rural values become more important than urban ones in the Government, and that rural development issues are important Government issues.

This makes the Government an important actor in rural development. Many sector policies, not only rural and regional policies, but others as well, are directed towards promoting rural development.

1.4.2 The County Council and the County Governor

The County Council

The County Council (or NUTS III region council) is an important body in executing public policies, especially on regional development and planning, and on secondary education. Since 2002, the Council became what is known as a Regional Development Agency (RDA), responsible for regional development. Rural policy measures were decentralised from the Central Government to *partnerships* headed by the County Councils (or RDAs). These partnerships were established to define the rural development problems, and to allocating rural policy measures to the problem areas in the region. The members of the partnerships come from different organisations, NGOs and industries, and they can influence the allocation of public measures to different development programs or projects. Since the members are not elected democratically, they are not responsible to the voters for their actions. Instead, they are responsible to their employers, organisations or NGOs, or to the partnership itself. These partnerships are very important in allocating rural development policy measures.

The County Governor

Each county (or NUTS III region), including Hedmark, has its own County Governor, which is the Government's highest office on the regional level. The County Governor contributes in implementing the central Government's policies on the regional level, and acts as an evaluator (accountant) in this implementation. Most policies are implemented via the local Government (the municipality). The County Governor acts as a guardian of civic rights. The County Governor may look into local decisions regarding the rights of any individual in the fields of health and social care, education, building and planning, and may change the decision to the benefit of the individual. Other important fields of action are environment protection, agriculture, emergency planning, local government finances and family matters.

The office of the county governor informs municipalities, research bodies and businesses on incentives relating to agriculture and horticulture, and aims at promoting development within this sector. The office of the county governor acts as an advisory body for several agricultural and forestry subsidy schemes. Among these schemes, production subsidies and farm relief worker subsidies are of key importance.

The office of the county governor encourages business development within farming, forestry and related activities. The office liaises between national authorities, county councils and municipalities. The office of the county governor's work of coordinating county plans, business initiatives and plans relating to tourism are vital for bringing activities together. The county governor is also responsible for drawing up regional business strategies.

Subsidies for rural development schemes are overseen by the office of the county governor. These subsidies are awarded to projects that enhance business development within agriculture in rural communities. Activities which encourage the involvement of young people and women in agriculture are priority areas.

The County Governor and the County Council in Hedmark

Since 2004, Hedmark was appointed a Unity Council on trial basis, together with Møre and Romsdal (north-west in Norway). The division of labour between different tiers of government has been focused for some years in Norway now, and there is a discussion whether these two bodies' functions can be joined together. The cooperation was developed on top administrative level and on project level, and has been helpful in developing cooperation and good projects. However, an evaluation from 2006 points at the lack of formalisation in the cooperation, and concludes that the cooperation has to be more formal if it were to be adapted by other regions.

1.4.3 The Municipalities

In Norway, people meet the public sector in most walks of life. The most important administrative level is the municipality, or local government, level. Municipalities are responsible for providing the basic services of society within pre-schools, primary schools, primary health, care of the elderly, social services, water, sanitation, local planning and land use, infrastructure, and so on. All municipalities have to offer these services, and the services have to meet standards as set out by the central Government, irrespective of their size or structure. The municipalities are also important distributing and advising bodies, together with the County Governor, when it comes to agricultural support.

These tasks make the municipalities very, and probably the most, important actors in rural development, as a very large sum of money that is spent locally is reallocated by the municipalities.

1.4.4 Farmers' organisations

Traditionally, Norwegian farmers have been, and are, very well organised. Most farmers belong to a farmers' union, and they are also organised within national or regional cooperatives both on their input and output side. Atomistic farmers, in other words, appear united and are very strong participants in different networks on the national, regional and local level. Since they are organised in this way, they also appear to have (near) monopolistic market power in many markets. This is probably one of the reasons why agriculture still is highly regulated in Norway, while at the same time most other forms of industrial regulations (at least subsidies) have vanished during the last 10-20 years.

The formal and informal ties between farmers' organisations and the authorities are relatively strong. Many of the farmers' representatives have been students at the same college as the people employed by the authorities to work with agriculture regulations. They also have similar backgrounds, having grown up on farms. In this sense, they have similar values, speak the same "language", and probably know each other privately. This informal setting and networks probably influence the more formal ones, as they negotiate agricultural subsidies and farmers' incomes in different formal settings. Whether these informal networks are important or not, the farmers' unions seem to have been very successful in negotiating farming regulations, income levels, subsidies and other types of rights for their members.

Farmers have also established cooperatives for many of their market oriented activities. This influences the market for inputs to and outputs from farming significantly, as their market power increases. We have discussed the supply chains for LLM and yellow cheese earlier. Here, we pointed at Tine's strong position as the distributor of milk and regulator of milk production and milk prices. Tine is a farmers' cooperative, to which (almost) all milk is delivered from the farmers at a given price. At the same time, Tine produces dairy products. The selling price from Tine (the distributor) to Tine (the producer) is, of course, set at the price Tine wants. Dairies outside the Tine system, like Synnøve Finden, have to pay the same price. One might expect this price to be too high, probably despite of Synnøve winning the law suit against Tine on this matter.

The other farmers' output cooperatives are not as strong as Tine, but they also have significant market power. In the market for different types of meat, for instance, alternatives to the farmers' cooperatives deliver meat to one or more of the wholesaler and detailist chains. This increases their share of the market significantly and reduces the cooperatives' share respectively. Still, the farmers' cooperatives' share of the market is probably between 60 and 70%.

We have tried to illustrate the importance of the agriculture sector's network and of how their organisations influence these networks. Their organisations are very significant in influencing the conditions for farming in Norway, and their influence plays a role on different scales.

1.4.5 Other NGOs

There are a set of other NGOs that influence rural development in one way or the other, and it is difficult to delimit which to mention from which not to mention. NGOs that work on preserving the environment and cultural heritage are probably the most important ones. These have become increasingly important as the interest for these matters have increased, and as these matters have become parts of the planning legislation as well as of aims for (agricultural, rural and other) policies. The NGOs are, in fact, mentioned in the legislation as important to listen to when a new project, plan, policy or program is to be established. In other words, the non-parliamentary decision making has become a part of a parliamentary system and its

legislation. Environmental Impact Assessment (EIA), which is an important part of this legislation, is there to listen to these interest groups as a part of the parliamentary decision making process.

1.4.6 International networks – the INTERREG

Finally, we would like to mention that Hedmark is participating in several INTERREG projects together with their Swedish counterparts, the two regions of Värmland and Dalarna. Cooperation within INTERREG 4A is initiated and will start from January 2008. Cross-border projects, partnerships and networks within rural development have already been established.

2 UNITED KINGDOM: WEST SUSSEX

2.1 Describing the region

The study area (NUTS 3) is part of the South East of England (NUTS 1). The South East covers about 19,100 km² and has 8 mio inhabitants. It is one of England's most crowded and most accessible areas⁶ with the metropolis London at its northern borders. The road network includes two thirds of the London's orbital motorway (M25) and six motorways connecting different corners of the region, plus railway connections from the north to south and east to west. The M25 is the busiest in the UK due to commuters from the South East and East of England who fill about 18% of London jobs⁷. The South East is also well connected with mainland Europe with a rail link passing through Kent on route to the Channel Tunnel. The South East has also a number of international airports at Southampton, Gatwick (borders West Sussex) and, located close to the regional boundary, it benefits also from Heathrow. The region has always been a gateway to continental Europe. This is reflected in the diversity of archaeological and historical sites. But also its settlement and transport patterns have been influenced by geographical position, geology and, in comparison to other UK regions, relatively favourable climate.

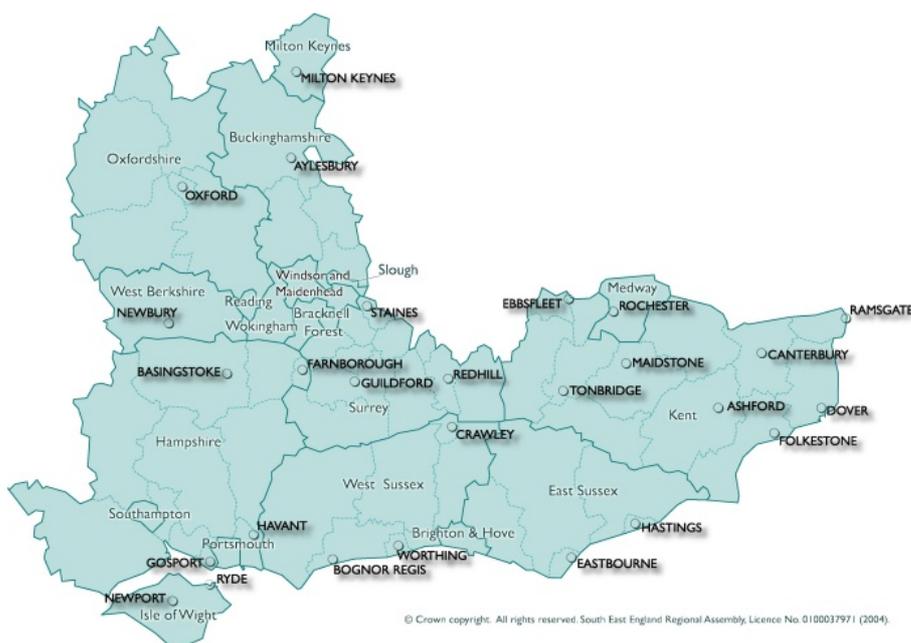
Figure 34 The Counties of England



⁶ Sussex Downs Landscape Assessment

⁷ Defra webpage: www.defra.gov.uk

Figure 35 South East region, with West Sussex bordering the English Channel in the south



2.1.1 European and national context of the region

The Department for Environment, Food and Rural Affairs (Defra) is responsible for rural and agricultural policymaking including the promotion of the Sustainable Development Agenda across government departments. Connected to this, Defra is also responsible for a large number of delivery bodies including the Rural Payments Agency (RPA), which pays out national and European subsidies. RPA has recently come under critique for failing to deliver its services in time, and revisions in the delivery are to be expected. The recent creation of 'Natural England' puts an important new executive non-departmental public body in place that will have a crucial role in the delivery of many of Defra's primary responsibilities.

Also the Department of Communities and Local Government (formerly Office of the Deputy Prime Minister), has a role in rural policy making. It sets UK policy on local government, housing, urban regeneration, planning and fire and rescue. It has responsibility for all race equality and community cohesion related issues across Great Britain and for building regulations, fire safety and some housing issues in England and Wales.

Seen from the territorial point of view, there are twelve NUTS 1 regions in the United Kingdom, of which nine are in England.⁸ The Government Offices for the Regions (GORs) are the regional administrative units established in 1994. Each is responsible for one of the nine English NUTS 1 regions. Wales, Northern Ireland, and Scotland make up the remaining NUTS 1 regions, but have separate

⁸ The United Kingdom comprises the following England, Wales, Scotland, and Northern Ireland. Each has a margin of independent administration and policy-making on some matters.

arrangements.⁹ The aim of the GORs is to work in partnership with local people, organisations and national bodies. GORs founded and administer the Regional Development Agencies (RDAs), and support a number of regional and local partnerships such as the Local Strategic Partnerships, Crime and Disorder Reduction Partnerships, and they are responsible for implementing regional 'Sustainable Communities Plans'. Also, Government Offices have a key role in co-ordinating regional activity in relation to the renewable energy agenda in matters of planning and meeting the target of 10% of the UK's electricity requirements coming from renewable sources by 2010.

The chosen study region, West Sussex (NUTS 3), covers an area of 1,988 km² with 764,300 inhabitants in 2005, which results in a population density of 384 residents per km². It is above average in terms of GVA per capita in England, but is lower than the South East average, with some pockets of deprivation and problems associated with high housing costs. Having access to the sea via ports in neighbouring counties (Portsmouth, Newhaven) and its proximity to Continental Europe has always had an influence on trade and passenger traffic. Rural areas have become relatively wealthy as people who work in London choose to settle down in rural Sussex and commute to work. Additionally, West Sussex benefits from Gatwick international airport, which had seen 34,172,492 passengers in 2006 and thus was rated the world's 22nd busiest airport.¹⁰

Concerning local administration West Sussex comprises seven local districts: Adur, Arun, Crawley, Horsham, Mid Sussex, Worthing and Chichester. Twenty four towns and villages cover about 12% of the land area (Figure 36). The large urban centres Portsmouth, Southampton and London are near-by, but also Brighton and Hove in East Sussex has an impact on commuting levels. Most people living in West Sussex and working in London choose to settle down along the rail link between London and the southern coast: Crawley, Haywards Heath and Burgess Hill. West Sussex County Council (WSCC) in Chichester administrates a wide range of matters of county relevance, including education, social services, fire and rescue, libraries, town and country planning, refuse disposal and consumer services. But a number of issues are delivered in partnership with districts and boroughs, e.g. the Air Quality Regulation is primarily the responsibility of the district council, but WSCC measures air quality.

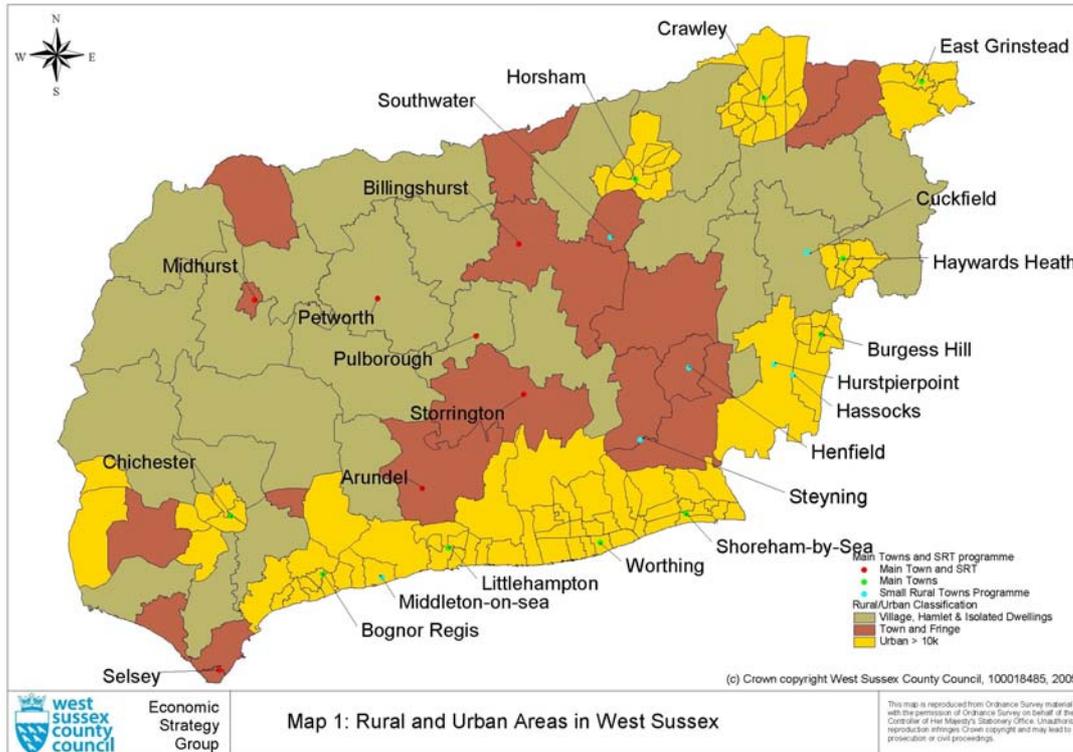
Almost 70% of the population in West Sussex lives in the eleven main towns. Crawley and Worthing have populations of around 100,000 each, Bognor Regis has a population of almost 65,000 while Horsham is home to 50,000 inhabitants. The remaining towns have populations of between 25,000 and 45,000. Almost 235,000 people live in small towns, villages, hamlets and other rural areas. Urban centres are mostly located along the coastline, Crawley and the eastern fringe, while rural wards characterize the internal parts (Figure 36). Several of these towns and

⁹ UK Office for National Statistics: <http://www.statistics.gov.uk/geography/gor.asp> (accessed 26/10/2007)

¹⁰ The Civil Aviation Authority – figures for 2006.

villages are historical sites of national importance i.e. Chichester and Arundel, Billingshurst, Midhurst, Petworth, and Horsham.

Figure 36 Rural and Urban Areas in West Sussex, 2004



There are sites from the Bronze and Iron Ages, for which more than 200 Scheduled Ancient Monuments are found in West Sussex; 1,500 sites and places are defined as Archaeologically Sensitive Areas. Most of these are located in historic towns across the countryside.

For agricultural training, short courses on agricultural topics are organized by local charities and NGOs such as the South of England Agricultural Society, the rural projects team of Business Link, and West Sussex Sustainable Business Partnership. The only educational institution for agriculture is Brinsbury Campus of Chichester College. Brinsbury has its own commercial farm which is used for teaching and training purposes. It offers full time, part-time and short courses in agriculture and conservation, horticulture, floristry, game keeping, business management, engineering and construction, animal care and equine studies. Near-by in East Sussex, outside Lewes, Plumpton College offers a broader array of full-time, part-time and short courses in agriculture, animal care, countryside, equine, floristry, forestry, horticulture, agricultural machinery, sports and wine studies. The University of Brighton offers vocational training in horticulture, agriculture, animal science, countryside management, forestry and crafts and a BSc in viniculture and oenology.

2.1.2 Environment

2.1.2.1 Spatial structures

Statistical profile

West Sussex is at its highest in the north, where it includes part of the South Downs (National Park) slopes and at its lowest at the coastal plain. It has large areas of combined flat and hilly landscape in the Downs (Table 15). West Sussex has relatively fertile soils. The northern parts of West Sussex are characterised by lower greensand, a type of sandstone, and gault clay. The central parts are covered by permeable chalk with clay soils and the southern part by less permeable sandstones.¹¹ Coastal plain landscape is open sliced in ditches and rifes, which support a diverse range of wildlife. There are also areas with ancient woodland, hedgerows and ponds. Most of the farmland is arable or improved grassland and the best agricultural land is on the coastal plain, west of Worthing.

Agriculture varies from extensive sheep grazing on the slopes of the South Downs to intensive vegetable production in glasshouses on the south coast. It has evolved as a result of the prevalent topography and soil types, which in turn have been influenced by the underlying geology. Woodland is increasing in general, and the South East is the most wooded area in the whole of England. It also has the greatest proportion of ancient and semi-natural woodland. Markets for woodland products have dramatically declined over the last century and the value of timber production in the region is considered to be poor for its size.¹² Strategic initiatives try to promote the wider concepts of forestry as a social, economic and environmental regeneration tool, which should be of importance especially for such a densely populated area. The aim of the English Forestry Strategy is to redress the fragmentation of ancient woods and to promote better management through the securing of improved markets.

Table 15 West Sussex land use (% in 1996)

	Total area in km²	Share of artificial surfaces	Share of arable land	Share of permanent crops	Share of pastures	Share of heterogeneous agricultural areas	Share of forests
West Sussex	1,988.1	10.6	19.7	0.1	48.9	2.6	16.5

Source: ESPON database

The West Sussex Rural Strategy 2007-2017 edited by ECOTEC reports a different figure than Espon. According to this, 18.9% of the County area is covered in woodland (37,500 ha), which has been expanding since 1980 when it covered 17.4%. Most of the expansion is unmanaged.

¹¹ Environment Agency River Adur Catchment Flood Management Plan – Scoping Report (March 2006)

¹² <http://www.defra.gov.uk/erdp/docs/sechapter/section14/forestry.htm> (accessed 26/10/2007)

Regional focus

There are developmental and recreational pressures on land due to demographic and structural developments. The countryside is seen as a good place to live and the population is growing rapidly. Wealthier groups who reallocate from urban centres such as London constitute this inflow. In the West Sussex Structure Plan 2001-2016 the need for new dwellings is recognized and a target of 2,890 homes (net) a year is identified. The Plan sets to accommodate such development first on 'brownfield sites' (vacant, derelict or underused land and buildings) within urban centres. 60% about 26,500 homes in the county is to be developed on such sites. In a second step, it also considers development of green-field sites with about 20,000 new homes.

The Climate in West Sussex is relatively mild when compared to more northern regions. It benefits from warmer summers and milder winters, which are favourable for a wide range of crops with frost-free periods along the coastal areas.¹³ Rivers flowing through West Sussex are Adur, Arun, Ouse and Cuckmere.

The ONS reported the value of *agricultural land* to be GBP 7,305 per hectare in 2001 for England. However, prices across the country vary according to the types of agricultural land and increasing demand has driven prices up. Table 16 contrasts prices of the South East and England.

Table 16 Average farmland prices in first half of 2007, GBP per hectare on sale

	Arable land	Pasture
South East	9,205	8,278
England and Wales	9,287	8,412

Source: RICS farmland market survey, September 2007

Figures refer to the typical prices paid for bare land.

Regional figures expressed as a median of all responses of five or more.

England and Wales figure is the weighted average of these median responses.

During the first half of 2007, prices rose by 23.3% for arable land and 21.8% for pastures in comparison to one year ago. With recent rises of farm gate prices, farmers have now greater confidence in the profitability of the industry, leaving them more reluctant to sell and increasingly enter the market as purchasers. This matches the institutional investors and lifestyle buyers from London's City, and farmers from Ireland and Denmark, who take advantage of still relatively cheap farmland prices in comparison with their home countries.¹⁴

In 2007, *property values* in the County averaged out at GBP 274,289. For a detached house, it is GBP 432,111; semi-detached = GBP 261,458; Terraced = GBP 213,390, with a change 2006/07 = +9.4%. The highest prices were registered in the Districts of Chichester and Horsham, and lowest in Worthing and Crawley.

¹³ England Rural Development Programme: Appendix A7 – South East Region

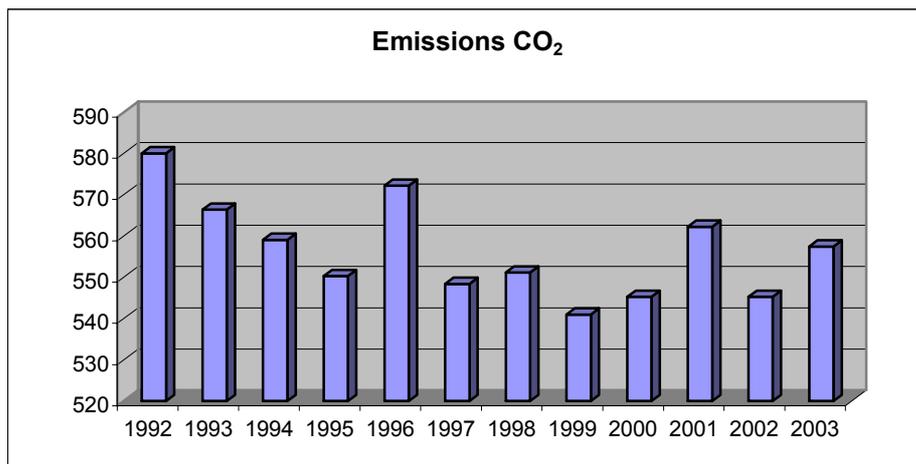
¹⁴ <http://www.rics.org/Practiceareas/Environmentandland/Ruralandnaturalassets/Market/wmpressrelease280907.html>

2.1.2.2 Environmental protection

Statistical profile

The UK is a signatory of the Kyoto Protocol. Since 1992 the UK has been trying to cut its CO₂ gas emissions, which went from 580.1 (mio t) in 1992 to 557.46 in 2003¹⁵ (Figure below). But the UK is still ranked second in CO₂ emissions in Europe.

Figure 37 CO₂ emission in the UK 1992-2003 (mio t)



Source: Eurostat

The final *energy consumption* has increased from 142,334 (1,000 toe) in 1995 to 151,580 in 2005 in the UK. During the same period, there was also an increase in the share of electricity from *renewable energy* sources to the gross electricity consumption from 2 to 4.5%.¹⁶ No data is available on CO₂ emissions for West Sussex. Oil and Gas prices are substantially higher than in continental Europe and were oscillating recently. This adds to increased costs and insecurity concerning input prices of products based on these raw materials, including agriculture.

Nature protection is implemented with compliance to national acts, European directives and international conventions. National Parks, Areas of Outstanding Natural Beauty (AONBs) and Defined Heritage Coasts are designated by national legislation for the protection of landscapes. In planning terms, AONBs and National Parks have the highest levels of protection. There is a presumption against development unless there are compelling circumstances for it, which means that human activities including settlements are allowed, but hampered. Some of these areas are key attractions for tourism, but also for other development in a densely populated country. This entails sometimes conflicting rights of use.

¹⁵ The annual emissions are estimated and reported under the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol and the Decision 280/2004/EC. The impact of land use, land use changes and forestry (LULUCF) is excluded.

¹⁶ Electricity produced from renewable energy sources comprises the electricity generation from hydro plants, wind, solar, geothermal and electricity from biomass/wastes.

Table 17 summarises designated sites and reserves for West Sussex. Compliance to EU directives like Habitats and Birds Directives¹⁷ and international conventions is of increasing importance. During their implementation, the UK has introduced measures for the protection of listed habitats and species and complied with the requirements to designate Special Areas of Conservation (SACs) and Special Protection Areas (SPAs).

Table 17 Designated areas at NUTS 3 level, 2007

Designated Sites and Reserves		Area (ha) of site in West Sussex	% of West Sussex	Number of sites
International	Ramsar	3,767.61	1.86	3
	Special Area of Conservation (SAC)	3,109.48	1.53	7
	Special Protection Area (SPA)	3,789.21	1.87	3
National	Area of Outstanding Natural Beauty	99,994.91	49.25	3
	Chichester Harbour	5,986.82	2.95	-
	High Weald AONB	19,998.60	9.85	-
	South Downs AONB	74,009.49	36.45	-
	National Nature Reserve	221.75	0.11	2
	Sites of Special Scientific Interest	8,451.90	4.16	82
	Local	Country Park	185.17	0.09
	Local Nature Reserve	2,074.85	1.02	26
	Site of Nature Conservation Importance	9,937.68	4.89	279
Reserve/ Property	Environmental Stewardship Agreements	49,677.77	24.47	796
	National Trust	4,925.98	2.43	31
	RSPB Reserve	551.68	0.27	5
	Sussex Wildlife Trust Reserve	705.32	0.35	17

Source: Sussex Biodiversity Record Centre, Nov 2007

West Sussex is home to three Ramsar Sites¹⁸, seven SACs and three SPAs that cover similar land sizes (Table 17). The county also houses 82 Sites of Special Scientific Interest (SSSI), two National Nature Reserves (NNR), and 26 Local Nature Reserves (LNR).

West Sussex incorporates part of the South Downs AONB which is now under consideration for conversion to the South Downs National Park. The public enquiry on the South Downs National Park has recently been reopened. Other areas of outstanding beauty in the county are Chichester Harbour and the High Weald (which is mostly in East Sussex). These protected areas taken together cover half

¹⁷ EC Habitats Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora and Birds Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora.

¹⁸ Ramsar is the intergovernmental treaty which provides the framework for national action and international cooperation for the conservation of wetlands and their resources.

the county’s land. But also Environmental Stewardship Agreements for farming land are applied to one quarter of West Sussex.¹⁹

Figure 38 South East region – designated and defined interests



Source: Unknown; as pictured in the Ecotec 2007 report.

In the UK, agricultural land use has seen a slight increase over the last years. The same applies to land cultivated using organic practices (Table 18).

Table 18 Total utilised agricultural land and land used for organic production (ha)

Year	West Sussex			UK		
	Utilised agricultural area (UAA)	Organic area (ha)	Organic area as share of UAA	Utilised agricultural area	Organic area (ha)	Organic area as share of UAA
2000	107,020	NA	NA	15,798,510	578,803	3.66
2003	106,128	NA	NA	16,105,810	695,620	4.32
2005	110,580	5,649	4.64	15,956,960	608,952	3.82

Source: Eurostat for UK data. Defra 2007 for West Sussex data. Organic area includes land under conversion.

¹⁹ For more details, see <http://www.defra.gov.uk/erdp/schemes/esas/stage1/southdowns.htm> (accessed 11/11/2007)

DEFRA data for the South East indicates further that organic farming increased from 28,348 ha in 2003 to 35,798 ha (incl. London) in 2007 (no table). The latter means that the share of organically farmed land was 4.32% of the regional UAA. For West Sussex, it is 4.64% in 2005.

Regional focus

West Sussex is characterized by a variety of landscapes, grazing marshes, floodplains and river valleys; traditionally managed heathland; ghylls and woodland. A serious decline in the populations and ranges of birds, mammals, insects and plants is associated with arable land. Also, a number of rare arable flowers such as pheasant's eye and shepherds needle have declined within the county and nationally²⁰. Change in farming practices have been identified as important factor in this sense. The "Habitat Action Plan for Sussex" (2000) sees the following as problematic: concentration on winter cereals and a subsequent loss in wintered stubbles and spring crops; increasing use of fertilisers and pesticides; lack of management of surviving semi-natural habitat such as hedges; loss of semi-natural habitat including hedges, field margins and ditches as field sizes increased and boundary features were removed; simplification of crop rotation cycles and the decline in root crops; arable reversion on land where the existing arable system had wildlife benefits; changes in the timing of cultivation; fluctuations in crop type caused by subsidies, market prices and the weather.

Currently, there are over 3,400 species listed in the Sussex Rare Species Inventory²¹. In the UK, action for biodiversity protection is taken at national and local levels. In 1996, the Sussex Biodiversity Partnership was set up and a Biodiversity Action Plan for Sussex (BAP) established.

The microbiological quality of *drinking water* is good in West Sussex.²² Most properties in urban areas are served with drinking water provided by a water company. In rural areas drinking water is sourced also from private supplies such as natural springs, wells or deep boreholes. Under the Private Water Supply Regulations 1991, District Councils have a duty to monitor all private and non-private water supplies. 2002/2003 data shows an average consumption per household of 162 l/person/day. This is above the national average of 153 l for the same year.

Rivers of West Sussex are generally seen to have relatively high chemical and biological quality. However, chemical monitoring of West Sussex's rivers shows the presence of phosphates, which is related to the overuse of fertilisers and phosphorous in animal feeds.²³ The implementation of the EU Water Framework Directive is done for the South East River Basin District. This includes rivers flowing

²⁰ <http://www.biodiversitiesussex.org/arable.htm> (accessed 20/07/2007)

²¹ The Sussex Biodiversity Record Centre publishes annual reviews of wildlife recording in Sussex.

²² Drinking Water Quality Report 2005, www.southernwater.co.uk/pdf/aboutus/dwiReport/DrinkingWaterQty2005.pdf (accessed 20/07/2007)

²³ River Adur Catchment Flood Management Plan, 2006, The Environment Agency

through West Sussex. There are plans to reduce diffuse pollution and localised flooding from agricultural land through promotion of best practice land management: e.g. catchments sensitive farming and land care projects.

Bathing water (for recreational purposes) has seasonal issues with pollution, particularly in Chichester Harbour due to sewage discharge.²⁴ Four beaches are rated 'good', and eight beaches are rated 'excellent' in terms of water quality.

2.1.2.3 Preconditions for agriculture

Statistical profile

From 1996 to 2002, West Sussex has seen one coastal and three river flood events. The 2001-2016 Structure Plan quotes a 1% probability of fluvial flooding in affected areas in the county, and a 0.5% probability of coastal flooding.

West Sussex has no Less Favoured Area (LFA).

Forest fires are not common. Though, the area has seen unusually warm years over the last decade. This has peaked in a severe drought during 2006, during which a range of water saving policies was implemented. West Sussex gets 75% of its water from boreholes in the chalk aquifer. The dry winter and spring meant this groundwater was not replenished and it reached the lowest level it has ever been since the beginning of records.²⁵ Climate change is taken seriously by e.g. the publicly financed farm business support group within the regional Business Link (which is a member of the national business support network). For 2007, they organised seven farm training days for farmer groups, of which one is on reactions to climate change. Farmers are advised on alternative products like growing (sparkling) wine etc., which are increasingly promising within a climate change scenario.²⁶

Regional focus

West Sussex benefits from a relatively favourable *climate*. The Meteorological Office reports 1,750 h of average annual sunshine and 8.5 °C to 11 °C as the mean annual temperature at low altitudes. January and February are generally the coldest months, July the warmest with temperatures of about 25 °C. Rainfall is variable throughout the year. However, the driest period is in spring and the wettest in late autumn. Latest data shows an average rainfall of 758 mm per year, less than the national average.²⁷ Relatively low rainfalls in the region in combination with growing water demand from London and the South East result in high demand for water overall.

²⁴ Chichester Harbour Water Quality Results

²⁵ <http://www.westsussex.gov.uk/ccm/content/your-council/news-room/press-releases/2006/2006-05/a-little-rain-does-not-mean-the-drought-is-over.en> (accessed 03/09/2007)

²⁶ Interview with John Evans, Rural Projects Manager of Sussex Enterprise, 14/03/2007

²⁷ Meteorological Office; Centre for Ecology and Hydrology. www.ceh.ac.uk (accessed 15/07/2007)

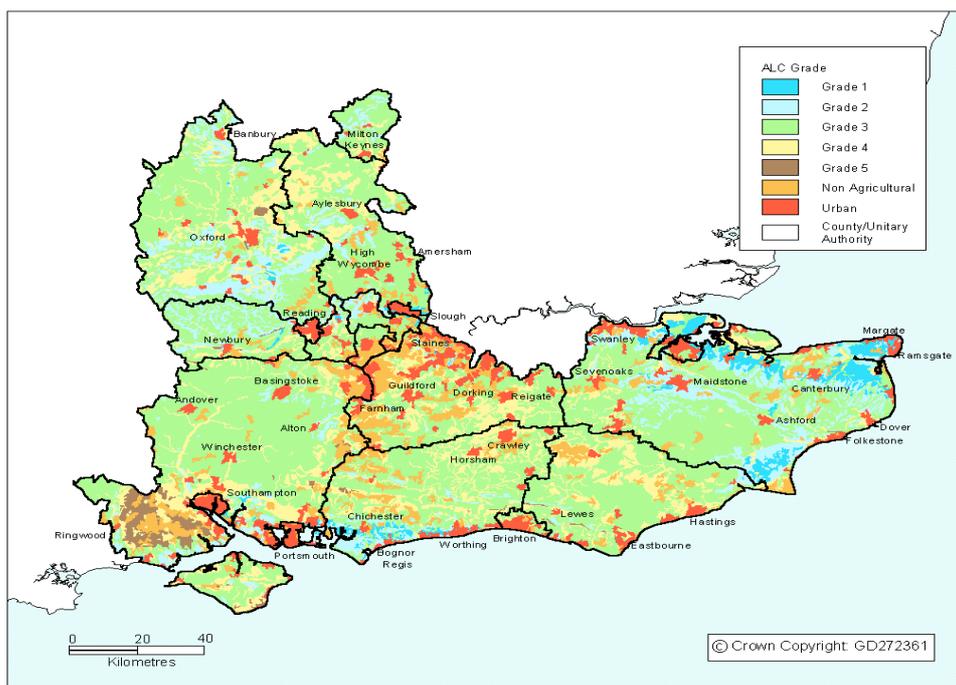
Table 19 lists the share of land split into five grades of soil quality according to the Agricultural Land Classification map 1971. 30% of land in West Sussex is classified as non-agricultural and urban in comparison to 20% in the whole of England. Figure 39 shows soil qualities for East Sussex.

Table 19 Categories of soil quality

	% for West Sussex	% for England
Grades 1&2	9.3	16.1
Grade 3	44.2	43.6
Grade 4	16.2	12.7
Grade 5	0.3	8.3
Non Agric	21.9	10.1
Urban	8.1	9.2
Total	100.0	100.0

Source: West Sussex County Council, 2006

Figure 39 Topography of South East of England



Source: <http://www.defra.gov.uk/erdp/docs/sechapter/section11/topography.htm#116>.

Grades 1 and 2 are the most favourable soils for agricultural use. The existence of such soil in West Sussex has seen increased specialization in lettuce and other field scale vegetable production. This soil is found south of the Downs on the Coastal Plain. A few mixed beef and dairy farms are present with grazing taking place on the waterside and coastal grassland. The Coastal Plain sees also a large intensive glasshouse industry, which also benefits from mild climatic conditions producing a longer growing period than elsewhere in the UK. In these areas plant growth is longer into the winter and starts earlier in the spring. Grades 3, 4 and 5 are less

favourable for agriculture. These soils are best used for growing grass to support dairy, beef and sheep livestock and are found on and north of the Downs. Increasingly, and due to increasing temperatures in the region, farmers experiment with more 'exotic' products like growing (sparkling) wine, and oil seed rape production is on the rise due to subsidies and increased prices for crude oil.

2.1.2.4 Preconditions for rural development

Statistical profile

West Sussex benefits from good transport connections, but heavy traffic leads to congestions which businesses increasingly see as detrimental to their trade. The main transport corridors are the South Coast rail and A27/A259 road corridor, and the Crawley/Brighton rail and A23 road corridor. A train service connects the main county towns and provides links to London, Portsmouth and Southampton to the West and Brighton to the east. In the vicinity (East Sussex county and London Area) are several international airports. The nearest are Gatwick and Southampton, but also Heathrow, Stansted, City, and Luton can be reached within 2 to 3 h. Regular ferry routes are provided from the nearby Newhaven and Portsmouth harbour to France and Spain.

Table 20 Accessibility in West Sussex

	Time to nearest seaport by car (min)	Connectivity to airport by car (hours)	Connectivity to nearest seaport by car (hours)	Time to nearest motorway access by car (hours)	Time to nearest motorway access by car (minutes)
West Sussex	55.2	0.09	0.05	0.05	3

Source: ESPON database

24,000 km of public roads link various parts of the county. However, the use of buses is lower in West Sussex than nationally. And, it is particularly low in rural areas where car ownership is prevalent. Around 65.7% of residents living in the West Sussex rural area travel to work by car, which is 4.7% above the English average. A recent report notes that rural areas are not well served by means of community transport. Areas like rural Downland, rural Chichester, along with Horsham and North Mid Sussex have the worst accessibility within West Sussex.²⁸

Data on intensity of road usage is available at NUTS 1 level and indicates that in the South East, 4,900 vehicles per day/km compared with the England average of 3,800 vehicles in 2003. The ONS estimates that vehicle trips in the South East are forecast to grow by 7.5% between 2001 and 2011.

²⁸ Socio-Economic Baseline Analysis for Rural West Sussex for 2006: The Economic Strategy Group, West Sussex County Council.

National statistics reports that accessibility to the *Internet* improved from the year 2000, when 50% of households had their own Internet access, to 63% in 2006. Beyond dial up, also faster options such as DSL were available to 99.9% of the country in 2006.

No information is available on the number of home workers per 1,000 inhabitants, but it should be relatively high in rural areas, with many inhabitants working in London trying to telework from home and a high density of small businesses spread over the rural areas.

Regional focus

The County Council is responsible for *waste* from construction and demolition, household, commercial and industrial, and hazardous wastes. District or Borough Councils are responsible for the provision of bins for the collection of trade and household waste. They are also responsible for the sewage system. In West Sussex, about 80% (363,000 t) of household and business waste was disposed in a landfill in 2005.²⁹ There are four sites that accept household and commercial/industrial waste in the County: Lidsey (in Arun District), and Brookhurst Wood, Horton (also known as Small Dole) and Washington (all in Horsham District). Local authorities observe that the capacities of these will be soon exhausted. Following European Union directives and a scarcity of suitable spaces, local authorities aim to shift from landfill disposal towards the reuse and recycling of materials. In 2006, about 30% of *household waste was recycled*. The average for the South East is 23% and the national average is 18%. A number of initiatives were introduced to promote recycling at the district level such as educational programmes and a network of Civic Amenity Sites where householders can recycle a range of items.

2.1.3 Rural economy

2.1.3.1 Regional performance

Statistical profile

When taking a production approach to estimate GDP the contribution of an industry to the economy is commonly measured in Gross Value Added (GVA), which corresponds to the difference between gross output and intermediate consumption of any given sector. In contrast to GDP, GVA excludes taxes and includes subsidies on products. The ONS calculates GVA on a workplace basis.³⁰ Table 21 shows that

²⁹ West Sussex Quarterly Statistics 2006, Worthing Borough Council.

³⁰ For NUTS 3 regions, GVA per head are calculated by dividing the estimate of workplace GVA for a region by the resident population. Thus, estimates of GVA per head are high in regions with high levels of inward commuting and a low resident population (such as Inner London and Edinburgh). Conversely, estimates of GVA per head are low in regions with significant levels of outward commuting and high resident populations.

total GVA at county level and GVA per head have steadily grown over the last decade. In 2004, the total GVA for West Sussex was about 8.5% of the total regional GVA for the South East.

Table 21 GVA for West Sussex, 1995-2004

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Mio GBP	8,399	8,932	9,428	9,955	10,432	10,917	11,612	12,205	12,725	13,234
GBP per head	11,608	12,266	12,801	13,437	13,926	14,512	15,380	16,142	16,773	17,371

Source: ONS.

Notes: The GVA have been calculated using a five-period moving average.
Estimates of workplace-based GVA allocate income to the region in which commuters work.
Components may not sum to totals as a result of rounding.

Table 22 summarizes the GVA per sector for the last decade. After continuing reductions in the GVA contributions by the primary sector, the trend could be reversed in absolute terms from 2002 onwards. The tertiary sector shows by far the greatest contribution toward the county GVA, and has the highest growth rate. Although no data exists, it seems plausible that the indirect effects of agriculture on the remaining economy are far greater than the GVA contribution indicates.

Table 22 GVA of West Sussex per industry from 1995 to 2004 (mio GBP)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Agriculture, hunting and forestry	217	209	180	169	165	157	154	168	182	184
Industry, including energy and construction	2,214	2,303	2,328	2,332	2,368	2,409	2,482	2,539	2,569	2,636
Service activities ¹	5,967	6,420	6,919	7,454	7,899	8,351	8,976	9,499	9,974	10,414
Total GVA	8,399	8,932	9,428	9,955	10,432	10,917	11,612	12,205	12,725	13,234

Source: ONS

Notes: The GVA have been calculated using a five-period moving average.
Estimates of workplace based GVA allocate income to the region in which commuters work.
Components may not sum to totals as a result of rounding.

¹ Including Financial Intermediation Services Indirectly Measured (FISIM).

The UK had had a historical problem with labour productivity per person employed, but it has recently increased as summarized in Table 23. Still, the ONS reports that in 2004 *labour productivity* in the South East (NUTS 1) was 25.6% below the high performing mean, ranking 34th out of 40 European regions (EU15).³¹

Table 23 Labour productivity per person employed

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
UK	102.7	103.2	102.8	103.8	105.3	107.6	107	108.4	108.1	108.7	108.8	109.1

Source: Eurostat

Note: 2006, 2007, 2008 are estimated values

³¹ The Profile of South East England (2006), SEEDA

The financial system in the UK is similar to elsewhere in Europe, though with some important differences. The Bank of England as the central bank of the United Kingdom maintains the monetary and financial framework. Other important institutions are the Inland Revenue and Her Majesty Customs & Excise. In the UK, a mixture of income taxation and expenditure (or consumption) taxation is used, for which it taxes returns to capital more lightly than returns to labour. This has consequences for the taxation of small businesses. This is particularly the case for owner-managed businesses, as the distinction between capital and labour income may be hard to make. For small companies defined as those with profits of less than GBP 300,000, the average tax rate was 19% in 2002.³⁴

Income tax is deducted at source. Employers are required to notify the tax authority of annual pay, benefits, etc. through the Pay-As-You-Earn system and banks and building societies for interest payments. The tax system in the UK is largely based on business earnings. For those taxes administered by Her Majesty Revenue & Customs, 91% are remitted by business-based taxes like the Value Added Tax.³⁵ Table 25 summarizes income tax for the agricultural sector for the 2003/04 tax-year, according to age groups for the whole UK. The table shows that the highest mean income (before tax) is earned by farmers aged from 40 to 54, while younger age groups earn less. This may be a reflection of income from investments and pensions increasing with age. Except special cases these values should apply across all the English regions.

Table 25 Farmers income assessed for tax by age (UK national average 2003/04)

By age range	Numbers: thousands; Amounts: GBP		
	No of farmers	Mean income before tax	Mean tax
Under 25	8	8,700	979
25-29	10	11,600	1,450
30-34	18	15,600	2,560
35-39	27	18,100	3,170
40-44	36	20,300	3,680
45-49	33	24,800	5,320
50-54	32	21,000	3,940
55-59	42	19,900	3,910
60-64	37	18,500	3,500
65-69	26	20,200	3,490
70-74	21	21,900	4,010
75 -over	26	17,000	2,550
All ranges	318	19,400	3,550

Source: Survey of Personal Incomes, Board of HM Revenue & Customs, in: Defra 2006, Diversification in Agriculture.

Note: Those are estimates of farmers' total 'income assessed for tax' derived by grossing up from a sample of confidential and anonymised tax records analysed by the Inland Revenue in their Survey of Personal Incomes. Total income as defined by the Inland Revenue comprises income from self-employment, employment, pensions and investments. Capital allowances, stock relief and losses, which are allowable against profits for tax purposes, are deducted to derive self-employment income

³⁴ Institute for Fiscal Studies: www.ifs.org.uk (accessed 30/08/2007)

³⁵ Slemrod 2006, Tax Implementation Issues in the United Kingdom, conference draft.

In 2006/07, the Local Government Finance Directorate reports an average interest rate of 6% for taking out business loans.

2.1.3.2 Structure of agriculture

Statistical profile

The UK is relatively dependent on food imports. A recent Defra report³⁶ concluded that the self-sufficiency ratio of domestic production to consumption has been in decline over the last decade. This decline reflects a lack of export growth after 1994 and a reduction in agricultural output. The following short-term factors were identified:

1. BSE-inflicted ban on UK beef exports and the Over Thirty Month Scheme which diverted home production away from consumption;
2. Foot and Mouth Disease in 2001, which reduced pig-meat exports;
3. The appreciating Pound Sterling made imports cheaper and exports more expensive over parts of the 1990s (and again from 2002 onwards);
4. CAP reforms of 1993 and 1999 have ended the expansionist trend of the 1970s and 1980s.

Also, long-term factors driving these trends include:

1. Strong presence of supermarket chains which are highly cost sensitive and import large percentages of their foodstuff, sometimes although British products would be available (e.g. milk from Poland);
2. Changing tastes towards more exotic and varied produce;
3. Fewer trade restrictions;
4. Cheaper transport and means of communication.

However, the report does not suggest that food security has worsened. According to this logic, food security might relate more to UK agriculture's ability to meet consumer demands, i.e. its "market share", both at home and abroad. Table 26 summarizes self-sufficiency of the UK food sector in history and shows that food imports have been even more significant in the past.

³⁶ Food Security and the UK: An Evidence and Analysis Paper, Food Chain Analysis Group, Defra, December 2006

Table 26 British self-sufficiency ratios over different periods

Year	% of self-sufficiency
pre – 1750	Around 100% (in temperate produce)
1750-1830s	around 90-100% except for poor harvests
1870s	around 60%
1914	around 40%
1930s	30-40%
1950s	40-50%
1980s	60-70%
2000s	60%

Source: Defra, Food Security and the UK: An Evidence and Analysis Paper, Food Chain Analysis Group, December 2006

Although these figures put the food security issue into perspective, it remains a valid argument that the dynamics in the domestic agriculture and economy as well as international trends contribute towards variations in UK food supply over time.

Table 27 subdivides the contribution of the primary sector to the regional GVA. The overall picture of a decreasing sector GVA up to 2001, after which a turnaround can be observed, is mainly due to agriculture and to a lesser extent also to fishing; forestry has stayed at about the same level nominally.

Table 27 GVA standard classification of economic activities for the South East (NUTS 1), in mio GBP

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
A01: Agriculture	1,236	1,214	1,033	939	916	835	804	940	1,053	1,034
A02: Forestry	59	53	47	52	45	49	53	48	50	49
B: Fishing	22	21	35	36	23	16	19	16	22	22

Source: ONS

Notes: Gross value added (GVA) is a measure of economic activity at basic prices, excluding taxes plus subsidies.

For the whole of UK, the ONS reports that **agriculture's contribution to the economy was** GBP 6,720 mio **in 2000** and 5,580 mio in 2005. During the same period, imports rose from GBP 16,828 mio in 2000 to 23,429 in 2005.³⁷

A survey of farm businesses, conducted by the University of Reading, might help to understand this development a bit more. The study was conducted in Central Southern England and the South West Midlands on management and investment income for specialist dairy farms and cereal farms and shows how the typical *farm income* developed during the 1990s (Table 28). The 1996 harvest year saw a 16% fall in profitability of cereals, and a significant reduction in 1997 when income fell

³⁷ www.ukagriculture.com (accessed on 26/10/2007)

from GBP 219/ha to GBP 32/ha in the 1997 harvest year.³⁸ Defra suggests that this can be understood in the light of a world-wide price fall for primary agricultural products during the 1990s, caused by a decrease in demand. After 1997, the agricultural industry has suffered a further decline with falling commodity prices across the whole industry. Defra experts suggest that structural difficulties inhibited opportunities to compete with overseas primary producers. However, there are prosperous markets for South East farmers in the region, London, and other parts in the UK, and opportunities for added value sales into the EU and world markets.

Defra also comments that in UK non-agricultural activity (i.e. such as letting out surplus cottages and contracting) has a substantial contribution towards the total income from agriculture. Income from agriculture needs also be understood against subsidies and support services. The latter were restructured in 2005 to better support the agricultural sector. More details are given in section 1.2 on policy interventions.

Table 28 Management and investment income (GBP/ha) for the South East (NUTS 1)

	Harvest year average 1988/92 (GBP/ha)	1993 (GBP/ha)	1994 (GBP/ha)	1995 (GBP/ha)	1996 (GBP/ha)	1997 (GBP/ha)
Dairy	251.7	397.3	295.2	317.3	305.3	167.7
Cereals	19.5	60.2	148.2	236.9	199.0	31.7
All farms	119.8	182.1	187.3	269.8	218.9	32.2

Source: Defra 2006, Agricultural and Horticultural Survey for England. Table summarized from <http://www.defra.gov.uk/erdp/docs/sechapter/section14/businesses.htm> (accessed on 26/10/2007).

Note: Based on a sample survey, with estimates made for those not surveyed or responding.

However, also climatic events such as flooding had their impacts on agriculture and the seasonal yield. Also animal diseases leave significant consequences. The Bovine Spongiform Encephalopathy (BSE) burst during the 1990s and the Foot and Mouth viral disease in 2001 did great damage to the UK countryside. Strict policies, disinfection requirements and other measures hit UK farming hard. This might also be seen as one additional influence for a recent increase in the presence of imported organic produce.

In 2002, employment in the West Sussex primary sector was 8,610 persons, which is less than in previous years (Table 29). The agricultural and fishing sector employs around 2.8% of people aged 16 to 74 in the county.

³⁸ Ansell, D.J. and Vaughan, R.L., (1998), *The Farm Business Survey*, Department of Agricultural and Food Economics, The University of Reading, 65pp. The study recorded financial results of a panel of 190 farms over the last 10 years. The investment income is the return to a farmer for his management and use of 'tenant's capital'.

Table 29 Employment in West Sussex's primary sector (full-time equivalents)

	1995	1996	1997	1998	1999	2000	2001	2002
In 1,000	8.1	8.6	8.9	8.4	9.6	10.6	11.2	8.6
%	2.3	2.4	2.4	2.2	2.3	2.7	2.8	2.1

Source: Eurostat. See also Table 42.

The average farm size in West Sussex is 57 ha (the national average is 72.6 ha). Table 30 shows the number of farms per farm size category. The high number of holdings in the lowest hectare category is due to a mixture of highly intensified farms with high value added, e.g. specialised pigs (26), specialised horticulture (225), poultry (87), and part-time farms. The horticultural industry includes some of the biggest producers of peppers and lettuces in the country. Agricultural land is primarily owner-occupied (67%) compared to 33% rented.

Table 30 Number of farms per farm size category in West Sussex.

FARM SIZE				
<5ha	5<20ha	20<50ha	50<100ha	>=100ha
1,121	665	398	270	368

Source: Defra, June 2006 Agricultural and Horticultural Survey for England.

Note: Based on a sample survey, with estimates made for those not surveyed or responding.

The following table summarizes for what purpose agricultural land is utilized in West Sussex. In 2006, the greatest share of agricultural land is used for permanent pasture followed by arable crops. Still, more than 10,000 ha are forested.

Table 31 Land use by typology of utilisation in West Sussex, 2006

	Holdings	Area (ha)	%
Share of arable crops of Utilised Agricultural Area	836	43,365	35
Share of permanent pastures of Utilised Agricultural Area	1,772	49,877	40
Share of permanent crops* of Utilised Agricultural Area	80	152	3
Share of horticulture of Utilised Agricultural Area	2,461	337	2
Share of forested area	751	10,356	8

Source: Defra, June 2006 Agricultural and Horticultural Survey for England.

Note: Based on a sample survey, with estimates made for those not surveyed or responding.

* Permanent crops include only top fruit (orchards).

In 2002, 3% of electricity generated in the UK was from *renewable energy*. The government is working on policies that could increase the support for renewable energy. Some of these include:

1. DEFRA and the Forestry Commission are working on a strategy for renewable energy from biomass. A fund of GBP 100 mio under the Bioenergy Capital Grants Scheme and the Energy Crops Scheme, along with further grants, aims to stimulate the planting of about 15,000 ha of energy crops by the end of 2007. A DEFRA-led Bioenergy Infrastructure Scheme with funding

of GBP 3.5 mio was launched in October 2004 to provide additional support for the development of supply chains.³⁹

2. The 2003 CAP reform allowed decoupling of support from particular products and gave farmers opportunities to innovate. It has introduced a payment of EUR 45/ha for fuel and energy crops grown on non set-aside land (subject to an EU maximum of 1.5 mio ha). It also permits the growing of crops for specified non-food purposes on set-aside land (Defra 2004, p.38).

In Table 32 figures for UK non-food crop production for 2003 are shown. Defra reports that Government incentives and farmer interest in diversification might support crops such as hemp, crambe and oilseed rape. A follow up-report documents that the number of farms growing non-food crops under such schemes rose by around 20% in England between 2003 and 2005.⁴⁰ The area of land registered under these schemes increased an estimated 75% between 2003 and 2005, with the value of crops produced rising by approximately 99%. Biomass currently provides 1% of UK electricity supply, or 2% if landfill gas is included. The report also predicts that by 2010, biomass energy could provide for 6% of total electricity.

Table 32 UK non-food crop production for 2003

Crop	Ha
Forest material	2,803,000
UK agricultural land area	18,449,000
UK arable land area	4,507,000
UK "set aside" arable area	681,000
Oilseed rape for industrial use (on set-aside only) ('00' and high erucic acid rape)	82,142
Flax	1,976
Hemp	2,438
Short rotation coppice and miscanthus for energy use	1,822
Crambe on set-aside	3,596
Essential oils and herbs on set-aside	52
Linseed, of which 1,915 ha on set-aside	36,915
Poppy	1,500
Other non-food crops on set-aside	4,000

Source: Defra 2004, A strategy for non-food crops and uses – Creating value from renewable materials, London

Farm incomes have been under pressure from low commodity prices and rising costs. Defra suggests that off-farm income from employment and self-employment is increasing as compared to non-agricultural income earned on farm. Information on these sources of income is not available on regional levels. However, it is

³⁹ Defra 2004, A strategy for non-food crops and uses – creating value from renewable materials, London.

⁴⁰ Defra 2006, Creating value from renewable materials – a strategy for non-food crops and uses, Two-year progress report, London.

estimated that one fourth of full time farmers in England generate income from off-farm employment. Defra also reports that in 1997, the average income from off-farm employment/self-employment was GBP 2,400/farm. A further GBP 2,600/farm was gained by investments, pensions and social security payments. The ADAS Farmers' Voice Survey (Defra 1999) indicates that an increasing number of farmers are considering 'non-farming' sources of income. Alternative activities mentioned were industrial lettings, production of industrial crops and organic production.

Defra estimates that 68% of UK farmers are engaged in other activities than farming (non-agricultural activities on-farm and off-farm). These include most commonly the letting of buildings for tourism and recreation (GBP 111.7 mio of non-farm income). But frequently, it also means letting buildings to small business (i.e. carpentry, light industry). Although county data is not available, it is possible to get an indication of the widespread practise of diversified enterprises in the area considering South East data. Defra estimates that in the South East, around 73% of farms practice diversification, of which letting out buildings for non-agricultural use is the most common option (Table 33 and Table 34). Farm income from diversification was 46% in 2005/06, which is by far the highest of all English regions. The South-East has the highest level of diversification but the lowest level of farmer/spouse off-farm employment.⁴¹

Table 33 Regional incidence of diversified activity and off-farm employment – 2005/06

	England	South East
No of Farms \geq 1/2 SLR	61,700	8,300
Percentage of which:		
Have diversified enterprises	50%	73%
Farmer or spouse have off-farm employment or self-employment	31%	23%
Have neither	34%	20%

Source: Defra and ONS 2007, Farm Diversification

Table 34 Regional distribution by type of diversified activity – 2005/06

	England	South East
% of farms with diversified enterprises	50%	73%
% of (all) farms which have		
Buildings let for non-farming use	38%	59%
Processing/retailing of farm produce	8%	18%
Sport and recreation	10%	16%
Tourist accommodation and catering	4%	7%
Other diversified enterprises	8%	8%

Source: Defra and ONS 2007, Farm Diversification

⁴¹ Defra and ONS 2007, Farm Diversification – January 2007

Agro-tourism is offered by 4% of all farms in England, and 8% of grazing livestock farms. 7% of farms in the South East offer tourist accommodation and catering, which is the highest share of all English regions.⁴²

Regional focus

Landowners in the UK sometimes possess estates of a considerable size, but commonly rent out land and buildings. The rights and duties involved in a tenancy agreement are laid down in the Regulatory Reform Order (Agricultural Tenancies for England and Wales) 2006 SI 2006/2805. Traditionally, the tenancy would be passed down to up to three generations, but this might vary.

Semi-subsistence farms are defined as those below the 0.5 Standard Labour Requirement (SLR) threshold. According to DEFRA, there are 2,600 to 2,800 farms in West Sussex, dependent on which data source one consults. Of these, 996 were above the 0.5 SLR threshold according to the June 2006 agricultural and horticultural survey; thus, around 1,700 farms can be counted as semi-subsistence. Because of their part-time nature, they might have a considerable amount of diversified enterprises, although no figures are available.

Examples for large estates with diversified enterprise are the Cowdry Estate and the Goodwood Estate. The first has about 25 tenant farmers. The second is a remarkable example of a diversified enterprise. About 12,000 acres are divided between a golf club, motor racing and horseracing infrastructure, an aerodrome, a managed forest and the Goodwood Park Hotel. In the UK, managed estates of this type are commonly associated with a tradition of aristocracy, i.e. the Goodwood Estate belonged to the Dukes of Richmond for 300 years.

A report by Defra⁴³ mentions that ownership status could have consequences on the range of opportunities available to the farmer, especially under the present conditions of high property values. Tenants might have difficulties in accessing capital given that they cannot offer the property as a guarantee. Also, tenancy agreements may not allow for some activities like diversified enterprise. This is because "diversification activities can change the use of land to a non-agricultural purpose, so can also have tax and inheritance implications for the landowner".⁴⁴ On the other hand, the Agricultural Tenancies Act 1995 seeks to allow for some flexibility for tenants to diversify under a new (non-binding) Code of Practice.⁴⁵ The argument put forward is that diversification could be seen positively also by landowners as it can increase the property value. The length of the tenancy is an important factor; the longer a tenancy, the more likely to have capital investments and diversification.

⁴² Defra and ONS 2007, Farm Diversification – January 2007

⁴³ Defra 2007, Barriers to farm diversification, Report of the Joint Industry-Government Working Group, London, May 2007

⁴⁴ Defra 2007, Barriers to farm diversification, Report of the Joint Industry-Government Working Group, London, May 2007, p. 4

⁴⁵ www.defra.gov.uk/farm/working/tenancies/pdf/trig-cogp.pdf (accessed 20/09/2007)

Joint ventures are not common in West Sussex, but some are established on the processing and marketing side, e.g. processing and packaging of vegetables, processing and marketing of oil seed rape. Some growers also import salad crops, etc. and use packing facilities in West Sussex before selling it on to national supermarkets. It is estimated that there are 20 to 30 cooperatives in West Sussex, spanning across different areas of activity. More common legal forms of establishments are private limited companies and family farms.

Beyond these legal structures for farms, one can also distinguish between unincorporated or incorporated organizations for rural enterprises.⁴⁶ Unincorporated organisations are Trusts, Associations and Partnerships. These have no legal identity separate from their members. One or more members must own all property contracts and leases required by the business. Members carry personal liability for the organisation's debts and the liability of members is unlimited. However, unincorporated organisations can be cheaper to run than incorporated companies and do not need to submit audited accounts and have a more simplified constitution. Incorporated organizations are Companies Limited by Guarantee (CLG) and Cooperatives. CLG differ from the more common Company Limited by Shares, as it does not have shareholders. Instead, its members merely guarantee a contribution to its assets should it become insolvent. This is a commonly used legal form for social enterprises and not-for-profit organisations because it is flexible and easily understood.

Concerning farm types in West Sussex, the most common are cereals, cattle and sheep. Horticultural activity is more common along the coast because of its favourable climate and fertile soils. Among cereals, wheat is the most widely grown, occupying an area of 14% of UAA (Table 35).

Table 35 Cereals grown in West Sussex in 2006

	Area	Holdings	Share of UAA (%)
Wheat	17,104	330	14
Winter Barley	1,447	73	1
Spring Barley	3,142	110	3
Oats	3,141	119	3
Other Cereals	363	19	0
Total Cereals	25,198	404	20

Source: Defra, June 2006 Agricultural and Horticultural Survey for England.

Note: Based on a sample survey, with estimates made for those not surveyed or responding.

Among other crops than cereals, oilseed rape is most widely grown with a share of 4% and maize with 3% of UAA (Table 36).

⁴⁶ Organisational Structure for Rural Social Enterprises:
www.plunkett.co.uk/Archive/PDF_Docs/section7.pdf

Table 36 Other crops grown in West Sussex in 2006

	Area	Holdings	Share of UAA (%)
Potatoes	511	38	0.6
Field beans	1,935	79	2.0
Peas for harvesting dry	960	46	1.0
Oilseed rape	4,411	119	4.0
Linseed	942	41	1.0
Other crops for stock feed	373	24	0.4
Maize	3,229	155	3.0
Other arable crops	907	73	1.0
Bare fallow	2,146	138	2.0

Source: Defra, June 2006 Agricultural and Horticultural Survey for England.

Note: Based on a sample survey, with estimates made for those not surveyed or responding.

Table 37 shows the area used and number of holdings engaged in horticulture and fruit growing. Given the mild climate and fertile soils is not surprising that a higher number of holdings are engaged in horticulture.

Table 37 Horticulture and fruit in West Sussex in 2006

	Area	Holdings	Share of holdings (%)
Vegetables grown in open	1,841	76	3
Total Horticulture	2,461	337	13
Top fruit	152	80	3
Small fruit	173	41	2

Source: Defra, June 2006 Agricultural and Horticultural Survey for England.

Note: Based on a sample survey, with estimates made for those not surveyed or responding.

An important share of farms is engaged in livestock and dairy production. This is reflected in the numbers of cattle herds and other livestock (Table 38 and Table 39).

Table 38 Cattle farms in West Sussex

	Number	Holdings	Share of total holdings (%)
Dairy herd	14,508	130	5
Beef herd	8,191	284	11
Breeding herd replacement	7,193	304	12
Other Cattle over 1 y	11,561	398	15
Total cattle under 1 y	13,870	388	15
Total cattle	55,323	535	21

Source: Defra, June 2006 Agricultural and Horticultural Survey for England.

Note: Based on a sample survey, with estimates made for those not surveyed or responding.
Categories overlap as one farm can have multiple categories of cattle.

There are some initiatives in the county to act for the benefits for livestock farming and wildlife conservation. The County Council with other partners set a scheme for

livestock farmers. Under this scheme livestock was supported to graze the marshland around Chichester and Langstone Harbours, which helps to maintain the marshland habitat on sites of special scientific and wildlife protection interest.

Besides cattle also other livestock farms are found in West Sussex (Table 39). These see the prevalence of sheep, which can benefit from the vast areas of pastureland predominately on the South Downs.

Table 39 Farms with other animals in West Sussex

	Number	Holdings	Share of holdings (%)
Breeding pigs	3,956	76	3
Other pigs	29,345	127	5
Total pigs	33,300	145	6
Breeding ewes	45,413	442	17
Lambs under 1yr	51,138	401	15
Other sheep	4,637	452	17
Total sheep	101,187	588	23
Total goats	900	119	5

Source: Defra, June 2006 Agricultural and Horticultural Survey for England.

Note: Based on a sample survey, with estimates made for those not surveyed or responding.

Table 40 summarizes data for poultry, which indicates that farmers in the county are choosing prevalently table chicken (44%) and laying poultry (53%)

Table 40 Farms with poultry in West Sussex

	Number	Holdings
Growing pullets	82,084	31
Birds in the laying flock	334,255	395
Total layers	416,339	404
Layer breeders	2,628	58
Total breeding fowls	19,901	182
Table chicken	308,125	16
Total poultry	744,366	438
Total ducks	13,208	156
Total geese	2,619	146

Source: Defra, June 2006 Agricultural and Horticultural Survey for England.

Note: Based on a sample survey, with estimates made for those not surveyed or responding.

There are several initiatives and partnerships aimed to meet an increasing demand for regional food. "A Taste of Sussex" unites East and West Sussex producers under a regional brand under which processed food and specialities of regional and other high quality foodstuffs is sold. Defra estimates that in the South East, the speciality food and drink sector employs over 6,000 people in 392 businesses with a turnover of about GBP 430 mio/year.

West Sussex is one of the *most wooded parts* of lowland Britain. Woodland and forests cover 17.5% of the whole of Sussex (66,258 ha) (Forestry Commission Census 1997), which is well above the national average (about 9%). The predominant woodland type is oak – hornbeam. However, because of the changed management systems chestnut coppice is now more common. The majority of woodlands are of commercial wood, replanted on ancient woodland⁴⁷ sites with non-native trees. The remaining are woods that have been planted or regenerated on non-wooded sites. A good portion of forestry business is run by the Forestry Commission (state institution), but there are also private woodland estates i.e. in West Dean, Stansted, Paddockhurst, Leconfield and Cowdray estates.

The Sussex Biodiversity Partnership estimates an increase in woodland in a recent report, which went from 16.2% in 1947 to 18.8% in 1997.⁴⁸ A development that sees a reduction of coppice and an increase of high forest. But only a small proportion of timber used in the region seems to come from local sources and much woodland remains unmanaged. There are poor incentives for management as timber markets are limited and woods are mainly unprofitable. Bulk markets for timber no longer exist within the region. Timber produced is mostly used for home consumption like for firewood or estate management purposes. DEFRA reports that grants to landowners in the region to plant new woodland and renovate old woodlands amount to GBP 3.5 mio/year. In the White Paper on Rural England, published by the Government, the need to increase wood production is acknowledged given that Britain imports currently 85% of its need for timber.

2.1.3.3 Structure of rural economy

Statistical profile

The following table summarizes contributions to the regional GVA at NUTS 1 level for different economic sectors. While some sectors are oscillating, others show a constant and substantial increase. For example the Manufacture of Wood has risen by 41% from a very low level, Hotels and Restaurants by 55%, Transport, Storage and Communication by 38%, Financial Intermediation by 56%, and Real Estate by 55%.

⁴⁷ Woods which have been under some form of continuous woodland cover since at least 1600 AD and have only been cleared for under-wood or timber production.

⁴⁸ The Habitat Action Plan for Sussex (2000), the Sussex Biodiversity Partnership

Table 41 South East (NUTS 1) GVA per economic sector 1995-2004 (mio GBP)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
DA: Manufacture of Food Products; Beverage and Tobacco	1,664	1,748	1,750	1,475	1,882	1,828	1,625	1,747	1,709	1,566
DB: Manufacture of Textiles and Textile Products	182	184	212	222	230	201	163	168	135	156
DC: Manufacture of Leather and Leather Products	28	27	22	27	46	31	24	20	17	20
DD: Manufacture of Wood and Wood Products	181	190	223	253	268	264	269	286	281	303
DE: Manufacture of Pulp, Paper and Paper Products Publishing and Printing	2,510	2,558	2,628	2,696	2,876	2,792	2,908	2,920	2,713	2,833
DG: Manufacture of Chemicals, Chemical Products and Man-made Fibre	2,589	2,730	2,651	2,796	2,926	2,997	3,334	3,193	3,395	3,304
DK: Manufacture of Machinery and equipments not elsewhere classified	1,475	1,631	1,672	1,949	1,961	1,822	1,703	1,524	1,629	1,677
G: Wholesale and Retail Trade; Repair of Motor Vehicles, Motorcycles and Personal and Household Goods	11,283	12,009	13,779	15,376	16,864	17,765	18,601	18,761	19,913	21,077
H: Hotels and Restaurants	2,162	2,530	2,668	2,950	3,459	3,821	4,078	4,096	3,984	4,791
I: Transport, Storage and Communication	8,729	9,470	10,118	11,518	11,724	12,522	12,327	12,460	13,112	14,245
J: Financial Intermediation	6,058	6,686	7,137	6,883	6,866	6,693	6,993	9,692	9,988	10,689
K: Real Estate, Renting and Business Activities	21,965	24,231	27,303	31,330	35,844	38,256	41,600	44,374	46,720	48,742

Source: ONS

Note: The above are UK standard industrial classification for economic actives used by the ONS.

The secondary and tertiary sectors employ a substantial number of local people (Table 42), but it is the tertiary sector that provides the bulk of employment and is still on the increase. West Sussex County Council compiled a breakdown per sector of all employees (aged 16-74) from the 2001 Census data.⁴⁹ It results that the highest share of people is employed in the public sector (22%), followed by the financial and real estate with 20% and manufacturing and construction with 19%. Wholesale, trade and retail employs 16% and transport 10% of the workforce.

⁴⁹ West Sussex County Council, 2001 Census Standard Tables.

Table 42 Employment in West Sussex by equivalent full-time positions (EFT), by sector, in 1,000

Year	1995	1996	1997	1998	1999	2000	2001	2002
Primary	8.1	8.6	8.9	8.4	9.6	10.6	11.2	8.6
Secondary	70.0	69.2	69.9	68.4	78.4	77.0	64.1	72.1
Tertiary	279.4	278.4	291.7	298.2	321.6	308.2	323.3	339.0
Total	357.5	356.2	370.5	375.0	409.6	395.8	398.6	419.7

Source: Eurostat.

As from the last census in 2001 there are 26,505 VAT registered businesses in West Sussex. Of these, 1.6% are in education and health, 4.8% are in agriculture and fishing, 4% in transport, 5.6% in hospitality, 8.6% in manufacturing, 9.1% in public administration, 12.3% in construction, 19.7% in wholesale and retail, and 34.2% in real estate.

Tourism is an important sector. It contributes to almost GBP 958 mio to the West Sussex economy and sustains over 16,000 jobs, which makes 8.5% of jobs in the county.⁵⁰ In 2003, 21,167 bed-spaces and 718 tourist establishments were registered in the county. For the same year, 1,189,580 overnight stays were registered and the average day spending per visitor was GBP 30.74.

It is estimated that over 20 mio visits are made to West Sussex every year. These are prevalently day visitors (87%) of a medium and low spending category, coming mostly from the nearby Surrey, Hampshire, and the Midlands. Historically, it was the coastal area to attract tourism. This trend has recently changed somewhat. There is a slight decline in tourism along the coast while rural areas are becoming more popular.⁵¹

Table 43 Tourist numbers in West Sussex (in mio)

Year	2002	2003	2004	2005
Serviced Accommodation	1.58	1.66	2.02	1.78
Non-Serviced Accommodation	0.12	0.12	0.15	0.18
Staying with Friends	1.17	1.26	1.35	1.35
Day Visitors	16.76	17.70	17.66	17.95
Total	19.63	20.74	21.18	21.26

Source: West Sussex County Council, <http://www.westsussex.gov.uk/ccm/content/leisure-and-tourism/tourism-facts-and-figures.en;jsessionid=amoR3HInmHie> (accessed 12/10/2007)

Data on Research and Development (R&D) is not available for West Sussex. However, in 2002, total R&D expenditure in the South East region (NUTS1) was GBP 4,394 bn, which figures among the highest in the country. The highest share of

⁵⁰ West Sussex County Council, Tourism Facts and Figures: <http://www.westsussex.gov.uk/ccm/content/leisure-and-tourism/tourism-facts-and-figures.en;jsessionid=amoR3HInmHie> (accessed 12/10/2007)

⁵¹ Worthing Evolutions 2006, Tourism Baseline: Issues and Challenges.

expenditure in R&D is from businesses, followed by government and higher education institutions. For the same year, the region accounted for 26.9% of UK business expenditure on R&D and 28.2% of government R&D expenditure. The South East had the greatest percentage of enterprises involved in product innovation in the country (22%). In 2002/03, the South East accounted for nearly 17% of all UK inward investment.⁵²

Regional focus

There are food and drink manufacturers such as Kraft Jacob's Suchard Ltd, Nestle (UK) Ltd and Van Den Bergh Foods Ltd in the region and areas nearby. This industry works with high volume requirements, often has low margins and an unsecured customer base. In West Sussex, smaller farmers are not engaged with the food industry or food processing. Only occasionally are farmers adding value by processing their primary products and selling at retail prices. Recently, farmers' markets (and box delivery schemes) are becoming more and more popular as this allows farmers to earn an extra margin.

Coastal resorts are an important part of the leisure industry. However, visits to these resorts have declined over the last years. During the same period, visits to the rural areas and inland towns have increased. This has led to some development pressures in sensitive environments, in particular from private cars used for leisure purposes. West Sussex is renowned for its landscapes and an interesting destination for hikers and ramblers. It has a footpath network that includes nationally famous long-distance routes like the South Downs Way, but also several shorter trails and circular routes. The public rights of way network of West Sussex and its natural amenities are an important resource for the attractiveness of this area.

2.1.4 Rural society

2.1.4.1 Demography

Statistical profile

In 2001, the total population of West Sussex was 753,614. Of these, 179,900 residents (24%) lived in rural wards, where population tends to be older than average with 28% of residents aged between 45 and 64 (compared to 24% for the South East and nationally) and a fifth is above the age of 65 (16% regionally and nationally).⁵³ The population density in West Sussex is 3.8 people per hectare. But a large variation across the county is observed given the mix of rural and urban areas, i.e. Chichester has a population density of 1.4 people/ha, while Worthing has 30 people/ha.

⁵² SEEDA 2005, The Profile of South East England.

⁵³ ECOTEC 2007, West Sussex Rural Strategy: Rural Profile 2006, final draft.

Measured in percentage, most of the population growth in West Sussex happened in rural areas. This growth came mostly from an aging population and immigration.⁵⁴ Three groups are responsible for this. From 1981 to 2005, numbers of people over retirement age (65 and above) rose. Also, numbers of people aged 45 to 64 grew by 43% (18% national average) along with a 6% growth in the group aged 0 to 14 (7% decline nationally). This suggests an inflow of families from conurbations to raise their children in a more peaceful environment, resulting in rising house prices that create problems for the local population. But it seems that once these children move on from secondary education, a substantial number moves out again; the number of people aged 15 to 24 fell by 21% and those aged 25 to 34 fell by 14%. Anecdotal evidence suggests that these are not only children from former in-migrants, but also children of the older local population who partly cannot afford to live in the area anymore because of the pressures on the housing market.

Regional focus

Estimates from the Office for National Statistics (ONS) projected a rise in population in England from just under 50.0 mio in 2000 to 51.9 mio in 2010 (+3.9%). The largest increase is projected in London, by 8.3% from 7.4 mio to just under 8 mio. This is followed by the Southern regions, with 6.3% growth from 13.1 to 13.9 mio people. Table 44 displays population data for West Sussex.

Table 44 Population projections for West Sussex, in 1,000

Year	2001	2006	2008	2010	% change – 2000-2001	% change – 2000-2008	% change – 2000-2010
West Sussex	770.5	802.0	813.9	825.6	0.9	6.6	8.1

Source: ONS

When analysing the development of consumption patterns in produce, it makes sense to start with the typical UK basket of goods to see a snapshot of popular items. As set by the ONS, it contains 650 goods and services. In 2007, the following list of produce figured in the basket.

Bread and Cereals

Large white loaves, Large wholemeal loaf, Bread rolls, Pitta-bread, Flour, Rice, Pasta, Breakfast cereals, Plain biscuits, Corn based snacks, Doughnuts, Sponge cakes, Crackers, Pack of individually wrapped cakes Frozen pizzas, Fruit pies, Dehydrated noodles/pasta, Plain and chocolate wafers

Meat

Beef, Rump steak, Braising steak, Mince, Topside, Frozen burgers, Lamb, Loin chops – home and imported Lamb shoulder, Lamb leg, Pork, Loin chops Shoulder,

⁵⁴ ECOTEC 2007, West Sussex Rural Strategy: Rural Profile 2006, final draft.

Bacon gammon Bacon back, Chicken, Fresh/chilled whole chicken, Fresh chicken breasts, Frozen chicken breasts

Other Meats

Pork sausages, Meat pies, Cooked meats – eg Ham Fresh turkey steaks

Canned meats, Frozen chicken nuggets, Chicken kiev

Fish

White fish fillets, Salmon fillets, Canned tuna, Fish fingers, Frozen prawns

Milk, Cheese and Eggs

Full-fat, semi-skimmed and skimmed milk – shop-bought and delivered

Fresh cream, Milk products, Yoghurt, Chilled pot dessert, Cheddar – home-produced and imported Fromage frais, Selected speciality cheeses, Other regional cheeses, Various sized eggs

Oils and Fats

Margarine/low fat spread, Cooking oil, Home-produced and imported butter

Fruit

Cooking apples, Dessert apples, Pears, Bananas, Strawberries, Grapes, Oranges, Grapefruit, Avocado pears, Peaches, Kiwi fruit, Organic fruit, Various canned fruits, Salted peanuts

Vegetables

White loose and pre-packed potatoes – old and new varieties, Crisps – single and multi-packs Other potato-based snacks, Frozen chips, Fresh tomatoes, Cabbage, Cauliflower, Carrots Mushrooms, Onions, Lettuce, Cucumbers, Canned baked beans, Broccoli, Canned tomatoes, Courgettes, Canned sweet corn, Frozen peas, Vegetarian burger/grills Vegetarian meals, Vegetable pickles, Organic vegetables

Sugar, Jam, Honey, Syrups, Chocolates and Confectionery

Sugar, Various jams, Ice cream, Gum – chewing and bubble, Various selected popular brands of sweets, chocolates and mints

Mineral Water, Soft Drinks and Juices

Various pure fruit juices, Squashes, Mineral water, Various fizzy drinks – cans and bottles, Energy drinks, Pro-biotic drink

Data on trends in food consumption are not available at county level. However, the ONS reports various changes nationwide. The following table summarizes trends in household food consumption from 1990 to 2000.⁵⁵

Table 45 Household consumption of selected food items: UK 1990-2000

	Consumption (grams)			Expenditure (pence)		
	1990	1999	2000	1990	1999	2000
MEAT						
Beef and veal	149	110	124	64.0	53.6	59.3
Mutton and lamb	83	57	55	28.6	25.6	25.6
Pork	84	69	68	29.1	24.0	25.8
<i>Total carcass meat</i>	<i>316</i>	<i>236</i>	<i>246</i>	<i>121.7</i>	<i>103.1</i>	<i>110.7</i>
FISH						
White, fresh	24	17	15	11.3	10.2	10.3
Fatty, fresh	8	14	14	3.8	8.8	9.6
Processed and shell	14	15	18	8.7	12.2	13.7
Prepared	50	55	52	24.9	29.5	25.7
Frozen	46	42	44	18.0	20.2	20.9
<i>Total fish</i>	<i>144</i>	<i>144</i>	<i>143</i>	<i>66.6</i>	<i>80.8</i>	<i>80.2</i>
EGGS	2.20	1.68	1.75	19.5	17.0	17.6
SUGAR AND PRESERVES:						
Sugar	171	107	105	11.1	7.2	6.6
Honey, preserves, syrup and treacle	48	33	33	7.4	7.4	7.4
VEGETABLES						
Fresh potatoes	996	673	707	27.7	33.3	32.0
Fresh green	277	245	240	22.0	33.9	35.0
Other fresh	459	500	492	46.4	63.8	65.2
FRUIT						
Fresh	605	711	745	65.1	93.4	95.0
Fruit juices	202	284	303	17.3	24.6	25.3
Other products	87	68	73	14.8	16.0	16.8

Source: Defra, National Food Survey 2000

There was also no significant change in overall purchased quantities of meat products in 2005-06 compared to the previous years.

An on-going trend from whole milk to semi-skimmed milk was registered. In 2005-06, purchased quantities of liquid whole milk were down 4.4% whilst semi-skimmed milk was up 3%. Semi-skimmed milk now accounts for over 61% of liquid milk sales, starting from next to none in 1980. In 2005-06, sales of yoghurt and fromage frais were 7.3% higher than in 2004-05, which is in absolute terms 201 ml per person per week.

⁵⁵ Defra 2000, National Food Survey:
<http://statistics.defra.gov.uk/esg/publications/nfs/2000/default.asp> (accessed on 25/10/2007)

Defra reports that household purchases of fruit and vegetables were 7.7% higher in 2005-06. This is the largest rise in the last twenty years. In particular, fruit purchased by households was up 10% in 2005-06. From April 2003 to March 2006, household purchases of fruit and vegetables (excluding fresh and processed potatoes) were the highest in the South West Region. In the UK, purchases of fruit were almost 77% higher in comparison with 1974. Estimates for fruit juice purchases in 2005-06 indicate an increase of 10 times since 1974. In 1974, apples, pears and citrus fruits accounted for three quarters of fruit purchases; in 2005-06, these accounted for less than half. Also sales of bananas, stone fruits and soft fruits increased.

In 2005-06, vegetable consumption was 1,156 grams per person per week UK wide. Fresh green vegetable purchases rose by 4.3% to 235 grams per person per week, whilst other fresh vegetable purchases increased by 5.9% to 567 grams per person per week. Purchased quantities of other vegetables (mainly processed tomatoes, peas and beans and vegetable ready meals) were 2.6% higher, to 286 grams per person per week.

On a longer time scale (from 1974 to 2005-06) sales of fresh potatoes fell by 55%, with a rise of 115% in processed potatoes over the same period. Quantities of fresh cabbage declined markedly, while cauliflowers tended to maintain their popularity. Frozen vegetables and canned, bottled, dried and other processed vegetables declined over the same period.

This increase of vegetable and fruit consumption might be the consequence of several factors. To name some (no data is available on this), life-style changes, increasing vegetarian diet, health and environmental issues about meat diets, etc. may have all their influence. Also, during the last years nationwide campaigns were run to increase the awareness about the benefits of vegetables and fruits, following which supermarkets began to introduce the labelling of veg/fruit with their contribution towards the '5-per-day' target.⁵⁶

Also, a trend towards organic food and fair-trade products should be mentioned. However, little statistical data is available, especially on the latter. One indicator might be that organic vegetables and fruits figure in the ONS basket of goods. In 2004, retail sales of organic produce rose to an estimated GBP 1,213 bn, corresponding to an annual growth rate of approximately 11%.⁵⁷ Retail sales made through box schemes (12% share of the organic market), farm shops and farmers' markets increased by one third, and sales through independent retailers (13% market share) increased by over 40%. Supermarket sales continued to grow but at a much slower rate (1.5%) than in previous years. However, supermarket chains in UK remain with 75% of the whole retail sales of organic food the most important sales channel. While consumer demand for local food continues to grow, we still

⁵⁶ The Department for Health endorsed a campaign under the 5perDay slogan to promote an intake of at least five portions of fruit or vegetables per person per day to help reduce the risk of some cancers, heart disease and other chronic conditions.

⁵⁷ Soil Association Organic Market Report 2005.

saw a 1% increase in the proportion of organic food and drink imported by supermarkets in the UK. The key contributing factor was a switch away from UK-produced organic pork, beef and lettuce by some of the leading multiple retailers.⁵⁸

Table 46 Estimated turnover and per capita consumer expenditures for organic food in the UK, 2004

Turnover domestic organic food market	GBP 1,213 bn
Population	59.5 mio
Per capita consumer expenditure for organic food	GBP 20.4 ~ EUR 30

Source: Willer, H. and Yussefi, M. 2006, *The World of Organic Agriculture*, p.143

In 2005, 690,270 ha were under organic cultivation on 4,010 farms. This is a share of 4.4% of all agricultural land.⁵⁹ The Soil Association reports in its Organic Market Report 2005 that the introduction of the Single Payment Scheme (SPS) has resulted in a growth of interest in organic conversion of all sub-sectors. However, while opportunities still exist for organic producers a number of key constraints continue to challenge the UK's organic sector, including continued high levels of imports, practicalities of balancing supply with uneven demand, pressure on UK organic farm gate prices and rising costs of production.

The Soil Association's Organic Market report, published in November 2005, reports that since the 2004 reporting period, the area of fully organic land under horticultural production increased by 4.5% to 7,711ha, while the area of fully organic arable land increased by 5.7% to 51,234 ha. The area of organic grassland remained stable at 88.6% of the total, i.e. 561,656 ha.

The area of land used for herb production increased by more than 200% – due mainly to the growing demand for organic health and beauty products.⁶⁰

A further trend in the UK is that people choose to eat out more frequently. This consequently has an impact on household spending on fresh and processed food and drinks. This was GBP 85.8 bn in 2004, rising by 53.4% between 1992 and 2004. Over the same period, spending on food and drink products consumed outside the home grew by 102.2%, to GBP 87.5 bn in 2004 (ONS, 2006).⁶¹

⁵⁸ Willer, H. and Yussefi, M. 2006, *The World of Organic Agriculture: Statistics and Emerging Trends 2006*: International Federation of Organic Agriculture Movements (IFOAM), Bonn Germany & Research Institute of Organic Agriculture FiBL, Frick, Switzerland, p. 140

⁵⁹ FiBL survey 2005/2006, cited in Willer, H. and Yussefi, M. 2006, *The World of Organic Agriculture*.

⁶⁰ http://www.organic-europe.net/country_reports/great_britain/default.asp (accessed 15/09/2007)

⁶¹ <http://www.statistics.gov.uk/CCI/nugget.asp?ID=946&Pos=1&ColRank=2&Rank=448> (accessed 15/09/2007)

2.1.4.2 Education

Statistical profile

In West Sussex, a total of 166,319 people have no qualifications or it is unknown, 262,886 have lower level qualifications and 101,489 have higher-level qualifications. Table 47 shows population percentages for the highest educational level held across urban and rural areas, which supports that well educated people from conurbations moved to the rural areas.

Table 47 Percentage of population aged 16-74 with highest education in West Sussex

	Urban	Town and fringe	Village	Hamlet	Overall
No qualifications	25.1	23.5	21.1	17.3	24.2
Level 1	18.9	17.5	15.1	13.2	18.1
Level 2	22.5	22.8	23.6	25.7	22.8
Level 3	8.4	8.3	9.6	11.3	8.6
Level 4	17.8	20.6	24.0	26.7	19.1
Other/unknown	7.3	7.3	6.5	5.9	7.2

Source: Census 2001/DEFRA, as pictured in the socio-economic baseline analysis report for rural West Sussex by WSCC 2006.

Note: Level 1: 1+ 'O'; 1+CSE/GCSE any grades; NVQ; Foundation GNVQ. Level 2: 5+'O'; 5+ CSEs (grade 1's); 5+GCSEs (grades A*-C; School Certificate; 1+ 'A'Levels/'AS' levels; NVQ; Intermediate GNVQ. Level 3: 2+ 'A' levels; 4+ AS levels; Higher School Certificate; NVQ level 3; Advanced GNVQ. Level 4/5: First degree Higher degree; NVQ levels 4 & 5; HNC; HND; Qualified Teacher Status; *Qualified Medical Doctor; Qualified Dentist; Qualified Nurse; Midwife; Health Visitor.*

Regional focus

West Sussex is well served by primary school infrastructure, but provision of education after 16 years is weak in some areas. In 2005, 227 primary schools were registered, of which 85 were located in rural areas. There are just seven secondary schools (3 of which with Sixth Forms, and three of which middle schools, for ages 10 to 13) with a total of 7,500 learners, and no institutions devoted to provision of learning post 16 in rural wards. Between 1994 and 2006, 15 schools and colleges have been closed in rural West Sussex (out of a total of 48) and two have been merged, reducing the number of options available to learners.

Some demand for learning among these age groups is satisfied outside the local education authority funded provision. A large number of learners are required to travel to study, particularly those in rural areas.⁶²

There are few institutions that offer agricultural and related training within the county as already mentioned in chapter 1.1.1. More opportunities of this kind can be found in East Sussex and Brighton and Hove. No data is available on the share

⁶² ECOTEC 2007, West Sussex Rural Strategy 2007-2017, final draft.

of farmers with agricultural training. However, as agriculture has the highest level of unqualified managers of any industrial sector in the UK, this poses some challenges for further diversifications where different skills are required.⁶³

2.1.4.3 Labour market

Statistical profile

In West Sussex, a total of 368,410 people were economically active in 2001 (census). Of these, 54,200 are self-employed. The following Tables show employment rates per different age groups. However, data is not at county level but NUTS 2 instead (including East Sussex and Surrey).

Over the last years employment has slowly increased except in 2005 that has seen a small decrease. Table 48 shows the employment rate of the age group 15-64, which is clearly above the national average. Males have a higher employment rate compared to females, which is somewhat higher in the southern counties compared to the average, and the gap stays constant during our period of observation.

Table 48 Employment rate by gender, age group 15-64 y

	2002			2003			2004			2005		
	Tot	M	F									
United Kingdom	71.7	77.6	65.9	71.6	77.8	65.6	71.5	77.7	65.3	71.3	77.6	65.2
South East	75.8	82.3	69.6	75.8	82.7	69.1	76.1	82.6	69.8	76.7	83.5	70.0
Surrey, East and West Sussex	75.5	82.5	68.6	76	82.5	69.5	76.6	83.1	70.2	76.1	83.1	69.4

Source: Eurostat

A similar trend is observable for the age group 55-64, though with a lower employment rate overall, and the gap between the genders is higher. Employment in the southern counties is above the national average and has seen males having a higher employment rate of about 20% as compared to females (Table 49). Again, the latter is somewhat lower across the UK.

Table 49 Employment rate by gender, age group 55-64 y

	2002			2003			2004			2005		
	Tot	M	F									
United Kingdom	53.4	62.6	44.5	55.4	64.8	46.3	56.2	65.7	47	56.9	66.0	48.1
South East	60.9	70.5	51.5	62.0	71.9	52.5	63.3	74.6	52.3	62.7	72.8	52.9
Surrey, East and West Sussex	60.5	71.0	50.1	63.1	74.2	52.2	65.8	76.6	54.2	62.6	73.8	52.5

Source: Eurostat

⁶³ DEFRA – Joint Industry-Government Working Group, Barriers to farm diversification, May 2007

For the age group 15-25 (Table 50) we can observe a national trend of decreasing employment rates which is mirrored in the southern counties, except that 2005 figures seem to indicate at least a temporary reversal in the three southern counties including West Sussex. Otherwise, the regional figures show again above-average rates. But the differences between male and female rates are much smaller as when compared to the previous age groups.

Table 50 Employment rate by gender, age group 15-25 y

	2002			2003			2004			2005		
	Tot	M	F									
United Kingdom	56.1	57.6	54.5	55.3	56.9	53.7	55.4	56.6	54.1	54.0	55.3	52.5
South East	63.3	64.4	62.1	60.3	61.5	59.1	59	60.4	57.7	58.1	59.1	57.2
Surrey, East and West Sussex	63.3	62.8	63.8	60.4	60.7	60.1	58.9	60.4	57.3	59.4	61.3	57.4

Source: Eurostat

In West Sussex, a total of 368,410 inhabitants are economically active; 69,061 work part-time, 221,541 work full-time and 54,200 are self-employed. Also, a total of 162,284 are economically inactive and 10,260 are unemployed, of this a total of 2,501 are long term unemployed and 6,170 have never worked.⁶⁴

Table 51 shows personnel cost per employee per sector for the UK, which has seen a general increase over the last years. Starting from the lowest base, education, health and social work have experienced the highest increase and nearly caught up to other sectors.

Table 51 Average personnel cost per employee/month per sector in the UK

	NACE branches except agriculture, fishing, private households with employed persons	Industry	Services (excluding public administration)	Public administration and defence; compulsory social security	Education; Health and social work; Other community, social, personal service activities
2005	4,026.0	4,349.2	3,960.2	NA	3,923.7
2004	3,727.6	3,925.5	3,791.0	NA	3,339.4
2003	3,525.8	3,701.6	3,592.5	NA	3,149.0
2002	3,719.6	3,942.2	3,846.8	NA	3,240.9

Source: Eurostat

Note: Currency expressed in EUR, NA = not available.

Regional focus

West Sussex County Council reports a share of 82.9% of the total population in working age being employed in 2005. By gender, this is 87.1% of males and 78.6% of females (Census 2001: Statistics for West Sussex)

⁶⁴ West Sussex County Council: Census 2001: Statistics for West Sussex

The already mentioned ECOTEC report compiled on behalf of the Council notes that jobs in the service sectors have risen.⁶⁵ Whilst there has been a decline in employees in manufacturing industries nationally and the South East this is not true for West Sussex. Here, this sector has grown. In 2004, it employed 9.4%, and banking and finance employed 19.8%. Public administration, education and health employed 25.1%. But the highest proportion of employees, 27.5%, is employed in the distribution, hotel and restaurant sector.

As mentioned earlier, employment in agriculture has declined over the long term and was around 2% in 2004. An increasing number of farms opt also for diversification to establish a broader base of income sources on the farm. These diversification options can create additional employment, and often give the whole farm business the profit margin they need for further existence.

There are more self-employed and small employers in rural areas compared to urban areas. 90% of rural West Sussex firms employ between 1 and 10 persons, compared to 84% across West Sussex, 85% across the South East, and 83% nationally. Also, there is a difference in job typologies between rural and urban areas. Higher skilled trade occupations chose both, to live and to work in rural wards. There are less managerial and professional jobs in rural wards. These professions may choose to live and work in urban areas or commute.

2.1.4.4 Civil society

Statistical profile

In the UK, civil society representation is changing. While memberships in political parties are on the decline, representation in non-governmental organisations is on the rise, as for example Whiting (2004) reports in the following table. We can observe a continuous increase in memberships for selected environmental organizations over the last three decades.

Table 52 Membership of selected environmental organisations (UK)⁶⁶, in 1,000

	1971	1981	1991	1997	2003
National Trust ¹	278	1,046	2,152	2,489	3,300
Royal Society for the Protection of Birds	98	441	852	1,007	1,037
Wildlife Trusts ²	64	142	233	310	562
Greenpeace	NA	30	312	215	226
Campaign to Protect Rural England ³	21	29	45	45	58
Woodland Trust	NA	NA	63	60	127

Source: ONS, Whiting, E. (2004), Focus On Social Inequalities

Notes: ¹ Covers England, Wales and Northern Ireland.

² Includes the Royal Society for Nature Conservation.

³ Previously called Council for the Protection of Rural England.

⁶⁵ ECOTEC 2007, West Sussex Rural Strategy 2007-2017, final draft.

⁶⁶ Whiting E. (2004), Focus On Social Inequalities, Chapter 7: Participation, ONS.

Regional focus

In West Sussex, numerous groups can be found spanning a wide array of activities. These can have a formalized status like associations, unions or charities, but are also less formal like local/parish partnerships and action groups. Almost every district in West Sussex has more than one action group engaged in the pursuit of environmental, regeneration and other matters.

Agenda 21 groups were initiated eight years ago with the purpose to support rural communities in West Sussex. Once the project funding terminated the Agenda 21 groups witnessed a transformation into parish action groups. The latter account to around 150 in West Sussex. A parish action group might be organized around an issue like for instance action plans⁶⁷, waste management, master plans and other. Differently from an association, it does not require a membership commitment and it work more like a means for community involvement in local affairs in which citizens are asked to contribute in various ways.⁶⁸

For agriculture and rural development, relevant unions and special interest groups play an important role towards policy-making. These groups often represent specific interests and are included in policy consultations. The preparation of the Rural Development Programme for England 2007-2013, submitted by Defra, has seen the contribution of 179 non-governmental organizations.

The list of relevant actors for rural development in West Sussex is shown in section 1.4.1.

2.2 Exploring policy intervention

2.2.1 EU policies for agriculture and rural development

West Sussex has no Less Favoured Area (LFA).

The County Council reports that farmers in West Sussex receive about GBP 25 mio per year from the Common Agricultural Policy, which is administered by Defra. Also, private companies and other organisations receive grant aid from European funds.

⁶⁷ According to Action in Rural Sussex, *an action plan* is a process by which a community can voice their opinions on what actions they wish to see taken in their local area. When the plan is completed it may highlight actions that can be taken by community members, be used to influence councils and service providers, and act as justification of need when applying for funding (www.ruralsussex.org.uk, accessed 30/10/2007)

⁶⁸ Based on a phone interview with a respondent from Action in Rural Sussex.

2.2.2 Regionally oriented Community policies

Institutions and organizations in West Sussex may benefit from a number of other community funds. They are eligible to apply for the Financial Instrument for the Environment (LIFE), The European Social Found, Youth for Europe, LEADER+, Directorate for Transport grants, Twinning programme grants and Research and Development grants. Also, they can be partners to proposals submitted by organizations in near-by areas such as INTERREG (Kent). West Sussex organisations took part in several INTERREG projects. No data is available about the budgets involved.

2.2.3 National and regional policies

The South East region and consequently West Sussex are currently experiencing inward migration. This is in terms of national citizens who chose to move to rural parts and commute to e.g. London and foreigners seeking employment opportunities. There is also some reliance of the agricultural/horticultural sector on migrant labour. This trend has resulted in new pressures on services and housing. The West Sussex Structure Plan 2001-2016 identifies a need for 2,890 new dwellings (net) per annum from 2001-2006, amelioration of road infrastructure and rural renewal programmes to meet the minimum requirements for the projections.

2.2.4 Effects of Legislative restrictions

Most of the legal provisions are set within health and environment protection objectives and regulate matters like sewage, waste, burning practice, biodiversity protection, the use of herbicides and pesticides. Obligations for farmers arise from the following Acts:

- Water Act 2003,
- Groundwater Regulation (1998); sets quality standards and identifies pollution levels for aquifers, wells and boreholes,
- Water Supply Regulation (1999); requires that water from sources other than the mains is not connected to pipes, fittings or equipment which have a mains connection,
- Pollution Prevention and Control Regulations 2000, SI 1973,
- Clean Air Act 1993 (cause of nuisance through the creation of smoke),
- The Waste Incineration (England and Wales) Regulations 2002, SI 2980,
- UK Biodiversity Conservation Plan and Wildlife and Countryside Act 1981.

Within these legal requirements, farmers have to obtain a permit to burn something on their premises, need to initiate a consultation on the adequacy of the sewage system, an expert opinion on best farming, a laboratory verification of the water quality, etc. For example, certain operations, including burning, may only be carried out after a specific procedure has been followed. Owners and occupiers of land

must give written notice to the Environment Agency of the proposed operation, and have received written consent.

However, such obligations are generally not seen to have a mayor impact and are not over-restrictive for farming. If necessary, farmers can obtain expert support from different institutions such as the Environment Agency, English Nature, Farmers' Unions and local associations. Also, best practice guidelines are issued to support farmers. For instance, the *Code of Good Agricultural Practice for the Protection of Water, Soil and Air* (COGAP) describes main management practices that can be adopted to minimise the risk of pollution of water, air and soil.

2.3 Investigating networks – supply chains

2.3.1 Supply chain 1 – Wheat

2.3.1.1 General description

Wheat is the main arable crop in Britain. Though, we have seen small production units stop for economic reasons, mainly low sale prices and high production costs over the past eight years. From 2007 onwards, wheat production is about to increase again in the near future because the world price has increased considerably mostly due to rising demand from South-east Asia. Wheat is a world commodity with highly fluctuant prices. As there is currently a worldwide undersupply, everything what is produced gets sold.

2.3.1.2 Agricultural and forestry production actors

Production input

The land use has changes insofar as smaller producers stopped and larger farmers took on their land. These larger units farm their land the same way or even more intensive, which results in increased fertiliser and pesticide use and some detrimental effects for ground water and rivers. Input costs also increased per unit due to rising energy prices, etc. Although no irrigation is done on the fields, draught problems occur from time to time with resulting harvest losses.

If inputs would increase in costs, not much change is to be expected under current market conditions. E.g. 4-5% diesel increase means a up to 3% cost increase for production – thus quite significant, but production would not change just because of the change of this one component, as it mainly depends on the prospects of achievable income.

Harvesting machines and large tractors are frequently shared. Personnel costs amount to GBP 25,000 for a labourer plus the income for the farmer which varies

every year due to their entrepreneurial risk. Most labour employed with arable production will only spend a proportion of their time working solely on arable production. At times of the year they will be employed in farm maintenance and other activities.

Production output

GBP 80/t is break even – with currently an average income of GBP 130/t, this is a margin of GBP 50/t. If they harvest 10t/ha and have got on average 40ha, this makes GBP 500/ha and GBP 20,000 from the average wheat production of a farm, which mostly produces also other grain at the same time. Roughly 40% of the harvest is sold to food processors, and the remaining 60% to wholesalers.

External effects

Currently, about 30% of UK wheat is grown on drought-prone land and drought losses are on average 1-2 t per ha, which costs > GBP 40 mio per year. This means that even in years with 'normal' rainfall, potential yield and grain quality are affected by insufficient water at some time during crop development. Furthermore, climate change is predicted to have major impacts by 2020, particularly in southern and eastern UK. Mean summer temperatures are expected to increase 1-2°C and mean summer rainfall decrease by 20%. This will result in increasing drought stress for all summer crops and is likely to have a serious impact on agricultural practices and yields of the wheat crop. Further, this development occurs simultaneously with increasing demand from higher population numbers in urban and rural areas in the south-east. One strategy to deal with this is to breed new varieties which are more drought-tolerant, but so far with limited success.

External factors

Rainfall is the most important external natural factor on the production side, both in terms of flooding and drought. From the legislative/regulative side, local councils can and do influence farming patterns by opposing monocultures on the grounds of its negative effect on the appearance of the countryside. Furthermore, policy and legislation of Defra and the South Downs Conservation Board affect the constraints within which the wheat farmers have to operate. For example, it is difficult to diversify to tourism because it is simply forbidden to build buildings on agricultural land.

Diversification

Most holdings farm at least one alternative grain to split risks, some more than that. Malt and barley (some farm 5-10 ha already) is produced as a sideline for beer production, which could easily be extended. Oilseed rape is another diversification option, which is currently even more profitable than wheat. Plumpton College has recently installed an oilseed rape processing unit and Chicester Grain is testing the option (see separate report).

Diversification is already well developed in the South-east region if compared with the rest of the country. Further progress is sometimes hampered by local planning issues as in this relatively populated part of the country especially in-migrants from urban agglomerations buy houses in the rural areas to live in quiet and oppose potential disturbances caused by entrepreneurial undertakings. Alternative uses of agricultural buildings are currently divided into workshops for light industry, offices, recreational accommodation (for people and e.g. taking care of horses), renting out sheds for storage of ships, camping vans, etc.

2.3.1.3 Intermediary production actors

Chichester Grain is a main wholesale company which also stores grain. Some other wholesalers, like the Bodle Brothers, do not store grain but they just make the deal between local farmers and external buyers. Marketing is done by wholesalers and food processors only. Two of the main local wholesalers are not solely involved in trading grain, but wheat exchange forms part of the overall agricultural merchant business. There are also large national grain traders who operate in the area through individual employees. These wholesalers are located outside the area but have an influence on the grain pricing for the area.

Production input

In 2007 high sale prices are available which have encouraged producers to look at increasing production in the short term which will also have a positive effect for wholesalers in terms of volumes traded.

Production output

In this area, wheat has 2 two main outlets – flour mills in London or Southampton. Export takes place through the ports at Shoreham and Tilbury. Export activities are usually undertaken by larger companies in the supply chain. The wheat is all delivered in 29t bulk lorries into storage and then these larger volumes are traded for export. Bartolomews at Chichester export small boats up to 3,000 t from Shoreham to European destinations, which help the local market and reduce the supply chain. Export by ship to other continents (mostly European/north Africa and occasionally globally) is about 5% of total volume.

External effects

As often, larger units do have cost advantages which lead to higher market concentrations. The South East is a high income generating area with a large amount of labour involved in the service industry. Farm and associated labour is a lower income profession and comes into competition with area such as Brighton, Crawley and Gatwick where similar salaries are offered in a potentially better working environment.

External factors

Good safety regulations force everyone to invest properly in handling and storage facilities.

2.3.1.4 End consumption actors

As wheat is a national and global product local consumers are only a small part of the equation.

Demand

Wheat demand is about to grow due to rising population numbers and increased nutritional intakes (at home and especially in Asia). The demand for ethanol as a biofuel product seems also to be on the rise.

External factors

Although there has been an increasing demand for organic products, the overall demand of wheat has been fairly stable up to 2006, and rose in 2007. An increase of demand for wheat as an energy source could shift the balance in the supply chain. However, current debates about 'food versus fuel' make a large shift towards energy production based on crop unlikely due to associated economic and environmental effects.

2.3.1.5 Dynamics of the supply chain

Reasons for major shifts in the past and effects

Small production units within the area became uneconomic when grain prices dropped and the EU and government changed the subsidy aids system by removing area aid for crops and introducing the Single Payment Scheme. This coincided with very low commodity grain prices. This meant that small to medium units on marginal land stopped production. Once this happened and equipment was sold off and labour left the unit it made it very difficult to start production again when prices increased.

Although some producers looked towards co-operative marketing with the perception that larger volumes marketed under a single banner would result in a better price on farm, the outcome was that in most areas it was the co-operative group who increased profits and not the individual producers.

Possible reasons for future shifts

There is currently a global undersupply. Will somewhat increase in the future. New GM seed varieties to make wheat more resilient towards dry conditions are currently investigated and could make wheat more resistant to other natural

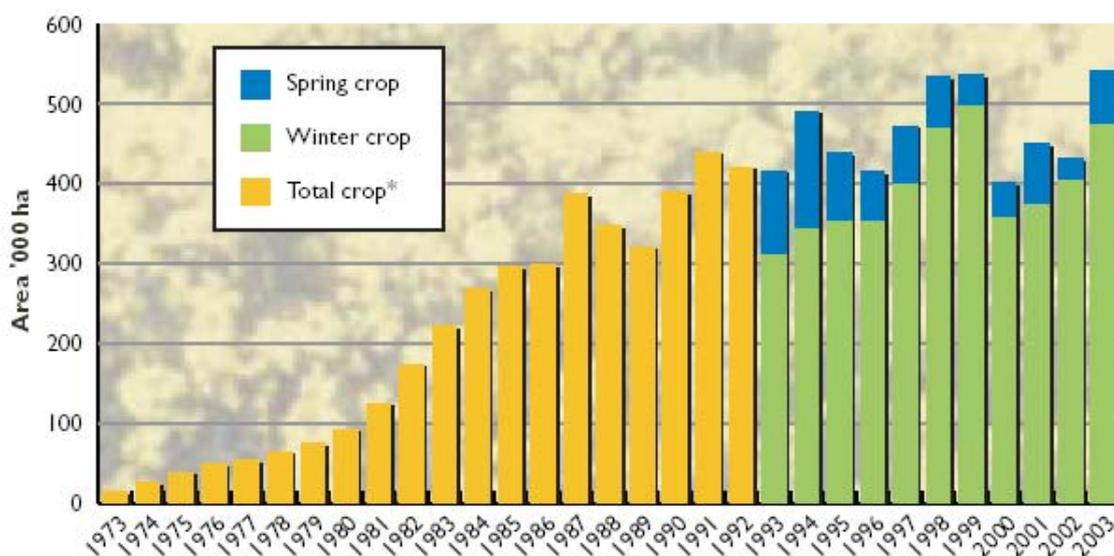
threats (reducing fertiliser and pesticide use). Furthermore, there could be a further shift towards organic production of wheat, also because organic matter tends to retain more moisture in the soil under an organic farming regime than with conventional farming practices.

2.3.2 Supply chain 2 – Rapeseed

2.3.2.1 General description

In the UK, rapeseed oil has been around since at least the 1840s, when it was known as colza oil, and used as a lubricant.⁶⁹ Currently, oilseed rape is the third most important crop in the UK after wheat and barley. Figure 41 provides an overview of the hectares used for oilseed rape over the last 35 years.

Figure 41 The UK oilseed rape area



Source: DEFRA/HGCA out of OREGIN, 2007.

The total production volume for UK oilseed rape has increased from 1,157,000 t in 2000 to 1,902,000 t in 2005 and 1,870,000 in 2006. Over the same period, the yield has stayed the same, fluctuating between 2.6 and 3.3 t/ha. In 2003, 2005 and 2006, UK agriculture produced more oilseed rape than used (108, 107 and 105%, respectively), while the production in the other years was around 90%. (UKAgriculture.com). The latest figures in terms of yields (t/ha) is 2.7 for winter '00' rapeseed and 1.58 for spring '00' rapeseed (RPA, 2007).⁷⁰ In the UK, the

⁶⁹ www.seatons.co.uk

⁷⁰ <http://www.rpa.gov.uk/rpa/index.nsf/0/1C0DD3FAEBB30528802570760051F09F>

winter area for 2007/08 was placed at 0.6 mio ha by Defra (up 17% on this season), with crop progression seen to be good but variable.⁷¹

2.3.2.2 Agricultural and forestry production actors

There are several suppliers of rapeseed in the UK. A list is provided in the next table.

Table 53 Rapeseed breeders of winter rape in the UK

Supplier	Variety and type	Website
CPB Twyford LTd	Tuscan, Elan, Mendel \$	www.cpb-twyford.co.uk
DLF Trifolium	Lioness, Hormet, Barrel	www.dlf.co.uk
Grainseed Ltd.	Es-Astrid, Es-Betty	info@granseed.co.uk
Monsanto UK Ltd.	Excaliber, Castille, Excel, Canberra	www.monsanto-ag.co.uk
Nickerson-Advanta	Expert,	www.nickersonuk.com
NK-Syngenta Seeds Ltd.	NKBravour, Toccata, NK-Grace, NKVictory, Fortis, Recital	www.oilseedrape.com
Saaten Union UK Ltd.	Disco, Winner	www.saaten-union.co.uk

Source: HGCA 2005

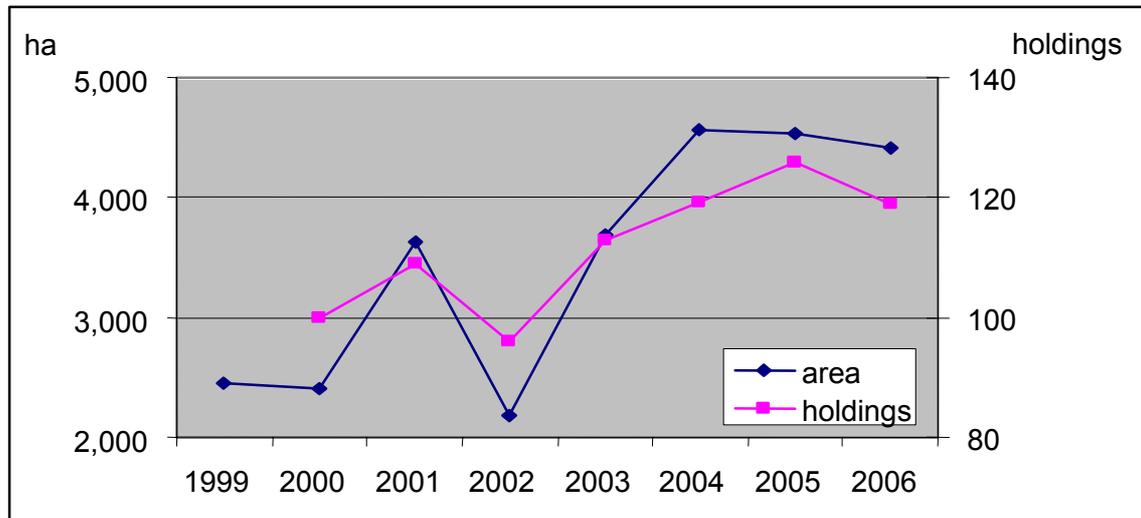
Springdale Crop Synergies, located in East Yorkshire, provides winter oil seed rape with a secure contract price of GBP 150/t + oil bonus delivered to Selby-North Yorkshire.⁷²

While recent reforms suggest a 10% set-aside area which can be used for industrial crops such as oilseed rape, the between year area will fluctuate. This unpredictable fluctuation in area may cause significant problems to producers growing non-food oilseeds on set-aside and to industry utilising the production. Industry cannot plan investment and development when the raw material supply is so variable.

⁷¹ www.oilworld.biz, forecasting rape oil production and prices.

⁷² www.springdale-group.com

Figure 42 DEFRA statistics on area and number of holdings for rapeseed production in West Sussex

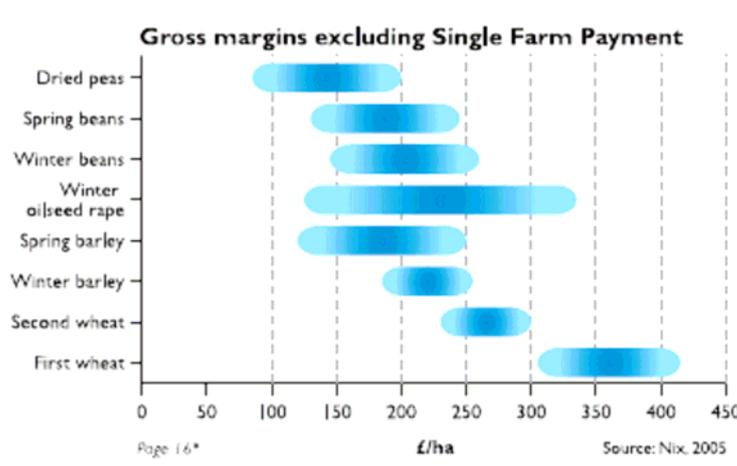


Source: DEFRA reports from 1999 to 2006.

Production input

A comparison in 2005 showed that the gross margins of oilseed rape are more variable than any of the other crops.

Figure 43 Gross margins excluding Single Farm Payment



Source: HGCA 2007

However, in the meantime rape oil price have risen in the EU dramatically. At the end of 2005, rape oil was sold for USD 500/t. In May 2007, price rose to USD 800/t and at the end of September to USD 1,098/t.⁷³

⁷³ HGCA, 16/10/2007, Vegetable Oil Update, <http://www.hgca.com/content.output/2733/2733/Markets/Analysis/Vegetable%20Oil%20Update.msp>

The following figure provides an overview of the economics of winter oilseed rape in 2003/2004 in comparison to competitive crops.

Figure 44 Gross margin comparison excluding support payments

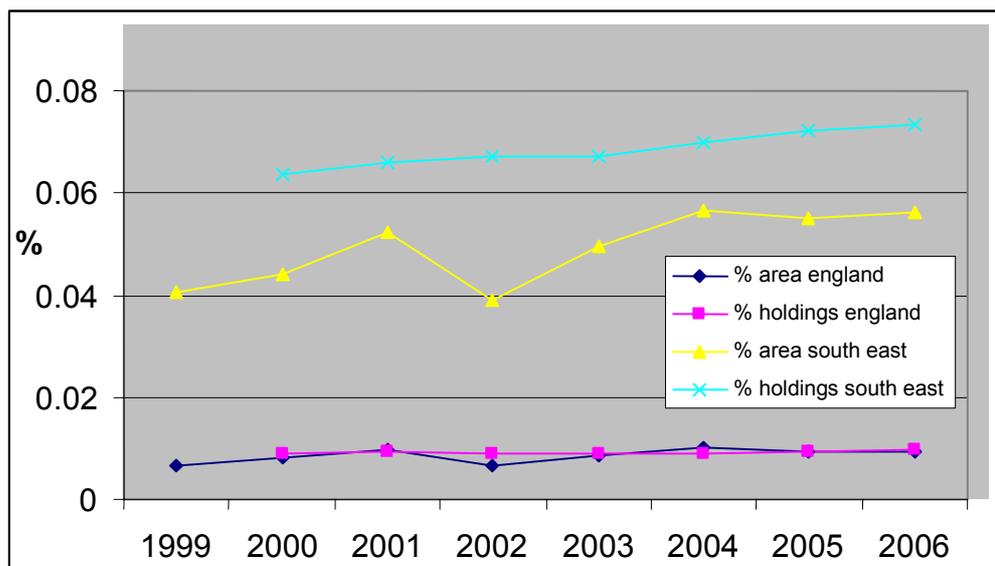
	First winter wheat	Second winter wheat	Winter oilseed rape
Average yield	8.50t/ha	7.65t/ha	3.20t/ha
Price (average ex-farm 2003/04)	£85/t (feed)	£85/t (feed)	£175/t
Output	£723/ha	£650/ha	£560/ha
Variable costs			
Seed	£40/ha	£45/ha	£30/ha
Fertiliser	£80/ha	£85/ha	£90/ha
Sprays	£105/ha	£105/ha	£90/ha
Total variable costs	£225/ha	£235/ha	£210/ha
Gross margin	£498/ha	£415/ha	£350/ha

Source: HGCA/John Nix in OREGIN, 2007.

Production output

Agricultural production of rapeseed relative to the total production of rapeseed in the UK and in the South East region.

Figure 45 Rapeseed production in West Sussex relative to the rest of the UK and the South East region

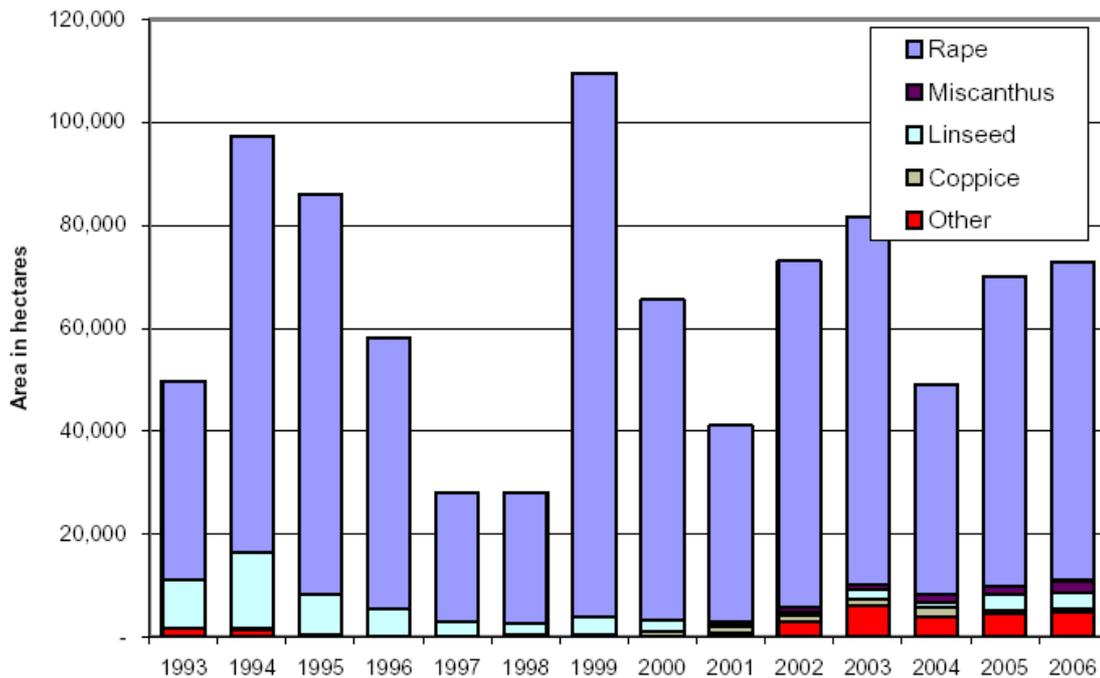


Source: DEFRA reports from 1999 to 2006

Figure 43 suggests an increase in rapeseed production in West Sussex relative to the rest of the UK. Furthermore, it seems that the decline in rapeseed production in the year 2002 was specific for West Sussex and was not encountered either in the region or on the national level.

Rapeseed as an industrial crop is allowed to be grown on compulsory set-aside land. It is the main energy crop currently produced in the UK (see below).

Figure 46 Types of industrial set-aside. Results relate only to compulsory set-aside in 2005 and 2006



Source: HGCA (2007), UK Biofuel Situation.

External effects

There are mainly environmental impacts associated with the production of rapeseed. The following table provides an overview.

Table 54 Environmental implications of replacing non-industrial set-aside/GAEC 12 land with conventional crops used for biofuel production

CO ₂ savings	The CO ₂ savings are low-moderate due to energy costs of input
Diffuse pollution	Generally increased pollution due to increased inputs of fertilisers and pesticides compared to set-aside
Biodiversity	Negative- set-aside is generally more beneficial than other crops, plus the change will reduce heterogeneity
Landscape	Neutral. Sometimes positive due to loss of unsightly area of sprayed-off set-aside
Water	Slightly negative due to water requirement of crop

Source: Based on HGCA, 2005, Environmental impact of cereals and oilseed rape for food and biofuels in the UK, spring 2005

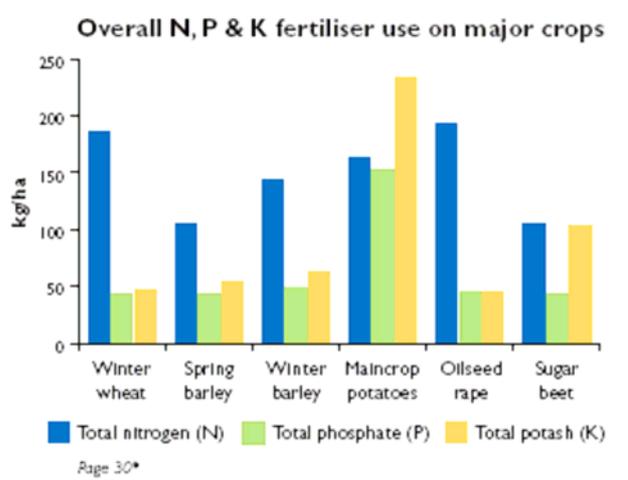
In 2007, HGCA conducted a study of the environmental impacts of biofuels in the UK. The following results were published.

Figure 47 Energy inputs in crop production

Estimates of energy inputs in crop production (MJ/ha)			
Inputs	Wheat	Oilseed rape	Sugar beet
N fertiliser	7512	7960	4182
P fertiliser	1484	1276	1375
K fertiliser	15		1165
Herbicide	27	767	110
Insecticide	219		66
Fungicide	274		135
Other pesticides*	548		795
Seed	2498	39	135
Diesel fuel	6094	2647	9846
Totals	19,171	12,689	17,809
	+/-2803	+/-1826	+/-2610

Source: HGCA, 2007

Figure 48 Total fertilizer use for different agricultural crops



Source: HGCA, 2007

Figure 49 Pesticide use per crop

UK use of pesticides by crop		
	% by weight of active substance (as) applied	Weight of as applied/ha (kg)
Wheat	51%	4.37
Winter barley	12%	3.80
Ware potatoes	13%	14.86
Oilseed rape	5%	2.37
Spring barley	5%	1.51
Sugar beet	4%	3.72
Set-aside	3%	0.93

Source: HGCA, 2007

Figure 50 Risk of channel erosion

Risk of channel erosion	
Crop	Channel erosion risk
Sugar beet	1 field in 7
Maize	1 field in 7
Potatoes	1 field in 10
Field vegetables	1 field in 14
Bare soil/fallow	1 field in 21
Spring cereals	1 field in 34
Peas	1 field in 38
Winter cereals	1 field in 42
Field beans	1 field in 71
Winter oilseed rape	1 field in 100

Source: HGCA, 2007

One might summarize the social impacts as an increase in hay fever.

External factors

The main external effects are climate change and the world market of biofuels. Rapeseed oil is currently an attractive option; however there are big concerns in terms of the 'food-for-fuel'-debate. If in the future, technologies develop that can use cellulose material as feedstock, rapeseed oil prices might drop.

2.3.2.3 Intermediary production actors

Rapeseed produces oil and as by-products straw and rapeseed meal. A list of intermediate producers and their markets is provided below.

Production input

The next table provides the oilseed balance for the UK between 1999 and 2005. Two important conclusions: Most of the oilseed is crushed and the import-export is balanced.

Table 55 UK Oilseeds balance 1999-2005 in (1,000 t)

	99/00	00/01	01/02	02/03	03/04	04/05	6-yr avg
Area (1,000 ha)	537	402	451	432	542	558	487
Yield (t/ha)	3.2	2.9	2.6	3.4	3.3	2.9	3.1
Production	1,718	1,166	1,173	1,469	1,789	1,618	1,489
Opening stocks	4	17	12	20	5	18	13
Imports	324	288	605	327	136	199	313
Total availability	2,046	1,471	1,790	1,816	1,930	1,835	1,815
Feed & seed	238	174	288	108	220	110	190
Crush	1,510	1,339	1,377	1,338	1,360	1,550	1,412
Exports	275	50	18	207	272	124	158
Total usage	2,023	1,563	1,683	1,653	1,852	1,784	1,760

Source: DEFRA jan. 2005 in Booth et al., 2005

Production output

There are three main crushing plants in the UK plus many small users and growing export outlets. The three large crushers are ADM Ltd. Located in Tilbury (800,000t) and Cargill with plants in Liverpool (600,000t) and Hull (150,000t). The total capacity is 1,550,000t, which means that in 2005 crushing facilities were at full capacity.⁷⁴ The oil extraction industry is based on old technology; the development of improved extraction technology needs to offer cost savings, improved

⁷⁴ Booth, E., Booth, J., Cook, P., Ferguson, B., Walker, K. (2005), Economic Evaluation of Biodiesel Production from Oilseed Rape grown in North and East Scotland, SAC Consultancy Division, October 2005.

environmental practice and the ability to handle an increasing range of crop types.⁷⁵

Only biodiesel plants are currently operating in the UK and there are about 17 large biofuel facility plants. It is expected that UK oilseed rape will provide a max. of 30% of the feed for biodiesel.⁷⁶ An overview of current and planned UK biodiesel plants is given in the next table.

Table 56 UK biodiesel plant – market opportunities

	Location	Size	Feedstock	Stage
Argent -biodiesel	Motherwell	50 ML	UCO, Tallow	Operating
Biofuels corp – biodiesel	Teeside	284 ML	Palm, soya, OSR	Operating
Greenenergy – biodiesel	Imming-ham	113 ML (2007), 228 ML (2008)	Palm, soya, OSR	Operating, being built
DMF – rape crush (&bio-diesel?)	Rosyth	140 ML	OSR, (palm, soya)	Planning stage
Ineos – biodiesel	Grnage-mouth	110 ML (2008), 500 ML (2010)	OSR, palm	Planning stage

Source: Booth, 2005

External effects

The environmental impacts of processing are low, however in terms of employment and regional development they could be high. The development of a biodiesel or rapeseed oil production industry can provide employment in rural regions.

Table 57 Effects on employment of rapeseed oil processing

Rapeseed oil or biodiesel production option	Labour
Oil production on farm	1h/day
Biodiesel production on farm	4,5h/day
Small group producing oil	1 man (not fully occupied)
Group scale production of biodiesel	4 man 1 secretary 1 plant manager
Medium scale production of biodiesel	Crushing in 4 shifts@ 2 men RME plant 4 shifts @ 2 men 1 secretary 1 lab technician 1 manager 1 supervisor

Source: Booth, 2005

⁷⁵ <http://www.ienica.net/crops/oilseedrapeandturniprape.pdf>

⁷⁶ HGCA, 2007, UK Biofuel Situation.
http://www.hgca.com/document.aspx?fn=load&media_id=3523&publicationId=1825

2.3.2.4 End consumption actors

Rapeseed oil is currently incorporated into lubricants for tow-stroke petrol engines and rape seed oil-derived methyl esters can be used as a diesel substitute. The markets are:

Food industry

Most of the rapeseed oil is produced for human consumption in form of margarine, fried and backed products, and salad oil.

Biodiesel

Only biodiesel plants are currently operating in the UK and there are about 17 large biofuel facilities planned. It is expected that UK oilseed rape will provide a max. of 30% of the feed for biodiesel.⁷⁷ Table 57 provides an overview of the existing and planned biofuel plants. The costs for producing biodiesel is GBP 525/t with 40% extraction and rapeseed costs of GBP 165/t and GBP 636/t with a 30% extraction. Biodiesel on the basis of cooking oil is only GBP 250/t (Chichester Grain, 2007).

PPO

An alternative to transesterification of rapeseed oil into biodiesel is Pure Polant Oil (PPO). PPO is produced by Blooming Futures, a company located in West Sussex (Shoreham).⁷⁸ PPO is produced through extraction of the oil in a conventional seed press and filtering; no extra processes are required. However, engines will have to be modified (costs around GBP 1,400 per engine). For domestic users of less than 2,500 l of PPO p.a., no VAT needs to be paid which reduces the costs of PPO to 55ct/l.

For agricultural use, the modification of tractors cost around GBP 2,340 – GBP 3,015 either with additional diesel tanks to heat up the engine or by integrating heating elements in the rapeseed oil tanks.⁷⁹ The use of cold-press rapeseed is already taken place at large scales in Germany, where a price differential of up to EUR 0.35/l between rapeseed and diesel exists. In the UK, due to the concessionary red diesel for agriculture, the costs for producing rapeseed oil are higher.⁸⁰

Lubricants

The UK Forestry Commission has replaced 90,000 l of mineral oils with 50,000 l of biodegradable chain oil and 40,000 l of biodegradable hydraulic oil. The biodegradable chain oil is BP Bioforst 2000, which is based on rapeseed oil and degrades within 21 days at over 99% as measured by the CEC-L-33-T-82

⁷⁷ HGCA (2007), UK Biofuel Situation.

http://www.hgca.com/document.aspx?fn=load&media_id=3523&publicationId=1825

⁷⁸ bloomingfutures.com

⁷⁹ Davies, M., 2006, Germany seizes change – but sums not right yet for UK, 11/18/2006, p. 27-28

⁸⁰ Davies, M., 2006, Germany seizes change – but sums not right yet for UK, 11/18/2006, p. 27-28

standard.⁸¹ Furthermore, rapeseed oil has a low evaporation loss (1% in comparison to 16% for mineral oils), which reduces atmospheric pollution.

Seatons, located in Hessle near Hull in the UK since 1840, produces a range of natural oil lubricants for industry with several of them based on rapeseed oil. The applications are described in the table below.

Table 58 Uses of rapeseed oil in lubricants and or other industrial and agricultural applications

Oil	Application	Description
Crude rapeseed oil	Agrochemicals and lubricants	A non-drying oil containing approximately 55% oleic acid
Refined rapeseed oil	Agrochemicals, animal feeds, health/pharma, lubricants, printing inks	Low acid value, impurity-free oil
Oxidised rapeseed oil	Adhesives and sealants, agrochemicals, lubricants, paper manufacture, plasticizers, polyurethanes, printing inks	Oxidatively polymerised rapeseed oil
Self-emulsifiable rapeseed oil	Agrochemicals, concrete mould release, construction, lubricants	Oxidatively polymerised (blown) modified self-emulsifiable rapeseed oil with increased viscosities.

Source: Seatons, 2007

Surface coating

Although most sheet-fed offset printing inks are soy-based, between 1,000t and 2,000t of OSR oil is included in printing inks in the UK annually (Curruthers et al., 1995).

Polymers

In the UK, about 14,000 ha of HEAR rapeseed was used as a slip agent in polythene films in 1995.

Medicinal

Seatons produces rapeseed oil for cosmetic purposes with moisturising effects. The oil can be used for bath oils, general skin care and suncare.

Virgin oil

Rapeseed oil can be produced as 'cold pressed extra virgin culinary rapeseed oil'. The price of culinary oil ranges between GBP 0.6 and GBP 14.9/l. Sussex Gold is located in West Sussex (Partridge Green).⁸²

The Home-Grown Cereals Authority (HGCA) provided a grant of GBP 25,000 for farm diversification towards the production of extra virgin rapeseed oil.⁸³ However,

⁸¹ <http://www.forestry.gov.uk/forestry/infid-6gukva>

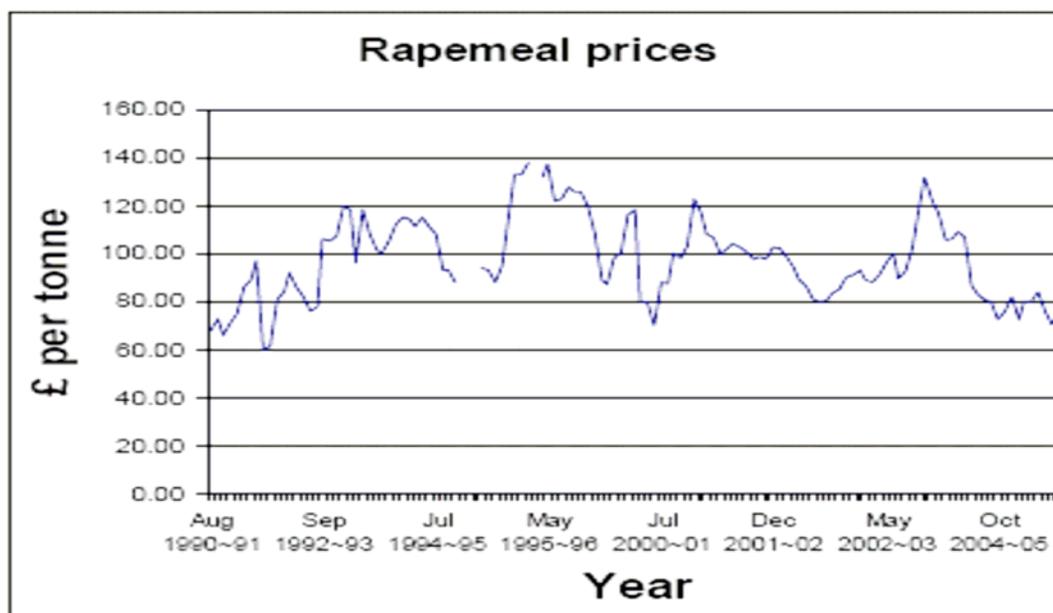
⁸² www.sussexgold.co.uk

a business plan of Chichester Grain deemed the extra virgin rapeseed oil market to small to become viable for co-operations.⁸⁴

Rapemeal

Rapemeal proteins can be used in a variety of applications: bioplastics, adhesives, cosmetics, encapsulation agents, lawn care production and combustion materials (NFCC, 2007). It can also be used as feed. It is inferior to crops such as flax, hemp or linseed, but superior to cereal straw. The value of rapeseed meal ranges between GBP 75 – GBP 100/t (Chichester Grain, 2007).

Figure 51 Rapeseed meal prices 1990-2005 (ex-liverpool mill)



Source: Booth, M. 2005

Electricity

Both, the oil and the rapeseed straw can be used for the production of electricity, although in different generation technologies. Rapeseed is used as feedstock for a cofiring station in Ely with a total capacity of 38 MW. Next to OSR straw, other crops feed into the generator. Around 200,000 t of straw is supplied from farms within a 50-mile catchment with vehicles containing 38 bales of straw (around 14 t). Around 780 different locations, with an average production of 240 t of straw, are required to deliver to the cofiring station 7 days a week and 334 days a year.⁸⁵

Blooming Futures have developed a 7KW generator on Pure Plant Oil (PPO) made out of rapeseed oil. The rapemeal can also be used for the production of electricity.

⁸³ <http://www.hgca.com/content.output/2212/2212/News/News/Cotswolds%20Farm%20Developing%20New%20Market%20for%20Oilseed%20Growers.msp>

⁸⁴ Chichester Grain, 2007, Business opportunities for oilseed rape, Bidwells, Jan. 2007

⁸⁵ Newman, R., 2003. Booth, M. et al, 2005 suggests that rapeseed straw has not been used for electricity consumption, however these assumptions are false.

The rapemeal has an energy value of 5.3 kW/kg. However, the rapemeal produces 10 times more ash as woodchips (if burnt in a conventional boiler).⁸⁶

Demand

The demand for rapeseed oil is certain to increase in the near future, which stringent biofuel targets in the EU requiring large amounts of natural oil. However, in the long run there is more uncertainty about the demand for rapeseed oil. Rapeseed oil has lower yields than other oily plants, currently it relies on the availability of set-aside land and there are still some environmental issues associated with the production of rapeseed oil. Other crops, especially tailor-made bioenergy crops, and possibly also engineered molecules used as biofuel, could replace the demand for rapeseed oil.

External factors

One of the external factors that determine the future of rapeseed production is the 'food versus fuel' debate. If rapeseed oil loses its appeal as a bioenergy crop, the demand for rapeseed could decrease dramatically. Furthermore, there is the current legislation on set-aside land, which favours rapeseed oil. However, changes in this legislation could decrease its attractiveness.

2.3.2.5 Dynamics of the supply chain

Reasons for major shifts in the past and effects

During the 1960s and early 1970s, oilseed rape had only a minor place in British agriculture with a relatively low market value and served as a break crop in intensive cereal rotations. A world protein shortage coincided with the UK's entry to the EEC in 1973 and access to the EEC's support policy for farm prices of oilseeds encouraged an expansion of the area grown in England. The support system at that time was a deficiency payment system, with a target price being fixed annually, representing what was regarded as a fair return to the grower. The difference between the world price and the target price was the deficiency payment paid to the crusher.

Financial support for oilseed rape meant that it was an attractive option for growers and resulted in increases in the oilseed rape area cultivated. This in turn led to pressure on the EC budget and a stabiliser system was introduced from 1981/82. This allowed limited reduction of the target price if the rolling three year average exceeded a Maximum Guaranteed Quantity (MGQ) of rapeseed produced in the EU. During the 1980s the market price of rapeseed rose to over GBP 300/t and further expansion of the area grown followed. More stringent price stabilising measures

⁸⁶ Davies, M., 2006, Germany seizes change – but sums not right yet for UK, 18/11/2006, p. 27-28

were introduced in 1988/89, with any annual production in excess of the MGQ attracting unlimited reduction in support prices.⁸⁷

Possible reasons for future shifts

The UK government is committed to the sustainable development of agriculture. Above many other activities, DEFRA sponsors the Defra Oilseed Rape Genetic Improvement Network (OREGIN) to develop an oilseed rape that has reduced inputs of non-renewable resources, reduces diffuse pollution and has no adverse impacts on biodiversity. The project is led by scientists from Rothamsted Research and Warwick HRI.

Currently, there is a fuel duty rebate of 20p/l (fuel duty of 27.1 for biofuels) extended. Furthermore, the Renewable Transport Fuel Obligation (RTFO) will be introduced in 2008 with an obligation to sell 2.5% of biofuels in 2008 up to 3.5% in 2010. Buy out price for suppliers is 15p/l in 08/09. A combination of duty incentive and buy-out price at 35p/l guaranteed for 09/10, but will reduce to 30p/l in 10/11.⁸⁸

The Energy Aid Payments are intended for the production of energy (for heat, electricity or transport fuels) on land which has not been set-aside. Payments are made to energy crops used for energy production offsite (either sold to a processor or to a wholesaler) and onsite the holding, as long as there is a positive net production of energy. The payment is subject to a ceiling of 1.5 mio ha throughout the EU and if this ceiling is exceeded, the payment of EUR 45 per hectare will be reduced. The payment is also subject to modulation (RPA, 2007).

2.3.3 Supply chain 3 – Milk and cheese

2.3.3.1 General description

In 2006, milk was produced on 88 holdings with 14,508 animals. Recently, 116 mio lt of milk have been produced in the region. There has been a constant decrease in farm holdings of about 10% per year, which is likely to level off as the prices increased recently. Consequently, milk quotas are of no actual relevance for the remaining farmers. Nearly no marketing is done by farmers. Only one farmer is known who markets parts of his milk directly to consumers. He packs the milk and delivers directly to the private homes.

⁸⁷ Booth, E., Booth, J., Cook, P., Ferguson, B., Walker, K. (2005), Economic Evaluation of Biodiesel Production from Oilseed Rape grown in North and East Scotland, SAC Consultancy Division, October 2005.

⁸⁸ Booth, E. (2007), UK Biofuel Crop Options, SAC BioEnergy Group

2.3.3.2 Agricultural and forestry production actors

Production input

Average farm has 160 cows (one cow per ha), of which one milks about 8,000 l per year. A conventional farmer got until the beginning of 2007 21p, while from late 2007 onwards they get 24p/lit. An organic farmer gets 29p/lit, but it is expected that their next negotiations might result in a price around 31p/lit. The costs of conventional farming are on average 20p/lit, and 23-24p/lit for organic farming. Farmers formed a smaller cooperative to negotiate with supermarkets. Machinery, workforce, and energy are most relevant as input costs, but also purchased forage and costs to increase production on the fields are relevant.

In terms of diversity, farmers grow mainly maize used as feed, but also corn on their farm.

Production output

The total average milk production was recently 116 mio l, most of which is sent to the large processors outside the county. Only up to 4% is processed locally (see below).

External effects

There are mainly environmental effects. Slurry and other fertilizers on pastures get best grass, with consequences in terms of nitrates polluting rivers etc. However, there is a smallish shift towards more organic production of milk. Currently, about 10% of milk produced is organic. There are two kinds of farmers when it comes to organic: believers (most of the organic farmers), and profit seekers (a few of the organic farmers).

Droughts (e.g. in 2003 and 2006) had also impacts on the farmers they had to use tap water instead the dried up natural ponds, plus the weakened quality of grass.

As tourism in rural areas is of increasing importance, keeping an appealing, diverse countryside has become a major argument within which the dairy industry has its role to play.

External factors

The main external factor in the UK has been the influence of diseases. The effects of the MSE crises could be overcome, but Foot and Mouth disease is still a major issue with recent regional outbreaks with associated interruptions in the market. Further, also Blue Tongue finally arrived on the island.

Furthermore, due to recent introduction of legislation on cleanness, farmers are faced with high investments in technologies. In terms of subsidies, only the

environmental schemes are deemed to have some influence on the behaviour of farmers, all the remaining schemes and restrictions are of less and less relevance.

2.3.3.3 Intermediary production actors

An emerging supply chain is the local production of cheese. It is partly driven by a project called 'the taste of sussex', which has created a regional brand for different local products. It currently exists of four businesses from which 3 are located in the neighbouring county of East Sussex. The combined turnover of all 4 producers is GBP 2.5 mio, thus a relative minor share of total milk production. The four producers are of fairly similar size.

1% of total milk production in West Sussex is used for local cheese making, 2% for local yoghurt making, and 0.5% for local ice cream making. These undertakings are all very profitable. Two cheese producers have their own herds (organic); growth of 15% p.a.

The four local cheese makers with significant size are:

- *Bookham Cheese & Pasta* – make hard cow cheese only
- *Bestbier for Cheese Limited* (somewhat smaller, South Africans) – make cow soft cheese – expensive.
- *Traditional Cheese Dairy Company Ltd* (somewhat smaller) – hard cow cheese
- *Sussex High Weald Dairy* – sheep, goat, cow cheese in 30 different varieties

Then there are some smaller producers, e.g. *Twineham Grange Farm Ltd in Haywards heath (Italian-style cheese)*, partly based on farms in East Sussex: e.g. "*Golden Cross Cheese Co Ltd*". There are also local (mainly East Sussex) cheese wholesalers.

Production input

At the moment, most milk used for cheese making is from West Sussex itself and does not only exist of cows milk, but also sheep, goat and buffalo milk. There is the option to introduce milk from Poland, however that will only take place if local prices increase a lot.

Production output

About 2.5 mio t of cheeses are produced. 2/3 goes to retailers and 1/3 is sold on farmers markets.

External effects

There are no relevant environmental impacts on the region. Most cheeses are sold at farmer markets. There are about 20 farmer markets, mostly monthly and some

are bi-weekly. There are of course positive employment effects, which are so far moderate, but could increase in the future along with changing customer preferences and more professionally organised local food chains.

External factors

Positive impacts are the increasing demand for local products, especially keeping more value-added within the region and closer to the producer, and in relationship to concerns about transporting food over longer distances (carbon footprint).

2.3.3.4 End consumption actors

There are two different end consumer groups: the cheese consumers and the milk consumers.

Demand

The average cheese consumption per consumer is 10 kg/person/year. The average consumption of milk is 24 ltr. of whole milk, 52 ltr. of semi-skimmed and 8.3 ltrs. of skimmed milk.

Market perspective: significant increase of milk powder, mostly exported to developing countries, slow decrease of fresh milk sales in UK once the coffee house culture will have established itself all over the country; volumes will go down slightly, organic milk is expected to increase 5-10% per year in the short to medium term.

External factors

The main external factor is shifts in consumer preferences. These are driven by convenience including going out more to eat and drink, concerns about environmental impacts and animal health, plus own health. Even 'conspicuous consumption', or simply to restore trust in a bewildering array of products sold, might have an impact on milk product sales nowadays (high-end cheeses, branded milk, etc). Local and organic production systems are increasingly favoured over traditional production of milk and cheese.

A growing cafe culture and a change in diets have recently helped milk sales rise for the first time in 30 years (Source: Milk Development Council).

2.3.3.5 Dynamics of the supply chain

Reasons for major shifts in the past and effects

Because the yearly reductions of dairy farmers, quotas are currently not exploited, thus any caps are no real restriction. Some of the farmers who stopped dairy

farming moved to beef and arable crops, some diversified. As prices went up recently, the exodus should level off.

Possible reasons for future shifts

From a market perspective, there is potentially significant increase of milk powder, mostly to developing countries. There is only a slow decrease of fresh milk sales in UK, volumes will go down slightly, while organic milk will increase 5-10% per year.

Experts assume an increase in demand for milk from fast-growing countries such as India and China. In 2007, a severe drought in Australia – one of the world's biggest milk producers – and an EU policy to reduce milk production among Member States have both restricted supply. The result was that global supply could hardly keep up with demand (The Guardian, 15/07/2007).

Nationally, milk is more connected to preference changes (e.g. coffee consumption) and school milk policy/subsidies. Further developments are towards less fat options of milk, plus drinks made of milk components (e.g. side products of butter production, etc. which belong to the soft drinks category).

Diversification

Diversification is less than average because food hygiene regulations make farmers reluctant to take on other things, especially not mixing with other animals. They specialise instead and make the most of rationalisation.

However, there is still an array of possible responses that milk farmers and cheese makers could follow:

- Maximise environmental payments
- Organic Conversion
- Change in farming structure
- Ceasing an enterprise
- Diversification/non-food income
- Niche Markets/Added Value
- Fixed Cost reductions
- Establishing a New Enterprise
- Expansion
- Down Sizing
- Improved Performance
- Reducing input costs
- Change in Enterprise balance
- Environmental stewardship/organics = conservation grazing
- Down size or cessation of farming = land available
- Maximise value of produce – branding

In the future, they will likely continue to increase productivity where possible, and some might also try to go organic. One major alternative to dairy is beef

production, as this affects not only the cost structure of the business (farmers can handle the farm on their own), but also in terms of lifestyle (less working hours, more holidays).

2.3.4 Supply chain 4 – Salad and processed salad

2.3.4.1 General description

Horticulture has a long history in West Sussex with the first nurseries built in the 1880s and 1890s. In the late 1920s, farmers started building greenhouses. The availability of aluminium greenhouses increased the expansion of greenhouses in the 1950s, until the energy crisis in 1970 and some unfortunate explosions around Chichester. The region recovered and is currently worth more than GBP 150 mio a year to the region.

West Sussex is the most favourable place to grow salads in the UK. It has all benefits of a mild micro-climate, with virtually frost-free winters, mild summers and superb light providing ideal growing conditions. 80% of all lettuce is grown outdoors (from May to October), while 20%, mainly butterhead lettuce and specialty leaves, are grown in glasshouses (522 ha in 2002). The production of lettuce in glasshouses has fallen dramatically since 1989, when 1,515 ha were produced in glasshouses. Lettuces can be grown in glass houses all year long, although this is less true for organic lettuces that tend to suffer from mildew.

The salad growing area in West Sussex lies along the coast from Worthing to the outskirts of Chichester and around Horsham. Furthermore, there are advantages by being close to London and South East markets. 20% of all lettuce and 40% of all baby leaf lettuce in the UK is grown in West Sussex.

Suppliers to agricultural and forestry production actors

The seed for salads is grown by specialist plant raisers in large greenhouses in temperature-controlled conditions. They take about 3 weeks until they reach the size to be planted in the field. There is only 1 plant raiser located in West Sussex, which is Madestein UK Ltd.

Production input

The production input is soil, salad seeds and the greenhouses. Greenhouses are big in terms of capital investments, however West Sussex is the best location in the UK in terms of light. Energy and labour are the most important variable inputs.

Production output

Madestein produces in excess of 160 mio plants a year. They produce their own salads as well as deliver to local growers for outdoor lettuce.

External effects

The external effects of plant raising and growing lettuce indoors are limited. The environmental impacts are controlled, because the production does not take place in the open air. Furthermore, labour is used throughout the year, so there are no seasonal effects.

External factors

Large shifts have taken place in the last 10-15 years, whereby a lot of indoor growers have left the industry. At the moment, the market for indoor production of salads is fairly stable and there are no external factors that cause a major risk to the industry.

2.3.4.2 Agricultural and forestry production actors

The leaf industry can be divided into 3 categories: wholehead salads, leaf and specialty leaf. The most well-known wholehead salads are iceberg, romaine (or cos), gem and Batavia. Baby leaf and specialty leaves are harvested with machines (2 a 3 t of leas/ha), while wholehead is cut and wrapped by hand. Within each variety there are many different 'cultivars' which are grown to suit different seasons and conditions. Early in the season, growers need varieties with good vigour, whereas in the summer the requirement is for good heat and bolting tolerance. In the autumn, growers focus more on varieties which are resistant to mildew and aphids, and with good vigour.

Organic salads are produced in the UK on 220 ha of land, a total production of 2,600 t, price of GBP 1,000/t and a farm gate value of GBP 2,600,000. Organic lettuce is available from June to September. After harvesting, wholehead varieties need to be cooled within 3 h to a temperature of 3 °C. High-tech coolers are used for rapidly cooling of the lettuce. Some of the salad crop suppliers in West Sussex are:

Table 59 List of salad producers in West Sussex

Name	Area	Production
Langmead	Over 2,000 ha	All year round production with fields in UK and Spain (Murcia), both organic and conventional and large variety of salad crops
Farm Fresh		
NV Produce Marketing		Largest glasshouse lettuce producer; nurseries in West Sussex
Golden Plain Marketing Ltd		Marketing company for Merston Farm (> 600 ha) & Goodend Produce Ltd (>200 ha), production between May and October.

Production input

In West Sussex, most lettuce is grown outdoors. Poly tunnels might be an opportunity to grow salad crops indoors. Poly tunnels cost around GBP 7,000-8,000/ha – barely a tenth of the cost of a glasshouse – but meet opposition from the Campaign to Protect Rural England, Friends of the Earth, The Ramblers Association and others. Poly tunnels require planning permission. For those who grow crops in heated glasshouses, rising energy costs are a worry. Gas use for heating glasshouses accounts for 60 to 70% of costs. Luckily, lettuce is seen as a 'cold-crop', which does not need as much heating as tomatoes etc. Madestein UK Ltd. is the exclusive supplier of plants to some of the salad growers.

Production output

The exact number of lettuces is unknown, but about 27,000 heads per acre can be grown outdoors and 21 heads/m² indoors. The total production of lettuces is in excess of 200 mln plants.

External effects

Environmental impacts

Salad crops are grown under the Assured Produce Scheme. The 'protocols' cover best practice and promote safe and environmentally-friendly production. More specifically, the APS covers:

- integrated crop management
- pest and disease control
- nutrition
- irrigation
- general background info on crop production.

Lettuce has the following fertiliser requirements:

Table 60 Nutrient requirements for salad for different soils

Nutrient (kg/ha)	Soil index				
	0	1	2	3	4
Nitrogen	200	175	100	-	-
Phosphate	250	200	150	100	25
Potash	270	150	100	50	-
magnesium	100	75	25	-	-

Source: AFS, 2007

On the whole, lettuce crop is not particularly responsive to large quantities of nitrogen.

In terms of water, correct management of irrigation is an integral part of growing outdoor lettuce, especially in the initial stages. Drip irrigation should be considered.

There are no particular guidelines for pest management, because the variability between different growing techniques is too large. However, there is a list with approved pesticides available with maximum levels of pesticides ranging from 'non set' to 0.5 MRL mg/kg (ie delatmethrin). Similar lists exist for herbicides and fungicides.

Energy is an important issue in salad production. The increases in energy costs and the introduction of the Climate Change Levy (CCL) heightened industry interest in improving energy efficiency in the production of protected salad crops. On behalf of the UK horticultural industry, the NFU entered into an agreement with the Government whereby the collective horticultural industry in the UK receives a 50% reduction in the CCL in return for accepting that a target of 15% energy savings should be achieved by the industry in 2010. The targets are based on the Specific Energy Consumption (SEC) of a business, which for example could be 500 kwh/m² (CAS 2004).

Conservation management has become an important issue in salad farming through the creation of ponds, hedgerow planting and the growing of bird cover crops to provide nesting and feeding grounds for farmland birds. Wildlife conservation has become of increasing importance to decision-making in farming, partly based on EU and national funding schemes.

Social impacts

In terms of social impacts, the food chain is now highly integrated, yet labour provision, which is a crucial component, has been left out. In particular, supermarkets do follow their own labour codes of practice, although they are not actively involved in checking these codes or recruiting labour. It is 'Gangmasters' that provide labour, and there is little control to differentiate between 'good' Gangmasters and 'bad' Gangmasters. The market is very diverse and unstructured. There is a Gangmasters (Licensing) Act installed to battle illegal labour practices (July 2004), but the code is voluntary. The Act was brought into force in June 2006 (Williams, 2005 #1470).

For seasonal workers, local supply of workers has dried up and farmers are looking to new EU states like Romania and Bulgaria for workers. The Agricultural Wages Board (AWB) determines employment practices in agriculture and horticulture. In 2004, the minimum wage for an adult Manual Harvest Worker (GBP 4.5/ha) was at the same rate as the National Minimum Wage.

In salad production, temporary labourers are divided between the packhouse and the field, where some preparation and harvesting is undertaken. In general, the more upmarket the retailer, the greater the amount of preparatory work undertaken in the field. Packhouse workers normally work on a longer-term basis, while fieldwork is required between the beginning of April and the end of October. Field workers are paid per box of the product harvested to the required 'quality'. The rate per box was set each day and did not vary with the number of hours

(which means no overtime payment). Some working days are from 5am to 7pm. Packhouse workers are paid by the hour, but also do not receive overtime payments.

The Seasonal Agricultural Workers Scheme (SAWS) provides work permits for seasonal workers. The Scheme started in 1994 with 4,500 permits and increased to 25,000 permits in 2004. Due to the increase in EU Member States, the permits have been reduced to 16,500 in 2005. The workers are allocated to 700 to 800 farms and grower enterprises. Eight 'operators' bid to Work Permits UK, the administrator, to receive their part of the quota for the following year. The operator fee structure differs: from 15% of participants wages to GBP 200 for a registration fee (Williams, 2005 #1470). The SAWS will be phased out in 2010 (NHF 2006).

External factors

As previously discussed, the most important external factors are the availability of labour and the energy prices. Furthermore, there is competition from external suppliers entering the UK market, however the UK farmers have expanded their enterprises overseas, so that they can deliver all year round.

Furthermore, the transfer of risk from retailers to suppliers has led to concerns about the competitiveness of supply chain. Of particular interest for this project, the provisional findings of the Competition Commissions in October 2007 suggest that the various purchasing practices of retailers, such as retrospective changes to supply agreements, can damage investment and innovation in the supply chain (CC, 2007). The retailer-supplier relationships are currently regulated in the Supermarkets Code of Practice (SCOP).

Horticulture is only affected marginally by changes in the CAP; payments claimed by field scale salad producers are negligible in relation to the overall business. The real policy impacts on the UK horticulture is the entry of EU countries like Poland, Hungary and the Czech Republic will only be felt in the mid to long term, because their production is fragmented, equipment is outdated and post harvest infrastructures are weak. On the other hand, UK Horticulture will experience competition from China with EUREPGAP signing a Memorandum of Understanding allowing China to operate on international standards.

2.3.4.3 Intermediary production actors

Baby leaves are transferred to highly sophisticated pack houses, located close to the farms, where they are chilled and packed into 'washed and ready to eat' bags.

In West Sussex, pre-packaged salads are growing much faster than anything else. Nature's Way is a sister company of Langmead (see above), which is one of the quickest growing companies in the UK.

Table 61 List of salad processors in West Sussex

Nature's Way Foods Ltd	Linked to Langmead	Supplies washed and ready to eat salad and salad meals. Linked to Langmead Farms for vertical integration and all year round supplies of salads.
------------------------	--------------------	--

Production input

The production input comes from Langmead, which produces the salad crops outdoors.

Production output

Nature's Way Foods Ltd. is growing GBP 32 mio of salad a year. A large amount of the salad produced by Langmead is processed by Nature's Way.

External effects

The main external effect is economic growth and the demand of the end consumer. As long as they can afford to pay extra for the convenience of processed salad, the processing industry will have a future. However, as soon as economic growth would stop and people shift towards lower priced normal lettuces, it could be the end of the industry.

2.3.4.4 End consumption actors

Demand

In 1997, 301,275t of lettuce was consumed in the UK, 159,441 (53%) was grown in the UK. Of the remaining imports, almost 50% came from Spain (57,802t). The demand for lettuce has been steady from the period 1997 to 2006 (NHF 2006). The consumption pattern of lettuce is as follows.

Table 62 Share of lettuce consumption throughout the year, including sourcing of produce (Sp=Spain)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
%	6.5	6.9	7.1	7.8	8.5	8.9	10.7	11.4	9.3	7.1	6.2	9.6
Source	Sp	Sp	Sp	Sp	Sp/UK	UK	UK	UK	UK/Sp	Sp	Sp	Sp

Source: NHF 2006

The current annual retail value of 'ready-to-eat' salads is estimated at over GBP 312 mio, and growing at 15% year on year (HortLink 2004). The disadvantage of 'ready-to-eat' salad is that they increase wastage up to 30% due to the short

shelf-life (HRI, 2003). The market for organic salads in 2002 was 4,736t (retail value of GBP 13 mio). 50% of organic salads were produced in the UK.⁸⁹

2.3.4.5 Dynamics of the supply chain

Reasons for major shifts in the past and effects

In the UK, four major retailers (Tesco, Sainsbury's, Asda and Safeway) account for 66% of all grocery sales in 1999 to 80% in 2006.⁹⁰ They operate around 2,000 stores with a typical food area of at least 1,000 m². Furthermore, there is a small group of niche players (Mark & Spenser, Somerfield, Waitrose) which hold a market share of around 5%, but there are few operators in the middle ground.

Since 1990, the sales of fresh salads have changed because of four main drivers: changing retailer strategies, food safety legislation and supply chain integrity, rationalisation of supply base and innovation.⁹¹

Retailer strategy

Fresh products like salads are one of the few products that can attract new customers and is therefore used as a source to achieve competitive advantage. Furthermore, fresh products are one of the few products that are not sold as 'own label'.

Food safety legislation

The 1990 Food Safety Act gave rise to vertical co-ordination, whereby retailers drew up codes of practice covering all aspects of crop management of quality and safety. The retailers have therefore a high level of control over suppliers of fresh products.

Rationalisation of supply base

To allow for improved supply chain integrity, the large retailers increasingly deal only with a small number of large, technical efficient and innovative suppliers. Risk of quality control and procurement, storage and distribution is transferred upstream to their key suppliers, which in return are rewarded with volume growth.

Innovation

The growth for fresh products is almost exclusively in ready-prepared vegetables and salads. Nature's Way Foods, a pre-packaged salad producer in West Sussex, was the highest growing firm in the UK in 2005. The success of UK prepared salads, in contrast to experiences in the USA, is largely due to the efficiency of the supply

⁸⁹ Firth, C., Geen, N., Hitchings, R. (2003), The UK Organic Vegetable Market (2001/02 season), DEFRA Project no. OF0307, Organic Horticultural Programme, HDRA, January 2003.

⁹⁰ NHF 2006 'The Future of UK Horticulture': Promar International for National Horticultural Forum.

⁹¹ Fearn, A. and Hughes, D. 1999 'Success Factors in the Fresh Produce Supply Chain: Insights from the UK', Supply Chain Management 4(3): 120-128.

chain. In the UK, prepared salads will be in the retail store within two days of harvest and consumed within five days of harvest – half the time which salad spend in transport and inventory in the USA. In the salad industry, innovation drives value creation – new varieties (sweeter, juicier, crispier, improved visible characteristics etc.), new formats of pre-packaged mixed salad, extended shelf life and production efficiency (processing, storage, packaging and logistics). All in all, the innovation is driven by the demand of semi-prepared products. The reason is that suppliers have the choice between supplying raw products with 25% margin (ie carrots of 29p/kg) or a 25% margin on processed products (i.e. 89p/kg for washed, diced and pre-packed carrots). However, innovation is difficult to achieve and exploit in a sector which offers low margins for suppliers and in which the rewards for first mover advantage are limited.

Possible reasons for future shifts

There are many serious challenges to the UK horticultural sector in the next 10-20 years. In particular, the costs of labour and energy are critical to the survival of many farmers that operate on the margin. The following criteria will need to be fulfilled in order to maintain a successful horticulture in the UK:

- no attempts to limit imported labour,
- more willingness to use advanced technology and automation,
- better co-operative ventures,
- better understanding of customer profiles,
- build on trend towards UK production and local sourcing,
- more added value production than commodity driven production.

On this basis, the future of UK horticulture will inevitably be based on a smaller group of players, but one which is more internationally aware, more attuned to market needs, more environmentally aware and more grounded in added value activity. Production of commodities will have limited future in the UK. There will be large changes in the industry structure of horticulture. The future of horticulture in the UK will be fragmented into two groups: large market-focused operations and a series of much smaller, equally professional producers, even part-time farmers, supplying niche markets.

The two trends in the UK horticulture will be (i) “British” or “local” branding of food to appeal to ethical consumers, and (ii) high added value products, like pre-prepared fresh products.

2.4 Investigating social networks

Changes at national level (devolution) as well international level (i.e. EU accession) re-drew the institutional map with regards to rural affairs in England. Today, this system involves a wide range of agencies, organisations and institutions involving the public, private and voluntary sectors.⁹² This has also seen the establishment of new institutions, new forms of organizations and local agencies i.e. LEADER Action Groups, Rural Development Boards and Development areas, Enterprise Agencies, and various forms of partnerships.

As mentioned in an earlier section, rural and forestry policy is under the responsibility of the Department for the Environment, Food and Rural Affairs (DEFRA). Though, it needs to be recognized that policies framed by other governmental departments might as well influence rural development. DEFRA initiates and enforces policies in which numerous expert groups and executive agencies (i.e. Rural Payments Agency, Animal Health, Governmental Decontamination Service, Centre for Environment, Fisheries and Aquaculture Science) play an important role.

As DEFRA is not involved in policy delivery, it has the responsibility to develop partnership arrangements with all the delivery organisations (i.e. Food for Britain, the Environment Agency, the National Forest Company, Natural England, Joint Nature Conservation Committee, Consumer Council for Water, Agricultural Wages Board, and the Commission for Rural Communities). Defra collaborates also with regional and local authorities, local authority representative bodies and other institutions like the Forestry Commission and the numerous National Park management authorities.⁹³

Besides expert groups and executive agencies, Defra has a statutory requirement to consult different stakeholders when a new policy option is to be formulated. Public, private and voluntary organizations would usually be invited to contribute.

A list of stakeholders contributing to rural and forestry policy in West Sussex is presented below. Yet, who is involved for a particular question depends on the matter at stake, e.g. environmental issues or rural diversification.

⁹² Goodwin, M., 1998. The governance of rural areas: Some emerging research issues and agendas. *Journal of Rural Studies*, 14,1, 5-12.

⁹³ <http://www.defra.gov.uk/corporate/delivery/landscape/map/index.htm> (accessed 24/10/2007)

2.4.1 List of institutional actors

The following list of institutional actors gives an overview of who influences rural and agricultural development in West Sussex.

Actors along the supply chains

- Producers
- Wholesalers
- Retailers
- Consumer

Political bodies (legislative/policy-making)

- Department for the Environment, Food and Rural Affairs (Defra)
- South East England Development Agency
- West Sussex County Council
- Department of Trade and Industry
- Department for Transport

Policy delivery

- Natural England
- Forestry Commission
- Environment Agency
- West Sussex County Council
- Action for Rural Sussex
- Commission for Rural Sussex
- South East Development Agency

Administrative actors

- Rural Payments Agency
- South East England Development Agency
- Environment Agency – regional office
- South Downs Joint Committee

Representative bodies (of rural interests)

- Country Land and Business Association
- National Farmers Union
- Small Farms Association
- Tenant Farmers' Association
- South East Forum for Sustainability
- South Downs Conservation Board
- Regional Rural Affairs Forums
- Campaign for the Protection of Rural England
- Wildlife Trust
- National Trust

NGOs

- South Downs Society
- Royal Society for the Protection of Birds (local office)
- South of England Agricultural Society
- Chamber of Commerce
- Share to Farm
- South-East Food Group
- West Sussex Beekeepers Association (Worthing)
- Parish Action Groups
- Farming & Countryside Education (FACE)
- Sussex Village Halls Advisory Group

Consulted Institutions

Defra	several email and phone contacts
Sussex Biodiversity Record Centre	phone interview on 17 th Sept
Action in Rural Sussex	phone interview on 18 th Sept
West Sussex County Council, Worthing	several phone interviews, email contacts
Government Offices for the Regions (European Office)	phone interview on 19 th Sept
English Nature	phone interview on 15 th Oct
The Tenant Farmers' Association, Hampshire	phone interview on 19 th Oct
The Environment Agency, Worthing	phone interview on 19 th Oct
The Country Land and Business Association	phone interview on 19 th Oct
Rural Payments Agency	phone interview on 19 th Oct
English Nature	phone interview on 22 th Oct
South East England Development Agency	phone interview on 22 th Oct
Department for Environment, Food and Rural Affairs	phone interview on 18 th Oct
Business Link – Sussex Enterprise, Haywards Heath	meeting 19 th Sept, 26 th Oct, 23 rd Nov
University of Reading	phone interview on 30 th Oct
Interviews and email contacts with supply chain specialists – individual businesses, regional and agricultural consultants.	

3 FRANCE: SAVOIE

3.1 Describing the region

3.1.1 European and national context of the region

France covers 543,965 km² (metropolitan France). Metropolitan France is divided into 22 administrative regions (21 in continental part and the last one, Corsica is an island) corresponding to the NUTS 2 level. The regions are further subdivided into 100 departments (corresponding to the NUTS 3 level). These departments are subdivided into 341 "arrondissements" which are, in turn, subdivided into 4,032 "cantons". These cantons are then divided into 36,680 "communes". Some of these communes are grouping together in intercommunal entities. The regions, departments and communes are all known as territorial collectivities, meaning that they are organised with local assemblies.

Map 7 France's subdivisions in region and department



Source: Lamarque (2007)

The case studies area of this report is one of these department so called "Savoie". It's the more mountainous department of France. Savoie is situated on the East part, near Switzerland and Italy.

Savoie have numerous assets including historical, cultural and natural heritages mainly related to the mountain part of the department. This is explaining that Savoie is the first tourist department of France, with 60 ski resorts, 6 spas and all the tourist summer's activities (trekking, gastronomy, ...) near the lakes and natural parks. Savoie is well connected by road and railway to the other part of France, as well as to Italy, Switzerland and to the rest of Europe.

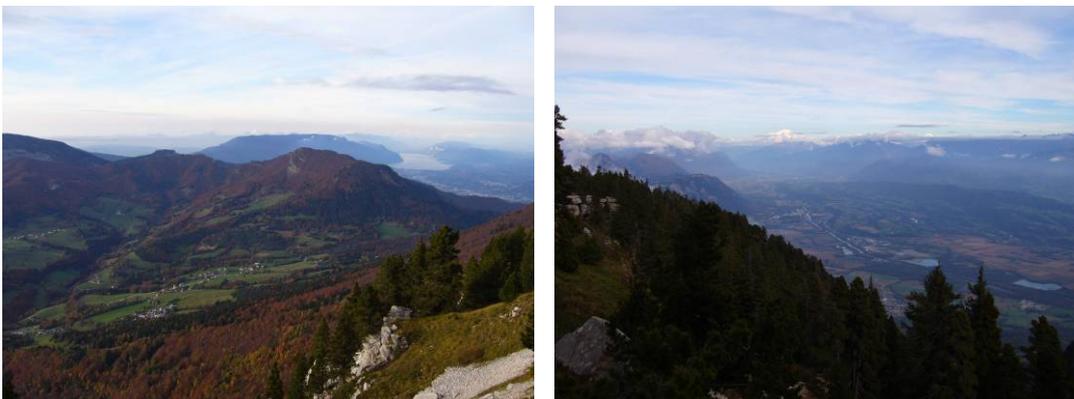
In Savoie, agriculture represents only 2% of employment. The main sector is the third one, services, with 75% of employment (mainly in tourism) (CCI Rhones Alpes, 2007).

Figure 52 Savoie is a summer and winter tourist location



© P. Lamarque

Figure 53 West part with lower altitude and east part with higher mountains are separated by a huge valley



© P. Lamarque

3.1.2 Environment

3.1.2.1 Spatial structures

Statistical profile

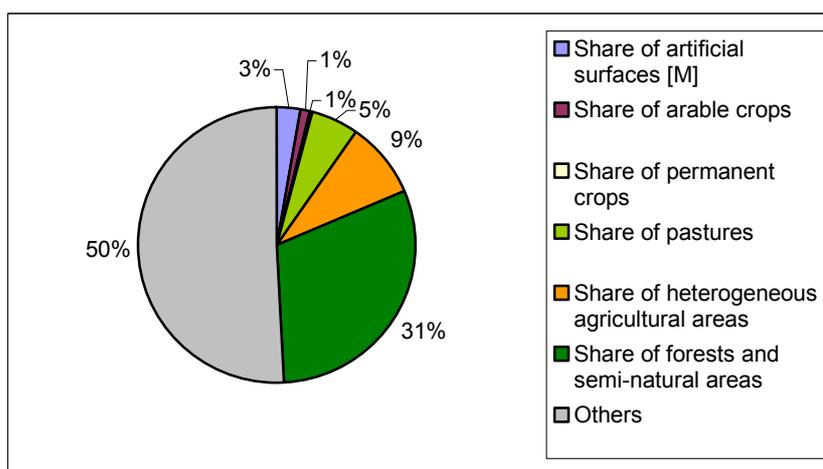
Table 63 Statistical profile data for spatial structures

01	Total area	6,028 km ²
02	Share of artificial surfaces	3%
03	Share of arable crops	1%
04	Share of permanent crops	1%
05	Share of pastures	5%
06	Share of heterogeneous agricultural areas	9%
07	Share of forests and semi-natural areas	31%

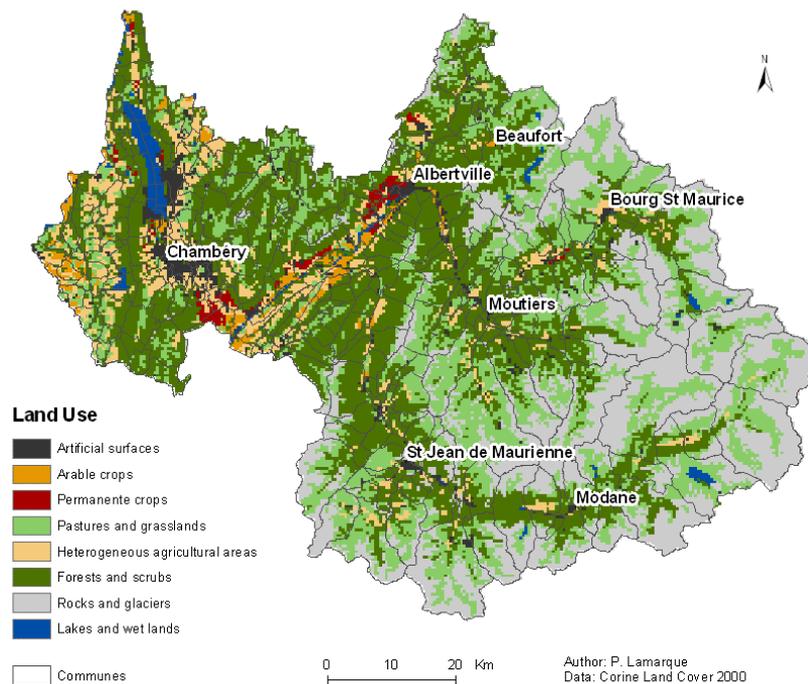
Source: Statistical profile

If we report on a graph the share of the different types of land use, we notice that the category "others" take the major part of the region, they include mainly rocks and glaciers. The share of forests and semi natural areas, constitutes 1/3 of the region. It needs to be reconsidered because this group takes into account the alpine pastures. The UAA is composed in a large part (85%) of pastures and highland pastures. The map shows the repartition of the different types of land use. For example, arable crops are concentrated along the main valleys and near agglomerations.

Figure 54 Distribution of land uses



Map 8 Map of land uses

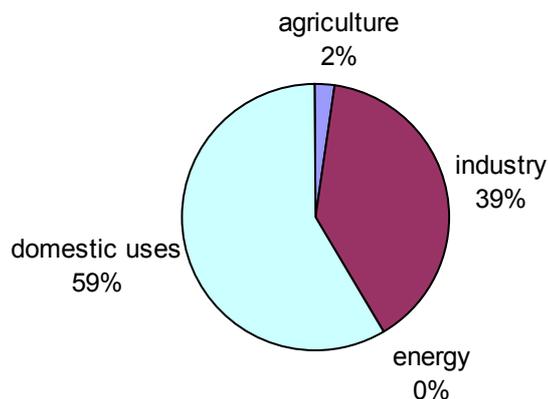


Regional focus

Savoie is the most mountainous department of France with 88% of its territory covered by mountains, mainly on the east part. Due to this difference of relief, the climate is drier on the east ("internal Alps") and more wet on the west ("external Alps") because precipitations are stopped by the first chain of mountains ("Préalps"). This diversity influences the types of vegetation.

Concerning hydrology, dense networks of rivers (3,500 km) and lakes (100 lakes) feed the region. In the context of shortage of water, some usage conflicts are appearing. For example, tourism uses a lot of water for artificial snow and for 60,000 additional beds in winter, which is the lowest water level period. Apart from traditional use, water is used by hydroelectric dams (DDAF 73). The graph below shows the share of water used by different activities. Agricultural activities are consuming a low rate of water because irrigation is very scarce in the department.

Figure 55 Volume of water used in 2002 (INSEE)



Concerning land management and land use conflicts, we notice an increase of the urban pressure on agricultural and even on natural lands. This conducts to a considerable increase in the consumption of land and in prices.

The national average of land prices for unsealed areas is EUR 4,600/ha in 2004-2006. In Savoie this price varies between EUR 3,000 and EUR 4,000/ha in the east of the department and can get up to more than EUR 6,000 in the west. (source: carte TdE-Scarf according to Safer). Prices are the highest in flat areas and in mountains in places with gentle slopes closed to urban areas.

Land sales for non agricultural uses are 2.6 times more expensive than sales for agricultural uses (*FNSAFER, 2007*).

More and more agricultural land is sold for non agricultural uses. In 2006, 55% of land was sold for agricultural use, 8% for artificial land use and 17% for another use (residential uses, ...). Purchasers of land are Savoyards in $\frac{3}{4}$ of cases (Safer 2007). In the agglomeration of Chambéry, a study achieved in 2007 shows that since 1997 agricultural lands have gone down of 110 ha/year (it represents the average area of 3 professional farms). Urbanisation concerns 80 ha per year and land abandonment 30 ha per year. (Safer, 2007).

Rural areas are more and more dedicated to residential uses that lead to the intensive building of houses in the countryside and to risks of conflict between agriculture, tourism and urbanisation. Due to the increasing prices for land, the capital of farms is more expensive to pass on to young farmers. Young farmers have some difficulties to find houses. Conflict between farmers and communes are particularly present when city planning documents are reviewed.

In the present period, some documents of land planning (SCOT, PLU, ZAP, ...) are elaborated and implemented to control consumption of rural and natural areas for urbanisation.

Figure 56 Agriculture and ski resort share the same areas (Maurienne Valley)



© P. Lamarque

3.1.2.2 Environmental protection

Statistical profile

Table 64 Statistical profile data for environmental protection

11	Share of area under NATURA 2000	1,150 km ² which represent 19% of Savoie. 528 km ² of Natura 2000 are situated in the National park area
12	Share of area under National Park protection	1 national park named "Parc National de la Vanoise". 536 km ² of central zone and 1,440 km ² of peripheral zone)*
14	Share of Utilised Agricultural Area under organic farming	28 farms and 1,487 ha in organic farming or in conversion

* <http://www.ecologie.gouv.fr/Parc-national-de-la-Vanoise.html>
Source: Statistical profile

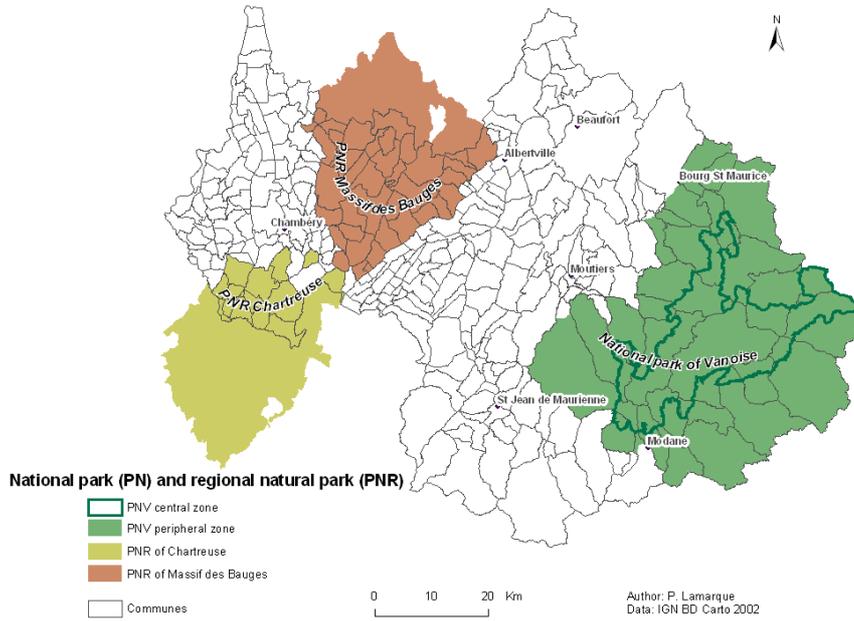
Regional focus

Savoie gathers together 37% of protected areas of the Rhones-Alpes Region. The national Park takes up 536.18 km² of the department with its central zone and 1,440 km² with the peripheral zone. In this park, 528 km² are part of Natura 2000 networks (INSEE). The total surface area of this network covers 1,150 km² of the department. Moreover, 65.33 km² are situated in nature protected areas, and two natural regional parks are existing in Savoie (see maps) (INSEE).

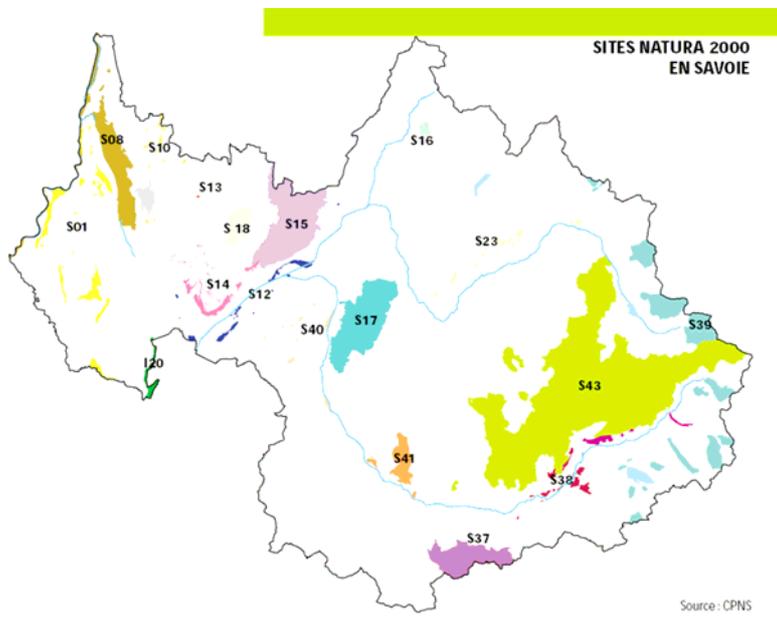
Agriculture is mainly based on dairy production, therefore some local problems of organic and bacteriologic pollution exist in mountain areas. Nitrates pollution is not a problem at the present time (DDAF 73).

Organic farming is not yet developed in Savoie. Organic farming represents only 28 farms and 1,487 ha (including farmers in conversion).

Map 9 Natural regional parks and National park of Savoie



Map 10 Natura 2000 area of Savoie in 2000. Source: Observatoire de l'espace agricole, naturel et forestier de la Savoie



Source: Observatoire savoyard de l'environnement 2005, conseil general 73

3.1.2.3 Preconditions for agriculture

Statistical profile

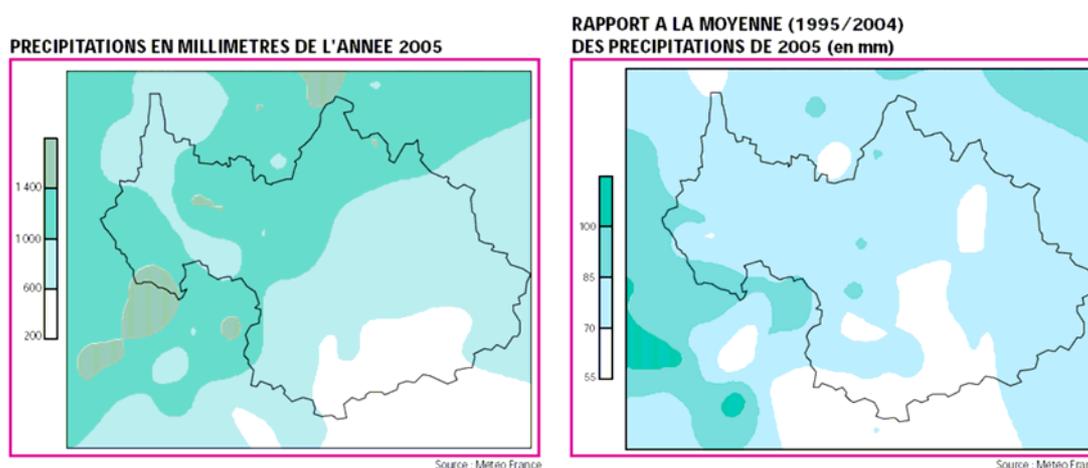
Table 65 Statistical profile data for agriculture

15	Share of Art. 16 Less Favoured Areas of total area + Art. 19	0.3% of UAA
16	Share of Art. 18 Less Favoured Areas	91.8% of UAA
18	Share of Art. 20 Less Favoured Areas*	4.2% of UAA

* <http://www.inea.it/ops/nuovaprog/regolamenti/QuadroComuneMV/riun02-05-06/DOC20c.xls>
 Source: Statistical profile

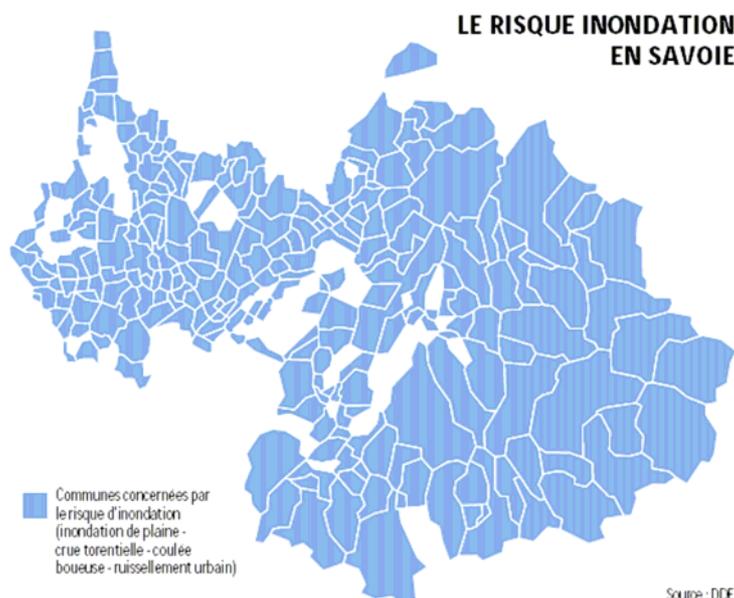
Regional focus

Map 11 Precipitations in Savoie



Source: Observatoire Savoyard de l'environnement 2005 n°13 Conseil general 73

Map 12 Communities: risks of potential floods in Savoie



Source: Observatoire Savoyard de l'environnement 2005 n°13 Conseil general 73

3.1.2.4 Preconditions for rural development

Statistical profile

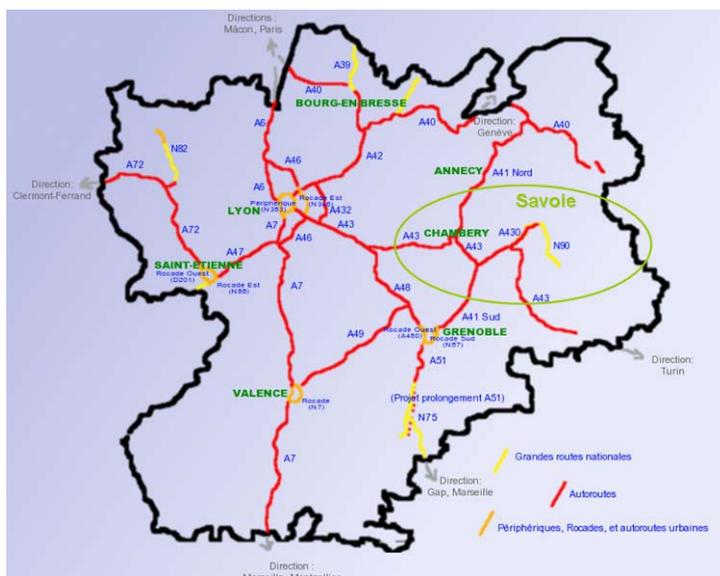
Table 66 Accessibility to Savoie

Time to nearest seaport by car (min)	Connectivity to airport by car (hours)	Connectivity to nearest seaport by car (hours)	Time to nearest motorway access by car (hours)	Time to nearest motorway access by car (minutes)	Connectivity to transport terminals by car (hours)	Connectivity to transport terminals by car (minutes)
255,325	0.8	0.07	0.07	4.2	0.58	54.43980515

Source: WP 1

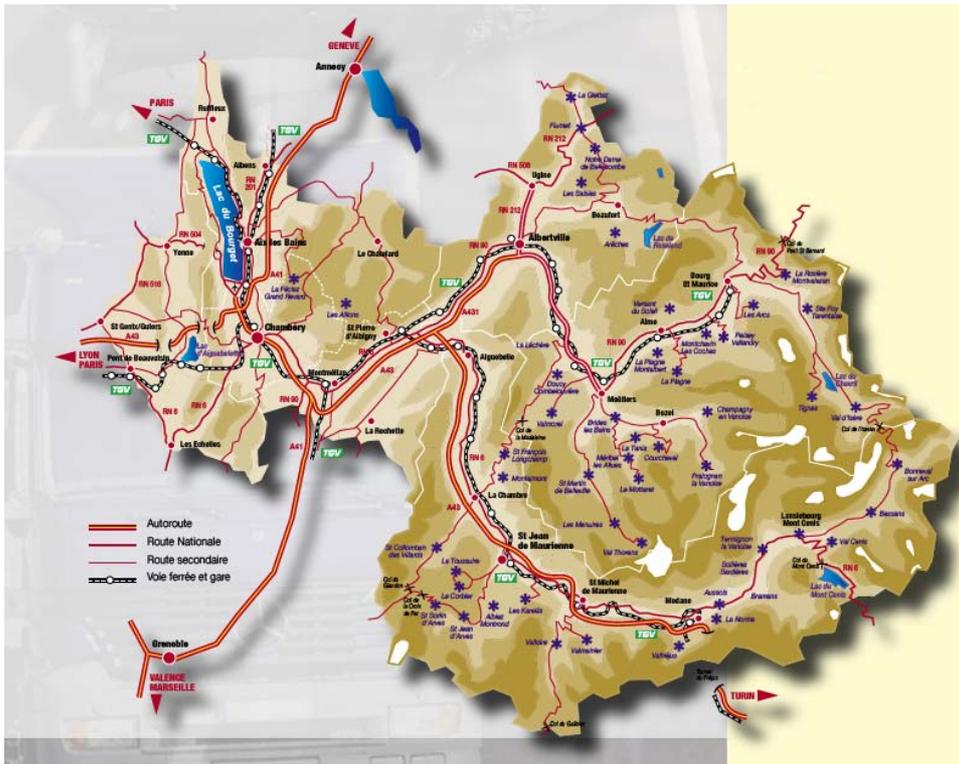
The Rhône-Alpes region takes the first place at national level in term of road infrastructures (INSEE, 2007). Firstly, the tourist sector has led to the constructions of road, railway and airports and secondly, Savoie has a strategic position at the intersection of most west alpine axes and is of major importance for exchanges with Italy. In Savoie, there are 163 kms of motorways, 397 km of national roads, 2,828 km of departmental roads et 4,574 km of communal roads (source: Insee, tableaux de l'économie Rhones Alpes 2006-2007. Data for 2004). The main transport corridors are the North-South A41 road corridor (see map). The use of buses is very low, except in town (public transport = 13% of journeys within the city of Chambéry). Generally car ownership is prevalent. The motor vehicle fleet of Savoie is constituted of 218,402 private cars for a population of 400,247 persons (Data for 2005. INSEE).

Map 13 Main roads, Rhône-Alpes



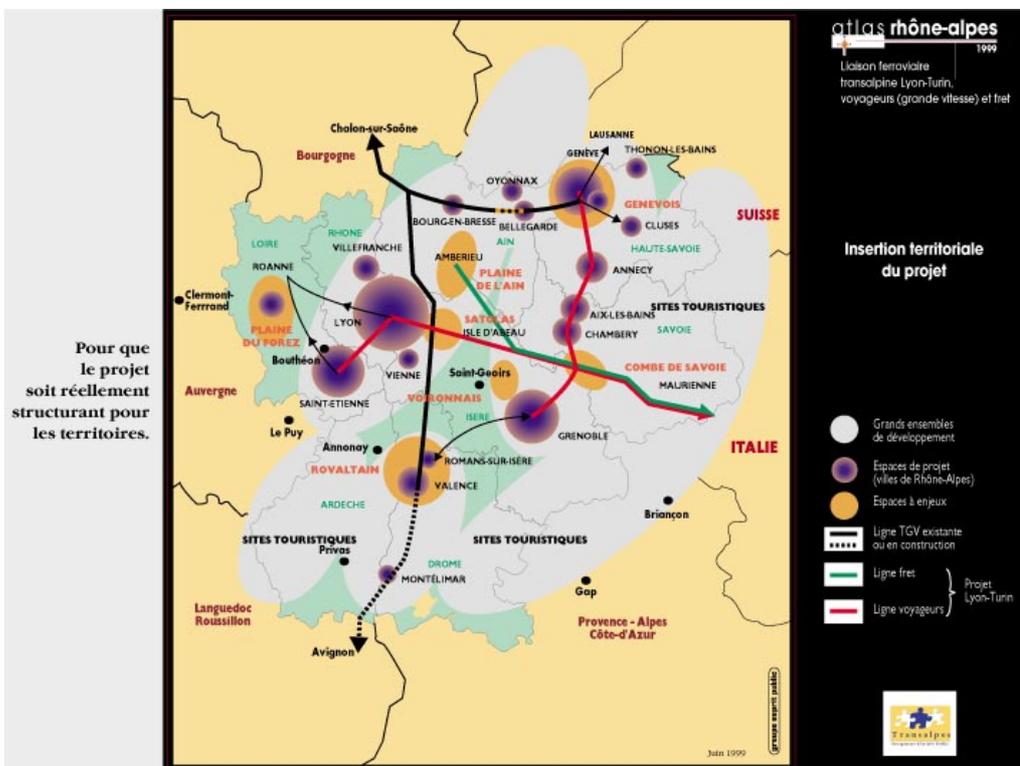
Source: wikipedia.fr

Map 14 Main roads, Savoie



Source observatoire des déplacements en Savoie 2006 n°2 Conseil général 73

Map 15 Existing and future railways in Rhone-Alpes region



black lines: existing railways, red and green lines: future railways
 Source: <http://www.transalpine.com>

A train service connects the main departmental towns (25 train stations) and provides links between them and some ski resorts (station of Bourg St Maurice and Modane). 278 km of railway run right across the department and are used by 729 mio of passengers (INSEE). With a very high speed train, Paris (capital of France) is at only 3-4 h. Railway traffic has increase of 9.4% in two years (2003-2005) and this is going to continue with the new line "Lyon-Turin" (CCI Rhones Alpes, Chiffres clé de la Savoie). By train or by car, Italy is very close to Savoie by Frejus tunnel.

Savoie has a small airport at Chambéry. In average 190,000 passengers frequent this airport during the winter seasons (15 December to 15 April). Four airlines serve Chambéry (mainly with United kingdom): Flybe (Southampton), Jet 2, Transavia (Amsterdam), Jet only (Bruxelles). Since March 2006, Flybe organises a regular connection between Southampton and Chambéry, two times a week (Tuesday and Saturday) (source: Conseil général de la Savoie). To join international airports (Geneva, Lyon and Grenoble) requires less than one hour by car. These airports are disserving many Europeans and internationals destinations.

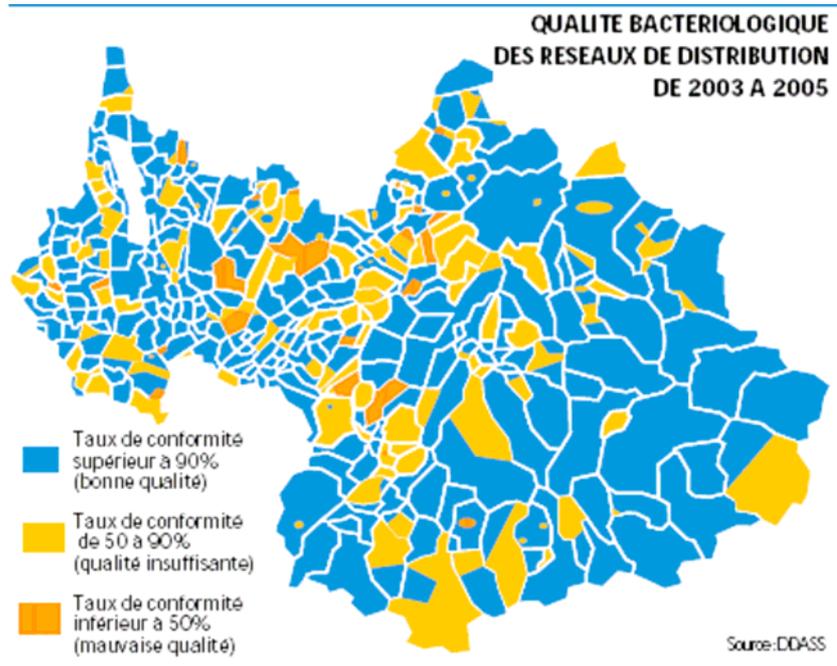
National statistics indicates that in 2006 12.6 mio of DSL lines exist in France (www.internet.gouv.fr). In 2006, 40 mio of household have taken out a subscription to Internet (ADSL), that's means 8,000 news subscriptions record every day. An increase of 40% recorded in comparison to 2005 (www.internet.gouv.fr).

No information is available on the number of practitioners per 1,000 inhabitants, but it should be relatively high in town of the case study area and lower in rural area.

Regional focus

Rivers of Savoie are assessed as relatively high in chemical and biological quality. However, chemical monitoring show locally some level of pesticide higher than standard, but no restriction for consumption was done (Source observatoire Savoyard de l'environnement 2005 n°13 Conseil general 73.).

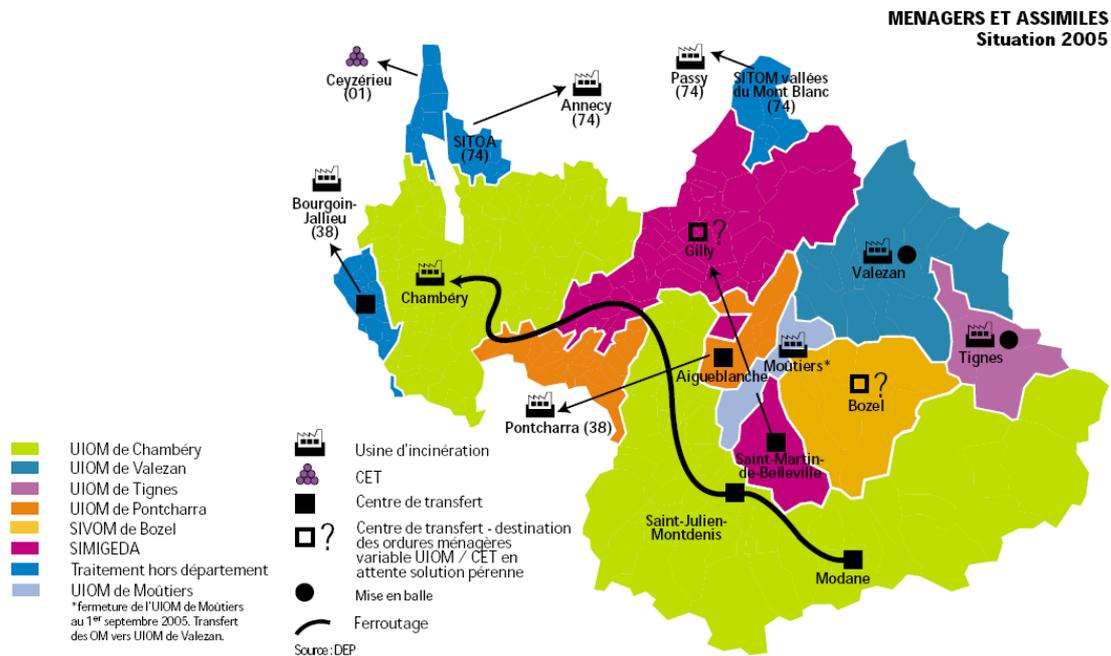
Map 16 Bacteriological quality of water consumption



In blue high quality and in red low quality level.

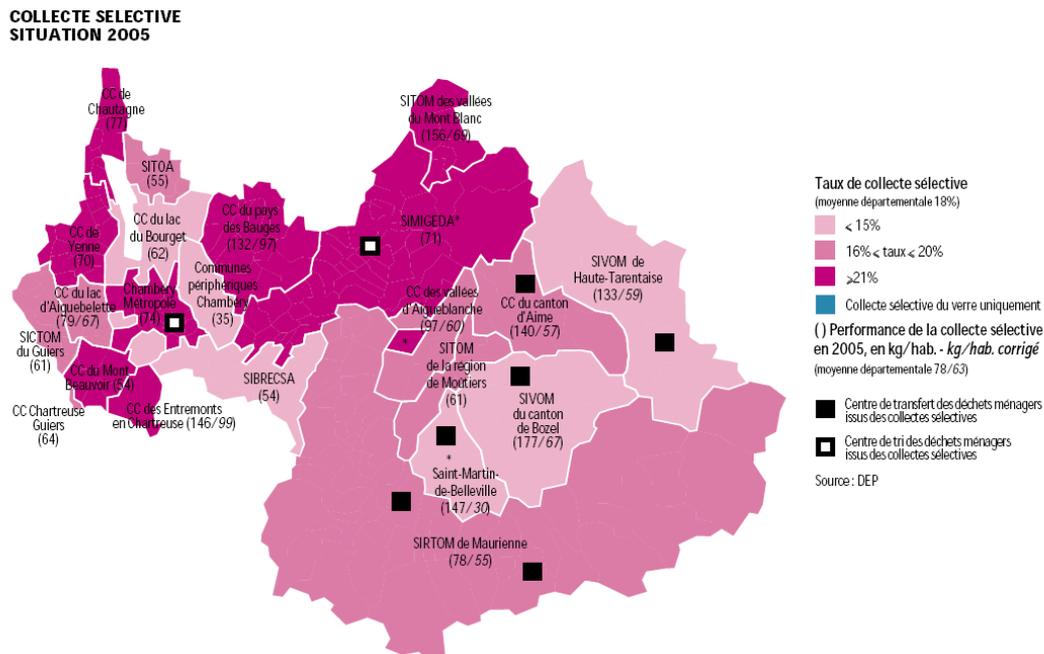
Source: Observatoire Savoyard de l'environnement 2005 n°13 Conseil general 73

Map 17 Type and localisation of waste reception centers



Source observatoire Savoyard de l'environnement 2005 n°13 Conseil general 73

Map 18 Rate of selective waste collection



light pink > 15%, intermediary pink: 16 to 20%; deep pink: > 21%

Source: observatoire Savoyard de l'environnement 2005 n°13 Conseil général 73

Consumption water and sewage management depend on communes or groups of communes (intercommunalités). They also provide collection of household waste. In totality 168,903 t of wastes are collected in Savoie. 69% of them are processed in Savoie (incineration) and 31% are transferred in other departments. A number of initiatives have been introduced to promote recycling. In 2006, about 34% of household waste have been recycled (Source observatoire Savoyard de l'environnement 2005 n°13 Conseil général 73).

3.1.3 Rural economy

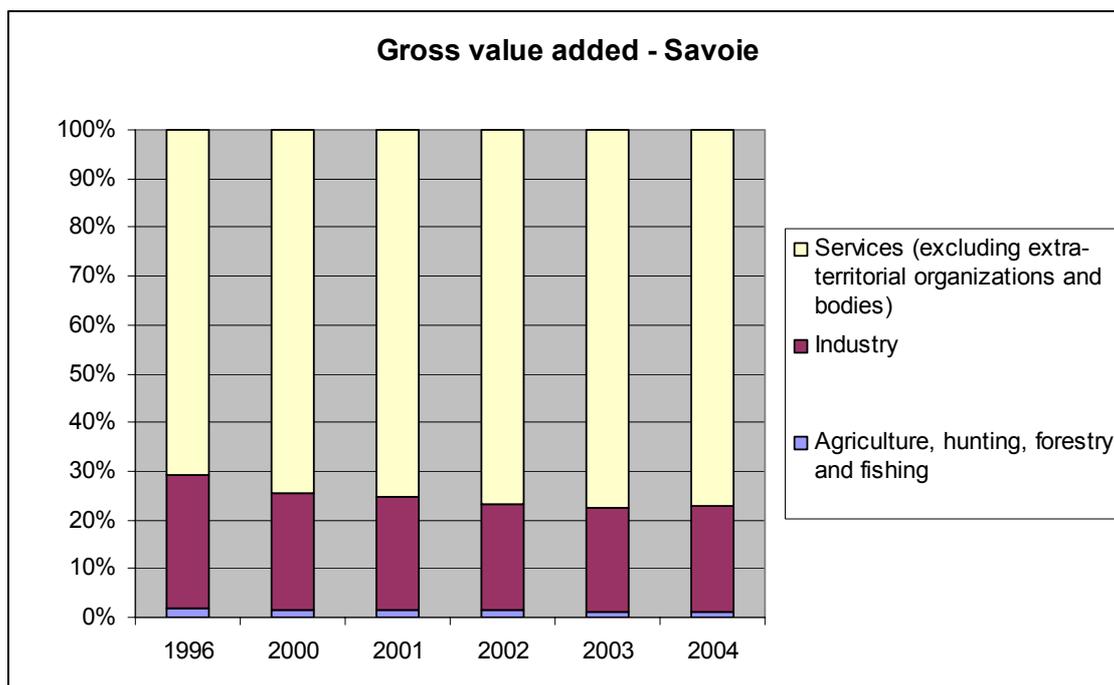
3.1.3.1 Regional performance

Statistical profile

GDP (Gross Domestic Product) per inhabitant of Savoie is one of the highest in France: EUR 24,072 in 2000.

Tertiary activities have a main and increasing contribution to value added (from 74.6% in 2000 to 77.3% in 2004), that is a little more than in Rhones Alpes region (about 73%) and equal to national average (about 77%).

Figure 57 Distribution of Gross added value, Savoie



Tourism is the main economic activity of the department. Tourism represents 50% of the economic activity. There are 60 ski resort stations and 6 spas. The capacity of accommodation is of 646,500 beds in summer for a frequentation of 10.69 mio of nights in summer (2003) and of 575,200 beds in winter for a frequentation in 2003-2004 of 21.19 mio of nights.

Since 2000, the contribution of industrial activity to the departmental GDP stagnates. Industry is characterised by large industrial groups in Tarentaise and Maurienne's valleys (steel industry, metalworking industry, foundry and chemistry) and by numerous small and medium industries competitive and diversified in the following activities: food processing industries, metalworking, electric and electronic industries (Table 67). In value, the first products exported are intermediate goods and facilities goods, following by goods for car industry.

19 industrial establishments have more than 200 salaried workers.

Table 67 Private establishments employers and salaried workers per sector of activity in industry

	Number of establishments	Number of salaried worker
Food processing industry	398	3,192
Consumption goods industry	170	1,196
Car industry	14	357
Equipment industries	260	3,745
Intermediate goods industry	390	12,794
Energy	27	442
Total Industries Savoie	1,259	21,726
Total Industries Rhône-Alpes	20,721	443,447

Source: CCI, Les chiffres clés de la Savoie 2006-07

Table 68 GDP (current prices 2000)

	GDP	GDP per inhabitant	GDP per job
	EUR mio	EUR	EUR
Savoie	9,098	24,072	56,083
France métropolitaine	1,418,743	24,059	59,973

Source: INSEE

Average income of inhabitants of Savoie is slightly higher than national level.

Table 69 Income tax 2003

	Rate of Fisc household liable to tax (%)	Average income per fisc household (EUR)	Average income per fisc household liable to tax (EUR)	Pensions (average amount in EUR)	Rate of pension in household income
Savoie	56	16,585	23,996	16,329	31
France	52	15,980	24,696	15,873	31

Source: MDP, CCI, Les tableaux de bord des territoires, novembre 2006.

3.1.3.2 Structure of agriculture

Statistical profile

The contribution of agriculture to GDP is not available at departmental level, only the added-value is available

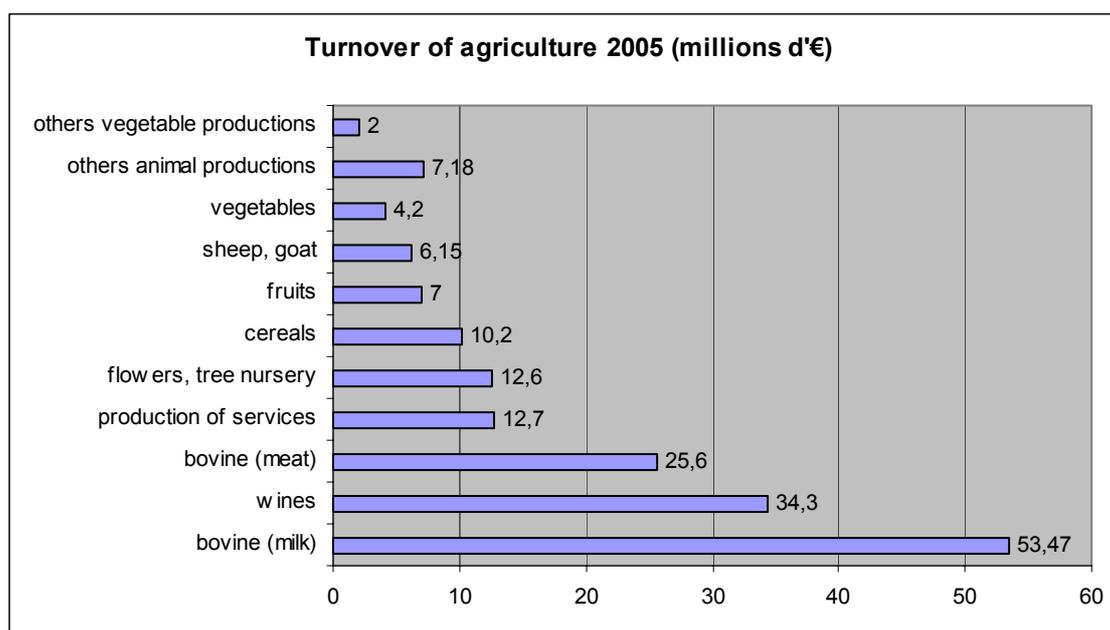
Table 70 Gross value added per field of activity (current prices, 2000) (EUR mio)

	Agriculture, forestry and fisheries	Industry	Construction sector	Private Services	Services administration	Gross value added
Savoie	123	1,350	607	4,516	1,589	8,185
France métropolitaine	35,897	227,476	65,117	674,785	266,482	1,269,757

Source: INSEE – Comptes régionaux

In 2005, Savoie has an agricultural turnover of EUR 198.2 mio divided into several categories:

Figure 58 Turnover of agriculture 2005 (EUR mio)



Source: Conseil Général de la Savoie, 2007. L'agriculture en Savoie, problématiques et enjeux pour les prochaines années. D'après les Comptes départementaux 2005 – provisoire.

Agriculture has faced a constant erosion of its workforce: between 1997 and 2004 total agricultural jobs of the department (agriculture, fisheries and forestry), have decreased 9.6% and represent today 2% of the employment (INSEE). Agricultural jobs have decreased of 3.8% between 2003 and 2004. It is more than in Rhones-Alpes region (-0.9%) and in France (-1.4%) (INSEE). This is mainly due to the

decrease of non salaried agricultural workers, in particular family working persons⁹⁴ (Table 71).

If we consider the RGA (general agricultural census) in 2000 agricultural population represents 3.5% of the total population of Savoie (6.6% in 1988). The difference between data arriving from RGA and from INSEE is due to a difference in the definition of what is employment in agriculture. Therefore, the employment in agricultural sector is continuously decreasing in Savoie.

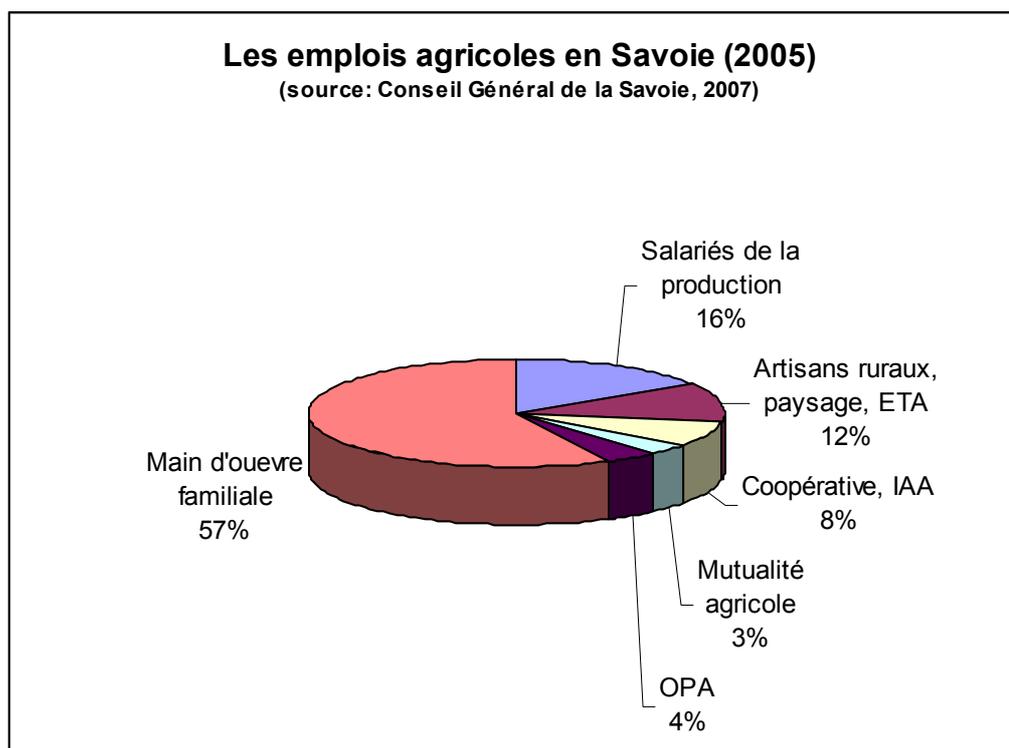
Table 71 Rate of employment in agriculture

time	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Savoie	4.3	4.2	4.3	4.3	4.1	3.9	3.7	3.5	3.7	3.5

Source: Conseil Générale de la Savoie

In Savoie in 2005, agricultural employment represents 6,400 full-time jobs (against 9,860 in 1988 and 5,100 in 2000). Jobs of farm managers and of their family represent a little more than half of the agricultural employment:

Figure 59 Agricultural employment in Savoie



⁹⁴ Family workers contain farm managers, cofarmers and members of their family with an agricultural activity, whatever the working time.

Family labour: 57%; salaried farm workers: 16%; rural craftsman: 12%; salaried cooperative: 8%; agricultural mutual insurance: 3%; professional organisations: 4%

Work productivity has increased between 1988 and 2000: in average there are 1.2 full-time jobs per farm (a little more than in 1988) while farm size are larger. Today, the farmer practises his job more often without his spouse in an individual or society farm.

Table 72 Evolution of agricultural activity (full time equivalent) between 1988 and 2000

	1988	2000
Farm managers and cofarmers	4,720	2,860
Spouses no cofarmers	1,610	710
Other active family workers	1,190	580
Permanent salaried workers	260	380
Seasonal salaried workers	460	570
Total	9,850	5,100

Source: Agreste-recensements agricoles

Farmers are younger (1/3 is more than 55 years old in 2000 against 1/2 in 1988, 24% are less than 40 years old against 18%) with a higher level of education (more than an half have studied at secondary or higher education levels and 1/3 have agricultural training).

The decrease of agricultural jobs is related to the decline of the number of farms. In 35 years, the number of farms has been divided by four, following the national trend (-35% between 1988 and 2000 for the totality of French farms; -33% in French mountain areas and -41% for Savoie).

Table 73 Evolution of the number of farms

	1979	1988	2000	2005
Professional farms	8,880	5,450	2,570	1,810
Unprofessional farms	1,900	1,860	1,740	1,590
Total	10,780	7,310	4,310	3,400

Source: Agreste-recensements agricoles

The term of professional farm refer to its economic size: roughly we can say that a professional farm is larger than 10 ha of cereals or than 8 dairy cows.

The decline of the number of farms varies according to different factors:

- The decline is more important in areas with higher natural handicap, especially in mountains areas;
- Productions: mixed farming is declining at the advantage of specialised farming;

- ➔ Due to retirement of farmers, non professional farms⁹⁵ are mainly disappearing (-50% between 1988 and 2000). Professional farms are resisting better (decrease of 8% partially due to the grouping of farms in society). In 2000 professional farms represented 40% of the farms and 80% of UAA;
- ➔ Physical and economic farm size: small farms decrease faster.

Figure 60 Economic farm sizes (European Size Units ESU)⁹⁶

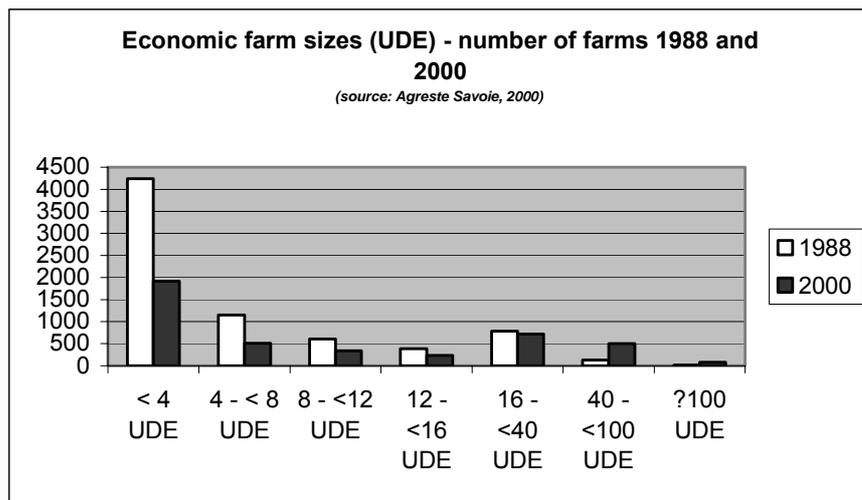
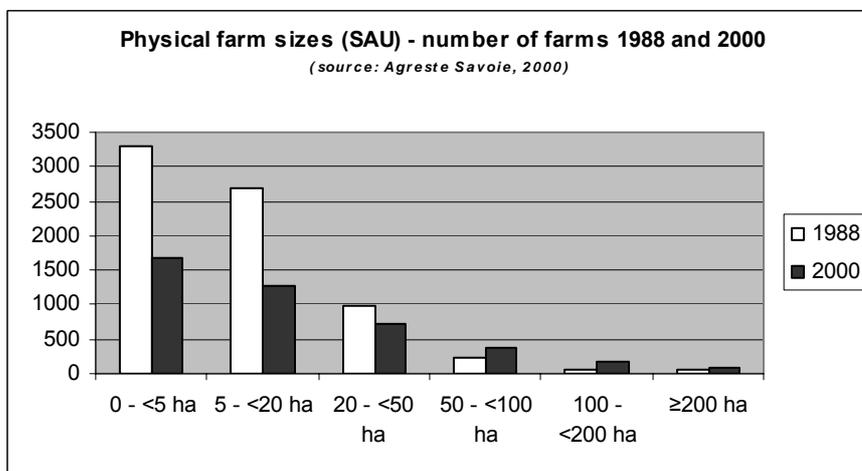


Figure 61 Physical farm sizes (UAA) (Utilised Agricultural Area)



⁹⁵ non professional farms: if it attains a minimal size (in Savoie: 14 ha of wheat or 8 dairy cows, or a little more than one ha of vineyards if work is equivalent to minimum 3/4 of an annual full time job.).

⁹⁶ in French ESU = UDE: unite de dimension européenne.

Today farms are larger and more specialised than before:

- Between 1988 and 2000, the average UAA of farms has almost doubled (15 to 28 ha) following the national trends. This trend concerns all the production systems, but more particularly dairy livestock farming due to a more frequent private use of mountain pastures and to the repossession of disappearing farms which are numerous in dairy farming. Older farmers manage smaller farms than younger farmers (about the half of the 55 years old have structures of less than 4 ha and the farmers less than 40 years old manage unities of more than 22 ha for 50% of them).
- Parallel to UAA, average size of herd has increased: in 2000 there is an average of 24 dairy cows by herd, which is two times more than in 1988.
- ESU: unity of more than 40 ESU are 4 times more numerous than 12 years before.

This phenomenon has to be link to the increase (+78%) of societal forms of farming (GAEC, EARL, SCEA) which permit to manage larger unities. The societal forms of farms represent more than 1/4 of professional farms in Savoie and are especially widespread in dairy livestock.

The income of farmers in Savoie has decreased after a period of increase between 1994 and 2002.

Figure 62 Technico-economic orientation of farms (OTEX in french). Types of farming in EU-FADN system. Number of farms (professional and non professional farms)

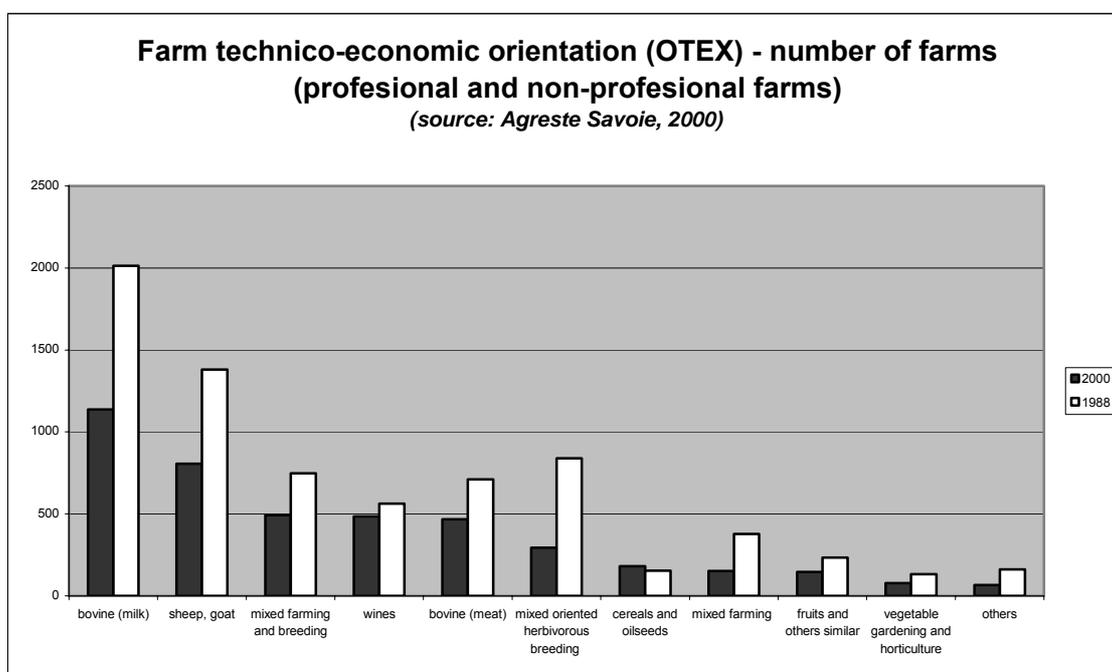


Table 74 Distribution of Utilised Agricultural Area

	2 Total Agricultural area (AA)	39 Arable land	78 permanent pasture and meadows (F)	80 Permane nt crops (G)	84 Woodlan d (H/02)	<i>of which Organic area</i>
France (2003)	100%	66%	29.9%	4.1%		2%
Savoie (2000)	100%	12,2%	85.4%	2.3%	5%	

In 2000, Utilised Agricultural Area covers more than 190,000 ha, representing 31% of total area of department. This area stayed stable between 1988 and 2000 despite the decrease of the number of farms. During this period, the average size of farms has increased (UAA increase of 7% in 12 years).

Forests cover 193,500 ha (31% of departmental area against a national average of 26%). This forest is collective (State, local communities) for more than 50% of the area. The forest area of Savoie is currently in progression (+7.8% between 1985 and 2000). This evolution consecutive to the decline of agriculture is appreciable for one century. Woodlands are share in state-owned forests (3.4%), other collective forests (40.3%), and private forest (56.31%).

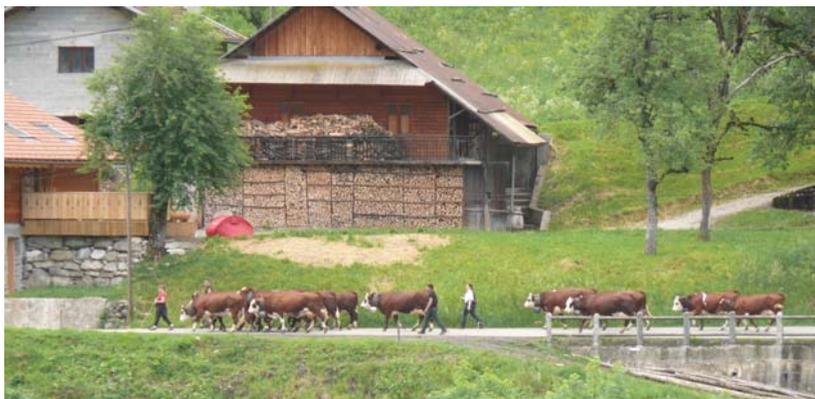
The majority of the agricultural area of Savoie is occupied by mountain pastures (165,000 ha) that constitute an essential element of economy and biodiversity of the department. 60% of the alpine pastures are used by individual farmers of the department and 40% are used by collective herds or by transhumant farmers. Transhumance is an appreciable feature of the pastoral life in Savoie. Each year 150,000 additional sheeps (360,000 sheep are present all year) arrive from the south of France.

Figure 63 Sheep in alpine pastures



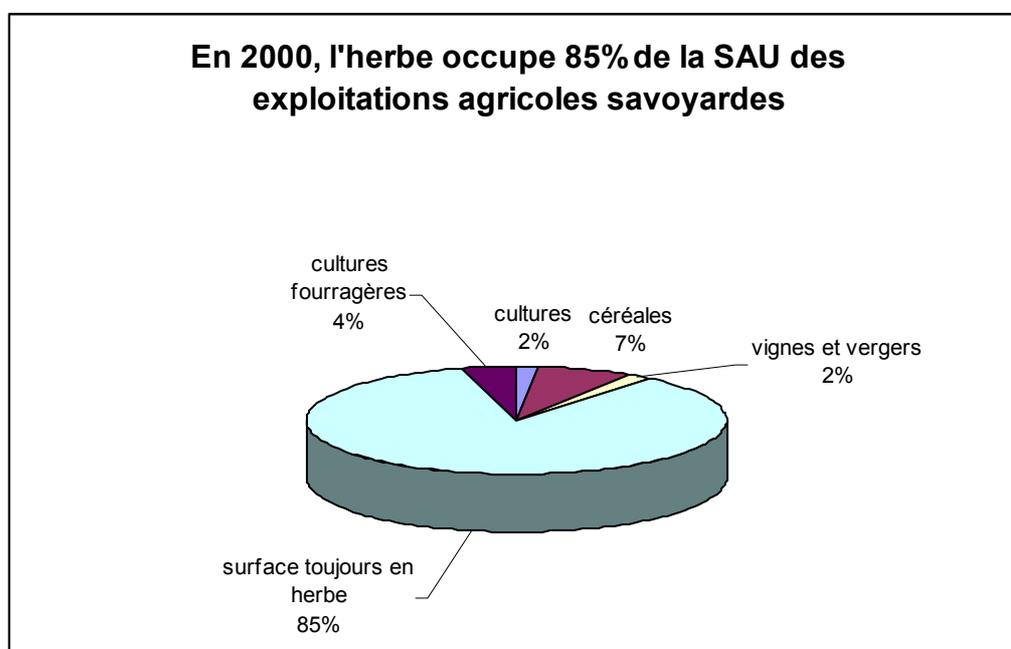
© P. Lamarque

Figure 64 Going down in alpine pastures during spring



© P. Lamarque

Figure 65 Share of grasslands and crops in agricultural areas

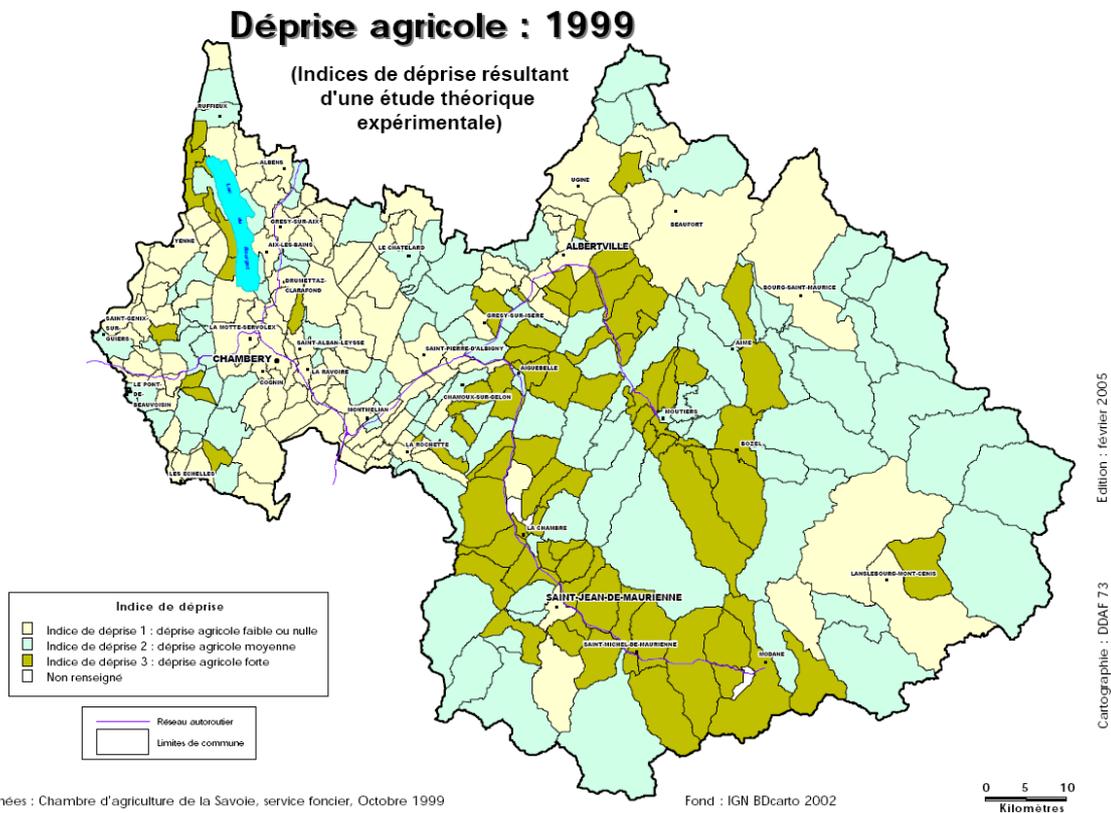


Translation: surface toujours en herbe – land under permanent grass; cultures fourragères – forage crop; vignes et vergers – vines and orchards

Arable land (14,000 ha) is occupied by 60% by cereals and 35% by forage crops. Oleaginous plants tend to disappear. Maize accounts for $\frac{3}{4}$ of cereals areas. These have increased of 10% in ten years, and today, $\frac{1}{4}$ of farms in Savoie produce cereals. Vineyards AOP has increased by 30% between 1988 and 2000.

In Savoie, 5 to 10% of agricultural areas are also concerned by land abandonment. Land abandonment concerns mainly steep slopes, especially around villages of medium altitude. The main reasons are that subsistence productions (potatoes, orchard, ...) near dwellings has strongly decreased, and the difficulties of mechanisation of steep slopes.

Map 19 Abandonment of farmland in 1999



Données : Chambre d'agriculture de la Savoie, service foncier, Octobre 1999

Fond : IGN BDcarto 2002

0 5 10
Kilomètres

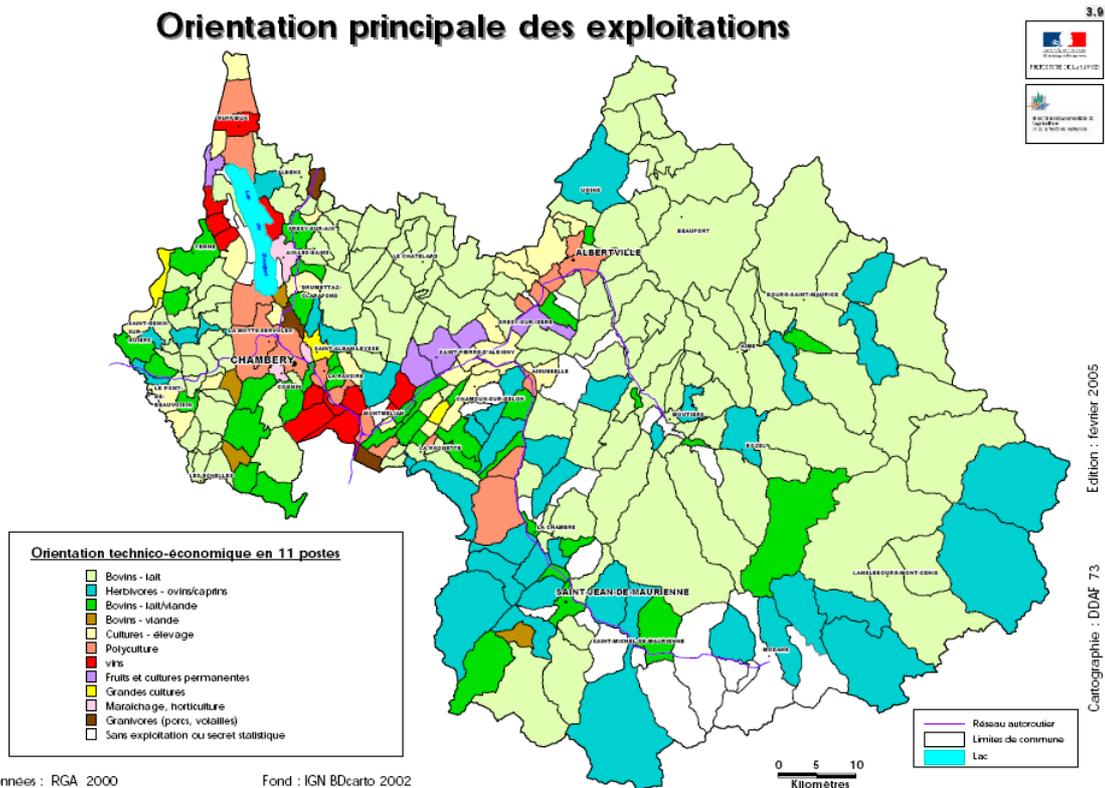
Level of agricultural abandonment: non existent or low (pale pink), medium (blue) and high (green)

Production of renewable energy from agriculture and forestry is an emerging activity, just some farmers are producing wood chips for energy. For farmers, it is a complementary activity to standard agricultural productions like milk.

Pluriactivity of farmers is high in Savoie: in 2000, 38% of farmers have another gainful activity (20% in France and 29% in the Alpine massif), this number decreased between 1988 and 2000. Pluriactivity is higher where opportunities of jobs exist and where farming systems are compatible with other activities: in mountain (winter and summer tourism), in peri-urban areas and in wine areas. Pluriactivity is mainly present in small and non professional farms.

Agritourism (farm accommodation, country in, educational farm) is still marginal: it concerns about 200 farms organised for 2/3 of them in networks (Gîte de France, Bienvenue à la Ferme, Accueil Paysan) (source: Chiffres CG73, 2007). These farms are localised in tourist areas or in peri-urban areas. This sector needs to be developed and promoted for an efficient rural development. In order to achieve that there is a need to establish relationships and to develop common projects between farmers and tourist actors. On the other hand, 1/4 of farmers practised direct marketing in 2000.

Map 20 Main types of farming (commune level)



Données : RGA 2000 Fond : IGN BDcarto 2002

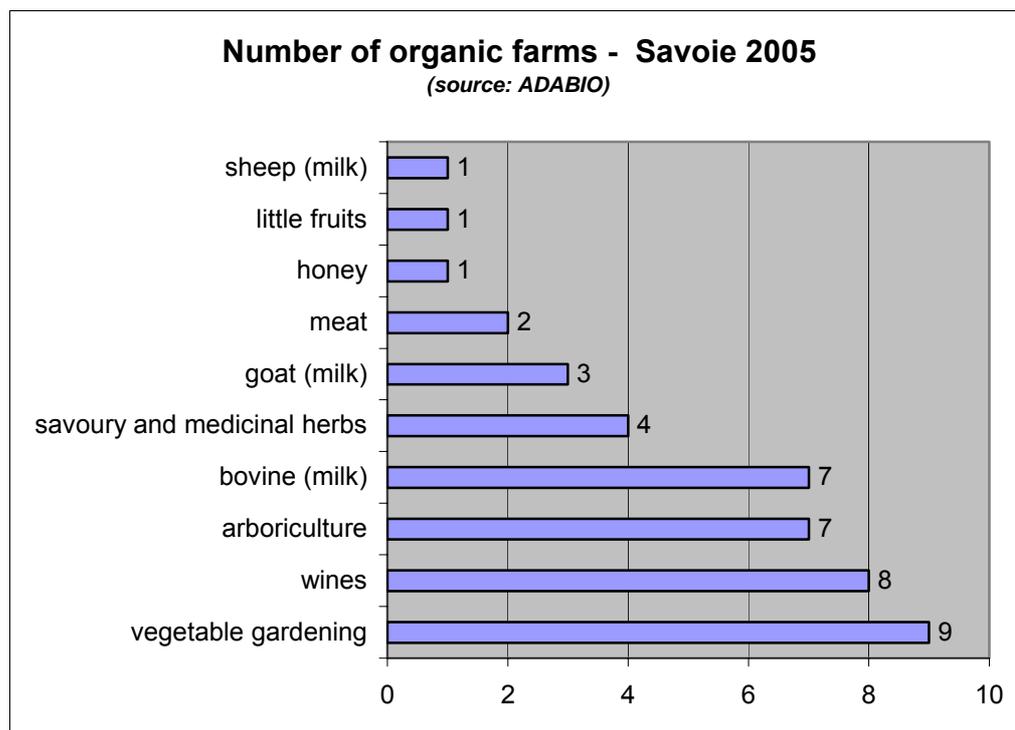
Translation: Bovin lait: bovine milk; herbivores, ovins caprins: herbivore, sheep, goat; bovines, lait-viande: bovine milk-meat; culture-élevage: culture-livestock production; polyculture: mixed cropping; vins: vine; fruits et cultures permanentes: fruits and permanent cultures; grandes cultures: culture; maraîchage, horticulture: vegetable gardening horticulture; granivores (porcs, volailles): pig, poultry; sans exploitation ou secret statistique: without any farm or statistic secret

Only some few areas of grasslands are irrigated in the valley of Maurieen

Regional focus

Savoie has numerous productions: milk oriented mainly towards cheese, wine, meat, cereals, fruit, market gardening, honey and many more. The main products are milk (in area and value) and wine (in value). Dairy cattle systems concern more than 1/4 of farms and are mainly situated in mountainous areas. Milk producers take part simultaneously in meat production (third production of department). Wine concerned 1/10 of farms.

Figure 66 Number of organic farms



Several productions are identified as labelled quality products (AOP and PGI) in particular for wines and cheeses. 1/3 of farms produce quality products. On the other hand, organic agriculture is just an emerging form of farming, although future prospects are promising. 43 organic farms are present in Savoie, which occupy 1.2% of SAU (1,343 ha) of various productions (see figure). The main marketing circuit is the direct selling (in farm, on market, producers' shops, ...). Organic Production is distributed through specialised distributors (22 shops and one purchasing organisation) and via export (wine and cheese).

Table 75 Agricultural activities and productions

In ha or heads	Cereals (including grain-maize)	vines (including vignes AOP)	orchard	land under permanent grass	Forage cultures	Cattle (including dairy cows and suckler cows)	Sheep (including ewe)	Goat	Breeding mare	Pig breeding	Poultry
1988	7,500 (4,900)	1,700 (1,300)	500	91,100	4,600	77,500 (31,800) (5,400)	43,700 (28,900)	5,600	700	20,700	239,800
2000	8,300 (6,300)	1,900 (1,700)	400	98,500	4,800	74,400 (30,400) (7,200)	40,500 (28,800)	6,000	1,300	8,600	223,800

Source: Agreste savoie RGA 2000

Table 76 Supply chains in Savoie

Productions	Number of farms concerned	Production	Sales	Organisation	Comments
Cattle milk	1/4 (about 900)	112 mio l collected and 13.9 mio l processed at farm level (chiffres 2005). Average production per farm: 139,000 l/y. in low land areas and 74,000 l in mountain areas	EUR 53.47 mio (2005)	Milk is collected mostly by dairy cooperatives (93% in 2005). Transformation is concentrated on few purchasers, but most of the milk is processed by maturing cooperatives (about 60%). Nevertheless, they retail only 30% of the production (10% by direct selling in shop), this function is mainly carried out by private retailers in and out Savoie.	More than 95% of milk is transformed into cheese, including 35% in AOP and 33% in GIP. Cheese supply is regulated in order to avoid to saturate the market and to maintain lucrative prices.
Wines	530 producers for 1,855 ha	129,000 hl (2005)		Producers process and retail their harvest, and deliver it to 3 cellar cooperatives or to wholesalers (12) most of them are Savoyards and situated closer to their own vineyards.	Production of quality products, orientated towards renovation of local grape varieties. Distribution of wines concerns mainly the regional level and is facing some difficulties (60% of wines is consumed in Savoie, 25% of them by tourists).
Cattle meat	350 specialised cattle breeders and about 900 dairy farmers.	4,800 t/y. (it represents only 36% of the total consumption of departmental cattle meat.)	EUR 25.6 mio (2005)	Few producers are specialised in fattening of cull cows. Retail is mainly carried out by wholesalers outside the department towards large organisations. Local supply chains is not yet well structured, even if nearby slaughterhouses have been modernised and if label "pays de savoie" have been set up to identify meat from the region.	Main productions: cull cows, veal calves arriving from dairy cattle and fattened in specialised farms, cattle fattened by specialised farmers.
Goat milk	90 producers for a livestock of 6,000 goats	300 t of cheese by year		Farm production with local direct selling on markets and supermarkets. A current study analyses the opportunity to create an AOP "Tomme de chèvre" cheese.	A dynamic of young farmers establishment new producers is existing despite a local market which is being saturated

Product-ions	Number of farms concerned	Production	Sales	Organisation	Comments
Meat and milk from sheep	260 sheep breeders for a livestock of 28,000 ewes 15 sheep breeders for milk	36,000 butchery lambs/y.		Sales of alive lambs are mainly recorded among wholesalers (75% of production).	Production of meat is mainly focused on wholesalers, just a few part is dedicated to short supply chains. Cheese production is retailed by direct selling.
Cereals	Production concern 900 farms (specialised or mixed). This is the main production of only 232 farms.	About 9,000 ha in 2006: maize (6,100), soft wheat (1,250), other cereals (1,260), oleaginous-proteaginous (116). 74,000 t (2005).	EUR 10.2 mio (2005)	Collect is carried out by specialised organisations and is paid at national market prices.	Traditional production of bottom of the valleys. There is no "Savoie" identification (label).
Arboriculture	130 producers	450 ha of orchard	10,000 to 12,000 t/years	Direct selling represents 40% of the production. A cooperative has a direct selling shop and delivers to local supermarkets and to wholesalers. Four other wholesalers put goods on market.	Apples, pears (GIP) in majority and walnuts (AOP). Orchards are concentrated around the main cities. Production suffers the fall of market prices.
Market gardening	30 Professional producers			Small structures localised around consumption areas with direct marketing in majority. A part of the production is marketed in supermarkets but without agreements.	Diversified production in response to the consumer's expectations.
Wood (2000)	193,500 ha of forests 66 sawmill employing 165 workers	240,423 m ³ harvested (average 1995-1997), timber wood, wood for industry and firewood 139,921 m ³ sawed.			Due to the difficult conditions of exploitation in mountain (access, slopes) the forest exploitation decreases.

3.1.3.3 Structure of rural economy

Statistical profile

In 2004, Savoie have 176,338 employees including 89% of private salaried jobs (increase of 12% between 2003 and 2004). Unemployment rate at the second term of 2006: 6.7% (7.8% in Rhones Alpes region and 9% in France)(CCI, les Chiffres clés de la Savoie). Sectoral repartition of total employment in 2004:

Table 77 Distribution of employment

	Agri- culture, forestry and fishing	Industry	Building and civil engi- neering works	Shop	Services	totality
Savoie (%)	2	14.8	7.6	14.1	61.5	
Rhône-Alpes (%)	2.5	20.1	6.4	13.7	57.3	
Evolution between 2003 and 2004 for Savoie	-3.8	-1.2	+4.9	+2.5	+1.1	+1.1
Evolution between 2003 and 2004 for Rhône-Alpes region	-0.9	-2.1	+2.4	+0.6	+0.9	+0.3

Table 78 Distribution of economic establishments of Savoie (2005)

Agriculture	Industry**	Building and civil engi- neering works	Shop	Services*	Total
3,775	2,441	3,552	5,985	19,337	35,090

Source: CCI, chiffres clés de la Savoie

* excepted public establishments of state, local government, associations, foundation and professional organisations.

** including delicatessen, bakery and pastries.

54.2% of these establishments are registered company.

Savoie has 52,000 tourist beds including 35,000 beds shared in 600 hotels of all categories. Majority of the hotels have 2 or 3 stars. There was 9.6 mio of nights in summer 2005 and 20.9 mio for winter 2005 and 2006 (CCI, idem).

Figure 67 Number of establishments, bedrooms and bedplaces (beds)

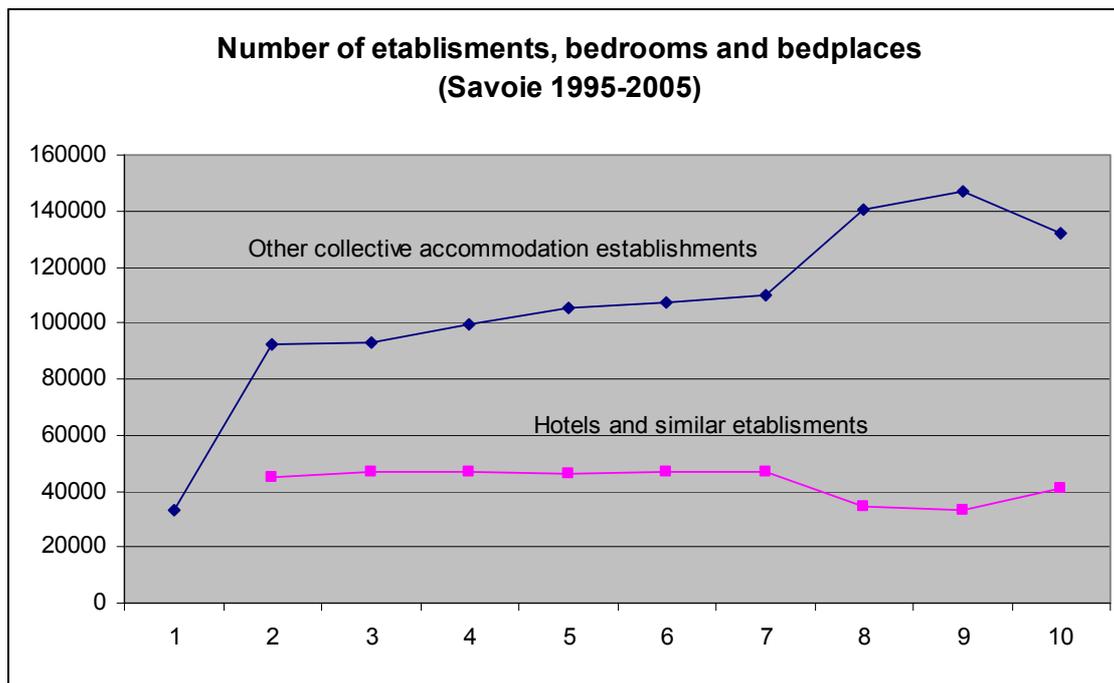


Table 79 Amount of tourist accommodations in 2005

	Numbers of beds	Savoie/Rhône-Aalpes (%)
Homologated hotels	32,010	23.1
Homologated campings	21,606	11.7
Tourism residences	94,428	68.9
Furnished flats (with prefectorial agreement)	75,908	39.9
Second homes (data 1999)	484,420	28.9
Collective accommodations	38,702	35.2

Source: CCI, chiffres clés de la Savoie

Agri-food industries represent 31% of the industries of Savoie and 14.5% of the employment of the sector of industry (Source: CCI, les chiffres clés). With more than 400 enterprises and 3,000 salaries, the agri-food industry is the first industrial sector. Benefiting of numerous labels (AOC), this sector is booming.

The development of agri-food industries is based on products with large value added and the half of the agri-food industries used the picture "Savoie", reflecting different values: nature, tradition, authenticity. The regional market (15 mio of consumers within a 250 kms radius) is a major stake for the development of agri-food sector. Tourism is also a buoyant market, especially for local products. The main sector in the agri-food sector are: cheeses and milk, wines, beers, processed meat products, sausages, pasta.

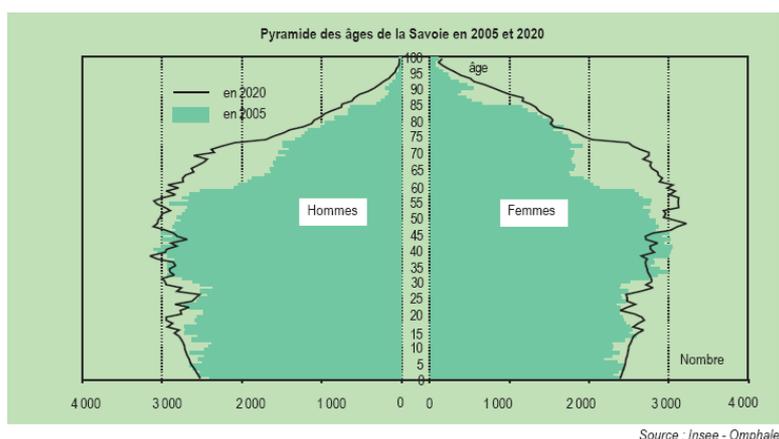
3.1.4 Rural society

3.1.4.1 Demography

Statistical profile

During the last 30 years, Savoie a department of Rhône-Alpes region has known a huge increase of population (305,118 inhabitants in 1975 and 400,247 inhabitants in 2005). This increase is due to on one hand by the surplus of births against the deaths and on the other hand (in larger part: 60% of increasing) by the surplus of migrations (INSEE, 2007). The repartition of population by age group is equal to the national average (53% for 0 to 39 years old and 8% for more than 75 years old in 2005) and female population is more important than male population (203,554 women against 196,693 men in 2005) (INSEE, 2007). Attractivity of Savoie concerns each age group, with a small advantage for 30 years old group, and each socio-professional category, with an advantage for employees.

Figure 68 Age pyramid of Savoie

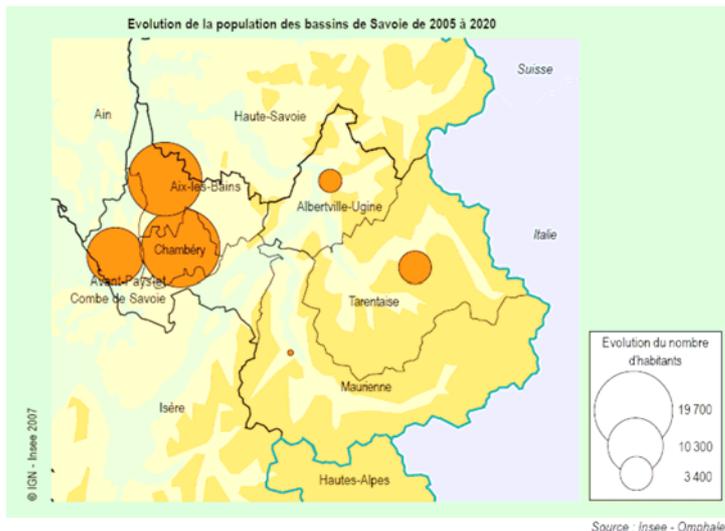


green= 2005 data and black line= estimation for 2020

Source: Insee Rhones Alpes, La lettre Analyses n°73, mai 2007

It is important to note that the population density (in average 66 inhabitants/km² in 2005) is not spatially homogenous in the department. Communes with 15 inhabitants/km² situated in altitude, or in mountainous part of the department, could be situated near communes of valley where density can reach more than 120 inhabitants/km² (DDAF, 2007). The main part of population is concentrated in the west of department (large valleys) and for the future the increase of the population will mainly concerns this part (see map).

Map 21 Evolution of population between 2005 and 2020



Source: Insee Rhones Alpes, La lettre Analyses n°73, mai 2007

Table 80 Evolution of the population in Savoie

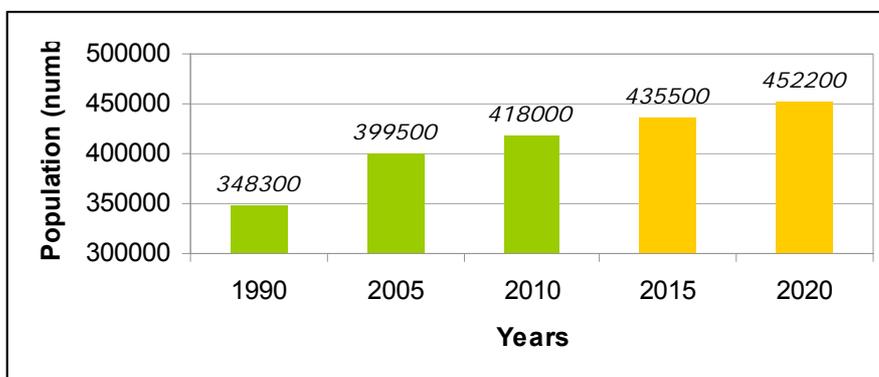
Evolution between 1990 and 1999	Evolution 1999/1990 in %	Average annual variation 1990 and 1999 (%)	Average annual variation 1990 and 1999 Due to natural increase (%)	Average annual variation 1990 and 1999 due to migration (%)
+24,997	+7.20	+0.77	+0.38	+0.39

Source: INSEE RGB 1999

Regional focus

The demography forecasting for Savoie is the following: 452,000 inhabitants in 2020, which represents an increase of more 50,000 inhabitants since 2005. The average annual evolution will be around +1% per year in 2005 and will progressively decrease to +0.7% per year in 2019.

Figure 69 Population development



The average income of inhabitants of Savoie and of Rhône-Alpes is slightly higher than the french average.

Table 81 Evolution of the gross income per inhabitant

	2001	2002	2003	2004
Rhone alpes	16,038	16,806	17,115	17,634
France métropole	16,202	16,674	16,996	17,588

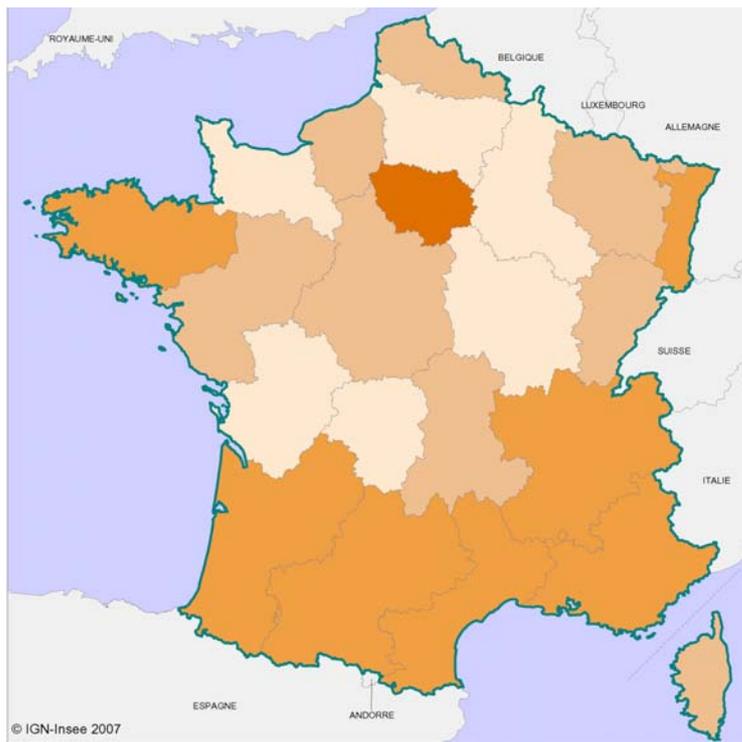
Source: insee, comptes économiques régionaux des ménages base 2000

3.1.4.2 Education

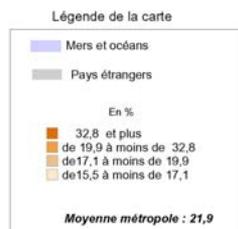
Statistical profile

Map 22 shows the share of population with tertiary education. The Rhône-Alpes region is above French average, as is the whole of southern France.

Map 22 Share of population with tertiary education



Source : Insee, Enquêtes annuelles de recensement de 2004 à 2006 - Exploitation principale



Source: Insee

3.1.4.3 Labour market

Table 82 summons the main employment numbers in Savoie.

Table 82 Employment in Savoie

Total employment (salaried and non-salaried) 1999	158,220
Salaried jobs	134,763
Evolution of employment between 1990 and 1999 (yearly average)	+0.52
Total employment (December 2004)	176,338
Unemployment (December 2005)	12,389
Unemployment rate (December 2005)	7.1

3.1.4.4 Civil society

There are several local Agenda 21 including one agenda at the level of an agglomeration (Chambéry Métropole) and three agendas at the level of communes (including the major cities of Chambéry and Aix-Les bains). The topics of these Agenda 21 concern management of resources (water, biodiversity, energy) and sustainable development. As an example, the major topics of the Agenda 2& of Chambéry Métropole concern the management of resources, the development of local solidarities, the education of citizens towards sustainable development.

Concerning the other local participative projects it is difficult to gain a synthetic view, there are different projects mobilising civil society in the fields of land planning, biodiversity conservation (Natura 2000), territorial projects and others.

3.2 Exploring policy intervention

3.2.1 EU policies for agriculture and rural development

Table 83 EU expenditures (CAP) for agriculture and rural development in Savoie between 1994-2005

In EUR 1,000 National & EU funds	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	1994- 2003 (total)	2004	2005
Market regulation	7,600	6,300	7,500	7,000	6,700	7,200	6,200	5,100	5,700	5,100		-	-
Direct payments (first pillar)	4,627	5,633	5,256	5,215	5,266	5,508	5,538	6,332	7,521	6,889	57,785	9,339	10,979
LFA payments	5,288	5,401	5,366	5,232	5,258	5,149	5,686	6,840	7,599	8,393	60,212	8,967	9,707
Rural development** (except LFA)	3,485	3,609	4,180	3,875	4,186	3,763	3,178	4,776	6,837	10,112	48,001	9,804	10,407
- including agro-environment payments (measure f)	2,072	2,339	2,255	2,317	2,668	2,474	2,277	3,316	5,361	7,637	32,716	7,746	7,954
- including farm investment measures												1,999	2,372

Source: French Agriculture ministry, DDAF Savoie

** The rural development amounts take into account most important RD subsidies, but they do not take into account Art. 33 measures that are not disaggregated at NUTS 3 level in France, neither cooperative subsidies.

First and second pillar payments

For many years, Savoie agriculture benefited much more of the funds from the second pillar, compared to those from the first pillar. Indeed, second pillar represent 65% of total direct payments in the 1994-2003 period. This is due to:

- The LFA payments, as most part of the area is in mountainous areas.
- The importance of the dairy production in the local agriculture, as this production did not benefited from direct payments before the 2003 CAP reform.
- Moreover, it should be acknowledged that Savoie agriculture has benefited during the 2000-2005 period of an important increase in subsidies. This is due to an increase of LFA payments and to the implementation of agro-environmental measures especially.

However, this has completely changed in the recent period. The 2003 CAP reform introduced direct payments in the dairy sector. This has led to an important increase in first pillar direct payments, which have doubled between 2003 and 2005, and thus of the total direct payments in the department.

In the near future, important questions concern the future of the rural development subsidies, as a consequence of the 15% cut in the second pillar funds in France for the next 2007-2013 period.

The impact of the decoupled payments on the local agriculture has been studied in 2004 (Chatellier et al.; 2004). Though the implementation of the CAP reform in France did not allow much redistribution of direct payments at national level, it is unlikely that single payments scheme will lead to an abandonment of production in mountain areas like Savoie. However, decoupled payments might be an additional factor, among others, for farmers to reorient their productions.

Rural development subsidies (except Art.33 measures)

As a mountain area, Savoie benefits from specific measures that are included in the national so called "mountain policy" (LFA payments, some specific investment supports, a "bonus" of supports for setting-up of young farmers. The most important fundings are concentrated in 3 types of measures:

- the LFA payments
- Specific agro-environmental payments for grasslands
- Investment support for farms, especially for cattle housing, and for specific engines for mountain areas.

Though we do not have the information at NUTS 3 level, the agri-food processing actors also benefits from subsidies from the rural development programs (estimated by DDAF: EUR 1.04 mio in 2003).

It is also important to consider that an important share of agro-environmental payments and some of the investments supports have been granted through individual **contracts** between farmers and the French administration ("territorial farm contracts" – **CTE** in French). The principle of these contracts was to encourage multifonctionality by supporting a farm project which integrates economic, environmental and social aspects. Though these contracts have now disappeared from the national agriculture policy, they have had an important impact in Savoie, as many farmers have signed them (457 famers).

At last, some subsidies are coming from the State in case of calamity or disaster (like droughts, ...), via a national compensation fund. Despite they are not very important in average, it can represent a important support for local agriculture to overcome a crisis (for instance: EUR 1.2 mio from the State for the drought in 2003). Local institutions (Conseil general) also provide such supports (EUR 1.5 mio from the "Conseil général de Savoie" for the same crisis).

Rural development policies and the "Article 33" measures

For the period 2000-2006, French government decided to implement a national rural development program. However, it also decided that a rural development section should be included in the "objective 2" regional programs. These sections, financed by the EAGGF, consisted mostly in rural development measures from the Art. 33.

As these programs are zoned (see map) and only implemented in “objective 2” areas, for the Savoie department, it means that these measures are only implemented in a limited part of the area (mainly: Maurienne Valley, Bauges mountains and “avant-pays savoyard”). In Rhône-Alpes, and in Savoie, five measures have been implemented (see table below). About half of the funds are directed to agriculture, supporting mainly diversification of activities. An important part of the funds has also been directed to rural projects, especially investment in infrastructures for the modernisation of villages and rural cities.

It should be noticed that the French co-financing of EU funds in this regional program came from the State, and also from the territorial authorities (department and Regional Council). So we find here some of the policies of the Rhône-Alpes Regional Council.

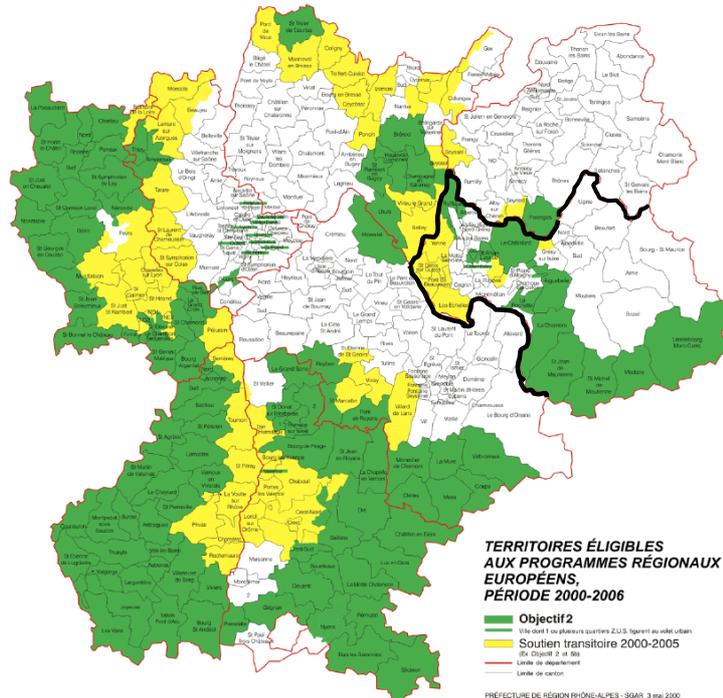
For the 1994-1999 period, the agriculture and forestry sectors have been granted EUR 2.67 mio from EAGGF, via the former 5b regional program.

Table 84 Rural development measures implemented (2000-2006) in Savoie through regional program

Measures of the Rhône-Alpes regional program	RD measures (reference to R. 1257/99)	Total expenditures in Savoie from 2000 to 2006 (EUR 1,000)
Supporting innovation in agriculture: – Support to small innovative agri-rural business – Support to emergence of “terroir” and quality local products – New relationships between producers and consumers – Information to local actors	P & M	248
Restoring the economic environment of agricultural actors, rural areas and populations: – Improvement of agricultural land structures – Local collective programs for land management – Recovering agricultural potential deteriorated by natural disasters – Coordinated operations for environmental improvement of breeding farms.	K, t, u, a	2,770
Improvement of the centre of rural villages	o	9,810
Reinforce dynamism of agricultural and agro-food actors – Transferring methods and technologies – Modernization of food processing businesses – Collective diversification of farmers (processing, marketing, ...) – Support of small supply chains	P, g, a, n	5,609
TOTAL		18,436

Source: Préfecture de Savoie

Map 23 "Objective 2" zones in Rhône-Alpes and Savoie for the implementation of EU regional policy and Art. 33 measures (period 2000-2006)



LEADER+ programs

During the 2000-2006 period, two LEADER+ programs (financed by EAGGF – orientation section), have been implemented in Savoie:

- ➔ In the **Maurienne Valley**: the project focused on the development of new technologies, in the aim of heritage knowledge, preservation of local know-how (EUR 1.6 mio EAGGF).
- ➔ In the **Avant-Pays Savoyard et Chartreuse**: the project focused on the valorization of natural and cultural resources, aiming at a better knowledge and valorization of the local heritage, improving landscape integration, valorization of local know-how, ... (EUR 1.9 mio EAGGF).

These LEADER+ projects focused on rural development projects, thus concerned all rural activities. Though, it also concerned the agricultural sector for part of the funds.

Table 85 ERDF and ESF funds dedicated to Savoie department in the framework of the EU regional policy (objective 2) for the period 2000-2006

Teresa Axes	Measures of Rhône-Alpes "objective 2" program	Funds Savoie 2000-2006 (ERDF and ESF) (EUR)		
		EU	National	Total
Rural (and urban) business		7,627,372	14,663,919	22,291,291
measure 2	innovation and rural-cities relationships	1,110,443	3,225,250	4,335,693
measure 7	Reinforce and improve services to business firms	2,368,929	4,207,781	6,576,710
Measure 9c	Investment in business (industry commerce craft)	1,620,587	2,539,055	4,159,642
measure 10	Investment supports in tourism business	2,527,413	4,691,834	7,219,247
Rural physical infrastructure		4,964,929	12,431,418	17,396,347
measure 5b	water pollution preventing and water resource management	4,964,929	12,431,418	17,396,347
Rural institutional infrastructure		13,443,767	28,242,030	41,685,797
Measure 1:	Supporting local development projects	135,602	322,948	458,550
measure 3a	Human resource valorisation and improvement	307,401	449,936	757,337
Measure 6	Development and strengthening of tourism and cultural attractivity	10,772,639	25,129,672	35,902,311
Measure 8a	Human resource improvement territorial attractivity	775,258	1,195,812	1,971,070
Measure 11a	Supporting actions to human resource development	1,452,866	1,143,662	2,596,529
TOTAL		26,036,068	55,337,367	81,373,435

Source: Préfecture de la Savoie

The allocation of the funds according to our grid shows that Savoie first made use of the funds of the regional program to support institutional infrastructure: EUR 13 mio (EU funds), mainly dedicated to improvement of human resources, education and local development projects. EUR 7.6 mio were supporting business and firms; and only EUR 4.9 mio for infrastructure.

EU regional policy (objective 5b) for period 1994-1999

For the period 1994-1999, the available data only allow to provide a rough image of the use of the funds. The Savoie benefited of EUR 13.6 mio from EU funds, distributed as following:

Table 86 EU regional policy (objective 5b) for period 1994-1999

Sectors/axes	EU fund	Amount of EU funds (EUR mio)
Business support: Industry, commerce, craft.	ERDF	3.45
Tourism industry and heritage valorization	ERDF	5.43
Educational and human resources measures	ESF	4.70
TOTAL	-	13.58

Source: Préfecture de Savoie

EU cooperation policy (INTERREG IIIa) for 2000-2006

As a border area with Italy, Savoie is concerned by the INTERREG cross-border program (ALCOTRA), that is implemented in the western Italian and French Alps territories.

The Alcotra program has three main thematic axes:

- territory: natural resources and natural risks prevention (total EUR 12,354,000)
- Cross-border Identity: transports, culture, health and social services, (total EUR 22,016,594)
- Competitivity: rural economies, small businesses and craft sector, touristic sector (total EUR 17,604,450)

This program has mainly financed immaterial projects (studies, cooperation, networks) and very few material investments have been supported.

We inventoried (table below) all the projects that involved an actor from the Savoie department (eg the departmental Council, Chambre of Agriculture, University of Savoie, ...). It is important to consider that these data have not been dedicated to the Savoie department only, as it is impossible to identify the share of funds dedicated to Savoie in these projects (a project always involves at least two territories).

Table 87 Projects financed by INTERREG IIIa – Alcotra program (2000-2006) involving an actor from Savoie

Teresa Axes	Topics of the projects implemented through Alcotra program 2000-2006	ERDF Funds (EUR)
<i>Rural business</i>		<i>341,239</i>
	Rural tourism development	292,344
	Cross border system for supporting small business starting	48,895
<i>Rural physical infrastructure</i>		<i>1,954,194</i>
	Natural risks prevention	685,226
	Cross-border transport infrastructures	617,441
	Cross border internet infrastructures	651,527
<i>Rural institutional infrastructure</i>		<i>3,001,391</i>
	Landscape valorization	1,187,417
	Cross-border news system integration	113,949
	historic and cultural heritage know-how conservation and valorization	643,500
	natural resources: knowledge and management methods	1,056,525
TOTAL		5,296,824

3.2.3 National and regional policies

In 2003, the share of national and regional funding can be roughly estimated at about 36% (around EUR 14 mio): 24% from the State and 12% from the County/Department (NUTS 3), the remaining funds (64%) coming from the EU. This does not include funding from the Rhône-Alpes region (NUTS 2), that are not disaggregated at NUTS 3 level. Thus the share of national and regional funding exceeds in reality 36%.

National policies

- Co-financing of second pillar measures

Most of the State funds to agricultural sector are distributed via the rural development programs (see 3.2.1), as the State co-finances around 50% of the following measures:

- Less-favoured area payments
- Agro-environmental payments
- Investments support. In Savoie, these funds are mainly directed to cattle housing and buildings, specific equipments for mountain areas (mechanization).
- Setting up of young farmers;

These 4 topics represent most important share of the State intervention. In addition, some funds are also directed to training& education of farmers and to support investments of agro-food industries.

- In addition, some subsidies are coming from the State in case of calamity or disaster (like droughts, ...), via a national compensation fund. Though they are not very important in average, it can represent a important support for local agriculture to overcome a crisis (for instance: EUR 1.2 mio from the State for the drought in 2003).
- Rural policy of the State (qualitative description)

The State rural policy is very various and complex (not less than 71 different tools). We only present here its main characteristics:

- In the framework of the decentralization process, the State provides a financial support to local authorities (municipalities and Departments– NUTS 3) where rural municipalities benefit from specific conditions. The State also provid financial help, via specific funds, to support local public investments in water and electricity supply infrastructures (Fndae, FACE).
- The main interventions on the State in the framework of its rural policy:
 - Economic development: via lowering fiscal taxes in disadvantaged areas ("rural revitalization zones" – ZRR)
 - Interventions in favour of specific sectors: tourism, craft industry

- Diverse interventions: improving housing conditions, promoting culture and heritage, public services, education
- Recently (2006), the State implemented a new policy ("Pôles d'excellence rurale"), that provide a financial support to local projects that improve territorial competitiveness.
- Finally, some State interventions are focused on mountainous areas, for instance "land restoration in mountains" (RTM), in the aim of lowering natural risks.

Regional policies (Rhône-Alpes region – NUTS 2)

The agriculture and rural development policy of the Rhône-Alpes Region represented an amount of EUR 48 mio for the whole Region (for the 8 departments) (sources: Ministry of Agriculture). But the disaggregating of these figures at the Savoie level is not available. This policy mainly focuses on:

- Farm investments support:
 - buildings and equipments,
 - collective investments in agricultural equipments (CUMA),
 - encouraging setting-up of young farmers
 - Encouraging diversification of the farm activities and productions (ELI)
 - Infrastructures in pastoral areas
 - Human resources in agriculture: support of collective systems to share salaried employees between farms.
- support to local and regional supply chains:
 - Supporting material and immaterial investments of regional agro-food industries (IAA)
 - Supporting the development of regional supply chains projects (immaterial and material support) (PIDA).
- Economic support to the forestry industry

A part of agricultural interventions are implemented at a local level, via territorial contracts negotiated with local public institutions (CDRA).

Departmental policies (Conseil général de Savoie – NUTS 3)

The "Conseil général" of Savoie implements an agricultural policy that complements the EU and the State interventions. This represents an amount of **approximately EUR 4.5 mio each year**. In 2004, it represented EUR 5.9 mio because of important funds mobilized to compensate calamities (droughts).

The "Conseil general" policy completes National and European interventions in supporting farms investments and cooperatives investments. It also develops some specific interventions, for instance in the area of land management, via a specific fund (FDGEN).

Though the funds from the Conseil general globally represent a limited part of direct payments of the CAP and of the national policy, they can represent an

important share of total public funds on particular areas, such as modernisation of farms (20% of total funds).

The "Conseil general" is also able to mobilize important funds in case of calamity like droughts (EUR 1.5 mio in 2004).

Table 88 Financial support to agricultural and forestry sectors from the Conseil general of Savoie in 2004

	EUR	Share of total intervention (%)
Agriculture/farms	5,462,900	<i>92</i>
Farms investments	1,216,900	<i>21</i>
Support of agricultural organisations (Agricultural Chambers, ...)	1,351,900	<i>23</i>
calamity or disaster	1,477,000	<i>25</i>
Agro-environmental actions	133,600	<i>2</i>
Animal sanitary protection, prophylaxis	985,100	<i>17</i>
Land and water use infrastructures	142,600	<i>2</i>
Agro-food industries	336,100	<i>6</i>
Agricultural processing cooperative plants		
Forestry sector	126,300	<i>2</i>
Total	5,925,400	<i>100</i>

Sources: Departement public accounts

3.2.4 Effects of Legislative restrictions

Protection of nature and biodiversity

Table 89 shows the protected natural areas in Savoie.

Table 89 Protected natural areas in Savoie

Regulation tool		Implemen- tation by	Description and relevance for rural development	Situation in Savoie
French Name	English translation			
Zones Natura 2000	Natura 2000 Areas	EU and State	<ul style="list-style-type: none"> - Definition of protection areas - Definition of objectives for the conservation of habitats - Management measures: in France, actions are implemented via voluntary contracts (with financial compensation, for instance agro-environmental measures of second pillar) 	Around 15% of the area
Parcs nationaux	National Parks	State	<p>Missions/objective of a national Park:</p> <ul style="list-style-type: none"> - In the central zone: protection of natural resources, cultural heritage and landscape (with a regulation power) - peripheral zone: proposition of objectives for the protection and the valorization of resources <p>Objectives of the Vanoise national park:</p> <ul style="list-style-type: none"> - Protection of natural resources: inventory and knowledge of the resources; management measures and plans; - Welcoming visitors and tourists - Local development: actions contributing to preservation and valorization of landscapes, natural and cultural heritage. 	<p>One national Park:</p> <ul style="list-style-type: none"> - Vanoise: 196,000 ha (of which 53,000 ha in the central zone)
Réserves naturelles	Natural reservation	State	<p>Objective: protection/conservation of fauna and flora</p> <p>Tool/action: regulation = avoiding or limiting human or artificial interventions</p>	6 "natural reservation" in Savoie
Parcs Naturels régionaux	Regional Natural Parks	State and Region Rhône-Alpes (nuts2)	Regional parks are implemented at the initiative of the Region. Their logic differs from the National parks, as they aim both at protecting natural resources and at promoting a local economic development that is compatible with this protection.	<p>Two regional parks in Savoie:</p> <ul style="list-style-type: none"> - Chartreuse (partly) - Bauges

Water protection and management

In, comparison with other regions in France, the Savoie department is relatively quite unconcerned about water regulation, as it does not faces major issues in terms of water quality. Two important French regulation tools for water protection (vulnerable zones "zones vulnérables", and "schema d'aménagement et de gestion de l'eau") are not implemented in Savoie.

Some regulation/legislative tools are anyway implemented in the “down” west part of the Department, around the Lake Bourget and the River Guiers (“contrats de rivière”).

Land use management

Different legal tools are implemented for land use planning at a local level (PLU, SCOT), as Table 90 shows.

Table 90 Tools for land use planning in Savoie

Regulation tool		Implement- ation by	Description and relevance for rural development	Situation in Savoie
French Name	English translation			
Plan local d'urbanism e (PLU)	Local planning for urbanism	Munici- palities	<p>“PLU” is a tool planning for land use planning at the local level. It is elaborated under the responsibility of local authorities (municipalities).</p> <p>Main aspects of the “PLU”:</p> <ul style="list-style-type: none"> - It defines a development and planning project - it regulates the use of land and allocates the land between different uses. To do so, it defines: <ul style="list-style-type: none"> Urban areas Areas to be urbanized Agricultural areas Natural areas 	Every municipality (except 3 in savoie) has a “PLU”
Schéma de cohérence territoriale (SCOT)	Urbanism planning document, elaborated in common by different municipaliti es	Inter-Munici- palities Level	<p>Main aspects and objectives</p> <ul style="list-style-type: none"> - Definition of orientations on the economic Alpes du Nord demographic evolution of the agglomération - orientations on the use of the land and its allocation between urbanization, natural areas, ... - The local planning documents, elaborated by municipalities adherent to the SCOT, have to be consistent with the SCOT. <p>The SCOT is mostly implemented by medium/big agglomerations, as municipalities cannot modify their “PLU” in order to urbanize new areas if there is no SCOT.</p>	2 areas in Savoie have implemented a “SCOT”, including Chambéry agglomeration

3.3 Investigating networks – supply chains

3.3.1 Supply chain 1 – Beaufort cheese

3.3.1.1 General description⁹⁷

Beaufort is a cooked pressed cheese, weighting 20 to 70 kg for a diameter from 35 to 75 cm, and easily recognisable by its concave heel and its reddish brown rind. It has a smooth texture with an ivory to pale yellow colour. This cheese has been recognized as an “Appellation Origine Contrôlée” (equal to AOP European label) since 1968. This label can be completed by a special denomination for cheeses produce during summer (June to October) and those following traditional practices and produced in alpine pastures above 1,500 m of altitude, by farmers two times a day with milk of only one dairy herd. A little more than 10 kg of milk is needed to produce 1 kg of Beaufort, then a total of 45 mio kg of milk, from 11,000 Tarine or Abondance dairy cows, is transformed into Beaufort.

Due to AOP label, the “milk must come from the Tarine and Abondance herds of cows in which production must not exceed 5,000 kg per year and per cow in lactation. The use of ensilage is prohibited in feeding. The main feed base is made up of hay and grazing grass. Additional feeding is limited and monitored. Maturing of Beaufort lasts a minimum of 5 months.”

Figure 70 Abondance and tarine dairy cows



left: Abondance cow, right: Tarine cow
© P. Lamarque

⁹⁷ Source: <http://www.fromage-beaufort.com/idx-uk.htm>

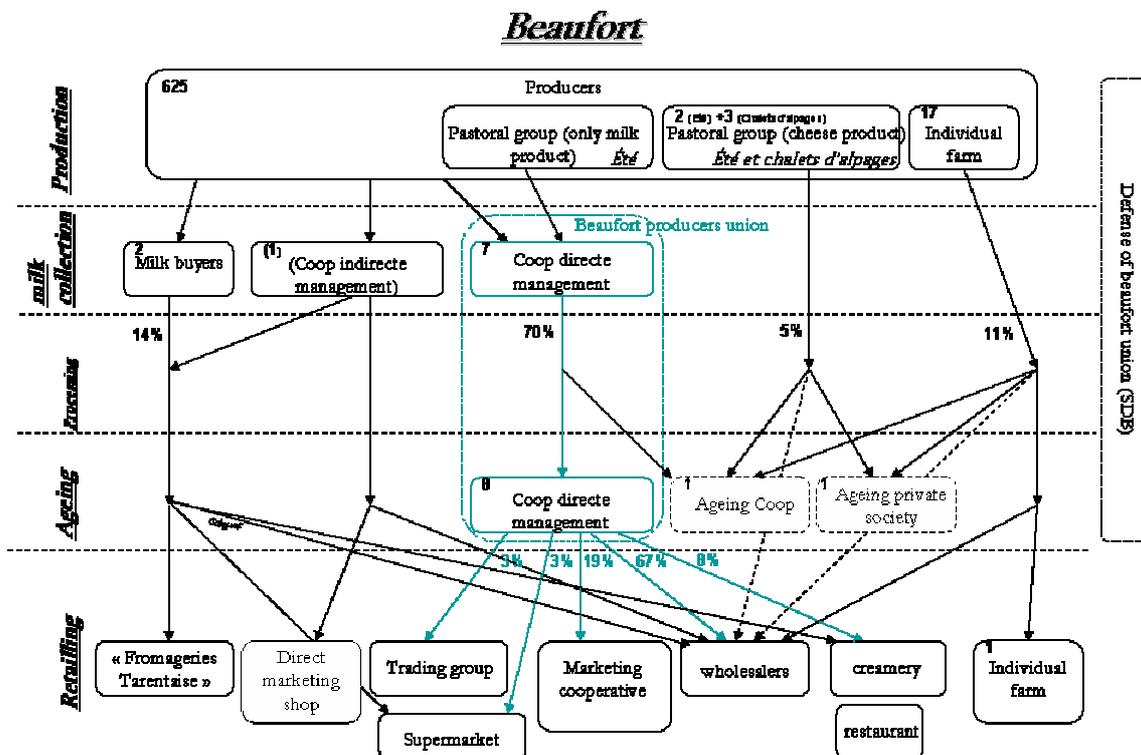
The zone of manufacture covers the east part of the department (valleys of: Beaufortain, Tarentaise and Maurienne and a part of the Val d'Arly). This area represents some 450,000 ha characterized by vast areas of alpine pastures.

In 2006, 4,320 t of cheese have been produced. But this was not always the case. This agricultural system and its production ensured relative affluence until the sixties. But because of the manpower involved and the massive rural exodus during this time, production collapsed to less than 500 t per year. During the middle of sixties, several farmers began to consider that it was time for a new type of organisation. They developed a strategy based on quality and opposite to productivity model. The quality of Beaufort should justify a higher price that supported the extra costs of agriculture in the high mountain regions. The revival of Beaufort was based on cooperation systems for processing and retailing (creation of The Union of Beaufort Producers), quality of product and use (and valorisation) of local resources, and the willpower to improve their knowledge to manage the production (creation of a technical department working with different research organisms (INRA, ITFF)).

3.3.1.2 Agricultural and forestry production actors

625 smallholders maintain milk production for the manufacture of Beaufort. They are small size farms (average milk production 80,000 kg of milk compared to 200,000 as a national average).

Figure 71 Actors of supply chains. Case studies of Beaufort



Several of them have other activities linked to the winter tourism season. Four kinds of producers of milk are present. The first is pastoral groups (collective management system of the pastures) producing only milk, the second is pastoral groups processing cheese in alpine pastures during summertime, the third are individual farmers assuring the production of milk and the process of cheese making and the last one, the most numerous are individual farmers producing milk delivered to a cooperative.

Milk is collected by milk buyers or by cooperative (in majority). There are two kinds of cooperatives: maturing cooperatives ("cooperative à gestion indirecte": work as dairy buyers) and permanent cooperatives ("cooperative à gestion directe": producers are paid in function of economic performance of cooperative). Permanent cooperative are the main actors of the supply chain with 70% of the production. In totality 1,000 jobs depend on the Beaufort operation and cheese dairies.

As we said above, a particularity of beaufort supply chain is cooperation. Two interprofessional unions are present on the supply chains: the "Union des Producteurs de Beaufort" and the "syndicat de défense". They receive dues in the order of EUR 31.39/1,000 l of milk transformed into Beaufort for their functioning.

"The 'Union of Beaufort Producers' brings together cooperatives from the Beaufort zone, which produce 75% of the tonnage. The U.P.B. has established a technical department open to all (cooperatives and others), financed by a subscription by kilo of milk transformed. And, the 'Syndicat de Défense du Beaufort', created in 1975, aims to bring together dairies and milk producers. It is particularly interested in collective promotion and in the management of the Appellation d'Origine Contrôlée; within this context it is the organism recommended by the Institut National des Appellations d'Origine" (<http://www.fromage-beaufort.com/ficheidentite-uk.htm#1>)

3.3.2 Supply chain 2 – Standard milk

3.3.2.1 General description

In Savoie, this supply chain represents a small part of the milk produced. This milk is process in powder, cheese, yogurt, butter, ...

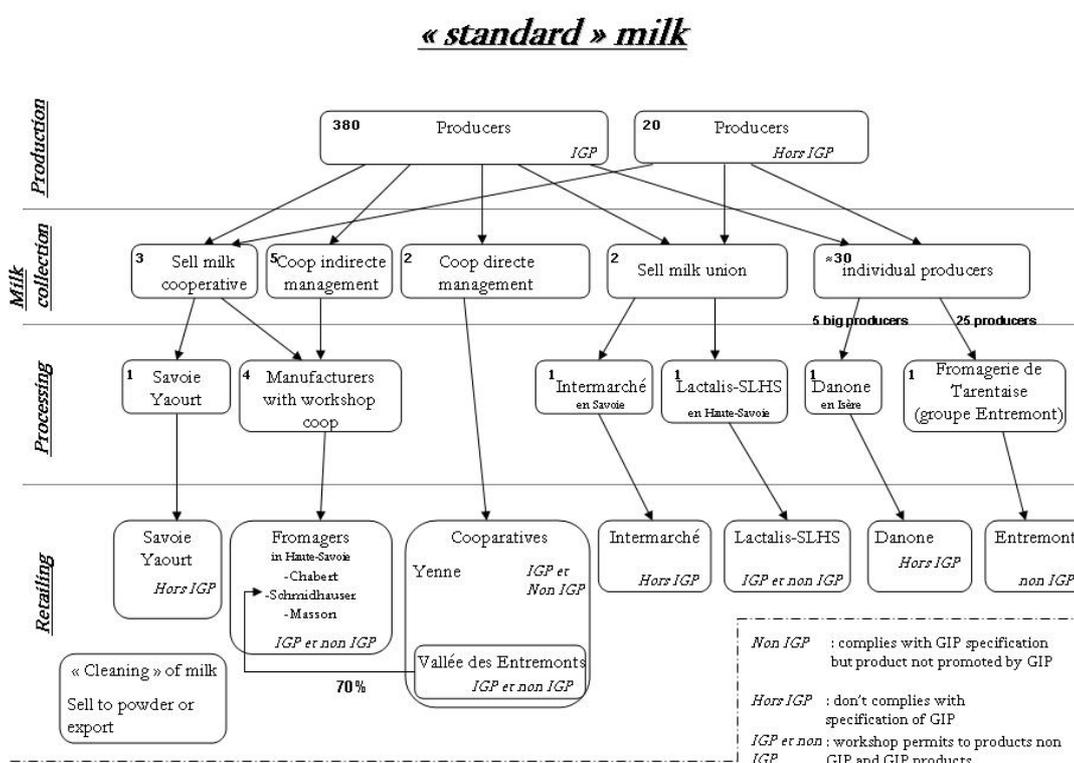
There are three possible scenarios:

- Milk complies with GIP specification but product is not promoted by GIP (Tomme de Savoie and Emmental de Savoie),
- Milk is product in the delimitation of GIP area but it's not complied with GIP specification
- Milk need to be gone out because there are cheese surpluses (milk in AOP areas are concerned too).

3.3.2.2 Agricultural and forestry production actors

One part of producers delivers milk to cooperatives which sells milk. An agreement of 5 years link producers and cooperatives together. The agreement between sale milk union and producers are more flexible because producers can stop it as they want. At the level of processing actors, we can observe the presence of big enterprises as Intermarché (supermarket), Danone, Lactalis and Entremont. They have their workshop in Savoie but their head office is not for all of them in the department.

Figure 72 Actors of standard milk supply chain



This supply chains will evolved with the change of CAP and the disappearing of milk quotas. Farmers who have possibilities to increase their production (herd, land, building, ...) will produce more milk at a lower marginal cost. Then Savoie will probably be confronted with an increase of milk production in the next years. Moreover, the market of surplus milk is rapidly increasing following a lower presence of exporting countries of Oceania and a decreasing of European milk production.

3.3.3 Supply chain 3 – Goat cheese

3.3.3.1 General description

In Savoie several goats' cheeses exist, but the more traditional is the "Tomme de chèvre". Only one goat's cheese has the AOP (le Chevrotin), but a study is carried out to create an AOP for "Tomme de chèvre" cheese. In the past, each farms had some goats and make cheese with the milk. But with the development of dairy cows at the beginning of 20th century the number of goats has decreased by four. About the year 1970, a new age for goat begins with the arrival of new farmers and specialization of some traditional farmers. They choose goats for economic reason. Actually, the investment is five times cheaper than for dairy cows (building, herd, ...).

Goats farms are the more often managed by a couple because they have to do farm, cheese production and retailing. Two types of farms can be met: farms in the valley which have only one farm building and mountain pastures farms which have one building in valley for winter and one in altitude for summer. The first type of farms, closest to cities make lactic cheeses and the second type makes traditional pressed not cooked cheeses (Tomme, Chevrotin, Persillé, Grataron) needing a maturing period.

At the moment, 300 t/year of goat's cheeses are made by 90 producers for about 6,000 goats (Conseil Général, 2007).

In a context of local market which is being saturated farmers try to diversify their products and activities (new kind of cheese, open farms, shops at farms, ...).

Figure 73 Goats in Savoie



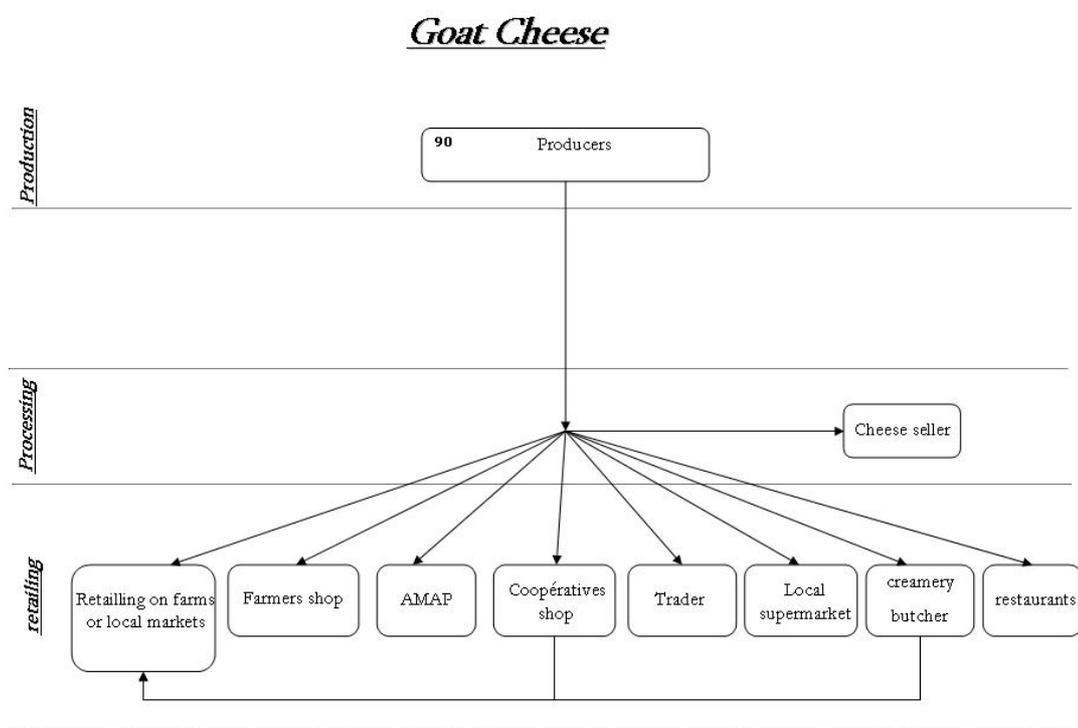
© P. Lamarque

3.3.3.2 Agricultural and forestry production actors

Analysing goat's cheese supply chains is quite simple because it's produced, processed and exclusively sold by farmers (direct selling).

Two opposite attitudes of farmers can be observed. One on hand, where producers are in competition they are looking for diversifying their products, activities and they develop relations with other actors of supply chains or of the region. On the other hand, where the local market is sufficient they continue their traditional and simple practices of processing and marketing.

Figure 74 Goat's cheese supply chain actors



In Figure 74 we can set individual selling (on farms, market, ...) apart from collective selling (farmers shop, AMAP⁹⁸, ...).

⁹⁸ AMAP (Association pour le maintien de l'agriculture paysanne) is a partnership between farmers and consumers. A group of consumers buy in advance a part of the harvest of a farmer. He undertakes for his part to give products of good quality periodically at a fixed and constant prices to consumers.

3.4 Investigating social networks

Regional actors having relationships with actors of supply chains, and the type of relationships as well, are described in this section.

3.4.1 Local government

Description of the stakeholders

Local government include communes, groups of communes having a common project and natural regional parks.

Regional Natural Parks have been created in order to protect and to develop big inhabited rural areas. So they play a favourable role in rural development of the region.

Connections and relationships

The first category of local government actors is having some contacts with farmers especially with farmers exercising direct marketing, because this type of agriculture is interesting in the way of sustainable development and social manifestation (Christmas market, open farm for population of cities). Moreover, agricultural activities (especially livestock farming) maintain and manage open landscapes, leisure's areas and so on. But relationships are sometimes more conflicting. They have some conflicts of interests on subject such as urban sprawl or land use of flat areas.

Regional Natural Parks have relationship with farmers as well as with all whole supply chain actors. They mainly support farmers and local marketing of products in a financial or in a promotion way. For example, they put signposts to inform consumers of direct marketing activities of farms, they participate to the renovation of cooperatives within their territory, they create some activities in partnership with actors of the supply chains, ...

3.4.2 Environmental actors

Description of the actors

Two majors stakeholders involved in environmental management and protection are present in the region. The first one is the National park of Vanoise who contains two areas: the core and the peripheral zone. In the core the purpose is mainly to protect environment, in the peripheral zone the aim is closed to the one of the regional natural parks (welcoming and informing the public, to strengthen local sustainable development). The second is the "Conservatoire du patrimoine naturel de la Savoie" (CPNS), an organisation working to preserve and conserve

biodiversity and natural areas. One of its tasks is to manage biodiversity and patrimonial species on abandoned land by establishing partnerships with farmers (livestock farmers).

Connections and relationships

The National park can in some cases support agriculture, notably for the construction of farm buildings integrated to landscape and respecting traditional forms (wood, roof cover of rock, ...), or in the construction of paths, ... It begins to inform public about the traditional activities of farmers.

The CPNS negotiates and implement agreements with livestock farmers about the use and the environmental management of areas with high nature value. The objective of such agreements is to adapt agricultural practices in order to preserve biodiversity.

3.4.3 Tourism actors

Description of the actors

Several local actors (tourist office, school of skiing) working in tourism are present in Savoie. At regional level two organisations are existing: "agence touristique départementale" et "Savoie Mont Blanc tourisme". The first one works on promotion and development of tourism, the second one common with the department of "Haute-Savoie" works on promotion, communication and marketing of tourist products.

Connections and relationships

Yet, tourist actors at departmental level do not work with agricultural actors, because the communication between them is difficult. The promotion of tourism in Savoie is often based on pictures related to agricultural products and landscapes. On the other hand, cooperatives of farmers, retailers benefit of the tourists presence to sell their products. Despite the existence of some local relations of cooperation between agriculture and tourism, established relationships and concrete projects between agriculture and tourism remain quite weak. This is an emerging issue and we notice that both stakeholders in the fields of tourism and agriculture express a willingness to develop common projects. It's important to specify that tourism stakeholders are specially aware about projects concerning local products and face to face marketing as well as projects concerning tourism services: i.e. on-farm visits, ...

3.4.4 Institutions

Description of the actors

The policies of the regional (region Rhône-Alpes), departmental (department de la Savoie), national and European levels have been specified in the section concerning policy interventions and legislative regulations and laws. These institutions are of major importance according to their support dedicated to different issues in agriculture and rural development.

3.4.5 Agricultural organisations

Description of the actors

Different professional agricultural organisations are existing in Savoie, and the biggest of them is the chamber of agriculture. It gathers representative of agricultural and forestry activities and assumes technical services: extension activities towards farmers, activation of local projects (i.e. collective dynamics for marketing products, common projects with communes and farmers to upkeep abandoned land, ...).

Connections and relationships

These actors have a strong link with farmers and actors of the supply chains by the services proposed. But they play an important function of mediator between agricultural actors and the others actors of the region described above. For example, agricultural chamber assumes a mediation function between Beaufort actors and communes when they have some conflicts. A special organisation of agricultural chamber called "Agripromo" works on the promotion of quality products. Its objective is to give information to the consumers concerning the local products.

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4 GERMANY: BARNIM

4.1 Describing the region

Barnim – a name, a landscape, a region and an administrative district. Barnim is a mountain ridge between the Berlin and Eberswald glacial valleys. The name can be traced back to the Slavic princes of Barnim, and appears for the first time in a document in 1232 – Nova terra nostra Barnim. The region is an old boundary between the Slavs and Ascanians, who migrated to the region, and between East and West. It has been settled since the Stone Age, around 16,000 B.C. Frisians and Flemings, Slavs, Cistercians and Huguenots all came here. Today the name stands for the administrative district in the Land Brandenburg (state of Brandenburg) in the Federal Republic of Germany between Berlin's northeast and the border with Poland. To the north, it borders on the Uckermark administrative district, to the East the River Oder and the Polish Republic, to the South on the Oderbruch, to the Southwest it borders on Berlin, and to the West on the Havelland district.

Map 25 Situation of the state of Brandenburg in Germany



Source: Bundesministerium für Raumordnung 2007

The administrative district of Barnim is 1,495 km² in size and extends from Berlin's outer suburbs and the city of Bernau, which, with the district town of Eberswalde is the district's second urban centre, up to the Polish border and in the north to the Uckermark – one of the most sparsely populated areas in Germany.

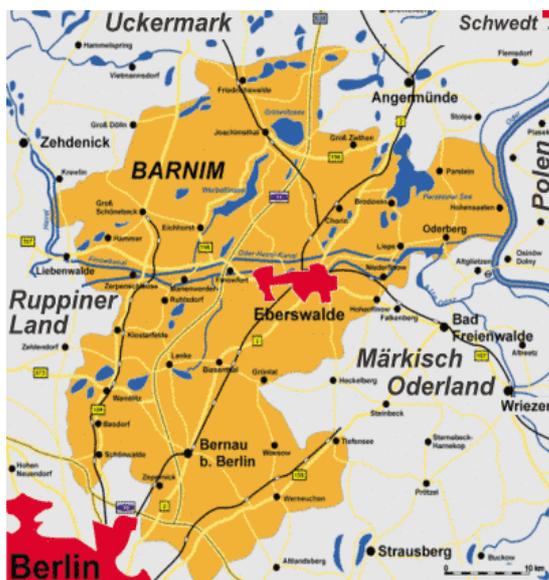
Map 26 Situation of the region in the Land Brandenburg



Source: www.brandenburg.de

Barnim functions as a bridge between the German capital and northern, north-eastern and eastern Europe, so it has very good transport connections. The Berlin-Szczecin highway crosses the district, as do five national highways, connecting it to Berlin and the Baltic Coast.

Map 27 The Barnim region with its transport connections



Source: www.barnim.de

The Berlin-Bernau-Eberswalde-Stralsund and Szczecin railway lines and Germany's oldest man-made waterway, the Oder-Havel-Finow canal, (construction began in 1605) which is also one of Europe's most important waterways, with its inland port at Eberswalde, all pass through Barnim.

Barnim's landscape, rich in contrasts, was shaped by the Ice Age and consists of mainly forest (46.5%) and bodies of water (5.2) %. Many clear lakes, wide forests and fields, and a remarkable diversity of flora and fauna species are found in the region, and this all not far from the German capital. Large areas of the district are subject to nature conservation orders, especially the UNESCO Biosphären-reservat (Biosphere Reserve) Schorf-heide-Chorin.

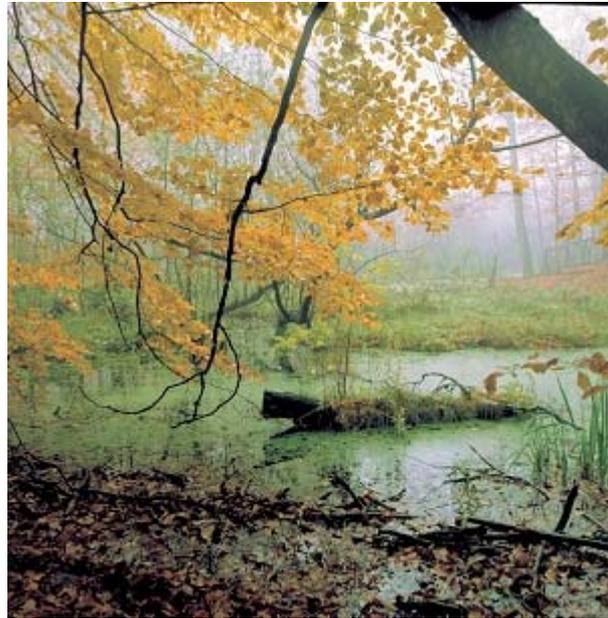


Figure 75 Oder-Havel canal near Eberswalde



Figure 76 View from the BIORAMA viewing tower at Grimmnitzsee



In terms of its geography and economy, Barnim is formed by its integration with Berlin, the Eberswald valley and the surrounding agricultural areas. Barnim is a modern administrative district that provides highly developed infrastructure for its 176,000 inhabitants. The tourism, health care, energy and metal industries comprise the region's economic framework.

The district's agricultural areas are dominated by forestry on the one hand, and by professional intensive agriculture on large farms and developing agro-tourism activities on the other.

4.1.2 European and national context of the region

The region of Barnim, which is administratively defined by the administrative district of Barnim, is a NUTS 3 region in the European context. In the national administrative system, a Landkreis (administrative district) is at the third level of the Federal Republic of Germany's federal system. The administrative district is the representative administrative body for its inhabitants. Legal and financial regulations made by the German Federation and the administrative districts are implemented at this level.

The administrative district of Barnim is divided into 4 self-governing local authorities and 4 local departments, which each consist of several self-governing local authorities. These include the towns of Bernau near Berlin, Werneuchen and the district town of Eberswalde. The district is governed by an elected Kreistag (county council), and by a Kreisverwaltung (county administration) and a freely elected Landrat (district authority), which takes precedence over the county administration.

A Landkreis is an administrative district structure with no special significance in the political/legislative system of the Federal Republic of Germany and Europe. It is the highest self-governing level of citizens and local authorities in Germany. The legislative provisions of the German Federation and Länder (German states) are implemented and controlled at this level.

The Landkreis provides welfare benefits under the terms of the Sozialgesetzbuch (German Social Code), organises local public transport, sets up areas of natural protection and landscape conservation areas and maintains these. It also carries out rubbish removal. It is responsible for rescue services and fire and disaster rescue services, health care services and food monitoring. Its other responsibilities include animal welfare and outbreaks of disease among animals, the issuing of drivers' licenses, truck registration and the construction and maintenance of local roads. It is also the body responsible for vocational schools and schools for children with special needs. The district also carries out land and buildings surveying. In some federal states, these authorities are also responsible for land registration. Such authorities may also undertake responsibility for care, supervision and education of children and young people and be the local building supervisory board.

The German Federation and the state provide the administrative district with a specific budget drawn from taxation. The administrative district can also make autonomous financial decisions in some areas.

In contrast to many other administrative districts in eastern Germany, Barnim is debt-free and not restricted in its financial autonomy. This circumstance is due in particular to its proximity to Berlin and to a very strict and economical financial administration in the years of transformation after 1990.

The district borders on the city-state of Berlin with its 3 mio inhabitants to the northeast, so the north-eastern and eastern part of the region profit greatly from the capital's developing outer suburbs due to the people from Berlin moving there and from the resulting evolving economic activities.

Barnim is a traditional recreation area for the inhabitants of Berlin. Over 50% of the district consists of forests and waterways and its two large nature protection areas (the Biosphere Schorfheide-Chorin and Naturpark Barnim) provide very good preconditions for establishing connections between nature protection, agro-tourism and the maintenance of the cultivated landscape through agriculture. The region is also characterised by its centuries of history at the centre of the March of

Brandenburg. This history can still be seen today in the area's many manor houses and large farmhouses that once belonged to wealthy farmers. Attempts are being made to preserve this heritage and use it for the purposes of tourism. The Kloster Chorin (Chorin Abbey) (1273) is one of the area's special attractions.

The district also has good access to international transport through its good transport connections to Berlin. Berlin-Tegel international airport is on the eastern edge of the district and can be reached in 1.5 h (90 km). There is also a small regional airport in Eberswalde used mainly for tourism and as an airport for hobby pilots.

The district town of Eberswalde, with its 41,000 inhabitants, is in the middle of the administrative district. This is the district's administrative centre and with its forestry and agricultural technical college, founded in 1830, also one of the Land Brandenburg's major educational centres. The two other towns in the district, Bernau and Werneuchen, have both traditionally played host to military facilities. Over 20,000 Russian soldiers were stationed in the region until German reunification. Both towns have been partly able to compensate for the loss of the military by their proximity to Berlin (with people moving from Berlin into the surrounding areas), but a considerable transformation process has occurred as a result of the loss of the workforce that was associated with the military.

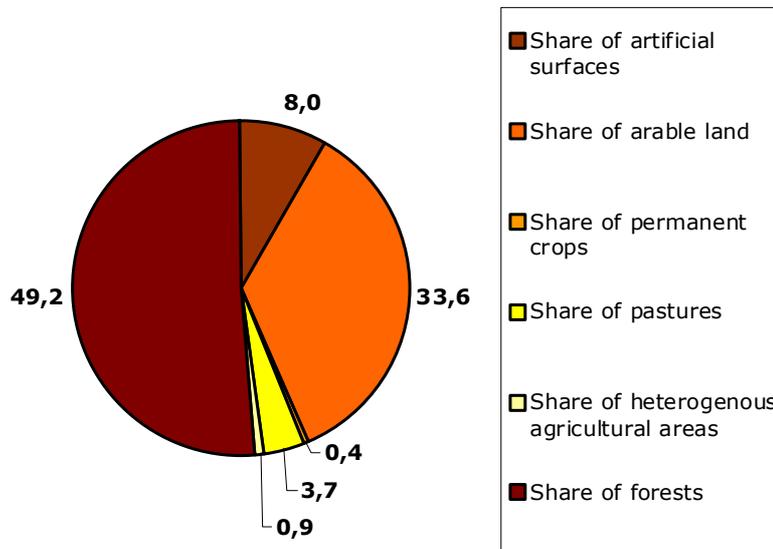
4.1.2.1 Spatial structures

Statistical profile

Barnim extends over an area of 1,494.4 km², which is widely covered by forests and farmland. A small share (8.0%) of the territory is covered by artificial surfaces such as buildings, roads, tracks and other infrastructure. Eurostat 1986-1996)

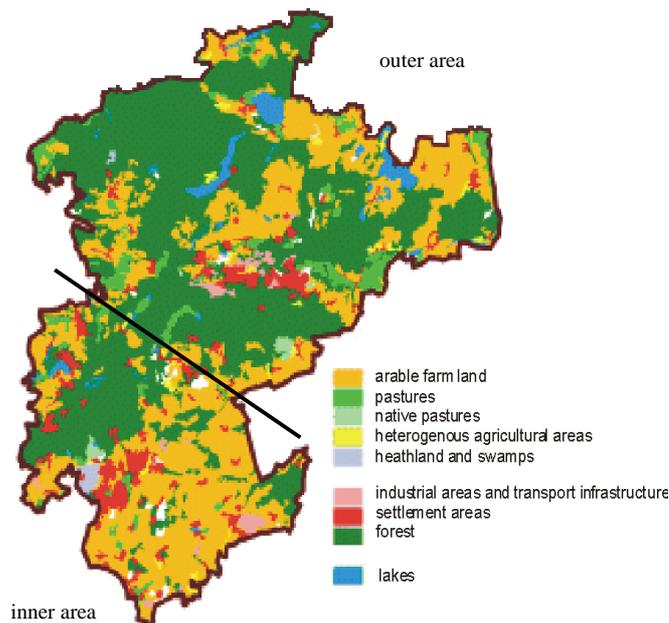
Basically there are two dominant surfaces in Barnim. Forest that is under environmental protection or used as a primary industry resource predominates (49.2%). The other dominant type of surface is farmland, which can be divided into arable land (33.6%), pasture (3.7%), heterogeneous agricultural area (0.9%), and permanent crop land (0.4%). (Eurostat 1986-1996)

Figure 77 Spatial structure



Source: Eurostat 1986-96

Figure 78 Spatial structure of Barnim



Woods extend across the regions northern, western and central areas. Only a few settlements surrounded by farmland break up this forest coverage.

The regions largest town, Eberswalde with its industrial area, is in the centre of the region, with another large town, Bernau, close to Berlin in the southwest.

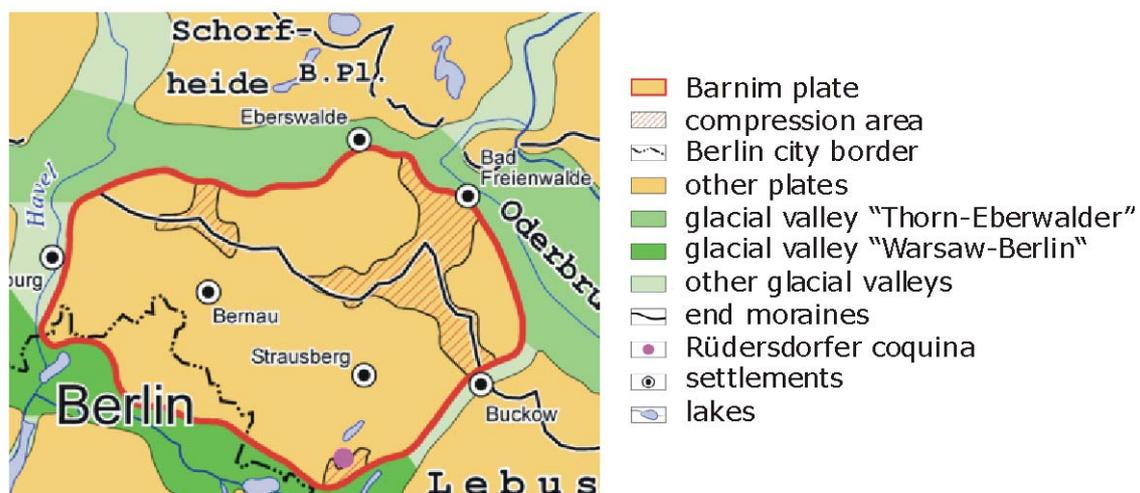
Farmland covers almost the whole of the regions southwest with larger agricultural areas in the northeast.

In further discussing regional economic and social topics, it will be necessary to distinguish between the inner area close to Berlin and the outer area or northeastern part of Barnim. These areas have different structures and developments.

Regional focus

The topography of Barnim was shaped mainly by glacial and periglacial processes, especially by the Saaleglacial (230,000-130,000 years ago) and the Weichselglacial (115,000-10,000 years ago) processes. Ground moraines and glacial valleys formed two plates, whose surfaces were modified by compressions and drain offs during warm periods. Rolling hills up to a height of 100 m and strong relief in compression areas characterise the landscape on the plates. Large areas of sand – even dunes – and swamps dominate the floodplains of the glacial valleys.

Figure 79 Geological structure



Due to the areas geomorphologic genesis, the most common base material is boulder clay. Different soil types can be found, which have developed out of the boulder clay conditions. (ZALF 2000)

Two large biological reserves, the "Biosphärenreservat Schorfheide-Chorin" (Biosphere Reserve Schorfheide-Chorin) and "Naturpark Barnim" (Barnim Nature Park) were founded in the 90s and cover approximately two thirds of Barnim, giving rise to land use conflicts between economic use and the protection of nature. Land use conflicts also occur at the fringes of settlements where residential and industrial suburbanisation meets agricultural use.

With distances to Berlin decreasing, prices for building land are going up. The average price for building land in the period of 1995-2003 varied from EUR 25 per

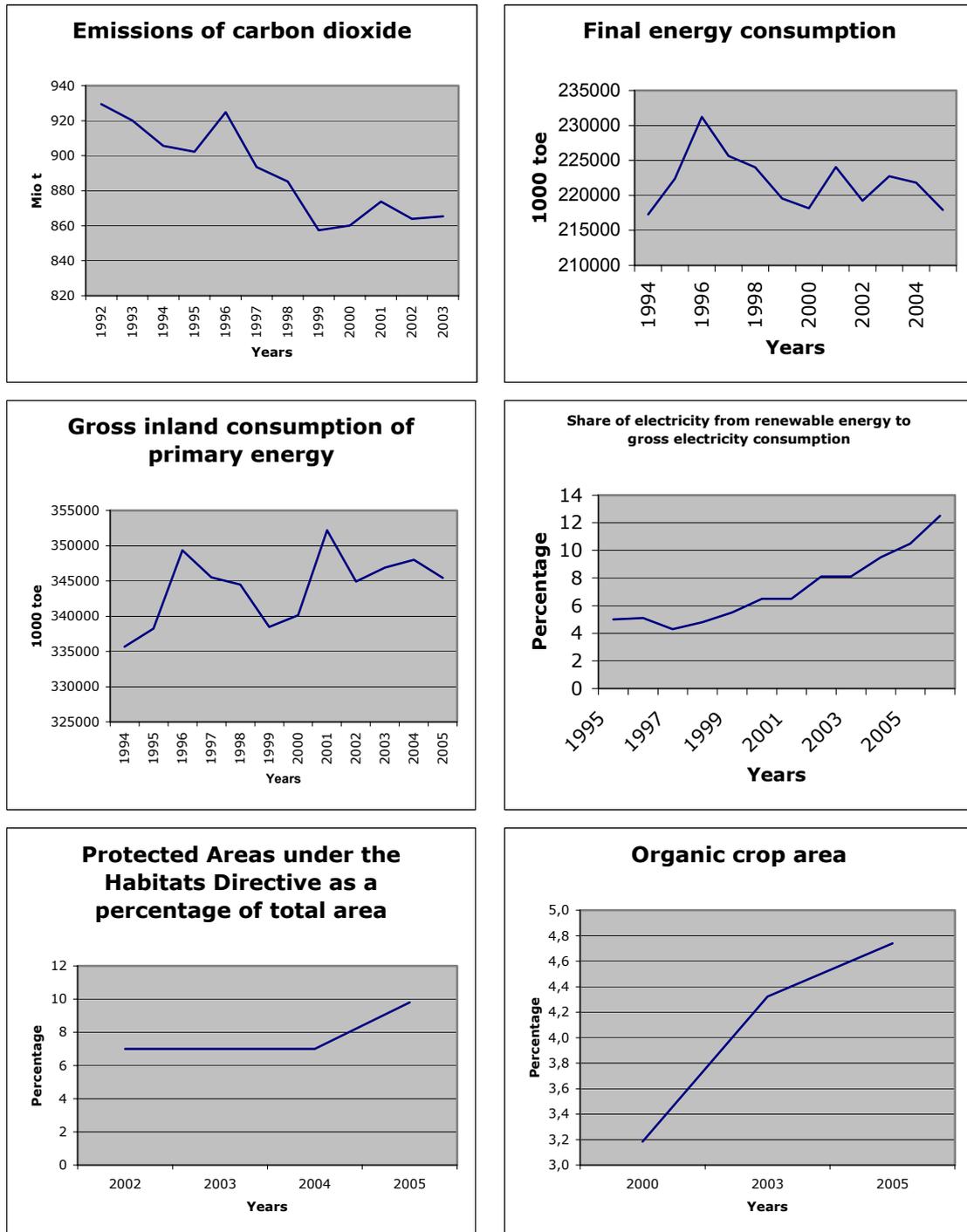
m² (northern Barnim) to EUR 85 per m² (outskirts of Berlin). In 2003, the average price for arable land was EUR 0.31 per m² and for pasture EUR 0.20 per m² (Ministerium des Inneren 2003). The changes in prices are not consistent in value and across the region! While prices for agricultural land and forest continue to increase slightly, real estate market reports indicate that in 65% of cases, the standard land value of building land has not changed. In 14% of cases, values increased and in 24% of cases values decreased. A regional pattern can therefore not be identified. Growth and decline has occurred randomly and sometimes in adjoining areas. It is expected that the inconsistent price development will continue in future (Ministerium des Inneren 2003).

The differences between the northern and southern parts of the region will also increase in future. Suburbanisation will continue in the south and settled areas will expand, while agricultural land area will decrease. This process will be strongest on the outskirts of Berlin and Bernau. Renaturalisation will be a big issue in the northern part of Barnim. The coexistence of agriculture, forestry and environmental protection will also be improved.

4.1.2.2 Environmental Protection

Statistical profile

The following data refers to the whole area of Germany:



Source: Eurostat

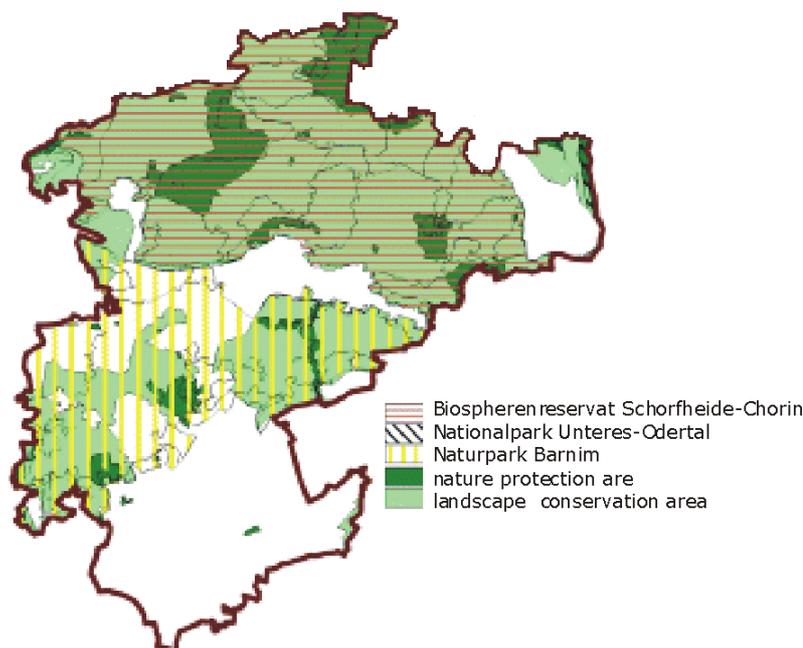
The graphs above show significant environmental protection trends. The most important of these is the constant decline of carbon dioxide emissions by approximately 7% over the past 10 years. Energy consumption is stable at around 220 mio toe with an outlier in 1996 of 230 mio toe. The gross inland consumption of primary energy shows a constant increase to 340 mio toe in 2005, which is the latest value available. The proportion of renewable energy of overall electricity production was disproportionately high, increasing from a starting value of around 4% in 1997 to more than 10% in 2005. The proportion forecast for 2010 is over 12%. The proportion of protected areas under Habitat Directives of the total area was 7% between 2002 and 2004, with an increase to almost 10% in 2005. The proportion of land under organic crops increased from 3.2% in 2000 to 4.7% in 2005.

Regional focus

There is remarkable biodiversity in Barnim because of its geomorphologic background and extensive environmental protection, which is a key issue for Barnim's regional planning. As mentioned in the previous topic, two thirds of Barnim is covered by the biological reserves "Biosphärenreservat Schorfheide-Chorin" (Biosphere Reserve Schorfheide-Chorin) and "Naturpark Barnim" (Barnim Nature Park). Both are combinations of environmental protection areas and landscape conservation areas. Legally, the areas come under the "Naturparkgesetz" (nature park law) and the "Biosphärenreservatgesetz" (biosphere law). The ILEK (integrated rural development concept) and GLES (the area orientated development strategy) also include the special needs of the two conservation areas.

The UNESCO-certified "Biosphärenreservat Schorfheide-Chorin" (Biosphere Reserve Schorfheide-Chorin) was founded in the northern part of Barnim in 1990. Covering 129,161 ha, the reserve is one of the largest environmental protection areas in Germany. It has about 240 lakes and thousands of swamps. Population density is low but agriculture is included in the reserve's development strategy. At the same time, the low population density allows many animals and plants in danger of extinction to find sanctuary. (MLUV 2007)

Map 28 Environmental protection in Barnim



The "Naturpark Barnim" (Barnim Nature Park), which was founded 1999 and is in the southwest part of Barnim, combines a variety of natural features including woods, lakes, swamps, heathlands and dunes. The aim is to protect, conserve and develop the cultivated landscape, cultural heritage and nature all together. The park is 55% woods and has 2,000 ha of lakes. More than 50,000 ha of the park are protected under German environmental protection law. The park allows for eco-friendly tourism and provides several locations for environmental education. (Naturpark Barnim 2007)

Water quality is generally good and the lakes and swamps are inhabited by many different species, but chemical runoff from agricultural fertilisers may endanger this balance at peak times. There is a particular risk of fertiliser leaching into the groundwater in areas with only a thin layer of soil with little filtering function above the groundwater. Drinking water quality is however generally very high because plants on the protected sites convey deeply stored groundwater. (ZALF 2000)

Environmental protection is a key issue for Barnim's economy and is well supported by policy. Environmental protection is forecast to become more important in future, especially for the Biosphere Reserve and the Nature Park, which will be the main focuses for nature/agro tourism and education about nature. Restrictions and requirements are also set to become stricter in order to maintain the natural beauty of these protected areas and improve the natural conditions in other areas.

4.1.2.3 Preconditions for Agriculture

Statistical profile

Table 91 Fires, flood and drought

Size of burnt are in km ² , 2000	0
Number of areas > 500 km ² , 2000	0
Population density in 1999	2
Degree of vulnerability from floods,1999-2000	2
Regional number of flood hazards, 1996-2002	1
Regional flood hazard potential, 1996-2002	0
Number of large scale droughts, 1904-1995	7

Source: Eurostat

As the table shows, Barnim is fairly safe from fire, flood and drought. Only one flood hazard was recorded in the years from 1996 to 2002 and there were only 7 large-scale droughts between 1904 and 1995. The number of extreme weather situations has increased since 2000 due to climate change. Barnim was hit by drought in 2003, 2005, and 2006, whereas in 2007 rainfall exceeded 800 ml/m².

Regional focus

Regarding Barnim's climate, the region is situated in the transitional zone from the oceanic climate of Western Europe to the continental climate of Eastern Europe. Barnim has four seasons; spring, summer, autumn and winter, which is demonstrated by the average temperature of the seasons. The meteorological station of the "Fachhochschule Eberswalde" (Eberswalde College) has published the following figures:

Table 92 Mean Temperature (°C)

Year	Spring (MAR-MAY)	Summer (JUN-AUG)	Autumn (SEP-NOV)	Winter (DEC-FEB)
8.4	8.1	17.1	8.5	-0.1

Source: FH Eberswalde 2007

Table 93 Rainfall, Frost, Snowfall

Average Rainfall	Average Rainfall in the growing season (APR-SEP)	Days with frost per year (mean)	Days with snowfall per year (mean)
572 mm	325 mm	96	26

Source: FH Eberswalde 2007

Soil types are highly connected to the area's geomorphologic genesis. Being shaped under glacial influences, the moraine plates consist of heavy boulder clay. The knolls are eroded luvisols and para-rendzinas. Soil types on slopes are luvisols in transformation to similigleys. Outwash plains are in the glacial valleys and drain has formed terraces of sand. (ZALF 2000)

Barnims spatial structure shows a high proportion of woods and farmland. The most common tree is the pine, but populations of oaks, beeches and alders can also be found. There are sand formations in the heath land and rare types of sedges and many different sorts of orchids grow in the swamps. (MLUV 2007)

Future developments

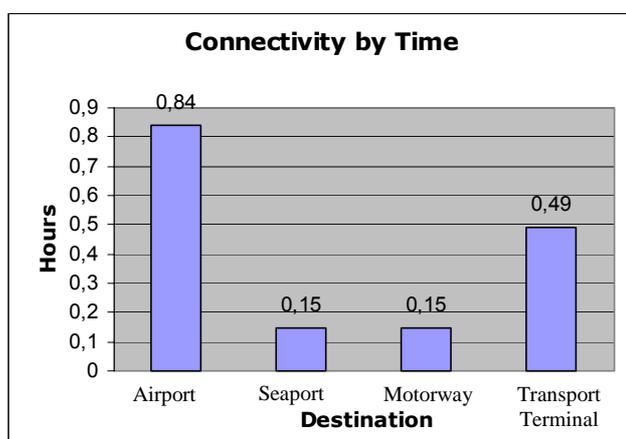
An increase in temperature of around 4 degrees Celsius is expected by 2055. The number of days with frost and snowfall will decline to 20% within the next 50 years. Average rainfall will be less than 450 mm a year. Rainfall will increase in winter and decrease in summer and extreme weather events will occur more frequently. In conclusion, agricultural production will face a less predictable environment and crop failure rates will increase due to these extreme events. (Potsdam Institute for climate impact research 2003)

4.1.2.4 Preconditions for rural development

Statistical profile

Examining transport connectivity in hours, the chart shows a connectivity of 0.84 h to the airport, 0.15 h to the seaport, 0.15 h to the motorway and 0.49 h to the transport terminal (Eurostat 2001).

Figure 80 Connectivity by time

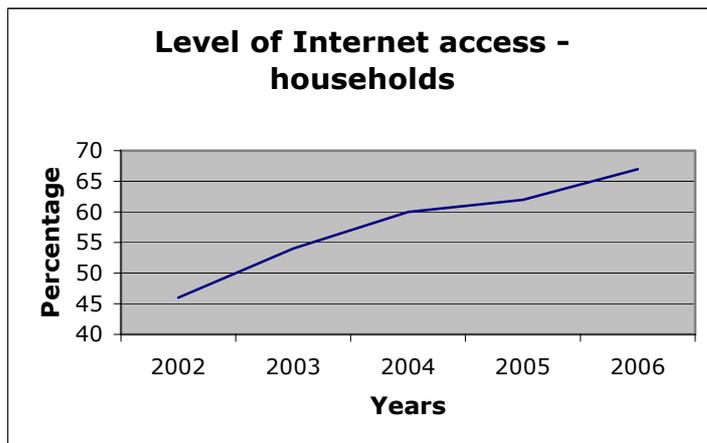


Source: Eurostat 2001

In comparison to the other regions surveyed by ESPON (= 100), potential accessibility by air is 123 and by rail 117. This means that potential accessibility by air and rail is higher than in the standard mean region. (Eurostat 2001)

Household Internet access has constantly increased in recent years. In 2002, around 45% of all German households had access to the Internet, with an increase of 50% recorded between 2002 and 2006. More than 65% of all households were connected to the Internet.

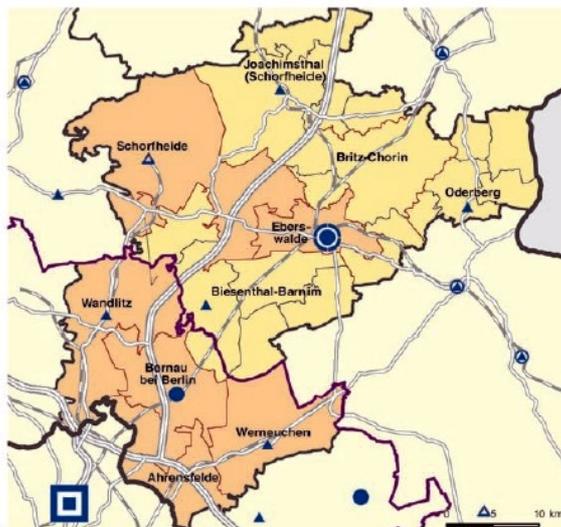
Figure 81 Level of Internet access



Source: Eurostat

Regional focus

Figure 82 Transport network in Barnim



Source: LBV 2006

The region of Barnim is accessible by car, train, ship and plane. The A11 motorway runs through Barnim in a north-south direction. federal roads connect all the larger towns (the B2, B109, B158, B167, B198, and B273). State roads complete the road network.

Inter City trains stop at Eberswalde and Bernau and there are frequent regional trains to local stations. A total of 4 regional train lines connect the region to the Inter City service and to Berlin.

The Oder-Havel canal crosses the region in an east-west direction, connecting Barnim with Berlin and the Oder river, from where the international ports of Szczecin and the Baltic Sea can be reached. Eberswalde has its own local port.

Close to the motorway and approximately 5 km west of Eberswalde is Eberswalde-Finow (EDAV) regional airport, servicing small jets and propeller aircraft.

The central water supply and wastewater disposal organisation "Zweckverband für Wasserversorgung und Abwasserentsorgung Eberswalde" has 49 wheels, 5 pressure-boosting stations, 13 waterworks and a 544 km network of drinking water pipes. For waste water disposal, the organisation runs 6 sewage treatment plants, 148 pumping stations, 6 stations for receiving sewage and a network of 458 km sewage pipes. Altogether, the organisation supplies 99.39% of the population's fresh water and disposes of 81.7% of the sewage of Barnim's population.

Legal authority for waste disposal lies with a board of the "Bodenschutzamt" (Department for Land Protection), Barnim Council. It owns the 2 recycling plants in Eberswalde and Bernau and the dumpsite in Eberswalde. A contracted company, "Die Gesellschaft für Abfallwirtschaft Barnim mbH (GAB)" manages waste disposal by registering households and invoicing and contracting waste removal companies.

Pursuant to the state's obligations, all types of primary and secondary schools are offered in Barnim. There are also a large number of kindergardens.

Table 94 School infrastructure in Barnim

School type	Primary schools	Comprehensive schools	Secondary schools	Grammar schools	Special schools
Number	26	2	13	8	5

Source: Landesbetrieb für Datenverarbeitung und Statistik Brandenburg 2005

The "Fachhochschule Eberswalde" (Eberswalde College) is a tertiary college with 4 faculties: forestry and environment, land use and environmental protection, engineering (timber), and business administration. Approximately 1,500 students study in 15 bachelor and masters courses. (FH Eberswalde 2007) The people of Barnim have access to 5 libraries and 8 smaller branch libraries, which have a total of 241,362 media units (Landesbetrieb für Datenverarbeitung und Statistik Brandenburg 2005).

Barnim's health care centre is Eberswalde, with its two hospitals. The large "Werner-Forßmann-Krankenhaus" hospital, which has 450 beds, offers all kinds of treatments. 250 beds are also available in the "Martin Gropius Krankenhaus", which specialises in psychiatry. There are three more hospitals in Bernau. The largest of these is the "Evangelisch-Freikirchliches Krankenhaus" with 253 beds and a large range of services, specialising in heart surgery. The Brandenburg Klinik GmbH & Co. KG BKB with its 56 beds focuses on neurology, and the "Hoffnungstaler Anstalt", including the "Epilepsieklinik Tabor" with 50 beds, specialises in treating epilepsy, as well as offering 2,700 places for assisted living in the region. (KLINIKEN.DE 2007). Another important hospital is the "Brandenburg Klinik" in the town of Wandlitz with 40 beds. It is a rehabilitation center. There are a total of 608 doctors, of whom 363 are employed by the hospitals and 216 working independently. 29 doctors are in general practice. There are 119 dentists, of whom 5 are oral surgery experts. The independent doctor's surgeries are located as follows; 68 in Eberswalde, 62 in Bernau and 19 in Wandlitz. (Landesbetrieb für Datenverarbeitung und Statistik Brandenburg 2005)

Barnim gets most of its energy supply from large energy producers outside the region, but the renewable energy use is also important. Following the EU law of 01/08/2004, which requires the production of 12.5% of energy used through regional renewable energies by 2010 and 20% by 2020, Barnim supports the renewable energy resources of wind power, solar energy, and energy from biomass and water power. The Landkreis has set itself the ambitious goal of covering 20% of its energy requirements from renewable energy sources by 2015. To achieve this goal, a combined heat and power station (energy resource wood chips) has been built in Eberswalde, public buildings are being progressively equipped with modern insulation and other technology to increase energy efficiency, and private households can receive funding (low-interest loans and subsidies) to help them implement these goals (for heating, insulation, etc.)

In discussing the development of preconditions for rural development, Barnim must again be divided into north and south. The north will experience fewer infrastructure investments by public and private companies such as railways, resulting in a risk of inadequate accessibility and generally impacting accessibility in remote areas. Even though the city of Eberswalde is the administrative centre of Barnim and hosts a university, an airport and several hospitals, it will become less important as a centre for Barnim. On the other hand, the southern region will become more important because most of the private investment will be made here. Public infrastructure will be improved to attract more private investment and households to move to the region, so Bernau will experience an investment boom.

4.1.3 Rural Economy

4.1.3.1 Regional performance

Statistical profile

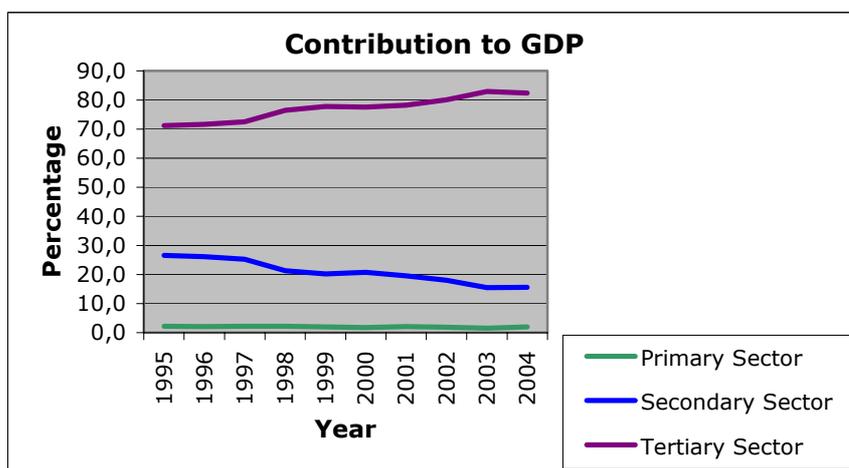
Looking at the graph showing GDP, a continuous positive development over the past ten years can be seen, the only exception being 1997 with a decrease. GDP increased by 40% from 1,800 mio PPS to 2,500 mio PPS.

Figure 83 GDP at current market prices



Source: Landesbetrieb für Datenverarbeitung und Statistik Brandenburg 2005

Figure 84 Contribution to GDP



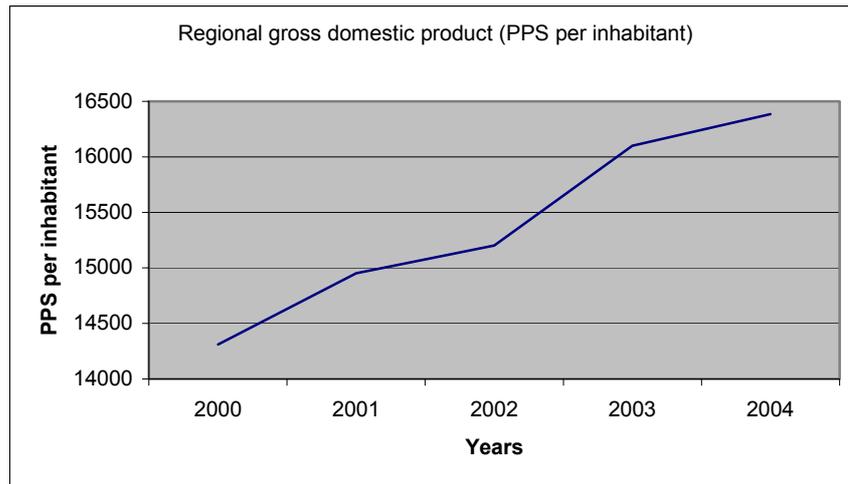
Source: Landesbetrieb für Datenverarbeitung und Statistik Brandenburg 2005

The contributions of the primary, secondary and tertiary sectors reflect the regions development into a modern society and its de-industrialisation after reunification. The contribution of the primary sector is stable at 2%. De-industrialisation and the tertiarisation can be identified through the mirror-like trend of the graphs for the secondary and tertiary sectors. While the contribution of the secondary sector

decreased from 26.6% to 15.5%, the contribution of the tertiary sector increased from 71.2% to 82.4% from 1995 to 2004.

Regional gross domestic product for northeast Brandenburg increased constantly from around 14,250 PPS per inhabitant in 2000 to almost 16,500 PPS per inhabitant in 2004

Figure 85 Regional GDP



Source: Eurostat

Regional focus

The German Federal Government determines the general conditions for banking, finance and tax. The only taxes under the control of the municipalities are excise tax and the local tax. The assessment rate for excise tax varies from 200 to 350% and for the local tax it varies from 200 to 400%. (Landesbetrieb für Datenverarbeitung und Statistik 2006)

Four taxes are important for doing business in the region and for Barnim's income: value-added tax, income tax, local tax and excise tax. The value-added tax rate was increased from 16% to 19% in 2007. Income tax and excise tax depend on the earnings of the company or individual. The other two types of tax have been discussed above.

Both public organisations and private enterprises participate in the banking system. Public organisations control financial policy, monitor and protect the stability of Germany's financial markets, and provide securities and loans for enterprise investment. The private banks operate in the area of money transfers, loans, private investment, stock markets, real estate and insurance. Interest on loans and for capital investment is around 4.5% on average.

As a rural area in the eastern part of Germany, Barnim profits from the solidarity surcharge and federal "Aufbau Ost" (Build up the East) programme, an initiative of

the German government that started in 1990. The government allocated a budget of EUR 156 bn for "Aufbau Ost" for the period from 2005 to 2019. These are instruments designed to reduce the economic disparities between the eastern and western parts of Germany – especially in terms of infrastructure – and to meet the expenses of integrating former East German regions into the Federal State of Germany.

Finally, the federal state of Brandenburg provides grants to each county and offers subsidies from European (EAGGF, ESF and similar), federal and government budgets for starting up or doing business in the region in the fields of innovation, research and development, and renewable energies, for example.

In conclusion, Barnim derives its budget from three sources:

1. taxes and fees
2. federal government grants
3. European union, national and state funds

Barnim is free of debt, but experts forecast a decrease of 20% in Barnim's budget in future due to shrinking income sources.

Average household income was EUR 2,953 before tax and EUR 2,388 after tax in 2003. The largest proportion of this was income from employment (EUR 1,525) followed by public transfer payments (EUR 976) such as housing and child benefits. A smaller proportion of income was derived from independent personal services (EUR 107), income from assets (EUR 237) and income from non-public transfer payments (EUR 106). There no significant developments between 1998 and 2003, with household income after tax increasing by EUR 20 per year on average. An alarming fact is however revealed in changes to income composition. In 2003, income from employment and independent work was EUR 60 lower than in 1998. At the same time, income from public and non-public transfer payments increased by EUR 200. The increase in total household income came from an increase in transfer payments, not from higher salaries! This trend is also expected to continue in future. (Landesbetrieb für Datenverarbeitung und Statistik Brandenburg 2005)

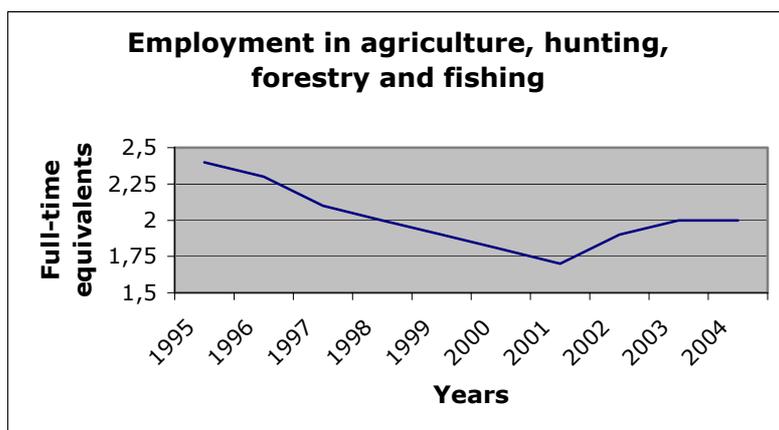
The primary sectors contribution to GDP will not change because of the completed transformation from large state farms to smaller private farms, but economic change in the industry and service sector is not yet complete. The industrial sectors contribution to GDP will increase until stability is reached. On the other hand, investments such as those in health infrastructure are made mainly in the service sector, which profits from its proximity to Berlin, so the service sectors proportional contribution to GDP is set to increase.

4.1.3.2 Structure of agriculture

Statistical focus

Full-time employment equivalents in agriculture, hunting, forestry and fishing for Brandenburg show modernisation towards competitive companies following reunification. The employment rate initially decreased until 2001 to less than 1.75 full-time equivalents. After that, companies started to employ more workers so the full-time equivalent is now increasing again. In 2004, it was at 2.0.

Figure 86 Employment in agriculture, hunting, forestry and fishing



Source: Eurostat

The table below shows the change in agricultural land use in Brandenburg. The proportion of arable land decreased from over 78% to below 78%, while the proportion of permanent pasture increased from 21% to 22%. The proportion of permanent crops did not change, staying at 0.4%. The only proportion that increased significantly through all the years is woodlands, increasing from 1.2% to 3%. This increase in woodland cultivation is a consequence of a program started in 1994 to reforest and change forest structures (more deciduous trees, less spruces) in the state of Brandenburg.

Table 95 Agricultural land use in Brandenburg

	1993	1995	1997	2000	2003
Share of arable land	78.5	78.1	77.6	77.7	77.6
Share of permanent grassland	21.0	21.4	22	21.9	22
Share of permanent crops	0.4	0.4	0.4	0.4	0.4
Share of woodland	1.2	1.5	1.7	2.5	3.0

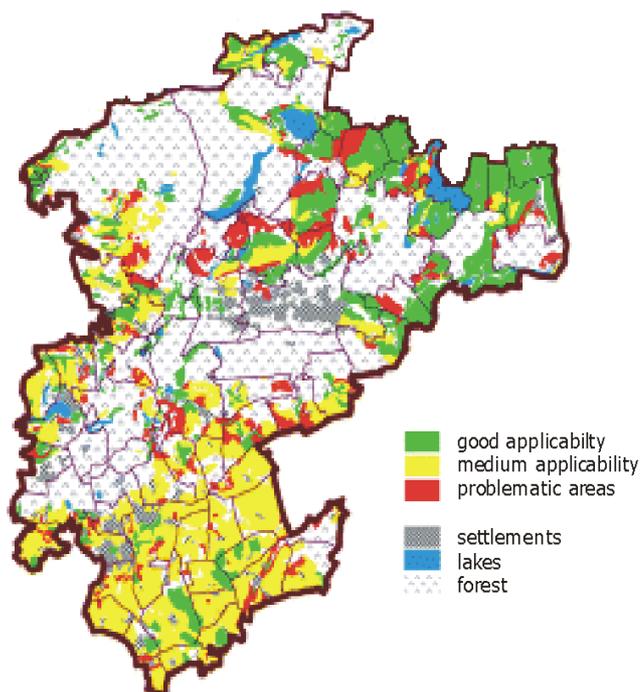
Source: Eurostat

Business in industries other than agriculture was carried out by 19.4% of all farms in 2003 and by 22.5% of farms in 2005, indicating the high levels of diversity in the modern farmers areas of business. (Eurostat)

Regional report

Land reform in the 1950s forced East German farmers to form large cooperatives and give up their land, livestock and equipment. After reunification, and facing a new economical challenge, the cooperatives needed to be transformed to be competitive. Some cooperatives closed, while others became successful.

Figure 87 Applicability for agriculture in Barnim



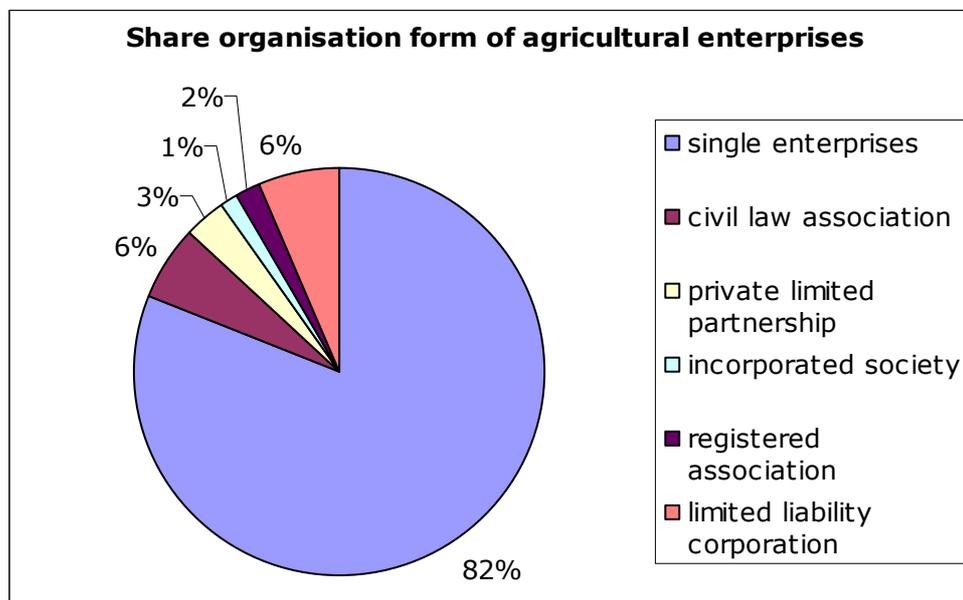
Source: ZALF e.V. 2000, modified

As described in the section on the preconditions for agriculture, successful farming is possible in Barnim. Barnim generally has poor soil quality. The German soil quality index rates Barnim's soils at an average of 35 out of 100 points. Almost half of the council area is covered by forest, so there are only a few larger agricultural areas. A total area of 49,960 ha was used for agricultural production in 2005. The main proportion of this was arable land, at 41,255 ha, followed by 8,526 ha of pasture and 55 ha used for fruit growing. Approximately half the agricultural land is in the south, but the map to the left shows that this land has only a medium level of suitability for agricultural production. The area to the west, which is around one sixth of the farming land, also has mainly only a medium level of suitability for farming. The other two sixths to the northeast are the best land for farming and are mainly rated as being well suited for farming. Crop yield per hectare is only half that of the most fertile farms in other areas of Germany. (Landesbetrieb für Datenverarbeitung und Statistik 2005)

Altogether, 285 farms were recorded in Barnim in 2005. 16 of these or 8.6% of the total number of farms offer apprenticeships for becoming a farmer. Most of them –

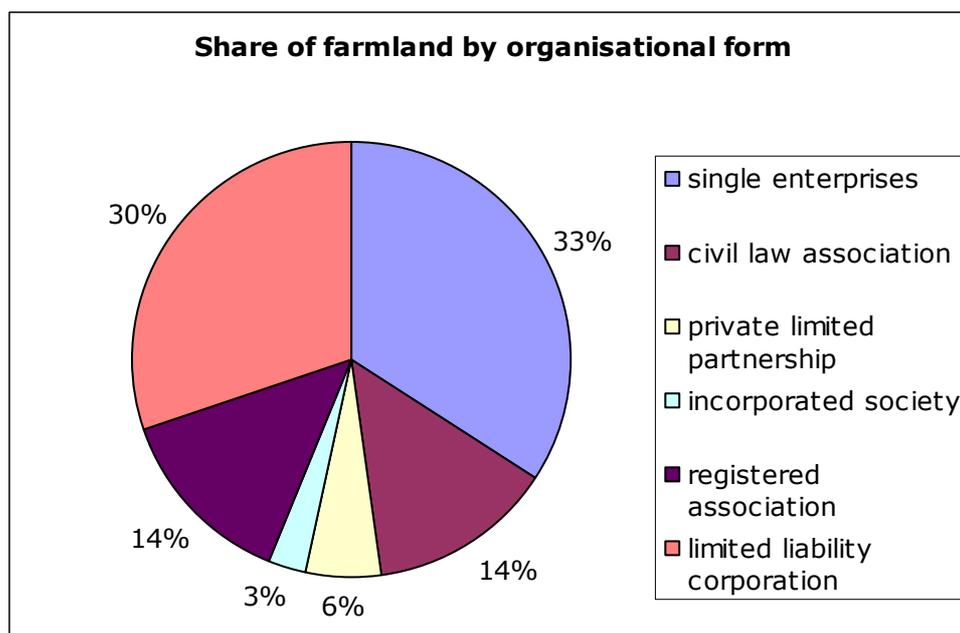
231 or 81% of all farms – are individual enterprises with only a few hectares of land. The farmer's family usually runs the farm and no workers are employed. 9% of the farms are private companies and 9% of farms have the status of a legal entity. The most common organisational type for such farms is a limited liability corporation with 6% of all farms of this type. At just a few percentage points less are the civil law association type of farms, at 6%. 3% are registered associations, 2% are private limited partnerships, and 1% of farms are incorporated societies. Single enterprises are not only the most common organisational form for farms; they also own the largest share of farmland, at 33%. Limited liability corporations hold the second largest share, with 30% of land, with the figure for civil law associations and registered associations at 14%. Finally, private limited partnerships hold 6% and incorporated societies hold 3% of the farmland. (Landesbetrieb für Datenverarbeitung und Statistik 2005, own calculation)

Figure 88 Share organisation form of agricultural enterprises



Source: Landesbetrieb für Datenverarbeitung und Statistik 2005, own calculation

Figure 89 Share of farmland by organisational form



Source: Landesbetrieb für Datenverarbeitung und Statistik 2005, own calculation

Average farm size changed from 182 ha in 1999 to 173 ha in 2001 and 2003. In 2005, average farm size was 175 ha. Barnim is dominated by mainly small farms. 71.9% of all farms had less than 100 ha of land. Most farms (23.9%) had between 2 and 10 ha of land and only 5.3% of the farms had more than 1,000 ha of land. (Landesbetrieb für Datenverarbeitung und Statistik 2005, own calculation)

Table 96 Farm sizes in Barnim

Hectares	< 2	2 - 10	10 - 20	20 - 50	50 - 100	100 - 200	200 - 500	500 - 1,000	> 1,000
# of farms	0	68	39	49	23	31	34	0	15
% of farms	0.0	23.9	13.7	17.2	8.1	10.9	11.9	0.0	5.3

Source: Landesbetrieb für Datenverarbeitung und Statistik 2005

Regional employment in agriculture

The seasonal work and part-time employment in the agricultural sector is being demonstrated by the numbers for the full-time equivalents and for employed persons for 2005. The total full-time-equivalent per 100 ha was 1.7; and the number for persons per 100 ha was 2.9 in Barnim. While more work was done in legal entities (full-time-equivalent: 54.9%) than in natural persons (full-time-equivalent: 45.1%), less persons were employed in legal entities (42.3%) than in natural persons (57.7%). Especially in single enterprises the number of people employed part-time was very high (full-time-equivalent: 26.6% of 100, employed persons: 38.7% of 100). Natural persons with averages for the full-time-equivalent of 1.8 and 4.1 employed persons per 100 ha had a two times higher ratio than legal

entities with an average for the full-time-equivalent of 1.6 and 2.1 employed persons per 100 ha. In conclusion, smaller companies employed more part-time worker doing almost the same amount of work (full-time-equivalent per 100 ha – legal entities: 1.6, natural persons: 1.8) than larger companies. (Landesamt für Verbraucherschutz; Landwirtschaft und Flurneuordnung 2005)

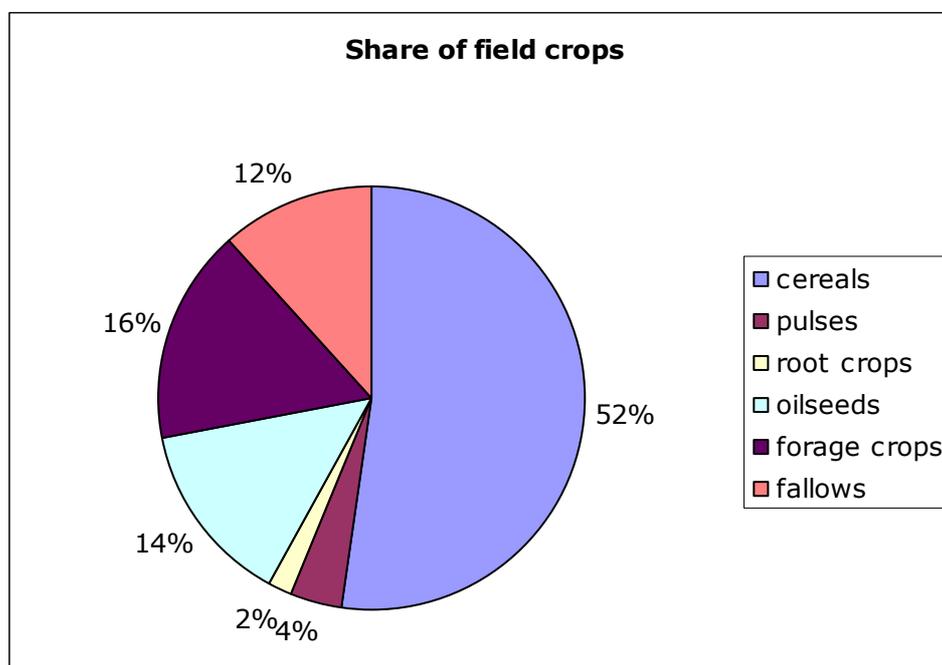
Table 97 Employment in Barnim agriculture

	full-time-equivalent in %	Persons in %	full-time-equivalent per 100 ha	Persons per 100 ha
total	100.0	100.0	1.7	2.9
legal entities	54.9	42.3	1.6	2.1
natural persons	45.1	57.7	1.8	4.1
- single enterprises	26.6	38.7	1.8	4.7
- business partnerships	18.5	19.0	1.8	3.2

Source: Landesamt für Verbraucherschutz; Landwirtschaft und Flurneuordnung 2005

The dominant field crop is cereals, which are grown on 52% of the agricultural crop land in Barnim, followed by forage crops, with a share of 16%. Oilseed covers around 14% of the agricultural cropland. Fallows take up 12% of the land, while pulses at 4% and root crops at 2% are hardly statistically significant.

Figure 90 Share of field crops

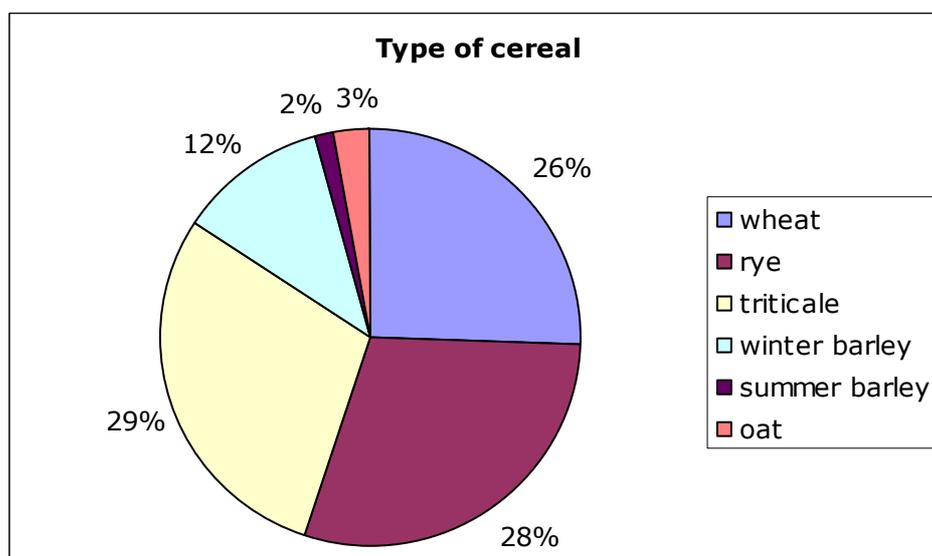


Source: Landesbetrieb für Datenverarbeitung und Statistik 2005, own calculation

The types of field crops can also be further divided. The proportion of cereals is composed of three large crops making up around three quarters of the cereals, namely triticale (29%), rye (28%) and wheat (26%). The other quarter consists of

winter barley (12%), oats (3%) and summer barley (2%). Figures are also available for other field crops: around 43% of pulses are peas for feed. Potatoes (55%) and sugar beet (45%) are the main root crops. 81% of the oilseed is winter rape. Finally, pasture (29%) and silo corn (56%) are the main forage crops. (Landesbetrieb für Datenverarbeitung und Statistik 2005, own calculation)

Figure 91 Type of cereal



Source: Landesbetrieb für Datenverarbeitung und Statistik 2005, own calculation

The crops in Barnim are results of the poor soil quality. The table below shows that in 2005 for most cereals the crop yield was around 5 t per hectare. Oats with 3.7 and triticale with 4.2 were the exceptions.

The long-term changes over the 1999-2004 to 2005 period show that in general the crops increased – the exceptions are rye, triticale and sunflowers. The highest increases were +56.5% for grass, +40.8% for potatoes and +34.1% for winter rape.

Table 98 Average crop numbers

	Average crop 1999-2004 in 100 kg per ha	Crop in 2005 in 100kg per ha	Change in %
Wheat	47.3	53.8	+10.4
Rye	46.9	45.6	-2.8
Barley	46.6	57.2	+22.7
Oats	31.7	37.7	+18.9
Triticale	44.6	40.2	-9.9
Corn	72.3	90.8	+25.6
Potatoe	245.6	346.8	+40.8
Sugar beet	492.6	540.5	+10.3
Feeding peas	20.8	25.7	+23.6
Winter rape	29.3	39.3	+34.1
Sun flowers	23.1	21.3	-7.8
Clover	72.2	90.2	+24.9
Gras	42.1	65.9	+56.5
Feeding corn	271.9	321.7	+18.3
Pastures	48.9	60.1	+22.9

Source: Landesbetrieb für Datenverarbeitung und Statistik 2005

Statistics for 2005 show that 309 farms had livestock and horses. In general, a minimum number of hectares have to be available for a farm to have livestock, so not all farms have livestock. Dividing them according to the type of livestock kept, around one third of farms had horses (96) and another third had cattle (95), with the last third divided into farms with milk cows (22), pigs (55) and sheep (22). (Landesbetrieb für Datenverarbeitung und Statistik 2005)

Table 99 Husbandry forms

Year	Horses	Cattle	Milk cows	Pigs	Sheep
2005	96	95	22	55	22

Source: Landesbetrieb für Datenverarbeitung und Statistik Brandenburg 2005

In conclusion, farms usually engage in livestock farming as well as field crop cultivation. The regions proximity to Berlin strengthens the regional demand for horse riding. The other alternative is organic farming, which is heavily subsidised by the German Federal government.

In 2005, companies owned a total of 918 horses and 18,458 cows, of which 9,899 were milk cows and 3,894 breeding cows. 25,299 pigs and 4,650 sheep were also kept. (Landesbetrieb für Datenverarbeitung und Statistik 2005)

Table 100 Livestock in Barnim

Year	Horses	Cows	Pigs	Sheep
2005	918	18,458	25,295	4,650

Source: Landesbetrieb für Datenverarbeitung und Statistik Brandenburg 2005

The high number of horses shows the importance of horse riding and agrotourism, with people from Berlin coming to nearby Barnim for horse riding. The provision of trips in horse-drawn wagons is an additional source of income for the "Barnim Nature Park" and "Biosphere Reserve Schorfheide-Chorin". Cow numbers reflect the poor soil quality. Large herds of cattle, which are usually bred on extensive pasture, make up only one third of all cows. It is more lucrative for farmers to keep milk cows and breeding cows in lots, where they are fed on imported mash. The liquid manure can then be spread on the land as fertiliser. For the same reason there are five times as many pigs as sheep. The reason is the same: pigs are bred in lots while sheep are held on pasture.

It is interesting to compare average numbers of horses and livestock per farm. Average figures show that small numbers of horses (10) and cattle (49) are common. The average of 211 sheep per farm confirms the small proportion of pasture of total farmland. Finally, intensive mass animal farming is shown in average numbers of milk cows (450) and pigs (460). The milk cows produced 41,946 t of milk in 2005, which is 7,546 t per cow. (Landesbetrieb für Datenverarbeitung und Statistik 2005)

Table 101 Livestock per farm in Barnim

Year	Average number of horses per farm	Average number of cattle per farm	Average number of milk cows per farm	Average number of pigs per farm	Average number of sheep per farm
2005	10	49	450	460	211

Source: Landesbetrieb für Datenverarbeitung und Statistik Brandenburg 2005, own calculation

In 2003, 69 owners had 7,107 laying hens, which is an average of 103 laying hens per owner. 20 farmers owned an average of 13 mast hens, which is a total of 260 mast hens. 15 owners had 299 geese and 24 owners had 64,093 ducks. (Landesbetrieb für Datenverarbeitung und Statistik 2005)

The other way of dealing with the poor soil quality is organic farming. Cooperatives in Barnim were the first organic farming pioneers in East Germany. These pioneers have now developed into regional players with large farmlands, big stocks of livestock and internal utilisation circuits.

In 2003, 32 companies or 11.2% of all farming companies were organic farms. As a proportion of the whole area of Barnim, this gives organic farming a share of 9.7%. Figures for 2005 confirm the increasing importance of organic farming. 36 farms, or 12.6% of all farms, were certified as organic farms, with organic farmland making

up 10.3% of all of Barnim's farmland. This means that 5,000 ha was farmed organically by 36 farming companies with an average farm size of 138 ha. (Landesbetrieb für Datenverarbeitung und Statistik 2005)

Table 102 Organic farming in Barnim

Year	# of farms	Share of all farms	Organic land share of all farm land
2003	32	11.2	9.7
2005	36	12.6	10.3

Source: Landesbetrieb für Datenverarbeitung und Statistik Brandenburg 2005

Based on statistical data, the following table shows the factor endowment and its development of a typical organic farm in Barnim.

Table 103 Factor endowment of a Barnim organic farm

specific value	unit	fiscal year			
		2002/03	2003/04	2004/05	2005/06
share of pastures	%	26.3	24.8	26.2	25.0
full-time-equivalent	FTE/100ha	1.4	1.3	1.3	1.3
stocking	animals/100ha	31.4	29.8	28.2	28.1
reference value for milk	kg/ha	105	102	112	113
total assets	EUR/ha	2,094	2,056	2,074	2,052
equity	%	40.2	38.1	43.8	44.0
net investment	EUR/ha	-41	-80	-25	-26

Source: Landesamt für Verbraucherschutz; Landwirtschaft und Flurneuordnung 2005

The changes in the fiscal years are in general less than +/-5% around the mean value. The exception is the net investment, which doubled (EUR -41 to EUR -80/ha) from 2002/03 to 2003/2004. In 2004/05 and 2005/06 (EUR -25 and -EUR 26/ha) the net investment was just a third of 2003/04. In the fiscal year, the share of pastures of an average organic farm was 25%, having had a full-time-equivalent of 1.3, which is significantly lower than the full-time-equivalent of a conventional farm (1.7). The stocking was of 28.1 animals per 100 ha; the reference value for milk was 113. The organic farms had a share equity of 44% of the total assets of EUR 2,052/ha. The net investment was -EUR 26/ha. (Landesamt für Verbraucherschutz; Landwirtschaft und Flurneuordnung 2005)

For a more detailed description of the factor endowment, it is necessary to decide between different types of organic farms. Following, a small overview of organic farms concentrating on tillage, fodder production, and the combination of both will be given. The numbers show, that tillage orientated farms and enterprises specialised on fodder production have similar incomes (tillage: EUR 825/ha, fodder production: EUR 820/ha) and expenses (tillage: EUR 682/ha, fodder production: EUR 684/ha) per hectare. The main differences are the committed asset cover (tillage: EUR 120/ha, fodder production: EUR 107/ha) and the equity change

(tillage: EUR 22/ha, fodder production: EUR 35/ha), which in the end allows a farm specialised on fodder production to take a two times higher entrepreneurial profit per hectare than a tillage orientated farm (tillage: EUR 5/ha, fodder production: EUR 10/ha). (Landesamt für Verbraucherschutz; Landwirtschaft und Flurneuordnung 2005)

Table 104 Differentiation of organic farms

specific value	unit	tillage	fodder production	combination
share of pastures	%	13.8	75.7	26.8
full-time-equivalent	FTE/100ha	1.14	0.9	1.5
stocking	animals/100ha	13.9	44.1	41.0
reference value for milk	kg/ha	21	44.1	41.0
total assets	EUR/ha	1,774	1,315	2,307
operating income	EUR/ha	825	820	1,056
operating expenses	EUR/ha	682	684	893
profit and personnel costs	EUR/ha	253	247	318
result and personnel cost	EUR/worker	24.0	27.3	21.7
return on assets	%	3.9	3.4	3.4
cash flow III	EUR/ha	32	41	26
committed assets cover	%	120	107	88
equity change	%	22	35	26
entrepreneurial profit	EUR/ha	5	10	1

Source: Landesamt für Verbraucherschutz; Landwirtschaft und Flurneuordnung 2005

Compared with Barnims 285 agricultural enterprises, the number of tree nurseries is very small. In 2004, 6 tree nurseries were growing trees on 108.45 ha. (Landesbetrieb für Datenverarbeitung und Statistik 2005)

Agricultural production will change in Barnim due to changes in the preconditions for agriculture as discussed, due to changes in customer demand, and due to changes in market demand created by new laws.

Climatic change and an increase in unpredictable weather events will increase agricultural production costs. Depending on the crop, crop yields will change positively (for example corn) or negatively (for example winter rye). Because of changing rainfall, preventive measures will need to be taken to protect the crops from damaging levels of moisture. (Potsdam Institute for Climate Impact Research 2003)

Meat production will decrease because of the general decline in demand for meat for nutritional or religious reasons, but consumer demand for high priced and low priced organic produce will increase, so there will be a change from conventional to organic production.

A new challenge for milk production will arise from the discussed cuts in the EU milk quotas from 2015. At present, subsidies from the European Union make it possible to sell the overproduction on the global market for competitive price. When these quotas will not be available anymore, farms in Barnim will not be able to sell all of the produced milk. This means a cut in the income and necessary investments in other fields of business. It can be expected that around half of the conventionell milk producing farms will shut down this value chain on one hand; on the other hand, competitive milk producing farms will be able to expand and can prepare the new situation through internal structural changes (for example to organic milk production). But in total, a loss in working places will be the consequence.

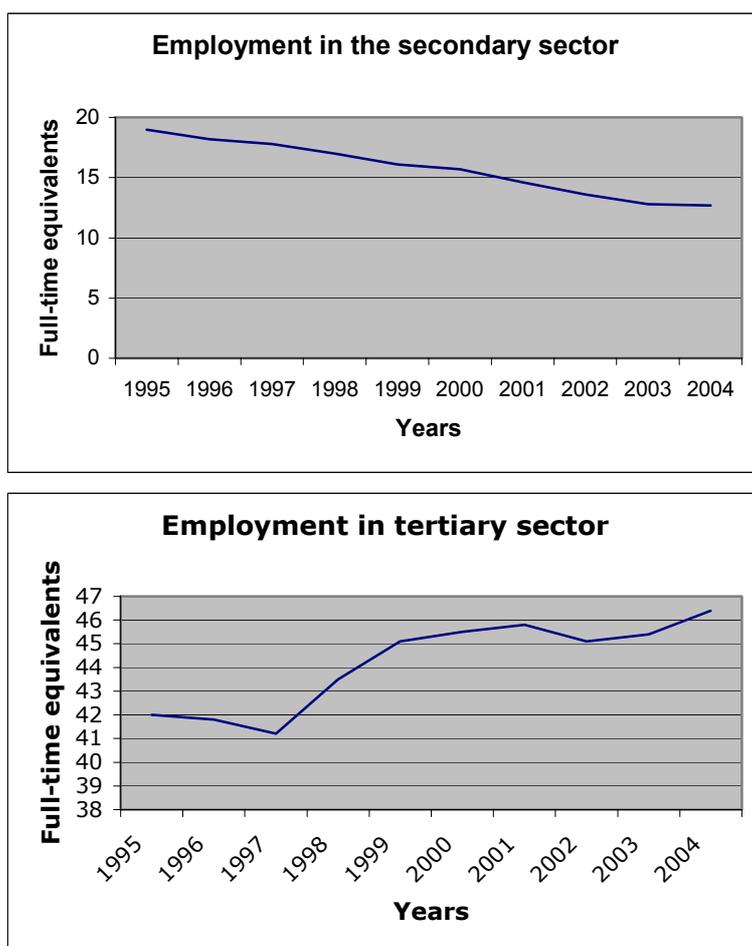
Finally, due to a lack of oil for petrol, electricity and heating, renewable energy sources will become important. This process is being boosted through policy, through new laws on the use of renewable energies designed to decrease CO₂ emissions, and through taxes on oil. This will lead to an increase in the production of renewable energies such as corn, rapeseed, and wood, accompanied by a decrease in the production of grains and vegetables.

4.1.3.3 Structure of rural economy

Statistical profile

Changes to employment in the secondary and tertiary sectors reflect the development from an industrial to a service-based economy. After reunification, many industries had to close down or dismiss workers, but a lot of service companies were created so not all but many workers were able to find a job again.

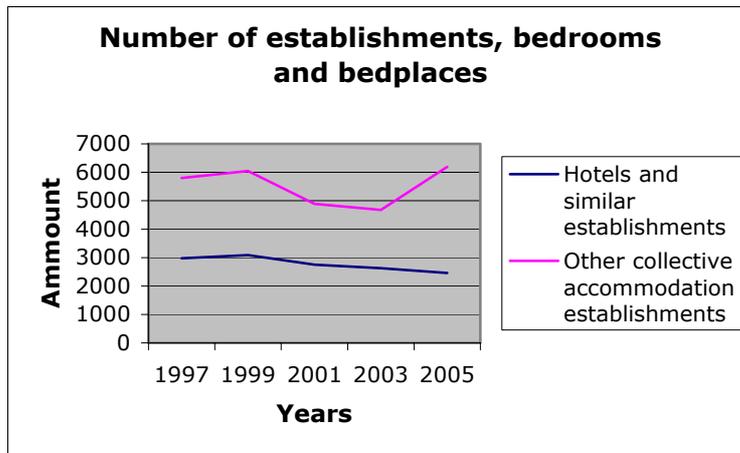
Figure 92 Employment in the secondary and tertiary sector



Source: Eurostat

Employment in the secondary sector constantly decreased from around 20 full-time equivalents in 1995 to around 13 full-time equivalents in 2004. Employment in the tertiary sector increased from 1995 until 2004, with some ups and downs, from approximately 42 to 46 full-time equivalents.

Figure 93 Number of establishments, bedrooms and bedplaces

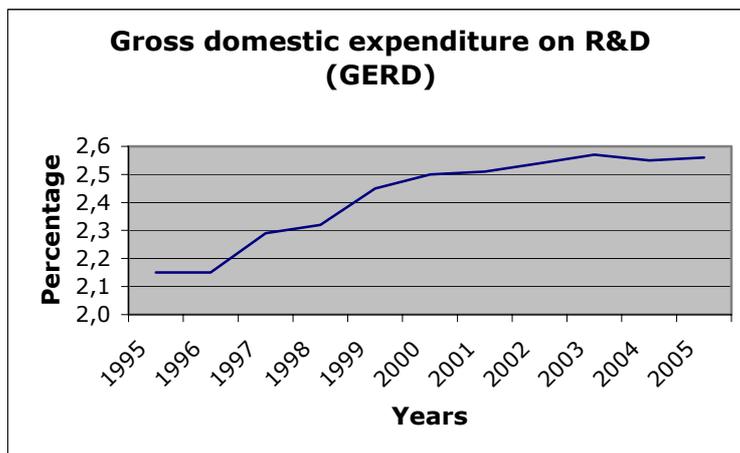


Source: Eurostat

The figure above showing accommodation in Barnim show a general decrease in accommodation until 2003. Numbers fell from 3,000 hotels in 1997 to 2,500 hotels in 2005. The graph for other collective accommodation varies by around 5,500 with growth to 6,000 in 2005.

Expenditure on research and development measured as a share of German GDP shows that expenditure increased from 2.15% in 1995 to 2.55% in 2003. Since then, expenditure has been stable at 2.55%.

Figure 94 Gross domestic expenditure on R&D (GERD)



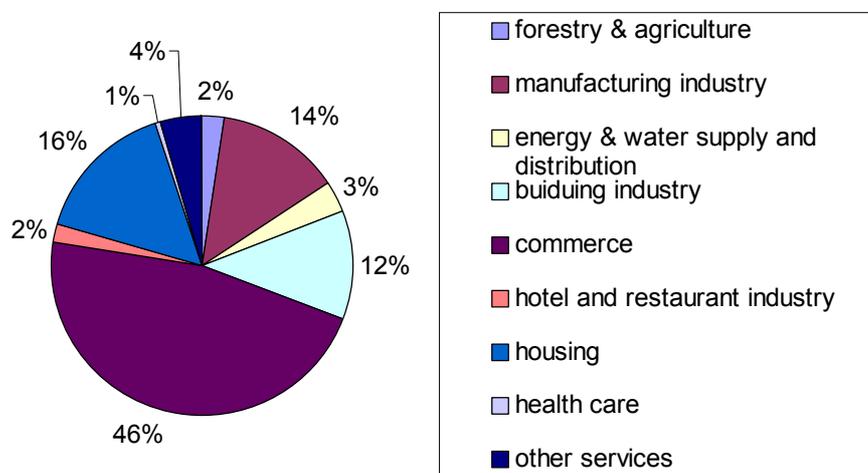
Source: Eurostat

Regional focus

Recent years have been characterised by striking cuts in the council budget in order to reduce debt and due to demographic changes. This has meant job losses in hospitals, schools, and the administration, but the council is still the largest employer.

As shown in the diagram below, the commerce, housing, manufacturing and building industries are the most important industries in Barnim.

Figure 95 Contribution to VAT (in EUR 1,000)



Source: Landesbetrieb für Datenverarbeitung und Statistik Brandenburg 2005

The local value chains of the regional industries consist mainly of growing natural resources, processing resources into high quality products, and distributing the finished products throughout the region. There are three companies with more than 200 employees: "DB", "Walzwerk Finow" and "Eberswalder Wurst GmbH". (LBV 2006)

Several large firms are doing business in the food industry using local agricultural products.

- Bakery products are the strongest section of the food industry. The "Wendeln Brot Berlin-Brandenburg & Co. KG", "Eberswalder Brot- und Feinbackwaren GmbH Märkisch Edel" and "Bäckerei Feil Lindeberg GmbH" companies are regionally important.
- "EWG Eberswalder Wurst GmbH" is one of the largest firms in Barnim and produces sausages.
- Jam and juice is produced by the international "Zuegg Frucht AG" company in Werneuchen
- The "FinalTa GmbH" factory, which produces doner kebabs, is also in Weneuchen.

Machinery production has been traditionally strong in Eberswalde since the 17th century. Resources are processed into semi-finished goods, produced and finished products. For example:

- The "Walzwerk Finow GmbH" presses steel
- "Vollmer Aluminium GmbH & Co.KG" forms aluminium
- "KE Kranbau Eberswalde GmbH" builds tower cranes
- "Finow Automotive GmbH" produces car components
- REpower AG builds wind energy plants

- Trains are maintained in facilities of the German railways (DB and ODEG)

With almost half the county covered in woods, there is also a large wood processing industry. High-class wooden products such as saunas from "Karibu Holztechnik GmbH", environmentally friendly houses made by "HVB Holzverarbeitungsbetrieb Lunow GmbH", who perform all work phases within the same enterprise, or furniture from "DALA Objektmöbel GmbH", are all produced in Barnim.

"Märka Märkische Kraftfutter GmbH" is a national player in grain, seeds, feeds and fertiliser production. The company was founded in and had its headquarters in Eberswalde for long time, but was taken over by a west German company this year. The company had 21 branches all over Germany and was one of East Germany's top enterprises in this area.

National players dominate the commerce sector. Shopping centres conform to global standards, offering the same goods as any other shopping centre. Local products are sold through direct marketing. Traders go to local markets in Barnim and Berlin to sell products directly to customers. Another strategy is to run a small shop called a "Hofladen" (farm/factory store) offering a range of the farms own products, often combined with information material on the region, coffee, cake and ice cream. Customers are usually locals or passing visitors.

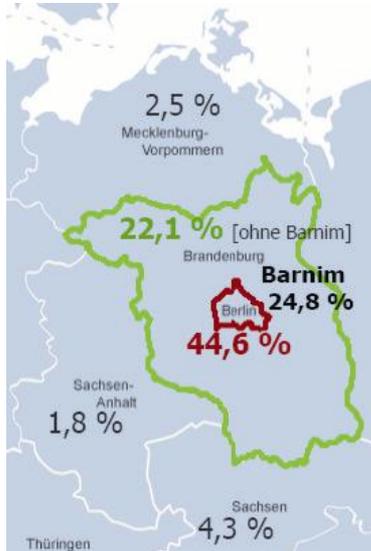
Barnim, with its Nature Park and Biosphere Reserve, combining natural and cultural features, is a popular destination for local recreation. A wide variety of sports such as hiking, cycling, kayaking are available there. The regions importance as a local recreation centre is greater than its importance as a holiday destination, with multiple overnight stays.

86 hotels and hostels provided tourists with 6,784 beds in 2005. Altogether, 191,482 people stayed overnight in Barnim, of whom 1,265 came from outside Germany. The number of overnight stays in 2005 was 754,299, of whom 46,235 were international guests. The average duration of stays in the hotels and hostels was 3.9 days. International guests stayed on average for 3.6 days and average utilisation of beds was 30.8%. 11 camping grounds with 505 campsites also hosted 21,810 national and 1,230 international guests in 2005. The national guests stayed 54,122 nights, which is an average stay of 2.5 days. 2,927 overnight stays were made by international guests, who stayed at the camping ground for 2.3 days on average. (Landesbetrieb für Datenverarbeitung und Statistik Brandenburg 2005)

Since Barnim is close to Berlin, Berliners rush there every weekend seeking recreation in the green landscapes. Almost half of the day-trippers come from Berlin. A quarter of all visitors come from inside the region and another quarter come from the federal state of Brandenburg. A small number of visitors, less than 10%, come from other federal states to Barnim on day trips. The favourite destinations are the "Biosphere Reserve Schorfheide-Chorin" (44.4%) and the "Barnim Nature Park" with 39.6%. This demonstrates the importance of these two protected areas for tourism and the regional economy. On average a day trip

tourist spends EUR 21.20 in Barnim, not including travel expenses. (FH Eberswalde 2007)

Map 29 Origin of day-trippers visiting Barnim



Source: FH Eberswalde 2007

Agrotourism mainly takes place on farms offering overnight stays or regional products. Farms are being supported to develop agrotourism through ERDF subsidies. Horse riding for Berliners is a big business in the southern area close to Berlin.

The polarisation between a few key business and other industries and services will continue. In general, industry will become less important. Development will be dominated by the utilisation of endogenous potential such as the processing of local agricultural products and the natural beauty of the northern areas, as well as by the southern areas proximity to Berlin. The key businesses will be organic farming, metal processing, plant construction, energy production, provisions for existence, health services, tourism, and here especially agrotourism in the Biosphere Reserve and water tourism in the northern part of Barnim. Those key businesses also are supported by the GLES and Barnim's administration.

4.1.4 Rural Society

4.1.4.1 Demography

Statistical profile

In the two years after the reunification of East and West Germany, the population of Barnim declined from 150,687 to 148,750. Since then, the population has increased constantly to a total of 177,369 in 2006. Only in 2007 was a decline in the population of 32 people again recorded.

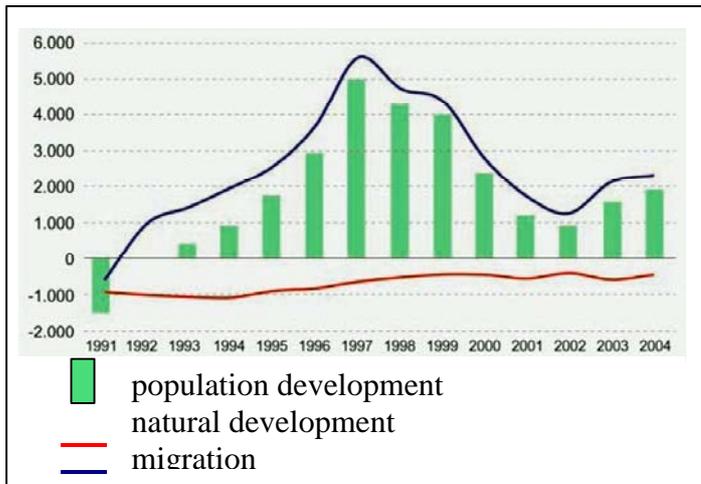
Table 105 Population development in Barnim

Year	Population	Year	Population
1990	150,687	1999	167,914
1991	148,751	2000	170,288
1992	148,750	2001	171,490
1993	149,143	2002	172,382
1994	150,060	2003	173,951
1995	151,783	2004	175,861
1996	154,698	2005	176,693
1997	159,689	2006	177,396
1998	163,937	2007	177,364

Source: Amt für Statistik Berlin-Brandenburg 2007

Natural population development has been negative since 1990. The decline was initially around 1,000 a year until 1996. After that the annual natural population development changed from -1,000 to -500. Because Barnim has a positive population development, migration must be strong. After reunification, people migrated away from Barnim and moved to Berlin or western Germany, but in 1992, more people migrated to Barnim than left it. Since then the migration balance has been positive, with a maximum in 1997 and a minimum in 2002.

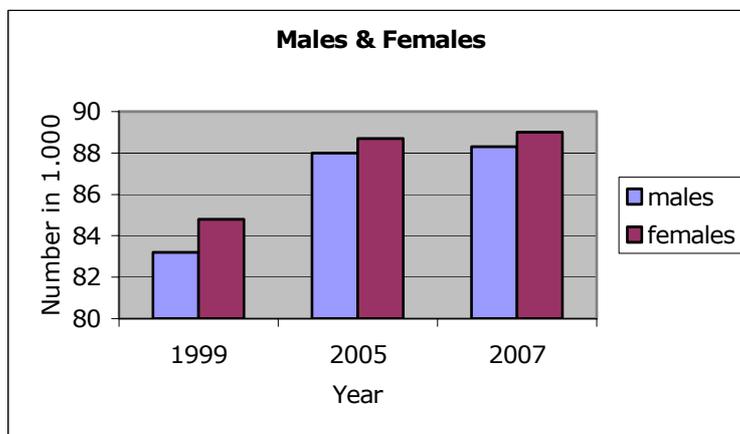
Figure 96 Population development in Barnim



Source: LBV 2006

The graphs for the proportion of men and women show that more women than men live in Barnim. The difference was 1,600 in 1999, 700 in 2005 and 700 again in 2007. The gap has however declined recently and a balance or even an outnumbering is possible in coming years.

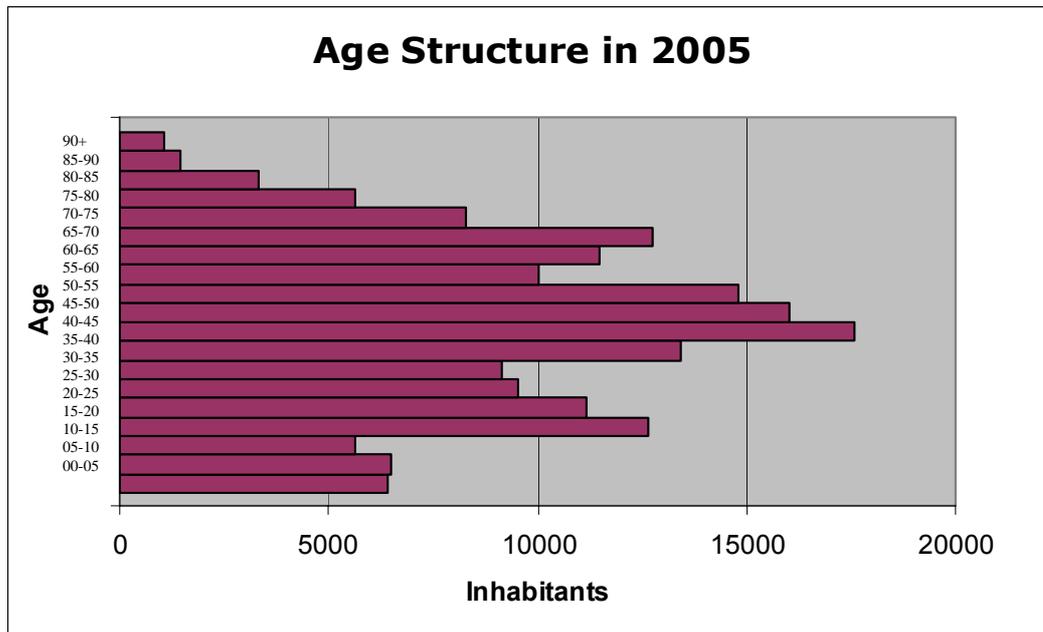
Figure 97 Sexes in Barnim



Source: Amt für Statistik Berlin-Brandenburg 2007

The largest age group, more than a third of Barnim’s inhabitants, are those aged 35 to 55, with the recently retired and young adults also represented at above-average levels. People aged under 15 number 18,520 and there are 32,423 adults aged over 65.

Figure 98 Age Structure in 2005

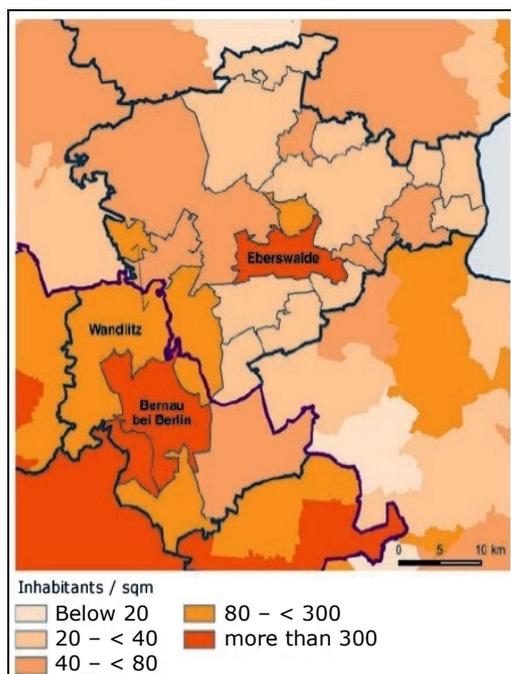


Source: Landesbetrieb für Datenverarbeitung und Statistik Brandenburg 2005

Regional focus

Considering the residential location of Barnim's inhabitants, the most densely populated areas are the cities of Eberswalde and Bernau, with areas close to Berlin showing a high population density. There is also a dichotomy between the inner and outer areas. Suburbanisation is occurring in existing villages and on the outskirts of the city. This area is well connected to Berlin's rail and road network, making commuting to work possible. The successful, high-income work force aged from 35 to 55 can afford houses in suburbia. Statistics show that more than 50% of the people commute to jobs outside Barnim. Barnim's population has grown in this inner area while it has declined in the outer area and the city of Eberswalde.

Map 30 Population density in Barnim



Source: LBV 2006

A forecast of developments until 2030 has been made based on population figures for 2004. The figures are shown below and describe a trend in two phases. In phase one, the population grows until 2009 as the above figures for population growth until 2007 show. Phase two then starts, in which the population continuously declines. It is predicted that all age groups, except the elderly, will decline in number. The forecast also shows that men will outnumber women from 2010.

Table 106 Population forecast for Barnim

Year	2009	2012	2015	2020	2030
Population	179,270	178,910	177,850	174,290	162,310

Source: Landesbetrieb für Datenverarbeitung und Statistik Brandenburg 2006

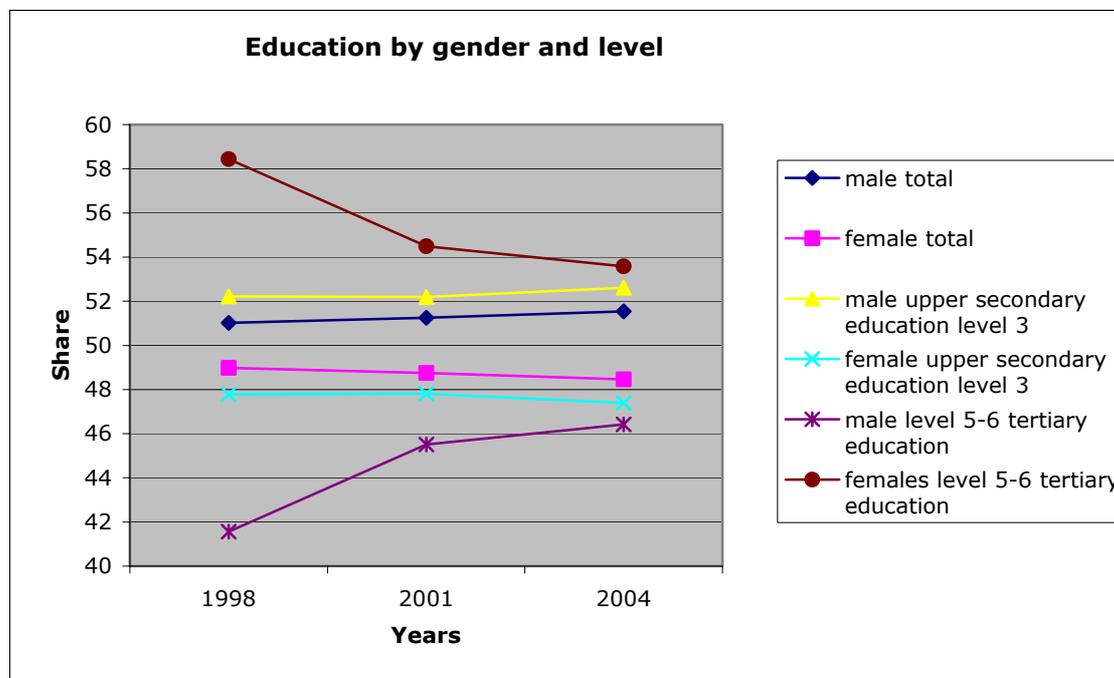
But from the idea of dichotomy, a distinction again needs to be made between the inner and outer areas. A different forecast, which comes to the same conclusion as the state of Brandenburg's forecast, says that population growth in the inner area will continue. The population in the inner area will increase by 6,000 between 2002 and 2020, while there will be a decline in population of 12,000 people in the outer area. There will also be a decrease in Eberswalde from the current 41,000 down to 36,000 inhabitants. (LBV 2006)

To counteract migration from the area, the ILEK (integrated rural development concept) of 2005 proposes securing jobs, supporting value changes, maintaining basic living amenities, developing local identity and social networks, and maintaining attractive living and recreation facilities. (IFLS 2005)

4.1.4.2 Education

Statistical profile

Figure 99 Education by gender and level



Source: Eurostat

The above chart for Brandenburg indicates that the proportion of women graduating with tertiary level 3 qualifications is higher than the proportion of men finishing level 3 education. From 1998 to 2004, this disparity of 16% shrank to 8%. More males have upper secondary education than women. Here, the disparity is fairly constant at around 4%. In general, more men than women are recorded as having secondary or tertiary education with a difference of around 2.5%. The reasons for this and more detailed data will be provided in the regional focus.

Regional focus

Education at all levels is provided in Barnim, as an initial point for labour, as was shown in the chapter on "Preconditions for rural development", with primary, secondary and tertiary education institutions all available.

Demographic structures and the labour market need to be taken into consideration in discussing education. Generally, there are more women in Barnim than men, but more men than women are unemployed.

The figures show that more girls finished school in 2005, which is ascribed to the higher ratio of females in Barnim. At the same time, women achieved higher levels of education as a precondition for work or tertiary education. Only 35.6% of

students leaving school without any qualification are girls and 57.6% of grammar school qualifications are awarded to girls.

Table 107 Education by gender and level in Barnim

	total	without any degree	CSE	Secondary modern school	Grammar school degree
Total	2,282	177	436	1,040	629
Males (#)	1,130	114	261	515	267
Males (%)	49.4	64.4	59.9	49.5	42.4
Females (#)	1,152	63	175	525	362
Females (%)	50.6	35.6	40.1	50.5	57.6

Source: Landesbetrieb für Datenverarbeitung und Statistik Brandenburg 2005

In conclusion, higher education provides women with better access to jobs and people with higher education are more likely to leave a region.

Changes in the general level of education are not likely. For people living in remote areas the accessibility of educational institutions will be limited, due to cutbacks in educational infrastructure. Higher education will not be available in all areas but within adequate travelling distances. Demographic change might also have an effect on educational infrastructure. A decline in student numbers will lead to schools being forced to close resulting in longer travel to schools. In conclusion, educational provision will face a supply problem from these two effects.

4.1.4.3 Labour market

Statistical profile

The employment rate for people aged 15-64 in Brandenburg indicates a difference in employment rates for women and men. The employment rate for women increased from 57% in 1999 to 60% in 2005. At the same time, the employment rate for men declined from 67% in 1999 to 65% in 2005. This means that the difference in the employment rates of women and men declined from 10% in 1999 to 5% in 2005.

The employment rate in Brandenburg for workers aged 15-25 increased from around 3% in 1999 to almost 40% in 2005. The employment rate of workers aged 55-64 declined from 45% in 1999 to 40% in 2000, after which the rate varied at around 40%.

Brandenburg's long-term unemployment rate as a proportion of total unemployment varies between 50% and 60%. In 1999 and 2004 it was a maximum of 60% and a minimum of 50% was reached in 2001.

Monthly labour costs in industry and services have skyrocketed in Germany. The cost of industrial labour jumped from EUR 3,300 in 1997 to EUR 3,900 in 2005. Monthly labour costs for one service person climbed from EUR 3,200 in 1997 to EUR 3,700 in 2005.

Figure 100 Monthly labour costs

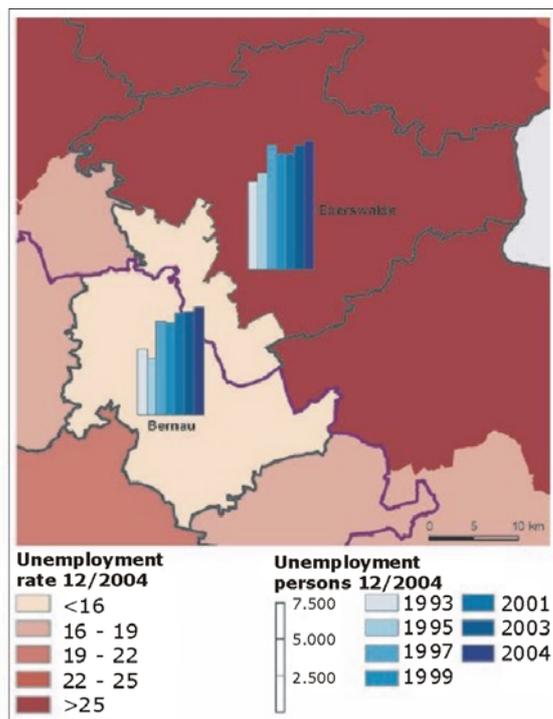


Source: Eurostat

Regional focus

The region is transforming from an agricultural and industrial to a modern economy focused on services. Factories and large agricultural business have been downsized or closed due to rationalisation pressures and the Soviet and East German army bases in Eberswalde also closed. The effect on the labour market was sudden high unemployment and a massive reduction in purchasing power, which meant less tax income for the region to back up the labour market.

Figure 101 Unemployment in Barnim 12/2004



Source: LBV 2006

The consequences of this transformation have been felt for a long time and are still present in the region. From 1993, the unemployment rate increased by 5% and the number of unemployed men doubled from 1995 to 2004. (LBV 2006) The unemployment rate is now a little lower than the state's average unemployment rate. In 2006, 16,936 people – or 19.9% of Barnim's inhabitants – were out of work, of whom 42% were women. Of the unemployed, 12.2% were younger than 25 and 26.7% were aged over 50. (Agentur für Arbeit 2006)

There are also evident differences in the labour market between the regions inner and outer areas. More than 50% of the inhabitants in the inner region work outside Barnim, mainly in Berlin. On the other hand, many workers in the inner area come from Berlin, so that for every person commuting to work in Barnim, 2.3 people commute out of Barnim. The region's closeness to Berlin has a big effect on the labour market. Comparing the inner and outer region, the unemployment rate and total number of unemployed in the outer area is higher (25.9%) than in the inner area (15.6%). The unemployment rate among those unemployed for more than one year is also higher in the outer area (47%) than in the inner area (35%). (LBV 2006)

Unemployment rates in the outer area will continue to increase but in the inner area unemployment rates can be expected to decrease. The reason for this is the focus of investment on the inner area and commuters with a job in Berlin. Jobs will mainly be created in the high-income and in low-income sectors with significant predominance of the low-income sector.

4.1.4.4 Civil society

Civil society exerts an influence on the Barnim's development as an economic, social, cultural and ecological place. The locals have formed several non-profit organisations with the aim of improving life in Barnim and civil society is taken into consideration in politics and planning.

Large projects and development plans usually have to involve civil society by law. For example, in developing a water sports plan for Brandenburg, a meeting in Eberswalde was held at which private persons had the chance to find out about the plan, take part in discussions, and make suggestions.

The involvement of civil society also can be seen in regional management, where locals developing economical ideas and concepts can receive support. Networking within regional management also helps the locals to act together.

The regional parks of Barnim, the "NP Naturpark Barnim" and the "RP Barnimer Feldmark", are also based on the bottom-up principle. A non-profit organisation was founded, whose members are composed of representatives from politics as well as from civil society. Together these members discuss and determine the future development of the regional parks.

Further examples of such non-profit organisations are:

- the educational association, "Buckow e.V.",
- the regional management of "Region Aktiv",
- the promoter of renewable energies, "Barum 111",
- the network for health and communication, "gesukom",
- and the "Netzwerk Metall" network, which offers synergy effects to companies in the metal industry.

An awareness of self-determination will increase in Barnim. A new way of thinking was initiated with the change in the political system in 1990. Civil society will become stronger in future thanks to past success stories and opportunities to participate in regional development.

4.2 Exploring policy intervention

Germany makes various policy interventions because such policy intervention is part of the ideology of a social market economy. Subsidies, benefits, loan concessions and consultancy by governmental institutions are available in almost any area of economic and social life. Government institutions in Barnim can therefore access funds from the European Union, the Federal Republic of Germany, the federal state of Brandenburg, and from Barnim's income. A separation in their origin would be difficult or even impossible.

European Union subsidies will decrease with the entry of new states into the Union, with some subsidies, such as the structural funds, vanishing completely. National subsidies will also shrink due to the consolidation of the national budget. Tax reductions will however provide incentives for private and local support programs. In conclusion, policy will retreat from regional development and allow more self-determination by private investment, supported by governmental funding.

4.2.1 EU policies for agriculture and rural development

Funds from the EU's European regional development fund (ERDF), European Social Fund (ESF), European Agricultural Guidance and Guarantee Fund (EAGGF), and the Financial Instrument for Fisheries Guidance (FIFG) were available in Brandenburg in the subsidy period of 2000 to 2006. European Union subsidies were co-funded by the Federal State of Germany at 25% of the funding value. A total of EUR 5 bn was available from EU funds and co-funding, as the table below for Brandenburg shows.

Table 108 EU funds and co-funding 2000-2006

Fund	EUR
ERDF	2,915,300,000
ESF	1,073,600,000
EAGGF	1,083,600,000
FIFG	6,100,000
Total	5,078,600,000

Source MLUV 2007

The most important source of funding for the regional economy is the EAGGF because the recipient is a local company. Barnim has been designated an objective-1-region since 1994. The fund is managed and distributed by the "Ministerium für Ländliche Entwicklung, Umwelt und Verbraucherschutz (MLUV)" (Department for rural development, environment and consumer protection) (MLUV 2007).

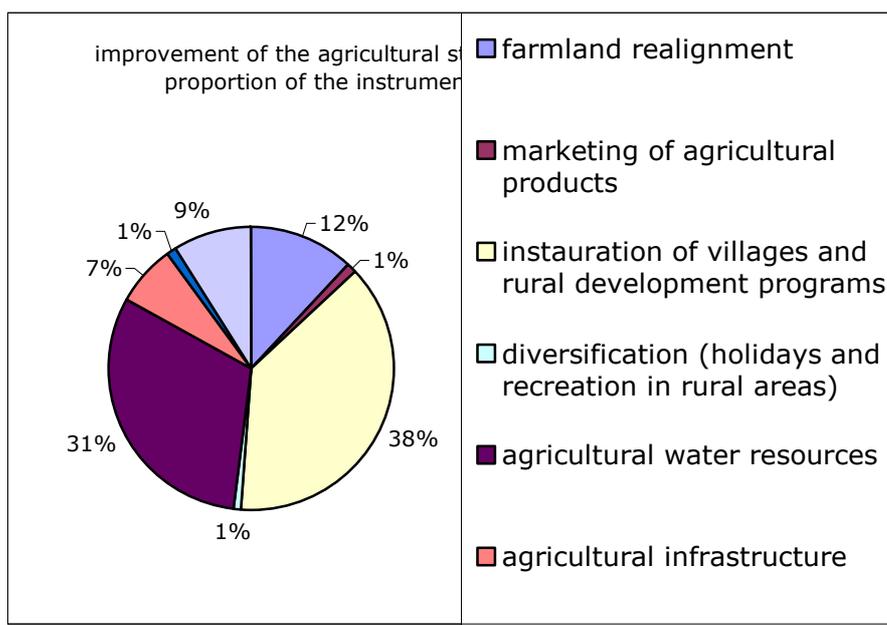
Subsidies from are granted for the improvement of agricultural structures and promotion of rural areas. About 41% of funding is allocated for the improvement of agricultural structures and 59% for the promotion of rural areas. The fund's allocation to instruments can be divided as follows.

The instruments for improving agricultural structures are:

- farmland realignment
- marketing of agricultural products
- village renewal and rural development programs
- diversification (holidays and recreation in rural areas)
- agricultural water resources
- agricultural infrastructure
- tourism and crafts
- environmental protection

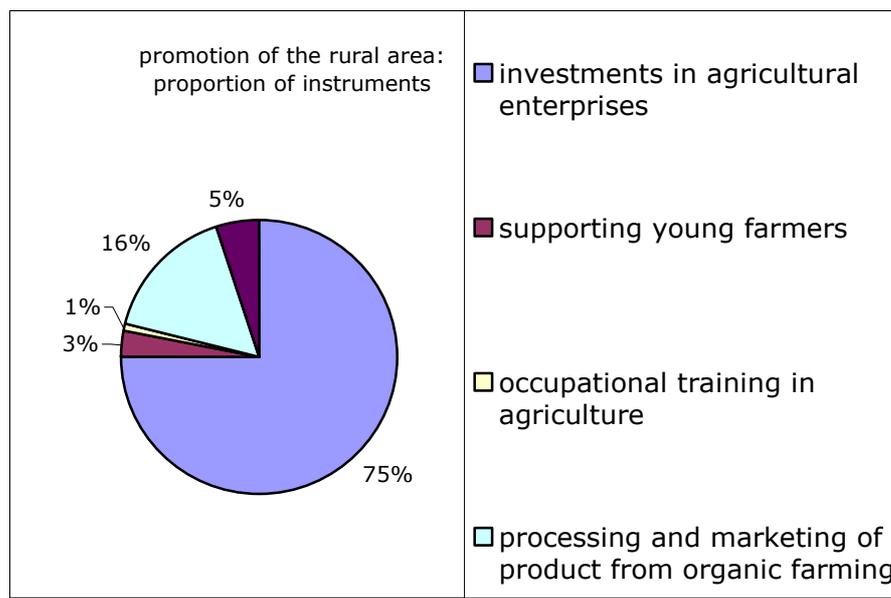
An analysis of the proportion of the single instruments shows that more than one third of the fund was used for village renewal and rural development programs (38%). A little less than one third of the fund went into improving agricultural water resources (31%). The third largest improvement in value of an instrument was that of farmland realignment (12%).

Figure 102 Improvement of the agricultural structure: proportion of the instruments



Source:MLUV 2007

Figure 103 Promotion of the rural area: proportion of the instruments



Source: MLUV 2007

From the fund for rural development, different issues in Barnim were granted funding in 2005. Within the integrated rural development, EUR 783,809 were granted, of which EUR 642,655 were used for village renewal, EUR 66,154 were spent on the construction of rural roads, and EUR 75,000 were available for the regional management. Furthermore, for the reallocation of land EUR 281,241 were granted; and EUR 457,849 were spend on the improvement of water balance, biological diversity and heritage. (Landesamt für Verbraucherschutz; Landwirtschaft und Flurneuordnung 2005)

The instruments for promoting rural areas are:

- investment in agricultural enterprises
- support for young farmers
- occupational training in agriculture
- processing and marketing of products from organic farming
- forestry activities

The proportions of the single instruments show that the great majority of the fund subsidises investment in agricultural enterprises (78%). The second largest item is the processing and marketing of organic farming products (16%) while all other items are very small (less than 5%).

The western part of Germany was one of the founding members of the European Community in 1957. The eastern part of Germany joined the European Union in 1990, so funding from SAPARD, which has existed since 1999, is not available for Barnim.

Agricultural policy

Up to 90% of agricultural policy is determined by the European Union. The legal national framework for agricultural production is made up out of the guidelines and resolutions of the CAP. In 2003, the CAP was reformed and changed. The following core elements of the reform have had different effects on agricultural production in Barnim.

The core elements of the reform are:

- A disconnection of the previous product and stock based direct payments and a linking of payments to acreage without any requirement for agricultural use. Germany designed a direct payment model that is a combination of regional and individual rates, based on the characteristics of the enterprise. The basic payment for 2005 to 2009 for arable farming land is EUR 270/ha and EUR 70/ha a year for pasture. Starting with the 2009 to 2011 period, this payment will be EUR 280/ha for arable farmland and for EUR 90/ha annually for pasture. EUR 296 will be paid annually per hectare of arable land and per hectare of pasture from 2013.
- The above rates are legally bound to 19 European legal provisions, regulating binding instructions and sanctions and defining basic agricultural conditions in terms of environment, food safety, animal health and animal protection (cross compliance) and the maintenance of farming land in a good agricultural and ecological condition.
- There will be a compulsory, progressive cutback in direct payments (modulation) to strengthen funds for rural development. In Germany this modulation will be 5% of direct payments as of 2007.

4.2.2 Regionally oriented Community policies

As a rural area bordering onto Poland, Barnim receives subsidies from the ERDF: Objective 1 as well as from the ERDF Community INTERREG.

Subsidies ERDF: Objective 1 is managed by the "Investitionsbank des Landes Brandenburg" (Investment Bank Brandenburg), which is a government organisation. Subsidies are applied for by municipal and private investors in rural areas. The "Landesamt für Verbraucherschutz, Landwirtschaft und Flurneuordnung" (federal department of consumer protection, agriculture and farmland realignment), which is responsible for Barnim, determines the allocation of subsidies. All projects are discussed by the "ILE-Beirat" (integrated rural development forum), in a bottom-up process-formed forum, and then rated. The rating is orientated towards how accurately the project meets the integrated rural development concept criteria. In 2005 and the first half of 2006, 82 projects applied for subsidies, of which 19 were granted subsidies and 37 were put on the priority list for further funding. In 2005, nine projects were subsidised with EUR 2.6 mio. In the first term of 2006, ten projects were granted around EUR 1.4 mio. In conclusion, approximately EUR 4 mio worth of subsidies were granted for projects, activating EUR 2.2 mio of

equity. The number and amount of subsidies for private and community projects are balanced. 35 fulltime and 10 part-time jobs have been sustainably created. 53% of the projects were in the fields of tourism, local recreation, leisure and culture, with 43% in the rural development and infrastructure group. Finally, 5% of funding went to direct and regional marketing projects. (WITO 2006)

Because Barnim has a border with Poland, the region is also part of the Pomerania network, so funding through ERFDF Community INTERREG is also available for cross-border projects. The value of the Pomerania subsidies granted by INTERREG IIIa in the period from 2000 to 2006 was EUR 113,254,179. Altogether, 57 projects in Barnim were subsidised by INTERREG III A, of which 23 were small projects that received funding of less than EUR 2,500. The other 24 projects were mainly road constructions, consultancies and the introduction of IT systems, with total funding of EUR 6,296,000. INTERREG IV A subsidies will be available from 2007. (POMERANIA E.V. 2007)

A regional budget of EUR 3,000,000 each was available from the ESF for four model regions in Brandenburg and Barnim was one of them. The concept of Barnim as a "Gesundheitsregion" (health region), started in 2002, has been successfully implemented. The aim is to create new jobs in the health industry and support permanently unemployed persons in finding employment. (ESF Regional Brandenburg 2006)

The LIFE-project ran from 1999 until 2003 in the Biosphere Reserve Schorfheide-Chorin. The structure of reeds and water balance at 28 lakes was improved by water relogging. The total amount for this project was EUR 1,500,000, of which half was made up of subsidies from the European Unions LIFE fund. (MLUV 2006)

Brandenburg and Berlin have committed themselves to the goals in the "Entwicklungsplan für den ländlichen Raum Brandenburg und Berlin" (Development plan for the rural area Brandenburg and Berlin) for the 2007-2013 subsidy period. A total of four focuses were set (MLUV 2007):

1. Increase the added value and competitive ability of agricultural production in securing jobs. Agriculture and forestry are important rural industries and will be supported by investment, processing and marketing. Jobs for highly trained people will also have to be created to stop the drain brain.
2. Securing and enhancing natural potential: The combination of environmental protection and agriculture/forestry will be enhanced. An adaptation strategy needs to be developed to cope with climate change and secure agricultural production.
3. Supporting job creation outside agricultural production: Innovative industries need to be built up in rural areas and existing industries such as tourism, wood processing, food industry, the power industry and biotechnology improved. The standard of living for young families will have to be improved to counteract demographic changes and secure human resources.

4. European initiative LEADER: Endogenous potential will be supported by improving regional partnerships and public private partnerships. The population will also be included in regional development by supporting key projects.

4.2.3 National and regional policies

Within the last two years, Barnim has written two concepts for rural development, which partially determine the use of European and national funding.

The ILEK (integrated rural development concept) was written in 2005. Its aim is to identify opportunities for rural development for the next 5 to 10 years, based on a SWOT analysis. Its main goals are to create jobs, improve value chains, diversify agriculture and forestry production, maintain nature and culture, utilise educational potential, provide support for networks, and support integration in terms of space and content. Five rural development focuses in achieving these goals are listed. These are:

- Improvements to villages, infrastructure
- Tourism and recreation
- Renewable energies
- Health region Barnim
- Direct and regional marketing

Finally, a list of projects that will be funded is also included in the ILEK (IFLS 2005).

The other concept is the GLES (area orientated development strategy), which was written in 2007 and is basically a continuation of the ILEK. It follows the three approaches of creating synergy effects, supporting innovative ideas, and using endogenous potential. Its two focuses are tourism networks and innovative value chains, such as the use of biomass. (LAG Barnim 2007)

As described in an earlier chapter, Barnim as a rural area in eastern Germany profits from the solidarity surcharge and the federal "Aufbau Ost" (Build up the East) programme, an initiative of the German government started in 1990. The government provided a budget of EUR 156 bn for "Aufbau Ost" for the period from 2005 to 2019. These are instruments to reduce the economic disparities between the eastern and western parts of Germany – especially in terms of infrastructure – and to cover the expenses of integrating East Germany's regions into the Federal State of Germany.

The national "Verbesserung der Agrarstruktur und des Küstenschutzes" (improvement of agricultural structures and coastal protection) program is a combination of different instruments designed to support rural areas. It includes subsidies for investment in agriculture, forestry and the direct marketing of local products, as well as in infrastructure and tourism. It also establishes guidelines for integrated rural development (ILE). The program is funded by the Federal

Government (60%) and Federal states (40%). Co-funding from EU funds is often possible. The focus in the 2008 program will be on access to broadband connections in rural areas, the improvement of gas pipelines for biogas and local heating, and the consulting of farmers and loggers on the issue of energy. (BMELV 2007)

Another important national program also co-funded by the European Union is "Verbesserung der regionalen Wirtschaftsstruktur" (improvement of the regional economical structure). The program's philosophy is to empower the regional economy to engage in self-help so as to improve competitiveness and create jobs in economically underdeveloped regions. Its main instruments are the promotion of investment, training and consulting. (BMWV 2007)

The KULAP 2000 and KULAP 2007 (program for cultivated landscapes) programmes, financed by funds from the European Union, the federal German government and the state of Brandenburg, are designed to conserve valuable cultivated landscapes. Subsidies have been made available for projects including the following: organic farming, controlled gardening, transformation of arable farm land into pasture or closed land, and the protection of land near environmentally sensitive bodies of water and the compensation for disadvantaged areas.

In the year 2005, farms in Barnim were supported with approximately EUR 1.8 mio from the fund "Ausgleichszulage für benachteiligte Gebiete" (compensation bonus for disadvantaged areas). In average, EUR 35.86 were granted per hectare and EUR 7,115 per application. (Landesamt für Verbraucherschutz; Landwirtschaft und Flurneuordnung 2005)

Barnim and the adjacent county of Uckermark formed one of 18 model regions in the federal-state "Regionen Aktiv" bottom-up programme of the Ministry for Consumer Protection, Nutrition and Agriculture in 2001. By the end of 2007, the region had been granted EUR 3.4 mio for projects in the areas of land use, direct marketing, tourism, renewable energies and ecology.

The idea of the "Regionalbudget" (regional budget) is to connect unused human resources with regional development. Permanently unemployed people are promoted and trained for jobs in growth industries. The "Regionalbudget" is funded by the ESF (70%) and the council (30%).

Different regional non-profit organisations also work on improving the value chain in Barnim. The most important organisation in this respect is WITO GmbH, which is the central organisation for improving the economy and tourism in Barnim. WITO also built up the "Gesundheitsregion Barnim" (health region Barnim) and "Netzwerk Metall" (network metal) networks.

4.2.4 Effects of Legislative restrictions

The county administration establishes and controls the legal basis for agriculture and forestry in Barnim. Legislation pursues the following criteria:

1. **European level:**

Guidelines and ordinances for

- pest management, soil protection, water pollution control
- animal protection, livestock husbandry, livestock transport
- organic farming
- direct payments (cross compliance specifications)
- environmental protection (Flora-Fauna-Habitat Directive, bird sanctuaries, biosphere reserves)
- EU directive deliberate release of GMOs in the environment 2001/18/EG

2. **National level:**

Transforms European legislation into national laws and enacts its own laws if issues are not directed by the European Union.

- fertiliser law, animal feed law
- labelling regulations
- forestry law
- federal law on organic farming of 2002
- renewable energies law (EU) of 2004
- law on genetic engineering

3. **State level:**

Transforms national laws into regulations and enacts its own laws if issues are not directed by the national state.

- fertilising regulations
- animal feed regulations
- organic farming regulations

4. **County level:**

The County implements the regulations of the state of Brandenburg. Where the state has not stipulated basic regulations, basic regulations from the next highest level are used. The County does not enact its own regulations. It only can only add a regional focus to state regulations, especially in determining fees for public services such as rubbish and sewage disposal, the drinking water supply, and public transport.

Because not all regulations can be described in this work, the most relevant regulations for rural society and agricultural production will be discussed as examples below.

Effects on regional development

As described above, there has been a political change in the orientation of agricultural development in Germany since 2000. An attempt has been made through various model projects (LEADER I & II, Region Aktiv, Regionalbudget) to begin decentralising approaches to development. This development has been strengthened by EU policy, in Regulation (EC) No. 1698/2005 on support for rural development, which was agreed on by the Council of the European Union in September 2005. This regulation is the basis of the so-called 'second pillar' of the Common Agricultural Policy (CAP), which focuses on three commonly agreed core policy objectives, called axes. The first axis focuses on improving the competitiveness of agriculture and forestry, the second on supporting land management and improving the environment, and the third on improving quality of life and encouraging the diversification of economic activities. The new EU policy is particularly important for a) agro-environmental measures (AEM), which are part of the second axis, and b) the fourth methodological axis dedicated to the LEADER approach, as at least 5% of funds have to be allocated to the LEADER axis in Brandenburg. The LAG Barnim founded and with GLES (2007) submitted a regional development plan for agricultural areas for 2007-2013, which is a follow-up to the Region Aktiv Gruppe.

The AEM was introduced in 1992 and remunerates farmers for activities that go beyond the usual Good Farming Practices. In particular for AEM, the new regulation introduces auctions as an additional option for contracting farmers. Article 39 (4) states: "Where appropriate, the beneficiaries may be selected on the basis of calls for tender, applying criteria of economic and environmental efficiency" (European Commission 2005). This approach is regarded as crucial for the further development of the agro-environmental programme (KULAP 2007) in Brandenburg and in particular is being discussed in the various Biosphere Reserve groups as a way of limiting the effects of the biomass boom on cultivation structures and biodiversity.

Effects on agricultural structures

The most important law for the climatic region of Barnim is the EEG law (law on renewable energies). One such law, passed in 2004, requires the use of 12.5% of renewable energy by 2010, and the use of 20% of renewable energy by 2020. It also establishes guaranteed prices for renewable energies. The consequence has been an enormous increase in the cultivation of biogas plants and plants for producing ethanol from rapeseed, which explains the increase in the cultivation of energy crops such as winter rape and corn on abandoned farmland as described above. One of the largest ethanol plants is in the city of Schwedt near Barnim, where cultivation of winter rape is being expanded. This results in a) uniform crop rotation b) a disregard for the necessary breaks in rape cultivation c) impacts from the increased use of pesticides and fertilisers.

One consequence of the biogas boom has been the expansion of corn cultivation (up to 30% of the crop rotation of single farms) with all the negative effects on

water balance and groundwater contamination. Meanwhile, the negative effects of the boom in energy crop cultivation caused by EEG law are being much discussed in terms of biodiversity and groundwater contamination, especially in protected areas. The administration of the Biosphere Reserve in Barnim will initiate a regional discussion in 2008 on the sustainable exposure of soil, water, and biodiversity to such impacts.

The organic farming law of 2002 and European organic agriculture regulation 2091/92 allow for the introduction of a certificate for organic products. This helps to label and sell organic products, which is a big business in Barnim.

The fertiliser restrictions stipulated in 1998 regulate the use of fertilisers and create a framework for farmers using fertilisers. The regulations balance necessary fertiliser use with the needs of environmental protection, limiting the maximum permitted amount of nitrogen to 170kg per hectare per year.

The law on genetic engineering, with the latest changes of 2005/2006, has four purposes: The first is to protect the environment and health; the second purpose is to create a legal framework for research, development, and the use and promotion of genetic engineering. The law is also designed to guarantee the production and distribution of conventional, organic and genetically manipulated food and animal feed. But its fourth and most important purpose is the arrangement between the cultivation of GMOs and conventional and organic agriculture. Discussion on the genetic engineering law is currently continuing, with coexistence and liability provisions the main issues. For example: there would have to be a minimum distance of 150 m between the borders of two fields, one growing genetically modified corn and one with non-genetically modified corn. (p. 9 in "Entwurf einer Verordnung über die gute fachliche Praxis" – draft of a regulation for good professional practice)

4.3 Investigating networks – supply chains

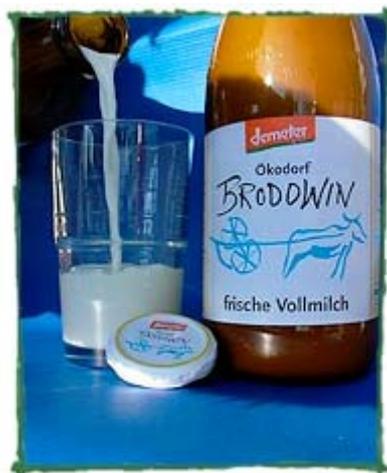
4.3.1 Supply chain 1 – Organic milk production in the organic village of Brodowin

4.3.1.1 General description

The value-added chain of Brodowin milk can be presented as an exemplary value-added chain for the development of organic agriculture and for the processing and marketing of organic products in eastern Germany.

Organic farming had a very successful start in Eastern Germany after German unification in 1990. However, whereas the growth of organic agriculture has been very dynamic there, the development of the processing and marketing industry and consumption of organic food is still below the German average. This lack of capacity is constraining the further development of the organic agriculture and food sectors in Eastern Germany.

Figure 104 Brodowin milk

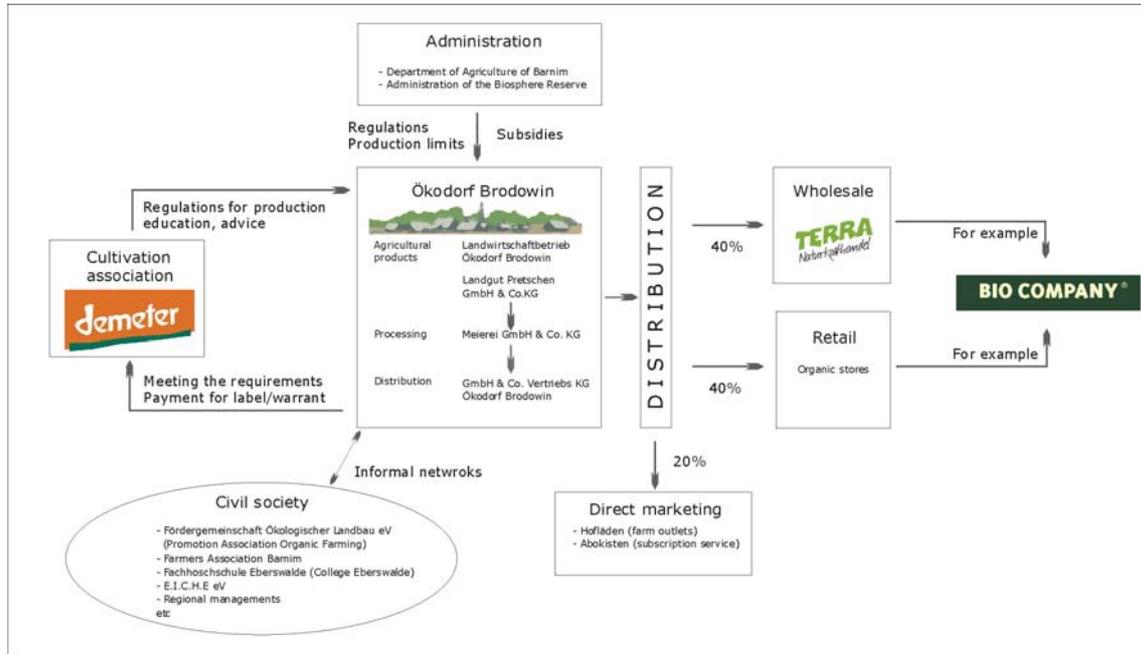


Source: www.brodowin.de

The basis of this value-added chain is the Brodowin organic village, an agricultural enterprise producing raw milk with another agricultural operator as a partner. The milk is processed in the Brodowin dairy into milk, butter and cheese, with curd cheese and yoghurt produced in cooperation with another small cheese maker (Kuhhorst). The specially founded marketing company markets 20% of the products direct to end consumers in two farmyard shops and through subscription boxes. 40% of the produce is sold to wholesalers and 40% to retailers. Wholesale is represented by Terra Naturkost Handels KG. Retail traders are divided into small organic food shops and organic supermarket chains such as Biocompany or LPG.

The setting up, labour organisation and development of this value-added chain is an example of successful regional value creation and serves other market partners as a model for the building up of similar structures or binding themselves to existing structures.

Figure 105 Supply chain organic milk Brodowin



4.3.1.2 Agricultural and forestry production actors

The Brodowin agricultural company farms on 1,250 ha. in accordance with the Demeter Associations bio-dynamic farming methods. The company was founded as successor to a cooperative in 1991. Extending production was even being considered during the GDR period because of the prevailing natural conditions, so those involved regarded a conversion to organic farming methods as a reasonable alternative after the collapse of GDR’s agricultural structures. It was promoted by flanking support measures

Figure 106 Brodowin production



Source: www.brodowin.de

The two operations together produce 2.7 mio kg of milk with an average output of 5,500 kg of milk/year. The Brodowin organic village enterprise farms on 1,250 ha of land with 280 dairy cows and the Landgut Pretschen GmbH & Co. KG. on 840 ha of land with 275 dairy cows. The cows' basic feed requirements are completely covered by the farms. The very different farm sizes in terms of a regional comparison, (see 1.1.3.2 on the structure of agriculture) are a result of their developmental history after 1990. The farms of the former agricultural production cooperatives are divided into small and medium-sized new and re-established farms, and into successive cooperatives or private companies. This explains the average farm size across all forms of farm of 198 ha, whereby regional organic farms, with an average size of 138 ha are somewhat smaller. Many new and re-establishing farmers in Brandenburg are organic farmers. In Barnim however, due to the topology, there are many small and medium-sized farms because the total area of organic farms in the entire Berlin Brandenburg region is about 209 ha.

A total of 22 farms produce (conv. + organic) milk in the region of Barnim, keeping a total of 9,800 dairy cows altogether, with a total organic milk product output of 5,500 kg/year and of 7,700 kg of milk for conventional farmers.

Private company agricultural operations have earned an average operating profit since 99/00 of EUR 77,111/year, compared with a profit of around EUR 1,070/ha, so around EUR 211,000.

The Brodowin agricultural company earns an average income (income + subsidies) across all branches of the industry of EUR 2 mio. Of this, approx. 40% is subsidies and 60% of operational profit. This is an average rate for an organic farm in Eastern Germany.

An average 80% of farm workers are contract labour, in Brodowin and Kuhhorst this proportion is 100%, of which 15% are aged over 55 and over half are women. Most of the workers – 70% – come from the surrounding villages and the majority of the management comes from the Berlin Brandenburg region, with only 10% recruited from outside the region. The average labour requirement across all forms of operation in the region is 2.9 persons per 100 ha. In Brodowin a total of 48 persons are employed in agriculture, of whom about 20 are involved in milk production. This is a rate of 4 persons per 100 ha. This significantly higher labour input can be explained by the more labour-intensive keeping of dairy cows for organic milk and very labour-intensive organic vegetable cultivation.

Production input

Environmental conditions: The enterprise farms in the Biosphere Reserve Schorfheide–Chorin on very sandy soil in an end moraine area. As already outlined in the overview chapter, soil quality in the region is very poor. The German soil quality index rates Barnim's soils at an average of 35 out of 100 points. Soil qualities at Brodowin vary between 15 and 40 points, with the average at 25. The somewhat better soil qualities of between 35-40 are packed onto 75 ha, which is

where vegetables are cultivated under sprinkler irrigation in rotation on 25 ha. The poor soil quality is accompanied by very steep short slopes and very stony soil. The growing season begins in March and lasts until the start of October with an average rainfall of 450-500 ml/year. The distribution of rainfall is characterised by dryness in early summer and rains in autumn and winter.

Proportion of arable farming land – pasture: The total area of the farm Brodowin is divided into 1,200 ha of arable farming land and 50 ha of pasture. The arable land is divided in 450 ha fodder production and the rest are cereals and vegetables. The total area of the farm Landgut Pretschen is divided into 560 ha arable farming land, 260 ha pasture and 40 ha Woodland.

Machinery equipment: The operations machinery equipment is no different from that of other operators. The dairy cows on both farms are kept in boxes-pens with access to pasture in summer and periods outdoors in winter (required under EU organic farming regulations). They are milked on a 24 Fischgrat milking parlour. The farms own calves are used for breeding and male calves are sent to an organic fattening facility.

Figure 107 Brodowin cows



Source: www.brodowin.de

Costs structure: The costs structure in both enterprises is characterised by quality-oriented milk production, which relies on high forage output with summer pasturing and high quality hay. 7-9 dt of concentrated feed is consumed annually (completely organic concentrated feed because these are Demeter farms). Labour costs make up 30% of costs, followed by direct costs with a proportion of 24%. Direct costs include stock replacement, milk for calves (14 days), concentrated feed (increasing concentrated feed prices mean that the proportion of these costs is now 10% of total costs), veterinary costs, energy costs, and keeping costs. These are followed with a costs proportion of 18% by roughage costs and the cost of the premises. At 4%, the costs for the milk quota and the 3% administrative costs can be regarded as small. The enterprise covers its costs through a milk price of 38 ct/kg of milk with a milk output of 5,500 kg.

Labour and intellectual capital: As mentioned in the introduction, only contract labour works on the farms. The average rate of pay is EUR 7.50/h for a 40-hour working week. This means that the average hourly rate of pay is above the normal regional average (EUR 5.50) for agriculture. This somewhat higher level of wages can be explained by the higher requirements of specialist know-how at all levels of the operation. Organic farming makes other demands on staff in terms of expertise, and in particular on the expertise of management. This demand is further increased by the special production requirements of bio-dynamic agriculture. Both operations place great emphasis on internal staff training. All Brodowin/Pretschen employees have an agricultural qualification (apprenticeship or college qualification for the workers, degrees for management). Since there are only very few public training or qualification courses available for organic farming, especially in Eastern Germany, the enterprises attempt in association with other partners to make up for this lack by providing their own training.

Cooperation: In order to minimise machine costs, an agricultural contractor is employed for various tasks, in particular for the feed harvest (pressing, ensilaging). Over the course of the enterprises development, two independent offshoot enterprises (dairy and distribution company) were founded, which are economically independent in the enterprise group but are represented together in public under the Brodowin organic village label. Various forms of cooperation are also maintained with 10 other organic agricultural enterprises.

One special form of cooperation is in the area of training. Brodowin organic village is a cooperation partner of the bachelor programme in Organic Farming and of the masters programme in Organic Processing and Marketing at Eberswalde University. The effectiveness of homeopathic cures in animal husbandry is also being researched in cooperation with FiBL, the "Forschungsinstitut für Biologische Landbau" (organic agriculture research institute) (Switzerland).

Production output

Yields/output: Average milk production for both operations is 5,500 kg/year for milk with a 3.8% fat content. With total regional milk output of 640,000 t/year from the average output of organic and conventional dairies, there is a basic output of 6,600 kg/year of milk with a 3.8% fat content.

In the whole region Berlin Brandenburg about 8,086 natural persons (5,000 fulltime workers) work in 844 milk-producing dairies, which is an average quota of 9.5 persons employed in milk production per dairy. 178,700 dairy cows are kept across the region, with the tendency towards declining numbers.

The Barnim region is home to 22 dairies with 445 dairy cows per operation and an average milk quota of 1,599,611 kg/dairy.

100% of Brodowins milk is processed direct in its own dairy and can thus be provided to the dairy at cost-covering production prices of between EUR 0.38 and EUR 0.40/kg. The profit margin is between EUR 0.05 and EUR.10/kg.

Because there is a high awareness of Brodowin throughout the region as a pioneer and a Demeter producer, its produce can be sold as a unique, premium product. Management does not regard the normal food market as a leading market; rather a conscious distinction is made in terms of price and quality. Brodowin cooperates well with the only other regional organic milk processor (Meierei Münchehofe – whole region) and does not view them as a “hard” competitor. The fresh milk products of the Gläserne Molkerei in Rostock (Mecklenburg), whose pricing developments will be observed, are more of a competing product.

Marketing: Brodowin organic village has a special position in the region due to its development, size and differentiated product range. The farm is involved in various networks (professional and organic industry networks). At a national level, it belongs to the network of organic demonstration farms. On a regional level, it is represented at various trade fairs (Grüne Woche/Green Week etc.), offers farm tours, open days, farmyard festivals, and in cooperation with other partners in the value-added chain (wholesalers, retailers), advertising campaigns at markets, on the radio, in newspapers, etc. Scientific research has been and is being carried out at the farm in the areas of organic agriculture and environmental protection and training is provided in cooperation with the University. This has been pursued since 1992 in various forms and levels of intensity, so there is a very high level of awareness of enterprise throughout the entire region. According to a current study, 90% of all purchasers of organic foods throughout the region have heard of the Brodowin organic village. The level of brand recognition of Brodowin in the industry for the Berlin Brandenburg region is 100%.

External effects

Organic agriculture is a form of farming that is adapted to prevailing environmental conditions, avoiding negative effects on the environment due to overly intensive production etc.. A 7-field crop rotation is practised, which is characterised by clover and forage cultivation. Intensive vegetable growing is practised in rotation with legumes cultivation. The manager regards the sustainable securing of soil fertility and prevention of soil erosion by wind and strong rains as particular challenges. There is an attempt to keep soil fertility stable through the use of organic fertilisers derived from animal husbandry, perennial clover and the partial ploughing under of straw. Animal stocks are too small to supply all areas with manure, so this is a weak point of the enterprise. Management tries to minimise soil erosion through soil cultivation without the use of ploughs, catch cropping and undersowing.

Since both farms are in natural protection areas, they must comply with various regulations (late mowings on grasslands, etc.) which are supported by the Kulap programme. Brodowin also implements various small environmental protection measures on its own initiative, which are not financially remunerated, such as field

margins (5 m) as areas of retreat, the planting of hedges (which is partially funded), pathways for a particular toad species, protected areas for orchids, mowing prohibition on areas when safflower is blossoming there, etc. All these programmes are monitored by the Biosphere Reserve management and scientifically evaluated by Eberswalde University and the Humboldt University in Berlin.

All this has over recent years increased levels of biodiversity, which during the GDR period was very limited, and has allowed areas close to nature to recover from the negative effects of the intensive production of the 1980s.

A further positive effect has been the creation of jobs in the region. Even though the number of about 110 jobs that have been created purely in the value-added chain and that are directly connected with the product is a very small percentage of the total number of workers in the sector, these jobs, especially those in agricultural production, are crucial for the villages around Brodowin. From the various sources, a total added value of the organic village (excluding wholesalers and retailers) in the region of EUR 10 mio can be identified. This is a lot for an organic agricultural production and processing structure in the region.

In addition to this, jobs at Brodowin involve high levels of know-how and above-average payment for the region, which has a supra-regional image. This especially applies to the training of apprentices (a total of 10) and to the training of student apprentices.

As mentioned in the other sections, the Brodowin organic village as a group of enterprises in its function as a pioneering organic farm, is an active participant in various networks and the professions, in regional development and in the sector:

Professions: Bauernverband Berlin Brandenburg (Berlin Brandenburg Farmers Association), cattle farmers association, milk producers association

Sector: Demeter Association, Fördergemeinschaft Ökologischer Landbau Berlin Brandenburg, organic processor and marketers associations

Regional development, social networks: Fördergemeinschaft (supporters group) of the Biosphere Reserve, member of "Region Aktiv", founding member of the new Leader Group, member of the advisory board of the "Integrierte Ländliche Entwicklung", cooperative member of the University in both organic agriculture study programmes, founding member of the Gentechnik freien Region (genetic engineering-free region association) Schorfheide Chorin.

The answer to question of the importance of these networking activities for the three sustainability criteria (economic, social, ecological), is that at the current stage of the operations development the economic dimension of networks is negligible. This was previously not the case, because publicity visibility and political support were promoted, which has resulted in economic growth. The social

component is now however the most important dimension for the promotion of social contacts and the exchange of knowledge so that the region as a whole can further develop, which will contribute to retaining the regions viability (this is important e.g. in attracting experts from outside the region as managers). In the area of environmental protection the activities are a "social and ecological responsibility" as well as an economic necessity (e. g. Gentechnikfreie Region – genetic engineering-free region), because its biological framework conditions ensure the farms survival.

External factors

I have described the environmental preconditions in the section on production inputs, so here I will just briefly mention the resulting restrictions on production:

Poor soil qualities – low yields, not possible to grow wheat, no grass propagation, vegetable cultivation restricted to 75 ha, problems with humus building, the soil has hardly any ability to store water.

Low rainfall with a tendency towards dryness in early summer, strong rains – vegetable cultivation area 100% sprinkler irrigated, risk of soil erosion, in drought years massive drop in marketable produce yields.

Steep slopes and stony soil: soil erosion, restrictions on machine sizes, high repair costs

These unfavourable framework conditions mean that economically feasible production is only possible in connection with the higher producer prices paid for organic produce and through public subsidies. The proportion of public subsidies for the product milk is about 18-20% (depending on the obtainable producer price). The subsidy consists of (as of 01/01/2006):

- ➔ Assistance for land use (CAP)/ha: arable farming land: EUR 193, pasture: EUR 90
- ➔ Compensation for disadvantaged areas: average: EUR 33.00/ha
- ➔ Organic farming/ha: GL EUR 120, AL EUR 137/for livestock stocks of 0.3 GV/ha, vegetable cultivation: EUR 22/ha

Other agro-environmental measures: late mowing, hedge maintenance, Natura 2000 areas together on average EUR 71/ha. These are combined in the "Förderung umweltgerechter landwirtschaftlicher Produktionsverfahren und zur Erhaltung der Brandenburger Kulturlandschaft" (KULAP) programme, which promotes extensive, environmentally sustainable farming. One point of the programme is financial support (introduction and maintenance) for organic agriculture in accordance with EU organic farming guidelines, which are oriented towards area and type of farming (arable farming land, permanent pasture, vegetable cultivation, strawberries, spices, medicinal and ornamental plants, permaculture). Funding for organic agriculture is somewhat lower in Brandenburg in comparison with most other

Federal German states. This may be because the conversion costs of the mainly extensive farming in Brandenburg are relatively low.

An obligatory period of 5 years applies for organic agriculture and the other environmental measures. If an enterprise were to utilise the measures of the new Kulap programme 2007 in all its various possible combinations, the result would be an average premium of EUR 171/ha. This is a reduction in the premium for agro-environmental measures of 25% compared with the 2000-06 programme.

The binding of premium payments for extensive use of grasslands (organic or conv.) to a minimum livestock stock per hectare was also newly introduced in 2007. This has had a massive effect on the widespread extensive use of grasslands by farms that do not keep animals, which now have the option of either giving them up or intensifying them and producing biomass for biogas production.

The decisive legal framework that goes beyond the normal production regulations for agricultural operators – are the Natura 2000 regulations, the Biosphärenreservatsgesetz (law on the Biosphere Reserve) and EU regulation 2092/91 on organic production. These are exceeded by the private-sector guidelines of the Demeter Association and therefore represent only the minimum legal requirements for the operation.

Non-market influences on decision making from institutions and other external influences: The decisive influences on Brodowin's development have arisen firstly out of its history as a successor to the LPG (East German cooperative farm), which continued to be run as a cooperative and with through the natural conditions, the setting up of the Biosphere Reserve and the personal conviction of the then management, decided to pursue organic agriculture in its most established variant of bio-dynamic agriculture in accordance with Demeter guidelines. The swift spread of organic agriculture in the former East German states in 1991 and 1992 must be seen together in close context with the financial support from the EU's extension programme (under EU Regulation 4115/88). This programme was especially attractive in grassland regions and low-yield areas in north-eastern Germany, contributing to ensuring farmers liquidity.

As well as its pioneering role, image/influence on other enterprises, and the regional consumers view of organic production, decisive influencing factors today include a) the personal convictions of management, b) the production guidelines of the Demeter Association, c) the requirement of compensating for poor natural conditions through know-how, innovation and diversification and meeting public expectations.

Diversification

Agricultural production in Brodowin and Landgut Pretschen GmbH & Co. KG. has been divided from the outset into milk production with its accompanying basic feed production and marketing of male weanlings, and marketable produce, bread

cereal, sunflowers, oats and buckwheat and vegetable production. Market developments and political decisions have and have had an influence on the development of production, although the basis of organic farming has never been called into question. One important change in the branch of production was the decision in 1996, arising from the then low yields from dairy cattle production, to include vegetable cultivation, because it is high-yield and labour-intensive. Vegetable cultivation is now the area with the highest growth rates (also the provision of sprinkler irrigation), but it is restricted to 25-30 ha in rotation due to poor soil quality. There is also 2,500 m² under greenhouses. If the farm can buy suitable land for it, this branch should definitely be expanded. New cooperative relationships are also being considered to enable vegetable cultivation in more suitable regions.

The enterprise developed its own processing sector in the mid-90s due to very low prices for organic milk on the one hand, because there were no purely organic dairies, and on the other hand because funding programmes were designed for the setting up and expansion of a processing sector. Having their own dairy enabled them to obtain sustainable prices and these become established on the market. Growth rates of 15-20% have been achieved in milk production over the past 5 years. The size of dairy herds is set to increase in future, dairy capacity will increase, and farms will produce their own concentrated feed to reduce the high cost of concentrated feed.

As a further internal developmental step, a processing sector for vegetables is to be set up and, perhaps in cooperation with other farms one for jams and juices (juice production from mixed orchards is currently outsourced).

The development of diesel prices will have a decisive influence on production costs, although this can hardly be compensated for by strategies. The abolition (in 2006) of reduced diesel prices for agricultural operators has resulted in a 30% increase in energy costs. In reaction to the high energy costs the cooling and heating systems in the dairy have been improved and a small Holzblockheizkraftwerk (wood-fired heating and power generation system) has been built for the operation. The cultivation of renewable raw materials does not play a role in organic operations.

Regarding developments up until 2014, only two deciding external factors can currently be identified. Firstly, how will consumers behave in terms of accepting genetically engineered products and how will purchasing patterns develop (premium versus discount, regional products versus global goods)? Secondly, how will changes due to climate change affect natural conditions and what adjustments in production will be necessary in consequence (other varieties, more catch cropping, perennial forage cultivation)?

Political decisions have a mainly indirect influence on these issues; the use of subsidies to set up and expand processing, for example. Only in the area of legislation on genetic engineering can a direct influence be assumed. Since political decisions (coexistence) may threaten the enterprises very existence, it has founded

an initiative together with other affected enterprises to mobilise against it – Gentechnikfreien Region (gene-technology-free region).

4.3.1.3 Intermediary production actors

Processing

Raw milk is processed in the Meierei GmbH & Co. KG. In total, 2.7 kg of milk is processed into fresh milk with a 3.8% fat content and 1.5% fat content (70%), the rest in butter and cheese (Gouda and Mozzarella). This is the only dairy in the Barnim region. There are 5 dairies in the Berlin Brandenburg region, of which 2 (Brodowin and Münchehofe) are purely organic milk dairies. The other three belong to the Campina company. Of the 20 –23 mio kg. of organic milk produced in Brandenburg, only 4 mio kg is processed in Brandenburg. The rest is processed in the Gläserne Meierei in Rostock with a total processing amount of 33 mio kg/year (Mecklenburg Vorpommern). 1,120,000 mio t of milk is produced from conventional farms across the region, which means that 20% of the milk produced in the Berlin Brandenburg region is organic milk. The industry's total turnover is EUR 336 mio and it employs 650 staff.

Production input

Seven people are permanently employed in the dairy, generating turnover of EUR 4 mio. Energy and packaging costs (recyclable bottle system) make up the highest proportion of production costs, followed by labour costs and then the cost of raw materials. Machinery costs etc. are fairly low. Because the dairy is in the possession of both operations, it can only react to increased raw materials costs by passing them on to trade. High energy costs have led to an increase in energy efficiency. Wages costs are average for the region, whereby the special know-how involved in cheese production is both maintained and promoted. The milk production is not homogenised.

Cheese production is the most labour-intensive and time-consuming branch of production, but also the one that generates the most profit per piece and overall. Mozzarella, Silani and the Brodowin Bauernkäse (a low-fat semi-soft cheese) are produced.

Production output

Of the 2.7 mio kg of milk produced annually, 1,890,000 kg is processed into fresh milk (with a fat content of 3.8% or 1.5%), 540,000 kg is made into butter and the same amount again into cheese. This is only 4.2% of the total production of 640,000 t of milk in the Barnim region.

The processed milk is passed on to the trade at prices of EUR 0.50 (98-2002) – EUR 0.80/l (06-07), depending on the situation of the market. With an average

profit of EUR 0.05/l, fresh milk production has only been positively profitable again since 2005.

There is little competition on the market, because the other regional dairies have significantly less capacity and Brodowin does not allow its products onto the discounters lists, so there is no price competition with "cheap organic milk" (priced at EUR 0.70 – EUR 0.90/l in discount supermarkets). The fresh milk products of the Gläserne Molkerei are a competing product, although their retail prices do not diverge significantly.

External effects

There are no identifiable negative effects of the processing sector. The 7 jobs are irrelevant for the regional labour market, although they are the only qualified milk processing jobs in the region and two apprentice cheese makers are also being trained.

External factors

Two main sets of legal regulations apply to the dairies. Firstly, the restrictions of the EU organic Regulation 2091/92 (restrictions on additives and preservatives) and the Trade Chamber's regulations on cheese production. These means that all employees must have special expertise and that a master cheese maker must be on hand. It must also be noted that the Demeter guidelines more strongly restrict production than the EU Regulation does.

Distribution

The dairies' products are distributed through the GmbH & Co. Vertriebs KG Ökodorf Brodowin. The distribution company all collects and markets products and from the farm and the dairy. Like the marketing company, it specialises in handling organic products; its own and those of cooperating enterprises. Three other marketing companies which are linked to the growers associations are active in the region. (Bioland – organic grains; Biopark – organic meat, GÄA – fruit and vegetables).

Production input

Agricultural products: vegetables, meat, buckwheat, bread cereals, oats, sunflowers.

Dairy products: Fresh milk in four packages (2x recyclable bottles, 2x pillow bags), butter, cheese, curd cheese.

Products from 10 other operators, especially those for direct marketing to end consumers, are distributed in cooperation: honey (there are bees on the farm), juice, vegetables, fruit, sheep and goats cheese, sausages, curd cheese.

The distribution company generated a turnover of EUR 4 mio with 8 employees, with labour costs the highest costs factor, followed by the costs of storage, packaging and marketing activities.

Wages are slightly above the regional average, because the special marketing structures demand very specialist know-how. The percentage of women working in this area is especially high at 80%. The enterprise offers and runs training courses in cooperation with the wholesaler.

Production output

Sales prices vary according to distribution paths. 20% of goods are supplied to end consumers through two farmyard shops (price per litre of milk EUR 1.00) and subscription boxes. The subscription box system functions as follows: the consumer orders a basket of different components (bread basket, vegetables, meat) as required – there are 22 different combinations of products possible, each with a set price, which are delivered 6 days a week in the Berlin Brandenburg region and once a week in Mecklenburg and Saxony-Anhalt. A further 40% are delivered to wholesalers and other processors and the rest (especially processed products) go directly to retailers.

Goods are distributed within a radius of 500 km, which takes in Eastern Germany and Hamburg.

External Effects

The negative external effects of marketing are negligible. The jobs created might be regarded as positive effects, although the effect on employment across the entire region may be as regarded as slight. The founding of the marketing company has allowed for an increase in regional added value and enabled the premium concept to be consistently continued.

External Factors

Legal framework regulations above the normal standard are set only by EU organic regulations. The economic growth of the marketing company depends on the growth of agricultural production and processing.

Other determining external factors include, a) the expectations of customers and end consumers and of wholesalers and retailers, b) the development of cooperative relationships and c) the adjustment to market developments in the sector.

Wholesalers

Terra Naturkost Handels KG handles 40% of the goods distributed via the marketing company. Terra is the biggest organic wholesaler operating in the region as a whole. The company was founded in 1990 and is a wholesaler of a full range of organic products specialising in the region of Eastern Germany. 600 shops (organic food shops and supermarket chains) are currently supplied with products from 240 suppliers, of whom 25 supply from Brandenburg. Terra's total turnover is EUR 20 mio annually, with the total turnover of organic wholesalers at EUR 45 mio (2005). Turnover grew in 2006/07 by 25% respectively.

Production Input

The wholesalers' biggest costs are now energy costs (storage, cooling and delivery) although labour costs would normally be the biggest costs factor. The wholesalers have various storage and cooling capacities. The company's fleet includes more than 20 refrigerator trucks, 3 delivery vehicles and a freezer truck. Only a small proportion of the big increase in energy costs has been saved through further transport and storage optimisation. Part of the vehicle fleet was converted to bio diesel in 05/06, and the rest is due to follow.

Jobs at Terra come with high demands on the specific know-how of all employees. Terra provides a comprehensive range of training courses and seminars, which are not only for its own staff, but are also open to others from the natural food industry.

Production output

With an average profit margin of EUR 0.05-0.15 wholesalers can achieve the largest profit margin per unit. About 1,080,000 mio kg of milk products from Brodowin are distributed through Terra. Brodowin products make up only a small proportion of turnover of overall turnover, but are important as individual products.

External effects

The impact of the wholesalers transport might be regarded as a negative external effect, although Brodowin products are very efficiently marketed in the region in the generally very transport-reliant wholesale food market. Terra regards itself as a specialist wholesaler and seeks to build and maintain stable supply relationships with regional producers. Terra's effect on employment in the value-added chain is small, but Terra has an important function as an employer in the growing organic scene in Berlin as medium-sized company.

External factors

As mentioned in other sections, EU organic regulations are also binding as framework legislation for wholesalers. The commitment of the management of the wholesalers in developing the organic market and all its framework conditions plays

an important role as a further external factor. The organic food trade is seen not just as a business but also as social and ecological responsibility.

Retailers

Regional retailers are partly supplied by Terra and partly direct by the distribution company. Direct sales are made mainly to smaller independent retailers and health food shops, while the organic supermarkets (35 shops in all) are supplied through Terra. Brodowin products are not listed for conventional retail.

Unfortunately there are no current sales figures available on Berlins organic food market, but the total turnover of the organic food market has undergone a double-figure increase with amazing speed. Last year the organic market recorded a plus of 18% with sales of EUR 4.6 bn (2004: 3.5 bn). Fruit and vegetable sales increased by 42 and 21%. This growth curve is even more impressive if one looks further back. At the beginning of 2000 food retailers (not including the discounters) sold just 200,000 l of organic drinking milk weekly. In April 2006 it was 1.8 mio l – 9 times as much.

The market share of organic foods in Berlin is currently about 12% of the overall market. Of this 12% only 7% is generated by organic supermarkets. As the biggest chain of organic supermarkets in Berlin, Biocompany generates a turnover of between EUR 45-50 mio um annually and according to its management, occupies about 3/5 of the organic supermarket niche.

Production input

In terms of inputs, the purchase of materials is the biggest cost, followed by staff costs, which can sometimes even be smaller than te cost of premises, depending on the location of the business. After these, the other costs are divided fairly equally: distribution costs – packaging of goods, energy costs. Administrative costs are not inconsiderable for larger businesses, to which must also be added advertising costs.

A further important input is the special demands made on staff. The Biocompany company currently employs 220 permanent staff and 60 assistants, plus 27 trainees at the moment. Wage levels can be regarded as normal for the retail trade. There are no exact figures on job numbers throughout the organic food retail industry as a whole, but there are an estimated 3,000 jobs in natural food shops and organic supermarkets (not including discounters).

According to the company, the current difficulty in the face of such dynamic corporate and market growth is that not nearly enough of the required staff are available. The demands of organic food retailing in terms of average expertise are much higher than in normal food retailing. A lot of money is invested in this area, which makes up a large part of staff costs.

Production output/external effects and factors

The prices obtained for Brodowin milk differ somewhat according to the form of retailer, fluctuating between EUR 1.05 – EUR 1.20 a litre. Different profit margins are possible, depending on whether a wholesaler has been involved in the transaction or not. Milk products are however very important products for the total sales of all organic food retailers, making up about 20% of total sales, according to estimates.

It is very important that organic food retailers clearly distinguish themselves from conventional discounters. According to industry surveys, 48% of all persons buy organic food from conventional discount supermarkets. 70% of the increase in sales in 2006 went to the discounters. Specialist retailers must clearly distinguish themselves from them. Various strategies are used to do this – increasing advertising with regional product chains, the Bio mit Gesicht (organic food with a face) ad campaign, clear differentiation between EU organic (products that comply with the minimum requirements of EU organic regulations) and Premium Organic (products that also comply with the guidelines of a producers association).

4.3.1.4 End consumption actors

In examining the last link in the supply chain, end consumers in Berlin and Brandenburg, the two markets must be separated – Berlin as capital city and the rural region. Exact figures on how the two markets are divided up are not available. According to estimates from surveys and in the literature, 80% of Brodowin's milk products are sold in the Berlin-Brandenburg region and 20% outside it.

Demand

Demand for milk products in general has been stable for many years (since 2000). Demand for fresh milk is 64.5 kg/year. Consumption rates of processed milk products continue to increase. 31.3 kg of cultured and mixed milk drinks – including kefir, chocolate milk drinks, and set and unset yoghurt – are consumed. In 2006 consumption of these products was 30.5 kg and in 2005 it was 29.8 kg. The consumption of fresh organic milk has increased annually by 5% since 2004 and is now nationally at 420,000 t of milk produced. In contrast to the conventional market, more of this type of fresh milk is drunk and more processed products purchased.

Organic milk prices to end consumers vary greatly depending on where they are purchased. Prices in discount supermarkets are about EUR 0.70/l for organic milk compared with EUR 0.45 for conventional milk, and among natural food retailers prices are between EUR 0.90 and EUR 1.20, depending on the supplier and brand. Prices for conventional milk products (butter) rose swiftly in 2007 by 31.4%, so the profit margin between organic and conventional milk was lower in the discount supermarkets.

In order to accurately assess the organic food market in eastern Germany, it is necessary to examine its development. Consumers could buy organic products in the GDR, so the corresponding marketing structures had to be set up from scratch and new consumers attracted to the products after 1990. In comparison with western Germany, sales of organic products are still lower than average. The regions of the former East Germany make up 23% of the German population, but only one-tenth of organic product sales are generated there. This is due to this population's weaker purchasing power, the insufficient range of organic products available and the greater distance to "alternative" shopping options and to health-conscious lifestyles etc. Organic food is mainly bought (42%) from conventional food retailers, supermarkets – a peculiarity of consumers of organic products in eastern Germany. This peculiarity is convenient for development of organic supermarkets in the big cities. In Berlin organic food sales have increased by about 20% over the past three years, and this although regional incomes are just 80% of average national incomes (Berlin EUR 15,773/p.a. – Barnim EUR 16,500/p.a.). This fact can be explained through consumers' growing awareness of health issues, regionality and sustainable business cycles, so priorities shift within the incomes earned. Food costs as a proportion of total costs are about 12%, but this is growing in the target groups for organic food (graduates, students, families with small children) to up to 15-20%.

External factors

It is crucial for Brodowin products that they are clearly linked with the region and are produced with the highest quality characteristics of the Demeter Association. The regional factor is decisive in fixing the high price levels, because awareness of the brand, even among consumers who do not regularly purchase organic products, is higher than average, although the products are only sold by specialist natural food retailers. The dynamic of the supply chain cannot be depicted without going into the details of the development of the market as a whole.

The producers involved in the supply chain under examination here – milk producers – have after years of declining and stagnating producer prices for organic milk in Germany, been able to significantly increase their profit in 2007.

According to current estimates by the ZMP (Zentrale Markt und Preisberichtsstelle – German central marketing and prices reporting agency) the national average price for organic milk in comparison with the previous year has increased by 6.4 cents to 41.4 cents per kilogram. These figures are for milk with a 4.2% fat content and 3.4% protein content with an annual quantities delivered of 150,000 kg. All relevant surcharges and deductions are included in this price. The additional profit from organic milk production compared to conventionally produced milk has therefore increased to 7 cents per kilogram for milk with the same fat and protein content.

4.3.1.5 Dynamics of the supply chain

Reasons for major shifts in the past

Organic food sales increased in general food retailing in 2006 by around EUR 650 mio compared with 2005, an increase of more than 40%. This enormous increase in turnover in general food retailing was mainly ascribed to four factors:

- The biggest impulse for growth in 2006 came from an expansion in the product range of various discounters and from industry leader Edeka.
- In 2006 more retailers (including those in the discount area) started selling organic products.
- In 2006 other retailers (incl. those in the discount area) also started selling organic products
- Shortages in the supply of organic foods led to increases in price and thus in turnover at a retail level
- Besides the general food retailers, only natural food shops (especially the organic supermarkets) and the health and beauty retailers have been able to profit from the "organic boom".

The German "organic boom" has continued now for the third year in a row, which is remarkable, since consumers' incomes over the past three years have hardly changed in real terms. This shows that German consumers not only wanted to buy cheap food, but in 2006 were prepared to spend 18% more on organic food compared with the previous year. Fewer providers profit from this positive overall trend however, i.e. there are strong structural shifts in the market as a whole.

Effects of past shifts

Figure 108 shows the development in organic food sales (excluding items for takeaway consumption) in Germany since 2000. In terms of absolute sales, all marketing channels listed profited from the growth in the market. The varying degree of winners on the organic market becomes clear if market shares are taken into consideration. Since 2000 general food retailers (including discounters) and the "Others" (especially the health and beauty retailers) have won a large share of the organic market. In terms of absolute sales growth, specialist natural food shops were also able to grow from 2005 to 2006 to almost EUR 100 mio and jump above the 1 bn sales boundary for the first time. Independent retailers, in particular Edeka and smaller retail chains with a strong commitment to organic produce at a management level (e. g. tegut), also reported very high double-figure increases in turnover with their existing ranges.

Figure 108 Sales trend of organic foodstuffs in Germany



Source: Prof. Dr. Ullrich Hamm, FG Agrar- & Lebensmittelmarketing, Universität Kassel; Markus Rippin, Agromilagro Resaearch

There were also structural changes among health food shops. While in 2006 many larger health food shops recorded double-digit growth rates in sales and countless new organic supermarkets opened, many smaller health food shops had to close, despite the strong growth in the market, because they could not compete with the general food retailers and the increasing number of organic supermarkets. There are no exact figures available on these shop closures but a rate in double figures is assumed.

There were even greater structural changes among agricultural producers. Here too, the increasing number of general retail trade outlets meant that many mainly small agricultural enterprises stopped selling to end consumers, because it was hardly worth their while. Larger farmyard shops offering a wide range of their own and regional specialities were in contrast able to report considerable growth in sales in 2006. Organic meat in particular, which only a few general food retailers sell fresh, has in recent years become a big "sales bringer" for primary producers.

Possible reasons for future shifts

Total growth in organic food sales in 2006 could also have been much higher if the increasing bottlenecks in supply had not slowed the expansion of the product range. The strong growth in consumer demand for organic food over the past three years has so far not had any effect on the willingness of a growing number of German farmers to convert their operations to organic agriculture. Obviously government purchasing and price guarantees for the cultivation of renewable raw materials are more attractive to farmers for investment than the market-driven consumer demand for organic food. The provision of organic food will therefore continue to be the main topic in the organic food trade in 2007/2008, because

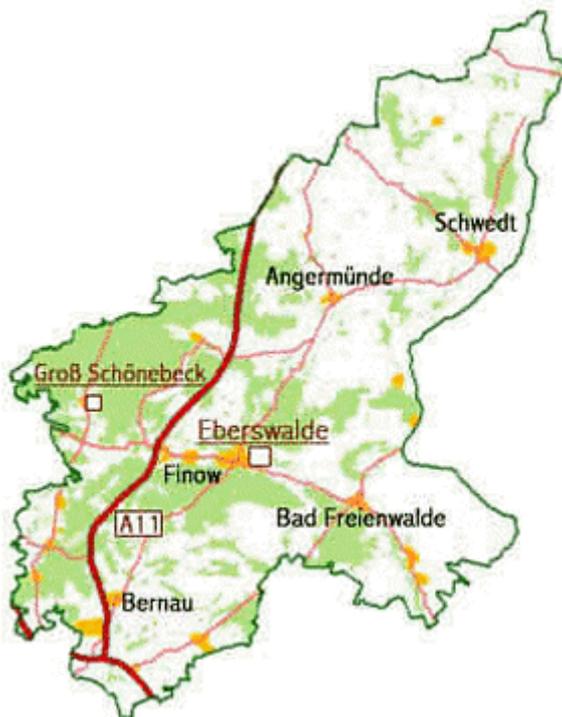
there is no end to the German “organic boom” in sight. Neighbouring countries (e. g. Austria, Denmark and the Netherlands) also reported very high rates of growth in organic food sales in 2006. Despite the wishes of many consumers and increasingly also the wishes of purchasers for some retail chains, providers in Germany will have no option but to meet the increasing demand for organic food by importing more raw materials from eastern European EU countries and other third countries.

4.3.2 Supply chain 2 – Wood production

4.3.2.1 General description

The regional demarcation of the region for this value-added chain is somewhat larger than the region normally examined because all available data is provided on this basis. The region includes the operational area of the Eberswalde Forest Management office with the Landkreis (administrative district) Barnim, part of the Landkreis (administrative district) Uckermark and part of the Landkreis (administrative district) Märkisch-Oderland.

Map 31 Area of the Eberswalde Forest Management Office



Source: www.mluv.brandenburg.de/cms/detail.php/

The total forest area is 103,400 ha. The following diagrams show the proportion of different types of forest ownership and the types of trees that go to make up the forest. 45% is state forest, 7% is communal forest, 3% is national forest and 7% is

owned by the city of Berlin. A total of 62% is public forest and the rest is privately owned. The forests consist of 70% coniferous forest, especially pines, and 30% deciduous forest, such as oaks and beeches.

Figure 109 Ownership in %

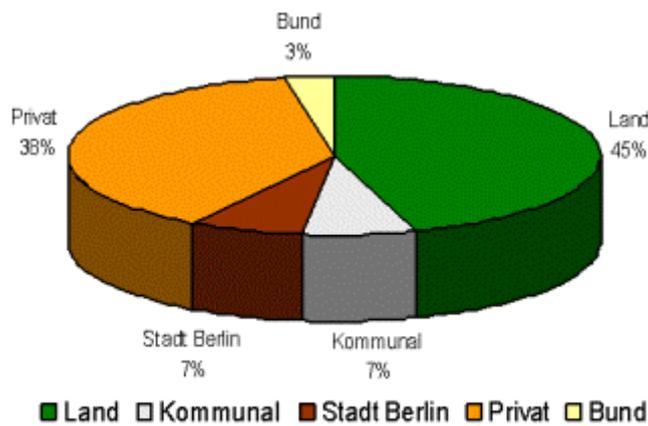
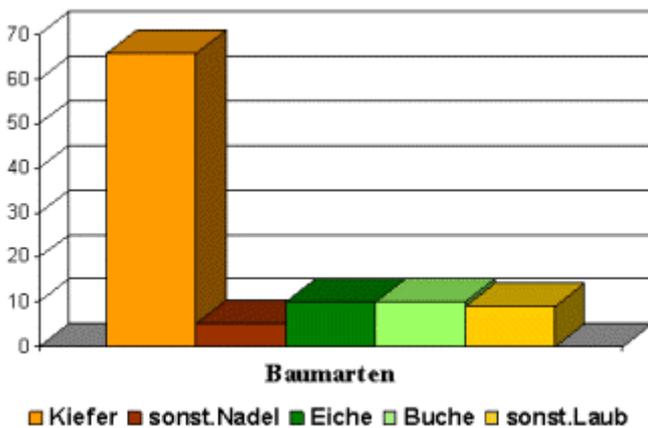


Figure 110 Tree varieties



Source: www.mluv.brandenburg.de/cms/detail.php/bb2.c.429627.de

The value-added chain comprises the following elements – the forest owners produce different types of timber – trunk wood or pulpwood. Trunk wood is processed in four sawmills (into building timber, wood for furniture, wood pellets, etc.), of which 25% is then further processed by smaller regional operators. 75% is exported out of the region. Two-thirds of the pulpwood is sold to two large customers outside the region but within Brandenburg and is processed there into wooden board for the building industry and then exported. A set amount of wood (20,000 m³) has been going to Sweden since 1991 for the pulp industry.

4.3.2.2 Agriculture and forestry production actors

Due to social developments after 1945, forest ownership is much smaller in terms of its ownership structures than it is in West Germany. Before 1945, a majority of the forest in Barnim was held in private ownership or by the government, with just 5 families owning almost 80% of the forest.

In 1945-46 all forest property over 50 ha was seized and partly nationalised and partly distributed as part of the land reform. All forest was subsequently managed as state-owned forest. After the fall of the Berlin Wall, some of the forest property that had been subject to the land reform was returned to its previous owners, but the majority became either state-owned (national forest, state forest or communal forest) or was sold through a very complicated procedure (these sales have still not yet been completed). The proportion of publicly owned forest is therefore 62% and privately owned forest is divided among many owners with very small areas (2-10 ha) and a few with larger ones (200 ha and more).

Production inputs

Forest management in Barnim costs EUR 20 – EUR 25 per solid m³ depending on the area, with a production of about 6 solid m³ per ha, or EUR 120/ha. Machine costs and labour costs make up the highest proportion of costs, depending on whether the forest is sold according to market prices or is discounted. Loan costs and taxes must also be added, and energy costs are making themselves felt in that the cost of diesel for machinery has increased considerably.

These high costs meant that hardly any wood was cut in privately owned forest until 2000: it was fallow. State-owned forest could only be operated at a loss and forest restructuring measures were funded so as to be able to sell more hardwood such as oak or beech in the longer term. One reaction to the very small separate areas of privately-owned forest has been and is to join forces in forestry cooperatives. These then have a size of about 300 ha (in Brandenburg) and can therefore be better managed by a contractor. Areas are also leased to the national forest office.

Labour and intellectual capital: There is no data available on jobs in privately owned forest in the region, but it can be assumed that no contract jobs are offered in privately owned forests. Because most privately owned forest is managed by contractors, this sector is further developed. Across the entire state of Brandenburg, 942 employees work in forestry services companies, of which two are in the region of Barnim. These two companies have a total of 40 employees. 280 employees work in the state-run Eberswalde Forest Management office, of whom 160 are foresters doing practical work in the forest. All contracted forest management workers have completed either vocational training or have a forestry qualification from a technical University.

Production output

The output of the value-added chain is between 2.2 and 6 solid m³ per ha of forest, whereby state-owned forest, with 6 solid m³, is much more productively managed than the average privately owned forest, producing 2.2 solid m³. From a total forest area of 103,400 ha, an average of 384,648 solid m³ is harvested from state-owned forest (including communal and national forests) and 72,793 solid m³ from privately owned forest in the region. The potential in the state-owned forest is therefore utilised to the extent that sustainable production is still possible. About 40% of potential of privately owned forest is not utilised.

The harvested wood is mainly further processed in the state of Brandenburg, from forest to completed table, roof truss or printing paper. For the Barnim region developments since 2000 have meant that an increasing amount of wood goes out of the region, is processed in the state and is then exported as finished end products. According to various statements, about 23-30% of the wood and of end products (building materials, wooden strips; furniture industry) stays in the Barnim region. Wood is exported to Sweden (90,000 solid m³ annually) and boards and pulp to India, China and Eastern Europe.

In 2004 the forestry industry in the state of Brandenburg as a whole generated a total profit of EUR 31 mio, of which around EUR 6 mio came from the Eberswalde/Barnim Forest Management office. The forestry and wood processing industries make up 5% of the Gross Value Added in the processing industry sector.

The small ownership structures of privately owned forest means that most of the wood from privately owned forest is sold either through specially commissioned contractors or the state-run forestry management. Cooperation among forest owners is still at a fairly low level.

External Effects

The landscape is characterised by glacial deposits from the Mecklenburg Stadium of the glaciation of the River Vistula. A broad spectrum of forest areas is available to the forestry industry. On the end moraines and clayey ground moraines there are nutrient-rich soils on which beech and sessile oak forests predominate. Soils with medium nutrient levels are found on the outwash plains. Pine forest predominates here, as it does in the poorer sandy areas and in the water-influenced lowlands areas alders are the typical tree and the landscape is formative.

70% of Barnim's forest is coniferous forest, comprising 65% pine trees. The predominance of pine is due to prevailing natural conditions, namely poor soil quality, and also due to economic conditions, since pine is a fast-growing tree. Only 30% of the forest is deciduous. Purely deciduous forests are found mainly in the Biosphere Reserve.

The health of the forests has significantly improved since 1990. Before this there were massive air pollution problems from the petrochemical factory in Schwedt

(Oder). Factory closures and improved filtering has decreased the proportion of diseased forest around Schwedt from 70% to 35%. All state-owned forest in Brandenburg is PEFC-certified and therefore must be sustainably managed. Since 1994 a forest restructuring programme has also been carried out to increase biodiversity in the forests and increase the forests' stability and ability to adapt to pests and climate change. The forests are also important for the region as an attraction for tourists. Large parts of the Biosphere Reserve and the Nature Park are forest and are therefore under special protection. All forests are freely accessible and can be used as leisure areas.

As already mentioned, it is difficult to break down existing data for the state to the region. A total of 15,000 people are employed in Brandenburg in wood processing and forestry management. Of these, 2,563 are employed by the state Forest Management office, with 1,369 forestry workers. There are another 101 employees in the 14 communal forestry management offices. Only 167 staff are employed on privately owned forests in the entire state of Brandenburg. Private companies providing forestry services achieve higher job figures with 942 employees currently. This means that in the Barnim region only 7% of all jobs are in the forestry industry, although the Landkreis (administrative district) is one of the most densely wooded in the state.

This can be explained through various factors:

- very efficient state-run forest management
- very efficient contracting companies
- privately-owned forest divided into very small properties

A further factor explaining the low economic productivity of privately owned forest is the low level of organisation among private forest owners. Only 50% of forest owners are organised,

- either into a private forest owners association and/or in the
- Brandenburger Verband der Waldbauern e.V. (Brandenburg foresters association)
- or into smaller forest cooperatives, which could then together commission a contractor to manage their forest properties and market the produce.

The low level of organisation, the division of forest into very small properties, and the resulting very low level of added value that forestry has as a percentage of the private forest owners' overall income (as a group), means that the contribution and interest of private forest owners as a group of potential actors in regional development is very small. This does not mean that there are no private forest owners involved in regional development in its various forms, but they are an exception. The most important actor in developing the forestry industry in the Barnim region is the state-run Forest Management office. It is represented in all major networks (in the form of various persons) and is therefore a vital and very active actor in developing regional cycles for using wood as a source of energy. The active role taken by what is really a government institution is related to the self-

image of Revierförster (forestry assessors) and head foresters. They do not regard themselves simply as administrators but as active economic and social partners in the region.

The Revierförster (forestry assessors) are also a source of information on general government regulations and provisions (subsidies, taxes, disease control, forest restructuring, etc.) for many private forest owners. The state-run Forest Management office is responsible for implementing legal regulations, is the region's biggest forestry employer, biggest marketer and seller, and most active pioneer in the areas of sustainable forestry management and the use of renewable energies.

One example of this linking of various roles is the Wald-Solar-Heim in Eberswalde, which developed out of the (state-run) Waldschule Eberswalde (Eberswalde forestry centre) to become an international environmental education centre. The educational facility is supported by an association, with the Forest Management office and the University Eberswalde among the main responsible entities. The lectures for the "Sustainable Forest Management" and "Timber Industry" study programmes are held here. Here school classes, tourists and other interested parties can also join in experiments involving renewable energies or go on guided walking tours through the forest or the Forstbotanische Garten (sylvan-botanical garden).

External Factors

As described above, poor soil qualities result in widespread pine cultivation. No particular natural disasters have occurred so far. In 2003 there was a Nonnen (insect) invasion over 1,800 ha of the Schorfheide, resulting in massive clear-cutting. This outbreak was however contained and effectively stopped. Extensive fire or storm damage of any relevant magnitude (> 1,000 ha) has not yet occurred, although this could always change.

There is no broad funding available for forestry in Brandenburg. Funding for forestry is restricted to fire protection measures (marginal strips, wells), measures for maintaining and expanding biodiversity (biotope protection, wild fields, environmentally-friendly management – without the use of machines) and the most important measure; the restructuring of purely coeval coniferous forest into a species-rich mixed forest containing trees of various ages. This measure has been in place since 1994 and by 2006 24% of the forest had been re-cultivated and EUR 120 mio (EAGFL fund) in funding provided for this project.

Legislation: The regulatory legal framework for the forestry industry in Germany is set at a state level. The Brandenburg Waldgesetz (Forestry Act) covers all the essential basic regulations for the forestry industry. To these are then added environmental protection regulations from either the EU's Flora and Fauna Habitat Directive or the Bundesnaturschutzgesetz (Federal Nature Conservation Act) or the Biosphärenreservatsgesetz (the law governing the Biosphere Reserve), depending on the area involved. Legislation at the state level requires all state-owned forest to

be PEFC – certified (“Programme for the Endorsement of Forest Certification Schemes”).

Non-market influences on decision-making: The decisive factors for the development of the value-added chain of wood must be sought in a) economic developments on the global raw materials market and b) political/social developments in use of wood as a renewable primary product in both the private and public and industrial areas. For many private forest owners the economic utilisation of their forest is a new area and only about 40% of private forest is utilised at all. Cooperative structures and collective marketing structures and a self-image as a forest owner are all still just developing. Owners’ motives in owning forest also vary considerably. For most private forest owners, economic motives are not yet foremost among their motivation in owning forest.

This cannot be said of the public authority actors – although a shift in the political vision is significant here. Because wood prices were very low and the bulk of the processing structures had broken down in the 90s, political attention was focused on ecological and social parameters (securing jobs). Now wood prices are high enough for the forest industry to work profitably. Economic parameters are now at the forefront and the public sector is to be completely independently self-supporting (this is not possible because government tasks such as supervision, monitoring, research, information are also performed by the Forest Management offices).

Diversification

Like all other areas, diversification must be looked at from two aspects; private forest ownership and state ownership. All private forest owners derive their income from another source. These may vary considerably. Farming is just one source of income and according to estimates only about 30% of farmers also own forest. Forest ownership is therefore not a main source of income in the region.

The public authority actors are, as described above, under massive pressure from the state to increase profits from forestry and reduce costs (labour costs). In addition to the traditional forms of selling wood as trunk wood to sawmills (6-12 m) and as pulpwood (3 m) the sale of wood as wood for energy generation (split logs 0.5-1 m or 3 m) has been of increasing interest since 2000. This wood for energy generation is either sold directly to end customers for log heating or to woodchip or pellet manufacturers, who then sell it on to end customers. This form of marketing increased from 1% in 1998 to 10% in 2006. For forestry cooperation in particular, this represents a way of ensuring direct sales of their fairly small quantities of wood at a profitable price through a contractor.

Hunting is another source of income for private and state-owned forest owners. The majority of areas subject to hunting rights are leased and were thus the main source of income for 70% of private owners of forest until 2002-3. State-owned hunting concessions are partially leased and partially hunted by the foresters.

Income from hunting (leasing of hunting rights and sale of game) is an important supplement to profits from timber felling.

4.3.2.3 Intermediary production actors

The first stage of timber processing occurs either in sawmills – of which there are 5 larger mills in the region and only 1 very small one where building timber and wood for furniture is produced. Wood also goes direct to the processing industry, to a small wood strip factory (Leistenwerk Schorfheide), the pellet manufacturer in Eberswalde and to Germany's largest oriented strand board and laminate factory in Heiligengrabe (Kronoply GmbH). Another customer for whole logs is Karibu – Holzhaus GmbH, which builds wooden houses in the region.

Production input

Individual production costs cannot be specified because of the wide range of products involved, but the costs structure is similar to that in most processing industries, with overheads and machinery costs making up the largest proportion of costs. Labour costs are fairly negligible at only 10% of overall costs. Increasing timber prices are expressed as increasing prices for raw materials in the overall costs structure. These are passed on to end customers in the form of increasing prices for building materials. A certain proportion (10% in 2006 and increasing) of regional timber sources are also being replaced with wood from Poland and the Czech Republic.

Labour costs are very low because production is mainly automated. Only in the building of wooden houses do labour costs exceed materials costs, because a great deal of skilled trade labour is required.

Production output

Production output figures unfortunately cannot be provided, because there is no data available. A lower or higher proportion is exported, depending on the product. In the case of oriented strand board, 70% are exported to Asia and East Europe. 70-80% of products from smaller companies (timber strips, log houses) stay in the state of Brandenburg. Most of the building timber is also used for construction in Brandenburg and the neighbouring German states. It was estimated in the state's timber industry report for 2004 that 80% of the timber cut in Brandenburg was also processed there and that 30-50% of the timber products were used within the state.

The wood processing industry in Brandenburg generated a total of EUR 832.5 mio in 2004, which is a doubling of turnover since 1997. Wood processing therefore generated 5% of turnover from all processing industries and 3.3% of the Gross Value Added in Brandenburg.

The growth in turnover was 14.7% compared with the previous year. This is an indicator of the latent demand for regional wood products on the market (especially building timber), which in the 90s was determined by import products.

Timber has become a global product and is transported at various stages of processing all over the world.

What is interesting is that demand is so high but at the same time consumer demand for sustainable timber production is increasing, so big companies such as Kronoply GmbH are making cooperation and service supply proposals to private forest owners in the region in order to cover the demand for timber (500,000 m²/p.a.) mainly from regional forests (in a radius 150 km around Heiligengrabe).

External effects

Increasing demand supports the cultivation of fast-growing pine-monocultures and checks the effects of programmes promoting the restructuring of forests. The higher the timber price the higher the cutting quotas and the fewer the calls for support for the restructuring of privately owned forest.

Wood processing is a not unimportant employer in the secondary sector for the Barnim region and state of Brandenburg. The number of employees in the timber industry has increased by 16% from 2,830 (1992) to the current 3,326 (2003) [companies with > 20 employees]. There are also a further 900 employees in a 230 other companies [< 20 employees], which is a total of 4,220 employees in the wood processing industry in 2003/04. Unfortunately no more current figures are available, but since turnover has continued to grow, it can be assumed that more jobs have been created, although the number of operators fell from 87 to 44 in the years from 1992 to 2004. Turnover in the timber industry has increased twelve-fold since 1992 and the rate of turnover per employee increased six-fold.

External factors

Legal regulations and subsidies play only a very small role among the external factors. Global economic developments are more decisive for the positive development of the value added chain. Infrastructure funding has however played an important role in establishing new sites for the industry such as Heiligengrabe. DEM 30 mio of funding was invested by the state and national governments and the EU in relocating Kronoply (from Switzerland) in 1993. This was also the case with the two large sawmills in Wilmersdorf and Templin. Smaller firms have been supported through Federal Employment Offices or through investment incentives (low-interest loans and wages subsidies of 50% of the gross salary over 6 months for the employment of the long-term unemployed) but this is in no way comparable with the funding amounts provided for the big companies.

End consumption actors

The end consumers for processed wood products can be divided into different classes according to product sub-groups.

- Those building houses who engage a construction company
- Consumers in retail building centres
- Users of wood heating
- Furniture buyers
- Etc.

Demand

Another crucial factor in the value-added chain's development is that demand for wood products in the last 10 years has massively increased and that many customers are developing an awareness of regional cycles. 15% of all newly built homes in 2003 were made of wood, which is an increase from 1995 of 10%. There has also been a massive increase of 20% in demand for wood for heating since 2001. Together with the increasing demand in emerging market countries for high-quality prefabricated housing products such as oriented strand board and laminate this is leading to a boom in the timber industry.

External factors

The decisive external factors have already been mentioned:

- Increasing awareness of the use of renewable primary products such as wood (health, ecology, climate protection) and of the strengthening of regional cycles at a regional level
- Increasing oil and gas prices
- Economic growth in emerging market countries with rising household incomes

Demand for wood for energy generation in Brandenburg for example, can now no longer be met through the normal sources such as scrap and waste timber. This leads to an increase in prices on the one hand and the opening up of new sources such as short-term plantations.

4.3.2.4 Dynamics of the supply chain

In summary, it can be stated that at the level of forestry industry, after the collapse of 1991, a turnaround in demand has set in since 2000. Since then a fast-moving development has been set in motion, which is characterised by political, social and economic diversification. Different regional scenarios could emerge, depending on the developmental path, but what is vital is that timber prices and competition for timber use continue to increase.

For the different stages of processing, the trend of recent years has been that after establishing the industry through political subsidies and the strong growth in turnover of recent years, the supply of raw materials could be the factor limiting development.

Increasing mechanisation means that increasing quantities of raw materials can be processed, which can however only be accessed at higher production costs (using unutilised potential of private forest). This means that turnover and demand experience double-figure growth rates through tough international competition (e. g. in the area of building retail centres) but profits do not grow with them, and are in fact reduced by increasing prices for raw materials. Part of this price increase is passed on to end consumers; part is compensated for by reducing labour costs.

The mobilising of further potential raw materials, such as through private forest or cultivating plantations for example, could secure regional locations for the timber industry. The most important thing in this respect is that regional value added chains continue to be built up and further rationalisation potential is opened up through sectoral and vertical cooperation. With forestry becoming an important economic factor in agricultural areas, new private forestry operators will become established on the market. The development and promotion of small-scale privately owned forest and forestry services contractors could increase the efficiency of forest management. This could however also support a shift in added value to outside the region. A sustainable trend for the region is the timber industry's increasing closing of gaps in secondary and tertiary processing (furniture, veneers, glue).

Reasons for past changes to specific production (1993-2006)

As already mentioned, the systems for timber sales and processing broke down after the fall of the Berlin Wall in 1991, after which all processing and marketing structures had to be rebuilt.

The many cases of unsettled ownership of privately owned forest were a further brake on development. In 1992, 301,000 ha of forest area in Brandenburg was subject to unsettled ownership issues. 68% of these properties had been privatised by 2001 through the BVVG – Bodenverwertungs und Verwaltungs GmbH (the German Federal government agency responsible for administering and privatising state-owned farm and forest land in Eastern Germany).

As of 01/01/1994 there were 95,650 forest owners in Brandenburg with an operational area of less than 10 ha each owning a total area of 320,174 ha.

The average operational area was therefore about 3.3 ha. There were hardly any larger private operators. During the BVVG privatisations it was hoped that larger, economically viable, self-supporting forestry enterprises could be created. In practice however, it soon emerged that the areas of forest to be privatised were mainly fairly small areas of varying types, which would impede proper and rational

forest management. It was estimated in 1993 that only about 20% of the forest to be privatised in Brandenburg had a contiguous area of more than 500 ha. Attempts to remedy this situation in the course of the forest privatisation through prior land consolidation measures also had to be abandoned in many cases due to ongoing unsettled ownership issues.

The regulations of the EALG (preferential sale of areas to former owners at only 60% of the market value) also meant that the acquisition of forest areas was limited to a maximum of 1,000 ha per purchase. The EALG also provided farmers with the option of buying up to 100 ha of forest on favourable terms as a complement to their farming operations. On this basis, the BVVG had sold 2,179 ha of forest in 30 purchases in Brandenburg by the end of 2001. Properties above this size could only be acquired outside EALG sales at the current market value.

The original expectations that independent and economically viable forestry companies with their own staff would be created to any considerable extent through the BVVG privatisations could therefore hardly be fulfilled.

Around 40,000 ha are still to be privatised for forestry (status as of 2002). At the beginning of the privatisation it was estimated that independent and economically viable forestry companies harvesting the predominant tree type of pine would need an area of 2,000 to 4,000 ha, depending on the land's natural condition. This is currently only achieved in exceptional cases in Brandenburg and not at all in the Barnim region.

The difficult ownership issues, very low timber prices until 2000, and the lack of processing structures, meant that minimum quantities of wood were cut and that only in state-owned forest. In 1997 for example, only 20,000 solid m³ of timber was sold to Sweden from state-owned forest in the Barnim region.

Most of the wood in privately owned forest was cut for private use or at a net cost price of EUR 8/solid m³.

A very extensive timber-cutting policy was propagated due to the very limited economic potential of wood and as a political counterstrategy to the GDR's intensive wood production. The political goals of this were in fact forest restructuring, eliminating damage to forests, protecting biotopes and securing jobs in forestry management through other possible uses of the forest (environmental protection, tourism, information and educational tasks [forestry education centres], the leasing of hunting rights and the sale of game meats)

Timber prices on the global and the national market have increased since 2000 for several reasons:

- Start of production at the Heiligengrabe board factory and at three large sawmills in the region (since 1993)
- Increasing demand for building materials overseas and in Asia
- Increasing demand for pulp and paper in Asia (India and China)

- Increase in demand for wood for energy generation, for wood block heating, log heating and pellets due to the increase in the price of oil.

This has enabled production in state-owned forest to increase from just 85,000 solid m³ in 1994 to the 380,000 solid m³ harvested in 2007. This represents a four-fold increase in production output with a 50% reduction in labour costs for state-run forest. Production in privately owned forest has increased around sixteen-fold from 5,000 to 80,000 solid m³, although the potential in privately owned forest is still not nearly fully utilised.

The rise in timber prices has also changed the political and economic goals of forest utilisation. The securing of jobs was a political goal, despite job cutbacks in state-owned forestry of 50%, but the goal is now economically efficient forest usage accompanied by progress achieved in terms of environmental protection and biodiversity.

The change from labour-intensive to capital-intensive forest management (using machinery) has on the one hand led to loss of many jobs in the forests, in forestry management, and in processing and marketing. On the other hand, the formation of forestry cooperatives has been speeded up and new forestry services companies have become established. Some employees were able to pick up jobs in these companies, but it is assumed that 50% of the jobs existing before 1991 in the value added chain have now been completely abolished.

Future changes: Possible reasons for the specific production (ca. 2007-2021)

This development will be strengthened by political efforts to restructure the Forestry Offices. 900 of the 2,600 jobs in Brandenburg's Forestry Offices are to be cut by 2015. Forestry Offices are to be reduced to purely administrative tasks (implementing legal regulations, funding allocation, informing and monitoring private forest owners) and forestry management is to be handed over to private services providers. This would eliminate an important actor for the economic activities of Barnim's private forest owners, because the Forestry Office handles the majority of the wood from privately owned forest. Two possible developments may occur – 1) the informal networks of the private forest owners will increase their level of organisation, become professional, and be able to function as market actors (see the section on organic farming) or, 2) one or two services providers will emerge to dominate the market and will then act as intermediaries between wood producers and processors.

The organised private forest owners and regional Forestry Office prefer the first variant because it would provide higher levels of added value in the region. Depending on how the sale of state-owned forest is organised (open competitive bidding) this situation will develop in either one direction or the other.

The development of timber marketing can be regarded in a similar way. On the one hand, demand for wood as a raw material is increasing outside the region and higher tonnages are required. On the other hand the need to increase added value from raw materials is also growing in the region. The district administration's consideration of a European Model "renewable energies" region relies on the use of wood as a source of biomass and energy to a large extent. Demand for high-quality wood for furniture and the construction industry among regional companies will also increase and the consumption of wood by end consumers will increase proportionally with every rise in the price of oil.

The Forestry Offices and private forest owners are therefore discussing a shift in the balance of sales. Private forest owners are particularly interested in marketing within the region because of their smaller quantities. This development is being supported by various informal initiatives (e. g. E.I.C.H.E e.V.) and by the commissioning of a medium-sized pellet factory in Eberswalde.

On the other hand, demand from large industrial customers outside the region but within the state (WOBETA in Wilmersdorf, Holzindustrie Templin, the Klenk sawmill in Baruth and the KRONOTEX board factory at Heiligengrabe) is also increasing. Smaller operators in the region have more difficulties in covering their requirements at profitable prices from within the region. Here the Forestry Office regards sales and marketing as one of their tasks – to cover part of the regional demand so that currently 25% of the timber stays in the region.

If a stronger regional sale and processing of wood were a deliberate political and social goal, those involved would have to renounce profit maximisation as their primary goal. This would mean that cost-covering prices for wood could still be paid, but that the announced global price increases of 30% in the next 3-5 years for raw materials could not be 100% achieved in the region. The added value for other links in the chain in the region would therefore increase. Profit would not be maximised for individual forest owners but the regional income situation would experience positive growth. If there were to be a strong shift of timber sales into the hands of purely free-market oriented companies, sales outside the region would increase (by about 25%, which is still now sold within the region), forestry management would become more intensified and the unutilised potential in privately owned forest be fully utilised (although this would also be more fully used under Variant 1).

This example illustrates perfectly the dilemma between purely free-market oriented goal optimisation and regional political/social goal optimisation. Attempts to unite both goals (making sales both in accordance with purely free-market principles and in accordance with regional interests in equal measure) could only succeed if timber trading remained at least partly in the hands of the Forestry Offices or of active forest owners.

Biomass production is regarded by all involved as a third possible developmental path. Growth rates of 15-20% have been achieved in this area (although from a

very low level) since 2004; so new production schemes such as short-term plantations (poplars, alders) and agro-forest systems are being discussed. Supporting the use of wood and waste timber for energy production also furthers the goals of regional utilisation, because long-distance transport, of pellets for example, reduces their profitability too much for end consumers. Very small and varying qualities of wood for energy generation can also be processed, which in turn corresponds with forestry ownership structures. Depending on the level of interest, the possible proportion of wood produced for energy generation of overall timber sales in 2011 has been forecast at between 5% and 30%. One crucial factor will be the general development of energy prices, and a second will be the development of other sales and marketing structures in the region.

4.3.3 Supply chain 3 – Production and trade with seeds, “Märkische Kraftfuttermittel GmbH (Märka)”

It was planned to analyse as a third value chain the production and trade with seeds in Barnim by Märka. Unfortunately, this could only be done in a qualitative way due to different reasons (which will be explained later in detail).

The company's headquarter is now located in Zörbig, Sachsen-Anhalt; and it is one of the 100 largest companies (position 65) in eastern Germany (Berlin excluded).

Development until 2006

The head office of Märka was based in Eberswalde from 1955 until the 01/10/2006. The markets of north-eastern Germany for conventional seeds, grain, oilseeds, fertilisers, pesticides, and service deliveries were dominated by Märka from this location. In 2006, Märka and “Sauter Verpachtungsgesellschaft mbH” applied for an amalgamation at the Federal Cartel Office. Since October 2006, the new formed company is called “Märka GmbH Zörbig and is based in the city of Zörbig, Sachsen-Anhalt. Märka had a business volume of EUR 308 mio and 220 employees in 2005. Originally, Märka focused on three core businesses: Purchase and storage of grain and oilseeds, production of compound feeds, and storage of intervention grain. The Federal Republic of Germany had bought the over produced grain to regulate the market. Purchasing and storing this grain was an important business segment of Märka. Up to 1.5 mio t of grain was tendered by Märka at 20 different locations in Brandenburg. Since 2004, the market price for grain increased because of a shortness of available grain due to damage from atmospheric conditions. Virtually, there were almost no interventions anymore, so that Märka's business volume decreased by 34% from 2004 to 2005.

After being taken over by Sauter GmbH, Märka was reorganised. The business segment compound feeds, including the 13 employees and the production facility in Eberswalde, was sold to “MEGA Tierernährung GmbH”, based in Niedersachsen. The administration of Märka with 57 employees was relocated to Zörbig and

Angermünde. Officially, Eberswalde was not a site of Märka anymore in 2007; only the grain storages are still in use.

The other segments pesticides, fertilisers, seeds, and the trade with grain for nutritional purposes were kept. While the number of Märka's employees shrinks, the numbers of personnel employed at the affiliated company Trans-Märka gets bigger. The logistic company Trans-Märka prospered, the staff pool increased from 50 to 125 employees; and the vehicle fleet, which only runs by biodiesel, counts more than 100 trucks nowadays.

Reorientation

The new formed enterprise focuses on the segment of biofuels (cultivation, storage, logistic, and processing). Sauter is part of the "Verbio-Verbund", a network that runs four plants for producing biofuels. Two of them are located in the city of Schwedt. The new major task for Märka will be to supply these plants with energy grain that contains enough starch to produce bioethanol. Märka's field managers are contracting farmers. The duration of the so called "Energieverträge" (energy contracts) is 3 to 5 years; they also define the price and the amount of grain to be delivered. The price consists of a fixed and a variable part. The determination of the variable part is based on the starch concentration. If a critical value is exceeded, a bonus of EUR 0.20 for each 0.1% surplus of starch concentration per ton is paid. The critical values at a dry matter content of 85% are: rye 55%, triticale 57%, and wheat 58%. The fixed part of the price is not accessible by public. At present, energy grain is cultivated on 200,000 ha in the eastern part of Brandenburg.

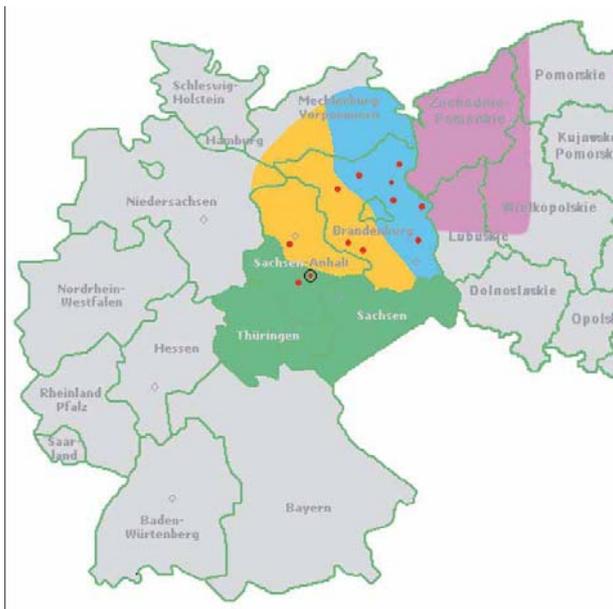
Sauter plants could process up to 2 mio t of grain per year. 1 mio t shall be delivered by Märka. Therefore, Märka plans to enlarge its storage facilities from 1.5 to 2.5 mio t. The new slogan of Märka is: "The acquisition trade for the biofuel industry". Besides the acquisition of grain, oil seeds, and pulses, Märka trades with pesticides, fertilisers, seeds, and biodiesel. Furthermore, certified seeds are pre-processed by Märka.

A second core business of Märka is seeds. As a pioneer company and partner from Monsanto, Märka promotes the spreading of genetically modified seeds since 2004. In that time, a concept by Märka led to the general freeing of the cultivation of bt-corn in Germany. This model had the purpose to face the resistance of conventional farmers against genetically modified corn. Many dealers refused to buy conventional corn from regions where also bt-corn was cultivated. In cooperation with the University of Halle-Wittenberg and TÜV Nord, Märka introduced a buy-off system, which registers and documents conventional corn that is grown close to bt-corn. Thereby it is assured, that adjacent conventional farms can sell all their corn at the present market price to Märka, regardless of the actual percentage of genetically modified corn. The only requirement for farmers who grow bt-corn is the use of good agricultural practice, such as a distance of 20 m between the boundaries of a field with conventional corn and a field with bt-corn as well as the proper cleaning of the machinery.

Another strategy of Märka is to buy into holdings and sub-companies. Then they command the farms to cultivate bt-corn. This happens especially to farms that are over indebted, because they couldn't repay the loan of their seeds supplier anymore for example.

After the resistance against bt-corn as feeding stuff or food has become very strong in Barnim, Märka advertises bt-corn for use in biogas plants. The company states that this change in the strategy is a result of the consumers' resistance against genetically modified food. Now, the bt-corn shall be fermented.

Map 32 Trading area and regional points of Märka GmbH Zörbig



Source: Märka GmbH

Unfortunately, all requests for interviews were denied by the head office and the new regional agency in Angermünde. It turned out to be difficult to discuss about Märka with local actors. The farmers association and the Department for Agriculture were not willing to give further information than they had announced in press releases earlier. Single companies that deal with the progeny of seeds refused to the publication of every discussed issue. The only actor that was willing to give information about Märka was the "Barnimer Aktionsbündnis gegen Gentechnik (BagG)" (Barnim's action alliance against genetic engineering).

About the reasons of Märka's publicity policy can only be speculated. From the existing facts and information, reasons could be:

1. The amalgamation and reorganisation, especially at the traditional site in Eberswalde, lead to negative reactions of the local staff and local actors towards the new management. The new publicity policy is that only the new head office is allowed to give information. The head office stated two reasons for not taking part in the study: 1) The trade area of Märka is

significantly larger than Barnim, and 2) there is no usable result for the company from the study.

2. Märka is the most active pioneer in the range of genetically modified seeds (corn, rapeseed, and potatoes) in eastern Germany since 2004. As a monopolist for seeds and as wholesale buyer in eastern Brandenburg, Märka managed that most of Germany's farmland cultivated with genetically modified organisms (more than 1,000 ha) are located in two of Barnim's adjacent rural districts. Märka is the partner for conventional farmers in Brandenburg. The company decides what is to be grown and what is not to be grown by its buying strategy. On one hand, Märka uses this position to promote green genetic engineering in Brandenburg; on the other hand, the majority of the resistance against genetic engineering concentrates on Märka. In the years 2006 and 2007, Märka was confronted with massive negative publicity. At several locations in 2007, "Liberation of farmland" was carried out, truck wheels of Trans-Märka were punctured in Eberswalde, and the press reported about every bt-field in a negative way. A normal communication with Märka seems almost impossible in this ideologically heated climate. For example, a farmer refused to talk about Märka, because he had heard from different sources (especially representatives of the press) that if a farmer's negative opinion about Märka is published, the farmer will be offered lower prices for his products in the future.

4.4 Investigating social networks

This chapter investigates the network structures between agriculture, the relevant legal and administrative framework, and the civil society, which influence the development of the region. For being able to describe the networks, representatives from all parties concerned were interviewed. Due to the size limits of this work, only the most relevant of the region's social networks can be described here. In particular, the networks of Brodowin are not covered. You may find them in detail in the section "Supply Chain Eco Village Brodowin".

The administrative structure of the Barnim Region has a large influence on its regional development. It limits or it unlocks economic opportunities for companies. Furthermore, it is a promoter for new ideas and approaches for development in the overall region. This great importance of the administration has its origin in the socio-cultural development of the Region. Locals are pro-active but not as pro-active as in other regions. The administration is the largest employer, and hence, it has the human resources regarding intellectual power and manpower to initiate different concepts of development. Pro-active single persons and enterprises have reached their limits due to the difficult situation of the economy over the last years. However, thanks to an economic growth since 2006, it can be observed that the initiative and commitment of single, private or economic actors has risen. Parameters for this development are increasing memberships in informal networks, especially associations, culture-bearers, increasing numbers for project proposals and regional initiatives. It can be stated that the economic situation for households

and companies has improved, and more commitment and power has been available for other businesses. This impression becomes more diverse when investigating, for example, the fact that there had been more projects in the range of agro-tourism proposed in the southern part of the Barnim in 2006/2007, a trend that has not been observed in the northern part. Obviously, the southern part of Barnim exhibits an economic boom while the economic development in the northern part has still been stagnating, except for a few singular cases.

The structure of the administrative actors and the legal framework can be described as follows:

4.4.1 Legislative

European Union, Bundestag (Federal Parliament), Landtag (state parliament), also the county council in limited cases (property tax, water supply and sewage disposal).

4.4.2 Executive

State level: The main body is the "Ministerium für Ländliche Entwicklung, Umwelt und Verbraucherschutz (MLUV)" (Ministry for Rural Development, Environment and Consumer Protection) with its state authority "Landesamt für Verbraucherschutz, Landwirtschaft und Flurneuordnung" (State Office for Consumer Protection, Agriculture and Farmland Consolidation). The State Office is responsible for managing the funds from the combined programs to support agriculture and rural areas (EU-Funds [ERDF; EAFRD], GAK, and KULAP). This applies especially to agricultural investment funds for single operations (barn constructions, promoting young farmers), renewing of villages and farmland reassignment.

Rural district (county) level: The rural district administration with its sub organisations is the executive body of the legal and political framework of the upper levels. The "Verbraucherschutz- und Gesundheitsamt" (Department for Consumer Protection and Health) of the rural district administration is responsible for the implementation and control of the legal framework in the range of agriculture, soil and environmental protection, veterinary medicine, processing and distribution of food. It is the central point of contact for farmers regarding all economic decisions. The proposals for land subsidies are granted by the district administration too. It also checks the compliances of the obligations for animal and nature protection, grants the building licenses for barn and other constructions, and checks the adherence to the cross compliance regulations. The district administration is a very important actor that was characterised from neutral to cooperative by the interviewed farmers.

4.4.3 Other institutions

The so-called project team is also located in the rural district administration. The main task of the team is to form an interface between administration and informal networks. The team manages and/or is member of the following networks: Netzwerk Metall (network metal), Barum111 (recently renamed to Barum Energy), WIN (water tourism initiative of northern Brandenburg), Pomerania, and WITO. Therewith, the exchange of concepts between the administration and the civil society as well as of the commercial structures is promoted and organised. With this project group, the rural district administration can provide manpower, organisational infrastructure, and financial resources for different informal networks without causing conflicts with the administrative structure.

Another important administrative actor for the regional development is the "Struktorentwicklungsamt" (Agency for Structural Development). It manages the different funds from the rural district and state levels, and it also applies for funds from the federal state and the European Union. Funding has been successfully requested, for instance, from the regional budget "health region", European model region "renewable energies", RegionActive, LEADER, ILE, business development, etc. The Agency for Structural Development implements the strategies that are decided by the county council. For this reason, it is a partner for all strategic and conceptual developments in the Region; and it is a leading partner in various informal networks.

The leading actor for the development of forestry is the "Forstamt Eberswalde" (Forestry Office). It is not embedded into the rural district administration but into the state administration. The Forestry Office is the partner for all issues regarding forestry (nature protection, forest reconstruction, promotion, and forest cultivation). In addition, the Office acts as a regional stakeholder. Together with the "Landesforstanstalt" (State Institute for Forestry), it is member in different informal networks that deal with the forest resource (tourism, renewable energies, distribution of timber). In this context, the head foresters and the municipal foresters play a very important role.

Further actors are the administrations of the biosphere reserve, of the nature park, and of the regional park carrying out administrative tasks and promoting rural development. From the organisational point of view, the administrations of the first two institutions are parts of the MLUV (Ministry for Rural Development, Environment and Consumer Protection). All three administrations are responsible for the implementation of the nature protection obligations in their areas. They are partners for agricultural companies and for all issues where social and economic activities meet resource and nature protection. Moreover, the administrations understand themselves as promoters of sustainable farming and forestry. In protected areas, they support new sources for income, such as tourism (information centres, forestry training for locals, rest areas for water tourists, and construction of bike paths) and new businesses (geothermic power plants, solar power plants, exclusive furniture production made of timber and fibres from the biosphere

reserve). In particular, the administration of the biosphere reserve is committed to creating new economic opportunities for the local population. It has founded a development association that conducts and supports projects, such as eco tourism. Furthermore, it promotes local products by organising a family brand. For the future, the extension of the use of renewable energies is a central issue in the strategy of the biosphere reserve. This issue brings various actors of the regional development in Barnim together; and its effects are discussed lively.

4.4.4 Prospective developments

The use of all types of renewable energy has been defined as the development strategy for the whole region. Other strategic goals are health and wellness, metal processing and food processing. Various actors in different formations and structures promote these development trends. Some examples for the successful implementation of renewable energy technologies are: Barum 111 with its energy cluster ENOB, the project proposal of the administration for a European "Renewable energies" model region of Barnim-Uckermark-Westpommern (Poland), farms building biogas plants, the construction of a geothermic power plant and the ethanol processing plant in Schwedt, the foundation of companies constructing solar power plants and wind energy plants in the Region through business development. The use of wood as biomass is promoted by the information centre E.I.C.H.E. The Wald-Solar-Heim (forest-solar-home) informs about the use of sunlight and timber as renewable energies. Both were founded by companies dealing with the construction of heating units and wood processing companies as well as actors from the administration and nature protection.

The administration of the biosphere reserve promotes the cultivation of fibre plants such as flax, oat, and cannabis through special funding. Many farmers take advantage from the biomass boom because prices for energy crops have increased. The pivotal issue for the future development of the Region is not to destroy the balance of land use. Sustainable farming is endangered by mono-cropping of rapeseed (ethanol) and maize (biogas). Conflict raising topics are a) adapted crop rotation, b) use of genetically modified seeds, and c) nitrogen overfertilisation by the use of fermentation residues from biogas plants and the ethanol plant.

The political framework will be changed in 2008 by a) the new law for renewable energies (EEG) and b) the highly discussed law about genetic engineering (GTG). As a response to GTG, an initiative was founded by organic and conventional farmers to keep Barnim as a GMO-free region. This would be in addition to the biosphere reserve law, where the use of GMOs is strictly prohibited. The promotion of organic farming was resumed by the state policy in 2006. Before 2006, no farmer could join the programme to change from conventional to organic farming. The effect of the new promotion was an increase of organic enterprises by 5% in 2007. If the planned support programmes for the processing business would be implemented (compare with the enlargement of the slaughter capacity of the Eberswalde slaughter plant and the foundation of the eco-brand "Eberswalder") and

accepted by local companies, the creation of value in the Region by organic cultivation could increase. This would also give fresh impetus on the secondary sector and its main driving force, the processing industry.

As stated by all interviewees, the biggest challenge for the Region is the way how to deal with the disparity between the northern and the southern part of the Barnim. It is expected that in the near future main support programmes will be ceased. This relates in particular to the programme "Aufbau Ost" (Reconstruction East) and the structural funds for objective 1 of the European Union. Due to these shortcuts in public budgets, the administration will have to maintain the necessary infrastructure (school, kindergartens, sewage disposal, water supply, road construction, medical care) in the northern part of Barnim with a smaller budget. Furthermore, the number of children, juveniles, and skilled workers in the rural areas will disproportionately and strongly decrease. This is a severe problem and it leads to the increased aging of society. Different counter measures are discussed. They range from (economic) incentives for emigration/migration, abandonment of the areas and a withdrawal of the state to learning of Polish language for the remaining population to ease the entrance of locals to the emerging labour market of Szczecin (Baltic Sea).

In the prospering southern part, the struggle for economic resources such as land (for agricultural use, nature protection, building land for business and settlements) and natural resources (water, nature sanctuaries) will intensify. The state will continue its policy to withdraw from general promotion of the wider region, it focuses on centres of growth. The cutback of state policies and the decreased funding by the European Union will not be compensated by the slightly increasing tax revenues. The struggle for scarce funds will increase. Various actors from educational and scientific institutions have already started to enhance the vertical networking and to indicate further chances to cope with the new challenges. They try to moderate the struggle and to strengthen the coherence in the Region. In the field of demographic change, the informal network Buckow e.V. tries to link the different educational actors of Barnim. They aim to implement actions, such as "lifelong learning", "broadband access for every village", and "new creative approaches for access to primary schools and libraries". As a know-how carrier and think tank, the University of Applied Sciences of Eberswalde is a member in networks dealing with issues of agriculture, nature protection, regional economy, forestry and regional planning. For example, the university has a partnership with 16 enterprises (farms, processors and distributors). Together they offer two study courses in the field of organic farming. Such a partnership is unique in Germany. The linkage of theory and practice takes place not only in the courses but also in public forums and lectures intended for a broad non-academic audience. The Eberswalde University with its about 1,500 students and 50 academics is also an important economic actor of the Region and a source for new ideas and new heads, what is rated crucial for the Region's development.

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5 POLAND: CHELSKO-ZAMOJSKI

5.1 Describing the region

Chelmsko-zamojski region is located in the eastern part of Lublin voivodship (Map 33). Region is created by 8 administrative units (districts – "powiat"): Bilgoraj district, Hrubieszow district, Chelm land district, Chelm urban district, Krasnystaw district, Tomaszow district, Zamosc land district, Zamosc urban district.

Map 33 Chelmsko-zamojski region localization on the base of county

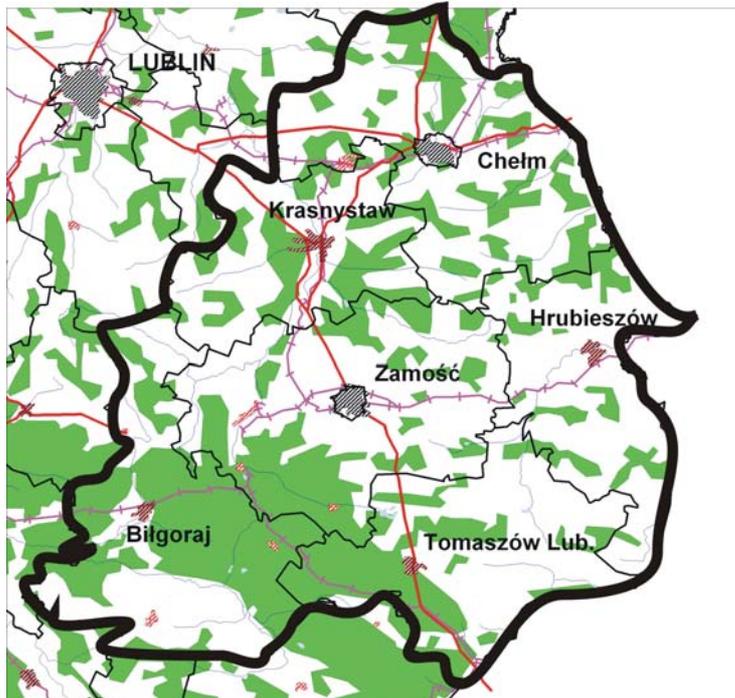


In terms of economy it is one of the most rural and agricultural regions in the country. Rural areas are characterised by high share of farmland (mainly arable), high input of labour into agriculture, high ratio of employed in agriculture, very high number of relatively small farms and peripheral meaning of other economic functions. Southern part of the region is more diverse with important role of tourism and forestry (Roztocze National Park).

The agricultural land is the dominant form of land use in the region as it accounts for 70-80% (depending on the county) of the total territory. According to studies by the Institute of Soil Science and Plant Cultivation this region is characterized by a relatively high quality ratio of agricultural production space (mostly very high soil quality).

In the structure of farming an important role is played by field plant production (mainly wheat, sugar beet, corn, other cereals, locally – vegetables, hop, tobacco). Therefore, arable land prevails, accounting for approximately 90% of the total farmland. The role of other categories of land is marginal.

Map 34 Chelmsko-zamojski region



The level of economic development of chelmsko-zamojski region is spatially varied. The vast majority is constituted by poorly developed areas. Agriculture makes inadequate use of the natural productive potential. Theoretically it is able to achieve much better production results than it does at present. Productivity is decreased by flawed agrarian structure (small, fragmented farms), limited expenditure on technical means of production, the low level of farmers' education and ageing of the population.

Figure 111 Typical rural landscape from chelmsko-zamojski region



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5.1.1 European and national context of the region

The present territorial breakdown of Poland has been in force since 1999. According to this breakdown Poland is divided into 16 provinces ("voivodships"), 379 counties ("poviats"), of which 65 urban and 314 landed, and 2,478 municipalities (communes, called "gminas"), of which 307 urban, 582 urban-rural, and 1,589 rural. Province (NUTS2) is a unit of administrative division of a higher level and the essential territorial division for the governmental administration (0, Table 109). Since 1999 it is also a unit of territorial self-government.

Map 35 Division of Poland into provinces



Table 109 Surface and population in voivodships

province	capitol of province	surface km ²	population (31 XII 2003)
dolnoslaskie	Wroclaw	19,947.76	2,888,232
kujawsko-pomorskie	Bydgoszcz, Torun	17,969.72	2,068,142
lubelskie	Lublin	25,114.48	2,191,172
lubuskie	Gorzow Wielkopolski, Zielona Gora	13,984.44	1,008,786
lodzkie	Lodz	18,219.11	2,597,094
malopolskie	Krakow	15,144.10	3,252,949
mazowieckie	Warszawa	35,597.80	5,135,732
opolskie	Opole	09,412.47	1,055,667
podkarpackie	Rzeszow	17,926.28	2,097,248
podlaskie	Bialystok	20,179.58	1,205,117
pomorskie	Gdansk	18,292.88	2,188,918
slaskie	Katowice	12,294.04	4,714,982
swietokrzyskie	Kielce	11,672.34	1,291,598
warmińsko-mazurskie	Olsztyn	24,202.95	1,428,885
wielkopolskie	Poznan	29,825.59	3,372,417
zachodniopomorskie	Szczecin	22,901.48	1,696,073

Source: Central Statistical Office (CSO)

County (NUTS4) is a unit of administrative division, composing provinces (see 0). Each county encompasses between several and more than ten neighbouring municipalities (landed county). There are also separate urban municipalities, which are treated as counties, called then urban counties. Thus, an urban county is a town treated as a county in itself. This status, after the new, three-level territorial breakdown of the country had been introduced on 01/01/1999, was assigned to:

- towns with more than 100,000 inhabitants,
- most of the former seats of the provinces (before the administrative reform of 1999 there had been 49 provinces in Poland),
- some towns in large urban agglomerations.

Municipality (NUTS 5) constitutes the basic unit of territorial self-government (Map 36). As said, municipalities are classified into rural, urban-rural and urban. The scope of competence of a commune, or municipality, includes all public matter of local significance. The respective tasks are classified into own – resulting from law, and contracted – assigned by the state authorities.

Map 36 Division of Poland into municipalities



The region of Chelm and Zamosc has a surface area of 9,290 km² and a population of 664,537 (31/12/2005) and is a unit of the NUTS 3 level. There are 44 such units in Poland. The NUTS 3 level was established in an artificial manner, i.e. through grouping of counties. Chelm and Zamosc are the biggest towns of the region, and they had both been, before the change of the administrative breakdown, the capitals of provinces and important seats of public administration and various institutions (Map 36).

5.1.2 Environment

5.1.2.1 Spatial structures

Statistical profile

In terms of surface area the region of Chelm and Zamosc belongs to the group of medium regions in Poland. In the land use structure it is the agricultural land that plays the leading role, since it occupies 69.7% of the region's area (Map 37). The second land use category in terms of area share are the forests (22%).

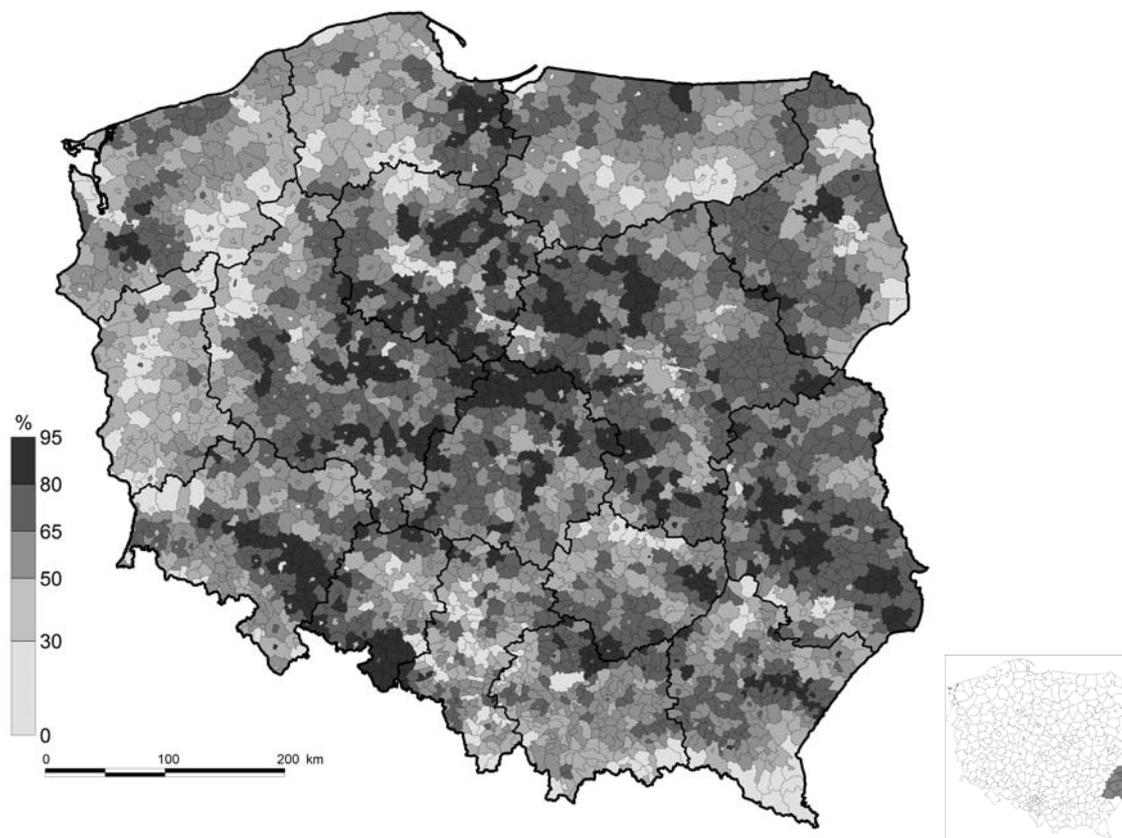
Table 110 Spatial structure – statistical profile

indicator	unit	1999	2000	2001	2002	2003	2004	2005
Total area	km ²	9,290	9,290	9,290	9,290	9,290	9,290	9,290
Share of artificial surfaces	%	9	9	9	9	9	9	8
Share of arable crops	%	56	56	56	56	56	56	56
Share of permanent crops	%	1	1	1	1	1	1	1
Share of pastures	%	13	12	12	12	12	12	13
Share of heterogeneous agricultural areas		n/a						
Share of forests and semi-natural areas		21	22	22	22	22	22	22

Source: CSO, Eurostat

The pattern of spatial differentiation of the share of agricultural land in the area of the region is the function of two essential elements: the demographic pressure, displaying varying intensity, and the degree of utility of the natural conditions for farming (Banski 1998). High concentration of land used by agriculture is observed first of all on the areas featuring fertile soils. The region of Chelm and Zamosc – and especially its central part – is characterized by the appearance of soils of very good quality (Oczos, Strzelec 1991). These are, first of all, the complexes of brown and lessive soils, as well as chernozems having emerged on loesses. All crops proper for these latitudes can be grown on such soils. Soil conditions in the northern part of the region are not bad, either.

Map 37 Shares of agricultural land in total area of the municipalities, 2002



Good agro-ecological conditions are conducive to crop production. That is why arable land dominates in the structure of agricultural land. It is used primarily to grow wheat, sugar beets, rapeseed, legumes, potatoes, tobacco and hops (Figure 112). The region of Chelm and Zamosc is one of the leading areas in production of wheat and sugar beets. This region does not have a tradition of fruit growing and so permanent crops occupy limited areas.

In places where soils are of worse quality, the share of arable land falls. In the north-east and in the river valleys large shares of land are taken by grasslands, which serve for raising of dairy cattle. Husbandry of other herbivorous animals is of marginal significance. On poor podzolic soils in the south-western part of the region forests occupy very high share of area (The Solska Forest).

The share of forest area in the region of Chelm and Zamosc is relatively low in comparison with the national average. This is not only the result of the good agro-ecological conditions for farming, which brought about the liquidation of the forest areas, but also of the socio-economic conditions, which existed on Polish territories in the past. Many centuries of farming tradition, low level of economic development in comparison with the countries of Western Europe, as well as overpopulation of the countryside and the resulting land hunger, were conducive to taking for cultivation of every piece of land (Banski 2007).

Figure 112 Tobacco growing in the area of Krasnobrod



© J. Banski

Large forest areas exist only within the upland of Roztocze, where a National Park, and the Landscape Parks have been established, and in the county of Bilgoraj, where little fertile soils prevail, while groundwater table is shallow, forming extensive surfaces of wet areas. Preservation of natural forests on the areas of Roztocze, attractive for farming, is due mainly to historical factors, first of all – to the functioning of the Zamoyski's Estate in Tail, which caused protection of these areas for hunting purposes, initiated already in the 16th century.

Over the last years no bigger changes occurred in the land use structure. The area can be considered stable with this respect.

Regional focus

The region of Chelm and Zamosc is characterised by a differentiated relief, which results from the location on the border of two geographical units – the Upland of Lublin and Polesie (Kondracki 1998). In particular, the upland features high diversity of the relief forms. In the South of the region Roztocze stretches, having taken shape during the Alpine orogeny, with altitudes between 300 and close to 400 m a.s.l. Towards the North the terrain gets lower, through the hilly Upland of Lublin, down to the flatter Polesie of Lublin. On the other hand, to the south-west of the belt of Roztocze terrain drops down abruptly, along the active trough down to the Sandomierz Bowl, having aeolic relief with numerous dunes.

In view of the agricultural character, the landscape of the region is dominated by cultivated fields, interspersed with small woods and groves. It is only in the South that larger forest areas persisted, protected nowadays in a national park and the landscape parks. Villages are usually compact and are picturesquely situated against the background of cultivated fields (Figure 113).

Figure 113 A village among cultivated fields



© J. Banski

A large part of the region (first of all the central part) is covered with the best soils, originating from the loesses. They form the north-western edge of the fertile soil area situated mainly in Ukraine. It is commonly held that this region disposes of the best soil conditions in Poland. Erosion processes are a serious problem on the loess areas. Numerous examples of rain erosion can be found there, as well as many gullies, which make cultivation more difficult (0). Despite the necessity of applying tree and bush planting to protect the soils, farmers cultivate every piece of land. In connection with a long tradition of farming on the area considered and the long-term significant degree of deforestation over certain parts of the area, the network of gullies is among the densest in Europe. In some cases also the modern techniques of cultivation are improper from this point of view (like, e.g., ploughing along the slope), since they strengthen the erosion processes.

Figure 114 A gully in the area of Hrubieszow – an example of erosion in the loesses



© J. Banski

Then, in the North of the region soil quality is much worse, and so the shares of meadows and pastures increase there. Lower quality of soils in the North causes that a part of land is kept fallow and not cultivated.

Domination of high quality soils and of farming, as well as relatively high population density on rural areas are behind the strong pressure on agricultural land. Demand is decidedly higher than supply, which leads in some cases to conflicts. In addition, in the past, land used to be divided up among the heirs, which brought about intensive agrarian fragmentation. Nowadays, average acreage of a farm is at around 8 ha. Thus, for instance, in the area of appearance of the best soils (the county of Hrubieszow) there are some 12,500 farms, of which as many as 25% have up to 1 ha, and only 0.4% have acreage above 50 ha. For this reason only a small share of farms are capable of producing to the market.

A number of conflicts in the domain of land economy can be identified in the region. One of the most important conflicts within the rural areas takes place there, where land can be used by farming and forestry (Banski 1999). Very low shares of forests exist, first of all, there, where farming production is intensive, where other forms of activity are subordinated to farming. Lack of forests and planted trees leads to the hazard of soil degradation (erosion and pollution), steppisation of these areas and worsening of water relations. These processes have been going on within some areas for decades. It is therefore recommended to strengthen the water- and soil-protection functions through planting of new forests, at the expense of agricultural land – mainly of the arable land, especially on the slopes.

The theoretically justified necessity of planting trees and forests, though, has no implementation counterpart. Agricultural areas with high quality soils are protected by law and are in high demand. The spatial development plans of the municipalities point out the disadvantageous changes in the soil, caused by deforestation and wrong cultivation practices. Unfortunately, increasing the areas of forests can only take place at the expense of the poorest agricultural land, of which there is little in the region. Besides, the issue of deforestation is perceived by the communal authorities as secondary. In addition, there is shortage of means for afforestation.

Serious conflicts as to land use exist on some areas of protected nature, fulfilling, simultaneously the tourist and the recreational functions – first of all, the attractive area of Roztocze. Tourist pressure, peaking on weekends and holidays, brings about significant changes in natural environment, while “wild” recreation housing construction, illegal waste dumps, and destruction of tree stands cause irreversible changes in landscape.

In the recent years an increase has been observed of land demand for recreational and residential housing (Wesolowska 2006). In the spatial development plans the areas attractive in terms of nature are usually protected against construction developments. The authorities of the municipalities try to resolve the dilemma between nature protection and profits from the presence of holidaymakers by

directing the potential holidaymakers and investors towards the zones not subject to legal protection, but also less attractive (Sleszynski at all 2007).

5.1.2.2 Environmental protection

Statistical profile

In view of the domination of the agricultural function and the relatively small area of forests the region of Chelm and Zamosc is characterised by an average area of the legally protected surfaces. National Parks occupy only 1% of the region's territory, and this value has not changed for years (Tab 3). Yet, the list of special areas of habitat protection contains some 20 entities, and with this respect the region distinguishes itself against other areas in Poland.

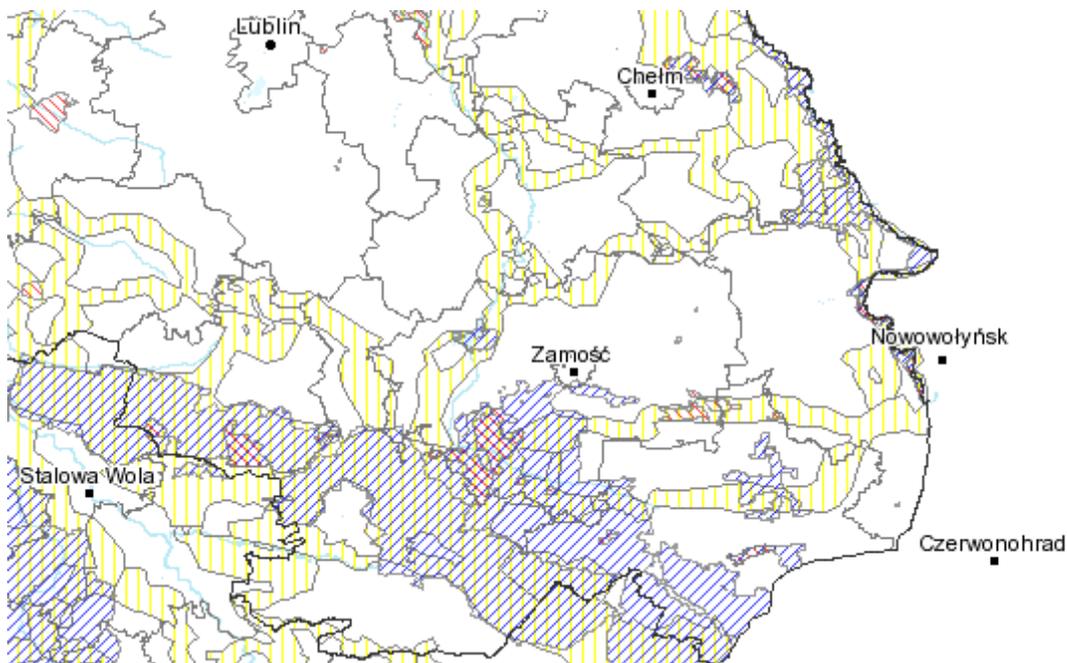
The system of protection underwent an essential change in 2004, when Natura 2000 areas were submitted to the European Commission (Map 38). These areas encompass 12% of the region's territory.

Table 111 Environmental protection – statistical profile

indicator	unit	1999	2000	2001	2002	2003	2004	2005
Percentage change since base year according to Kyoto protocol/EU Council decision 2002/358 (in CO ₂ equivalents base year=100) [L	%	5,109.8	4,533.7		5,164.9	5,090.8		
Gross consumption of energy	kilotons of oil equiv.			4,514	4,517	4,528	4,999	4,780
Gross consumption of renewable energy	kilotons of oil equiv.	0	0	0	0	0	0	0
Share of area under NATURA 2000	%						12	12
Share of area under National Park protection	%	1	1	1	1	1	1	1
Agriculture intensity	output/input ratio	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Share of Utilised Agricultural Area under organic farming	%	1	1	1	1	1	2	2

Source: CSO, EAA, Eurostat

Map 38 Natura 2000 areas and ecological corridors (in yellow) on the territory of the region of Chelm and Zamosc



In the domain of use of renewable energy sources the region considered has a limited potential. The main capacities lie in production of energy crops, first of all rapeseed for bio-diesel.

There is a clear year-to-year increase of the number of farms in Poland producing with ecological methods. In 2004 there were close to 1,700 ecological farms registered, while more than 2,000 were in the stage of shifting from traditional to ecological production. There are several dozen such farms active in the region in question, but they occupy merely approximately 2% of the total of agricultural land in the region. Crop production dominates them.

Regional focus

The region of Chelm and Zamosc is characterized by a high diversity of elements of nature. There are compact forest complexes on its territory, as well as wetlands, and areas of *steppe* character, with xerothermal vegetation. The steppe vegetation, encountered in Poland yet only in the area of *Ponidzie* (to the North of Cracow), constitutes an especially valuable asset of the region.

The diversity of the elements of nature caused that a number of protected areas has been established on the territory of the region. The National Park of Roztocze is situated within the southern fringe of the region.

The Park was established in 1974 on the area of 4,801 ha. Its current area amounts to 8,483 ha, with forests occupying 8,102 ha (95.5%). Strict protection is extended over 806 ha (9.5%). The vascular flora of the Park includes some 700 species. Of

large mammals there are deer, roe deer, boars, wolves, lynxes, foxes, martens and badgers. Beavers were re-introduced in 1979 and they colonised the valley of the river Wieprz. Some 190 species of birds are encountered in the Park. There are five marked tourist paths crossing the Park. Further, there are nine ecological educational walking tours and a bicycle route.

Figure 115 The reserve of natural waterfalls on Tanew river



© J. Banski

The following landscape parks are situated entirely or partly in the region considered: the Landscape Parks of Chelm, Strzelce, Szczebrzeszyn, Krasnobrod, Southern Roztocze, Skierbieszow, and partly the Landscape Park of the Janow Forests. Numerous nature reserves have been established in the landscape parks, in order to protect rare plant and animal species. Protected areas include also 23 special habitats, established in the framework of the European Ecological Network. In terms of the number of habitats delimited the region of Chelm and Zamosc occupies the first rank in Poland.

Given the particular character of the vegetation and animal world, the significance of the protected areas in the region extends well beyond the region itself. The highest concentration of the protected areas is observed in the South of the region (Figure 115). These areas are commonly visited by tourists, mainly coming from Silesia, Cracow, Warsaw and Lublin.

Given lack of industry noxious for the environment, the region of Chelm and Zamosc can be considered ecologically clean. Only in the vicinity of Chelm, where a large cement factory is situated, pollution of the air with dust may exceed the limits. Another object of care in terms of pollution is river Bug, whose waters are not classified in any of the purity classes.

The region does not make appropriate use of the renewable energy sources. Yet, its capacities with this respect are quite limited, namely mainly to production of biomass and liquid fuels from rapeseed. Last year brought a clear increase of the area under rapeseed cultivation, this fact being linked to the possibility of its use in bio-diesel production. Cultivation of other energy crops, in view of very good soil conditions is economically not profitable. Agricultural land should be used first of all for growing plants that require good conditions, such as sugar beets, legumes, rapeseed, barley, wheat.

5.1.2.3 Preconditions for agriculture

Statistical profile

Table 112 Preconditions for agriculture – statistical profile

indicator	unit	2000	2001	2002	2003	2004	2005	2006
Share of Art. 16 LFA of total area	km ²	0	0	0	0	12	12	12 (1,115 km ²)
Share of Art. 18 LFA	km ²	0	0	0	0	0	0	0
Share of Art. 19 LFA	km ²	0	0	0	0	1,115	1,115	1,115
Share of Art. 20 LFA	km ²	0	0	0	0	0	0	0
Flood Events	no.	in isolated cases	in isolated cases	in isolated cases	in isolated cases	in isolated cases	in isolated cases	in isolated cases
Dry spell (change or dry spell combination with drought)	<i>complex indicator</i>	a	a	a	a	a	a	a
Forest fires hazards	no.	6,160 ¹	6,056 ¹	7,608 ¹	10,108 ¹	7,306 ¹	9,446 ¹	8,762 ¹

a frequent on large scale

¹ – data for lublin voivodeship

Source: CSO, ESPON

Approximately 12% of the area of the region of Chelm and Zamosc (1,115 km²) are characterized by disadvantageous conditions for farming and were classified as Less Favoured Areas (LFAs). They include exclusively the areas classified on the basis of Article 19, that is – mainly the ones featuring depopulation processes. There is also a very limited area with very low values of the agricultural production space quality indicator. LFAs classified on the basis of remaining articles do not exist in the region considered.

Since there are no bigger rivers, flood hazard is low in the region, and it may concern only small surfaces. Floods are indeed a very rare phenomenon.

The region is characterized by water deficit. In the spring and summer period droughts often occur, causing significant crop yield losses.

The data here presented on the forest fires, concern the entire province of Lublin. Considering that the area of forests is limited in the region, it can be assumed that the number of forest fires in comparison with other areas is lower.

Regional focus

Climate of the region belongs to moderate, transitory climates, with an influence of continentalism. It is characterized by significant annual temperature amplitudes, and annual precipitation sums of roughly 650 mm, falling mainly between spring and autumn. Within the area of Roztocze annual precipitation exceeds 700 mm and is, outside of the mountainous areas, among the highest in Poland. Annual average air temperature is 7.2 °C. Average temperature of January is -4.2 °C, and of July: +18.1 °C. The highest values of relative insolation occur in the summer period and amount to 40-50%. Winter lasts on the average 97 days, summer – 98 days, and snow cover persists on the average over 85 days in a year. The region is characterised by the more frequent occurrence of the very warm and sunny or only little cloudy days than in other parts of the country. Likewise, occurrence of days with frosty, very cool and sunny weather is more frequent in the region considered than elsewhere in Poland.

The length of the growing season oscillates in the region in the interval of 200-210 days.

Figure 116 An example of water erosion of soils in the vicinity of Zamosc



© J. Banski

The region of Chelm and Zamosc is characterised by the appearance of the best soils in Poland. In the counties of Hrubieszow and Zamosc the largest areas are occupied by the soils having originated from loess – chernozems and brown soils in a complex with lessive soils. In some places soils are subject to natural degradation (0), which is accelerated by the inappropriate agrotechnical activities and the negligence in application of fertilisers. Resulting from the erosion processes is replacement of chernozems on the terraces with steeper slopes by the brown soils. Chernozems and brown soils form the complex of very good arable wheat lands.

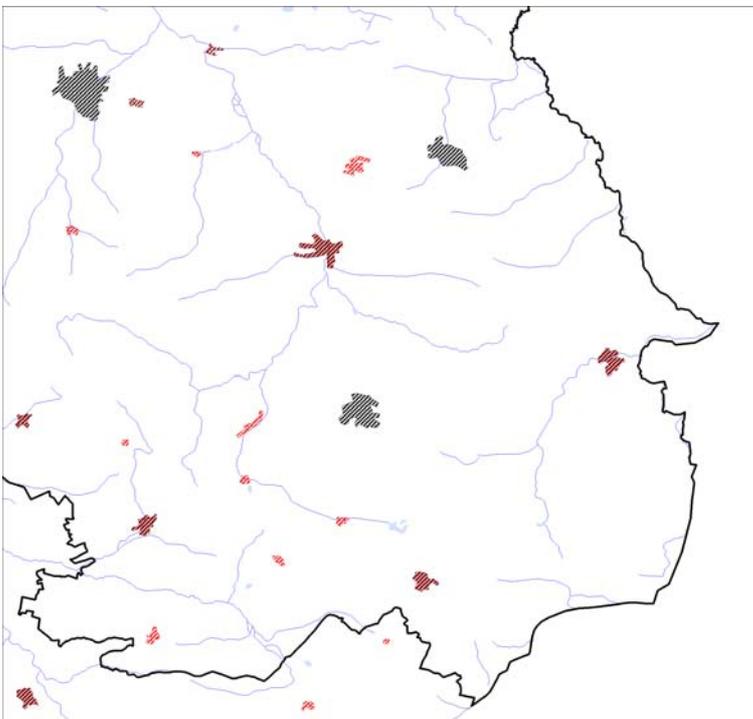
In the northern part of the region soils are characterised by significant differentiation as to their quality. Side by side with soils of high quality, there are

extensive areas with little fertile soils (podzolic soils and low quality brown soils). In the south-west low quality podzolic soils decidedly dominate.

Climatic conditions and soil quality make possible intensive cultivation of wheat, sugar beets, barley and rapeseed. In terms of agro-ecological conditions the region is among the most advantageous in Poland for crop production.

River network has low density, and is composed mainly of small rivers (0). The biggest river is Bug, constituting the eastern boundary of the region. Bug is also the border river between Poland and Ukraine. In sporadic cases, limited swellings of the river occur, which can be accompanied by the flooding of some individual farms. In such cases, though, mainly meadows and pastures are flooded, rarely arable lands.

Map 39 River network in the region of Chelm and Zamosc



5.1.2.4 Preconditions for rural development

Statistical profile

The region of Chelm and Zamosc has a peripheral location, and so its accessibility of airports and seaports is far worse than on the average in the country (Table 113). The closest airports are in Rzeszow, Cracow and Warsaw, the latter two having international character. Road distance from Zamosc and Chelm to the closest domestic airport in Rzeszow is of the order of 180-200 km.

Table 113 Preconditions for rural development – Statistical profile

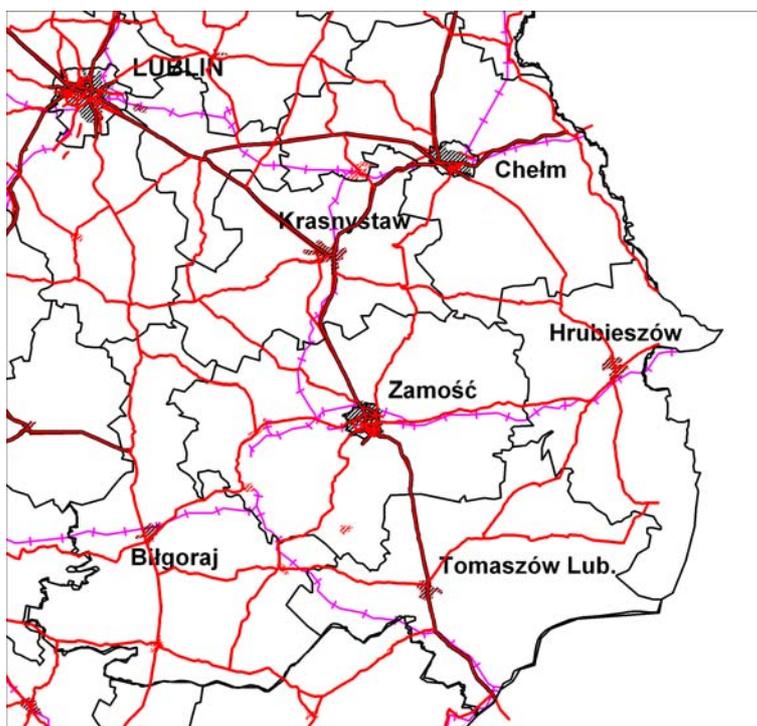
indicator	unit	2000	2001	2002	2003	2004	2005	2006
Accessibility to airports	<i>complex indicator</i>	over 180						
Accessibility to seaports	<i>complex indicator</i>	over 180						
Travel time to railway stations	<i>complex indicator</i>		100					
Road density	km/100 km ²	59	59	59	59	59	59	59
Share of households with broadband internet access	%					26	30	36
practitioners per 1,000 inhabitants	no.	2.0	1.6	1.7	1.7	1.7	1.7	1.7

Source: CSO, ESPON, Eurostat

The closest seaport is Gdansk-Gdynia, and the road distance from the region amounts to almost 600 km.

Two more important railway lines exist within the region: the line Lublin-Chelm-Kowel, linking the localities of the northern part of the region with Lublin, and the cargo Metallurgical Wide-gauge Line on the route Kowel-Zamosc-Olkusz (Map 40). There is, as well, a number of smaller railway lines, which are of lesser importance, also owing to the recent tendency to closing an increasing number of railway connections. That is also why railway accessibility in the region should be considered limited.

Map 40 Network of main roads and railways in the region of Chelm and Zamosc



The density of road network is sufficient. Yet, quality of roads should be considered unsatisfactory. Two parallelly stretching main roads cross the region, and one of a meridional orientation. They link the main towns of the region with Lublin. There are also within the region three road border crossings (Hrebenne, Zosin, Dorohusk) and one railway border crossing (Dorohusk) to Ukraine.

During the recent years a rapid increase has been observed of the number of households equipped with internet access. It is estimated that every third household in the region has internet access. The situation is much better in towns, where more than half of households and all the institutions and enterprises have internet access. This access is most often assured through telephone network, or, slightly less frequently, by the use of local internet networks. The share of households with internet access in the countryside is much lower and the existing connections are assured primarily by the telephone lines.

Regional focus

The area of the region is well equipped in terms of road network density. There is roughly 1 km of roads per 1 km² of area, of which most are hard surface roads. More than 50% of the road length is under municipal administration.

It is highly disadvantageous for the region that it is situated outside of the network of the most important roads. There are no motorways, nor expressways, whose presence always enhances the economic attractiveness of a region. Of essential significance are national roads nos. 12 and 17, being the main axes of development for the entire region (see Map 40). National road no. 12 has a parallel course, stretching from the boundary with Germany, through Kalisz, Piotrkow Trybunalski, Radom, Lublin and Chelm to the border crossing in Dorohusk. On the other hand, the national road no. 17 runs from Warsaw through Lublin, Krasnystaw, Zamosc and Tomaszow Lubelski, through the border crossing in Hrebenne to L'viv. It is, however, often emphasised, especially in all kinds of planning documents, that this road constitutes a route linking Baltic Sea with Black Sea. Of somewhat lesser importance is the road from Kielce, through Frampol, Szczebrzeszyn, Zamosc and Hrubieszow to the border crossing in Hrebenne. The remaining roads are of regional and local character.

The network of regional roads is sufficient for the needs of the region and allows for realisation of transport between all the main towns and central localities of the municipalities. Transport is carried out by the state and private companies.

Railway lines, crossing the region, lead to the order crossings in Hrebenne and Dorohusk. Best developed is the railway network in the North of the region, in the county of Chelm. The inhabitants of the county dispose of convenient railway connections with both Warsaw and Lublin. An important, electrified railway line Warsaw – Deblin – Lublin – Rejowiec Fabryczny – Chelm – Dorohusk – state border crosses the territory of the county. This line, as representing the connection

between Warsaw and Kiev, is of international importance. In other parts of the region the railway lines are less developed.

An important role is played in the region by the Metallurgical Wide-gauge Line, stretching from Silesia to Ukraine, through the railway border crossing between Poland and Ukraine in Hrubieszow. This line makes possible transporting iron ore from Ukraine and exporting coal and sulphur without reloading.

An essential role in the economic development of the region is played by the border crossings between Poland and Ukraine, which are, at the same time, the border crossings of the European Union. The most important crossings are situated in Hrebenne (in the South, Figure 117), Zosin (in the central part), and in Dorohusk (in the North). After termination of the extension works the border crossing in Hrebenne has become one of the largest border crossings, in terms of the number of passengers, along the eastern border of the European Union.

Figure 117 Trucks lining up before customs clearance at the border crossing in Hrebenne



Source: www.ukraina.net.pl

The 1990s brought dynamic changes in the domain of equipment of the region in technical infrastructure. After 1990, owing to the empowerment of the local self-governments, the rate of extension of the infrastructure dramatically increased (Galazka 2004). The extension and the improvement of quality of the infrastructural networks became the primary task of the local self-governmental authorities. Owing to this, first of all the length of the water supply and sewage networks increased, and the quality of local roads improved.

The development of infrastructure was financed from the self-governmental sources, the central budget, the means of the Agency for Restructuring and Modernisation of Agriculture, the assistance programmes of the European Union

(mainly PHARE and ISPA), as well as private funds, collected by the inhabitants of the municipalities (Figure 118).

Figure 118 Tables with informations about EU support



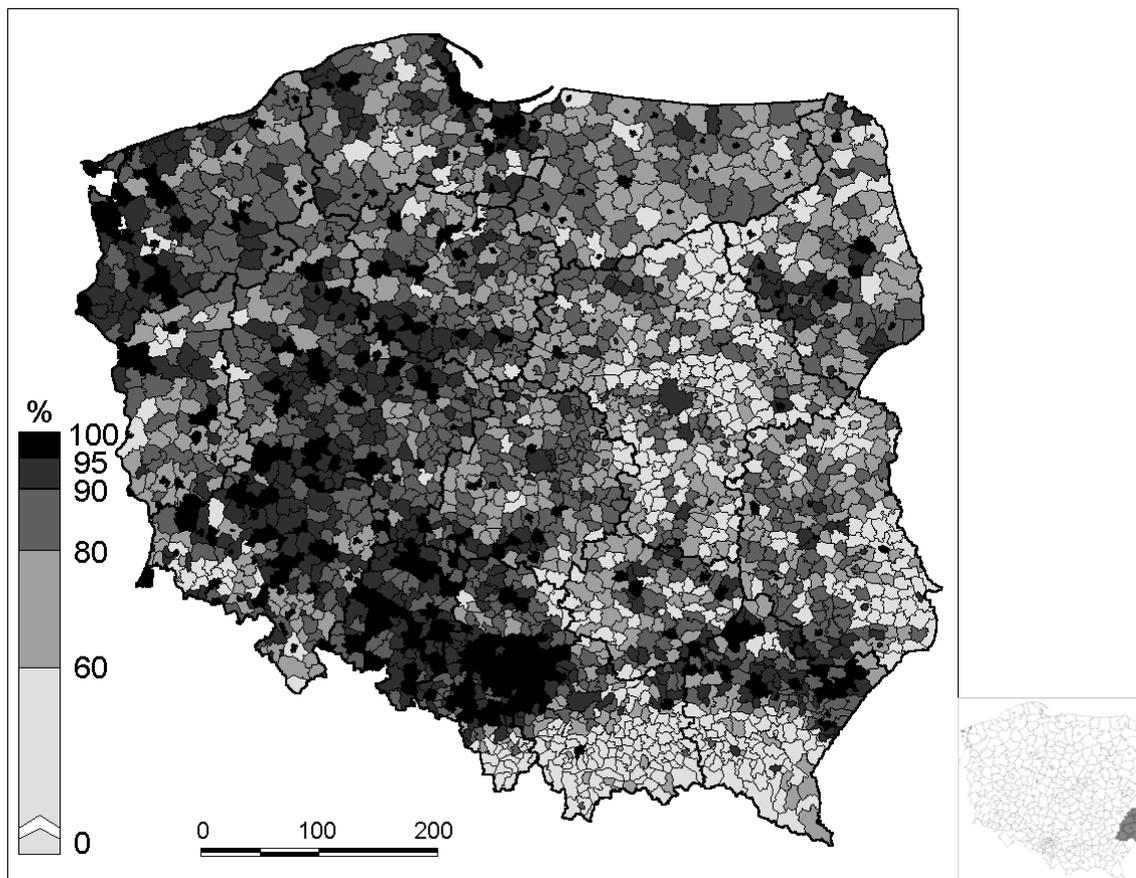
There is a strong spatial differentiation, in terms of equipment with technical infrastructure, between urban and rural areas. Indeed, towns and suburban areas feature the highest indicators with this respect, while peripheral areas tend to be the worst. On the national scale the indicator values of the availability of technical infrastructure are the best in the western and southern areas, while they are the worst in the eastern part of the country (Map 41 and Map 42).

The region of Chelm and Zamosc is among the worst equipped with water supply, sewage and gas networks. There are, on the average, in the region, 55.2 km of water supply network, 10.6 km of sewage network and 24.8 of gas supply network per 100 km² of area, while the national averages amount to, respectively, 78.5 km, 25.6 km and 39.1 km.

Simultaneously with the development of the water supply network the sewage network should develop, allowing for the organised outflow and treatment of water supplied to the households. This condition was not, alas, fulfilled in the region.

The lower rate of development of the sewage systems in comparison with the water supply systems results, in particular, from its much higher capital intensity and organisational requirements. The respective investment projects necessitate, therefore, involvement of a sizeable capital and elaboration of the longer term investment plans, encompassing the concept of implementation, financial policy, credit agreements with banks, etc.

Map 41 Proportion of dwellings equipped with common water supply, 2003



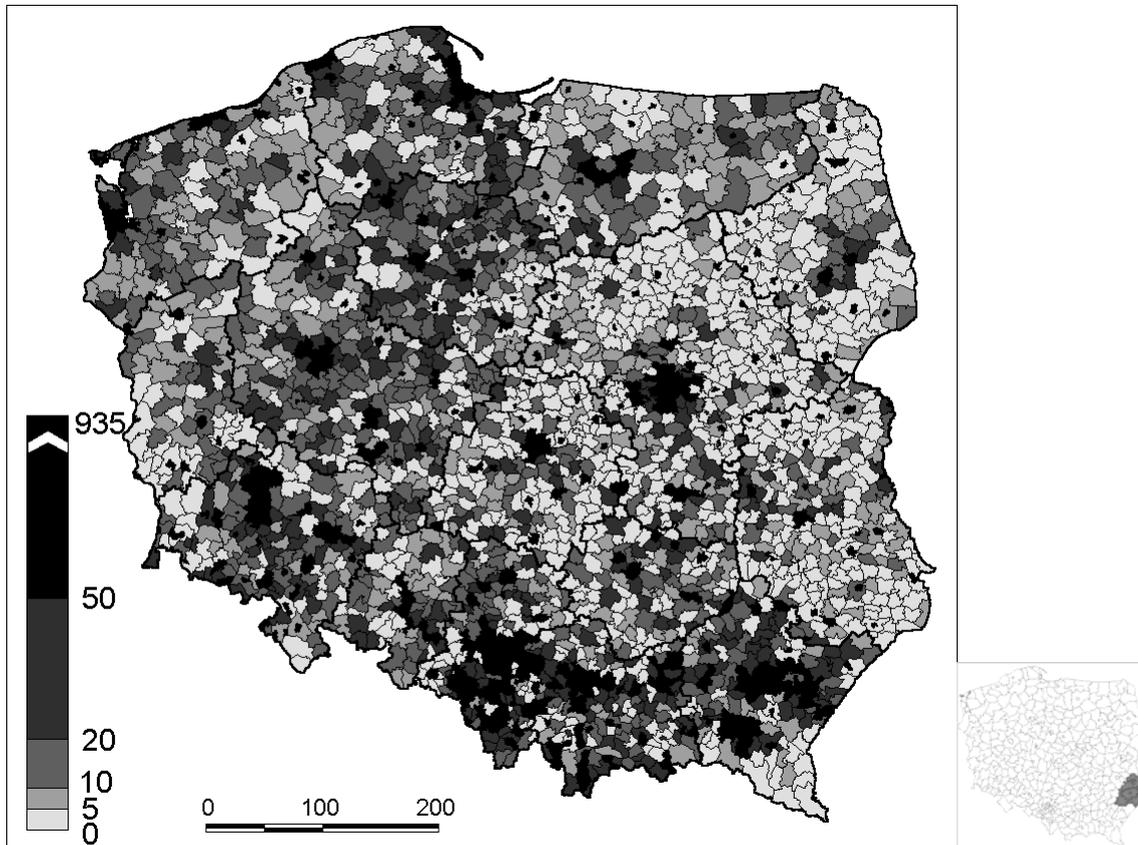
The end of the 1990s and the beginning of the 2000s witnessed a dynamic development of the sewage systems in the countryside. A kind of "saturation with water supply systems" took place and the local authorities considered priority the investment projects in the domain of sewage economy. Consequently, some 73% of the population of the region use water supply infrastructure, while 37% – sewage infrastructure. During the recent years, though, this difference quickly decreases.

In the recent period there has been, likewise, an increase of expenditures into liquid waste treatment. On the rural areas the system of water treatment started to be practically implemented from scratch only in the 1990s. Most of the existing wastewater treatment plants have been in the built then. The analysis of the investment plans of municipalities allows for a hope that nearest years the situation, in terms of sewage outflow and wastewater treatment, shall further improve (Banski 2006).

Regarding electric power network it can be assumed that it is omnipresent. A significant part of the electric power transmission lines was built in the early 1950s, owing to which the quality and the state of the respective equipment are now of doubtful quality. Consequently, rural households suffer from frequent breaks in power supply, as well as from poor quality of electric power, entailing voltage

drops. The dated electric power networks constitute a threat to the natural environment, as they can cause fires.

Map 42 Length of sewage network in km per 100 km² of the area of a municipality, 2003



Social infrastructure encompasses equipment and institutions enabling provision of administrative and legal service, as well as service from the domain of safety, education, health and social care. This infrastructure includes, therefore, such objects as offices, courts, kindergartens, nurseries, day care centres, medical dispensaries, hospitals, social care outlets. The region in question is equipped with social infrastructure in an average degree.

The primary problem of health care is lack of investments and insufficient equipment with specialised medical facilities and devices. In the small towns and municipality centres the basic outlets of health care and the pharmacies are located. Hospitals are located in all the county seats. The area considered has insufficient numbers of the care centres, where aged, infirm and severely ill persons could find refuge.

Accessibility of education is satisfactory, although the recently implemented reform of educational finance brought about the liquidation of some of the units in the countryside (Rydz 2002). The higher-level secondary schools are located uniquely

in towns, while the most important academic centre for the region is Lublin, situated some 50-100 km away. During the recent years in Chelm and Zamosc a number of non-public higher education establishments have been created, and, besides, a local branch of the Agricultural University in Lublin functions in Zamosc, and a branch of the Catholic University of Lublin functions in Tomaszow Lubelski.

5.1.3 Rural economy

5.1.3.1 Regional performance

Statistical profile

The region of Chelm and Zamosc belongs among the poorest in Poland, but, at the same time – similarly as in the entire country – the GDP per capita is dynamically increasing there (Table 114). Low values of GDP per capita are mainly associated with high shares of employment in non-commercial farming and lack of investments into the modern branches of economy. The dynamics of increase of the GDP ranges, similarly as for the entire country, from 3 up to even 8%. This fact is linked with the gradual modernization of farming, which constitutes still an important element of the regional economy, and also with the gradual decrease of the numbers of bi-occupational population.

Table 114 Regional performance – statistical profile

indicator	unit	2000	2001	2002	2003	2004	2005	2006
GDP per capita in PPS	EUR	3,114.1	3,309	3,427.4	3,580.3	3,854.7		
Contribution to GDP in secondary sector	%	23%	22%	21%	21%	23		
Contribution to GDP in tertiary sector	%	66%	65%	69%	67%	65		
Labour productivity per person employed	EUR	53.3%	54.1%	56.1%	57.3%	58.8	59.0	59.5
Average household income per year	EUR	5,575.1	6,643.1	6,368.3	5,649.6	5,821.8		

Source: Eurostat, CSO

Owing to this, agriculture of the region becomes increasingly competitive, even though the historical conditioning causes that this sector employs more than half of the employed. At the same time the share of agriculture in the GDP only slightly exceeds 10%. The GDP shares of manufacturing and service are much higher, although these sectors employ, respectively, 14 and 31% of the total number of the employed.

The systematic increase of the value of GDP, despite emigration of the population, is caused by the growth of labour effectiveness. Owing to these changes there is also an increase in the average nominal income per household and in consumption. Yet, notwithstanding the advantageous direction of the transformations, the

excessive share of persons in farming slows down economic growth. At the same time, diversification of employment is made difficult in view of agricultural traditions, shortages in technical and social infrastructure, as well as in skills and qualifications of the rural population.

Regional focus

Economic indicator values in the region are lower than in the majority of Polish regions. This results mainly from the character of the employment structure in the region and from serious limitations to changes in this structure. For many years, though, a gradual improvement with this respect has been taking place, linked with the adjustment process and then the membership in the European Union. Financial assistance, and especially direct subsidies and preferential credits, allowed for the increase of the effectiveness of agricultural production in the region, owing to its mechanisation, and for the gradual change of the acreage structure of farms. These changes bring about the increase of competitiveness of agriculture, which is decisive for the improvement of values of economic indicators. In spite of this, the average wage in the region is at around 78% of the average for Poland.

A significant share in industrial production is occupied by food processing industry, associated with the local supply in agricultural products and wood. The remaining branches are of lesser importance and concentrate in the biggest towns. The value of sales of industry per capita is at about EUR 1,655, while the value of investment outlays – roughly EUR 155 per capita.

Table 115 The biggest companies of the region of Chelm and Zamosc

Company	Seat	Activity
Ambra	Bilgoraj	Wine production
Black Red White	Bilgoraj and Zamosc	Furniture production
Cement Factory Chelm	Chelm	Cement production
'Ybbstaler' fruit processing	Chelm	Fruit and vegetable processing
Sugar Factory 'Krasnystaw'	Siennica Nadolna	Sugar production
Furniture company – 'Meblotap'	Chelm	Furniture production
Shoe company 'Escott'	Chelm	Shoe production
District Dairy Cooperative in Krasnystaw	Krasnystaw	Dairy products

The development of the service sector, on the other hand, is conditioned primarily by the transfer of employees from farming, taking place in the recent years. Despite an increase in the private enterprise (in the years 1995-2005 the number of private sector businesses per 1,000 inhabitants increased from 39 to 59), the region in question is still weakly developed with this respect (the average for Poland is at 91).

Lack of ample investments causes that very small enterprises dominate. Roughly 95% of all businesses in the region employ up to nine persons. The thus high share

of the small enterprises causes that around 90% of them are owned by natural persons.

There are no Special Economic Zones in the region of Chelm and Zamosc. The corporate income tax (CIT) is, like in general in Poland, equal 19%. It is a value close to the European average. There are only 10 Member States of the European Union where this tax rate is lower. Lack of adequate investments in the area, though, is largely due to formal difficulties and procedures, which prolong in time the process of establishment of a business by a natural person.

5.1.3.2 Structure of agriculture

Statistical profile

The contribution of agriculture to the gross domestic product decreases in Poland from year to year. In 2004 this contribution amounted to 2.7%, having decreased since the beginning of the systemic transformation by the factor of four (in 1989 the share of farming in the GDP amounted to 11.8%). This share is in the region of Chelm and Zamosc, owing to the domination of agriculture in this region, much higher, and can be estimated at more than 10%.

Table 116 Structure of agriculture – statistical profile

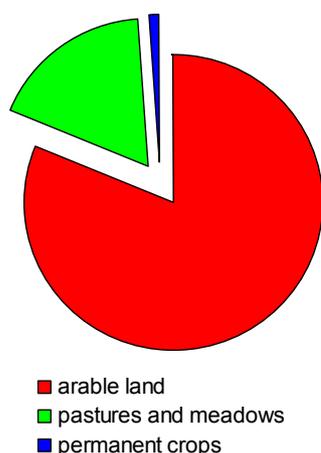
indicator	unit	2000	2001	2002	2003	2004	2005	2006
Contribution to GDP of NACE A01 – Agriculture, hunting and related service activities	%	5.6	6.9	5				
Contribution to GDP of NACE A02 – Forestry, logging and related service activities	%	5.6	6.9	5				
Employment in primary sector (full-time equivalents)	no.				103,565	103,663	103,641	
Average physical farm size	ha			8.2				
Average economic farm sizes	European Size Unit							
Share of arable crops of Utilised Agricultural Area	%	80	81	81	81	81	81	
Share of permanent pastures of Utilised Agricultural Area	%	19	18	18	18	18	18	
Share of permanent crops of Utilised Agricultural Area	%	1	1	1	1	1	1	
Share of forested area	%	22	22	22	22	22	22	
Production of renewable energy from agriculture and forestry	kilotons of oil equivalent							
Share of farmers with other gainful activity	%			9.3				
Share of irrigated agricultural land	%						157 (in ha)	
Number of farms with agrotourism	no.							100

Source: CSO, Eurostat

The average acreage of a farm in Poland is around 8 ha. The magnitude of farms in the region considered corresponds to the national average, but in the recent years a slow tendency has been observed towards an increase of the farm acreage. This is a typical process for the entire area of Poland.

In view of good agro-ecological conditions arable land dominates in a decisive manner in the structure of agricultural land (Figure 119 and Map 43). The structure of agricultural land does not undergo bigger changes (Table 116). On the areas with lower soil quality or on the wet areas larger surfaces of meadows and pastures appear. Permanent crops account for only 1% of the agricultural land. The region has no fruit growing tradition. Lack of larger orchards results also from the appearance of frequent early spring frosts, which could destroy the fruit yields and the trees themselves. Side by side with infrequent farmyard orchards, the most important of permanent crops include raspberries, strawberries, currants and hops.

Figure 119 Structure of agricultural land in the region of Chelm and Zamosc, 2004



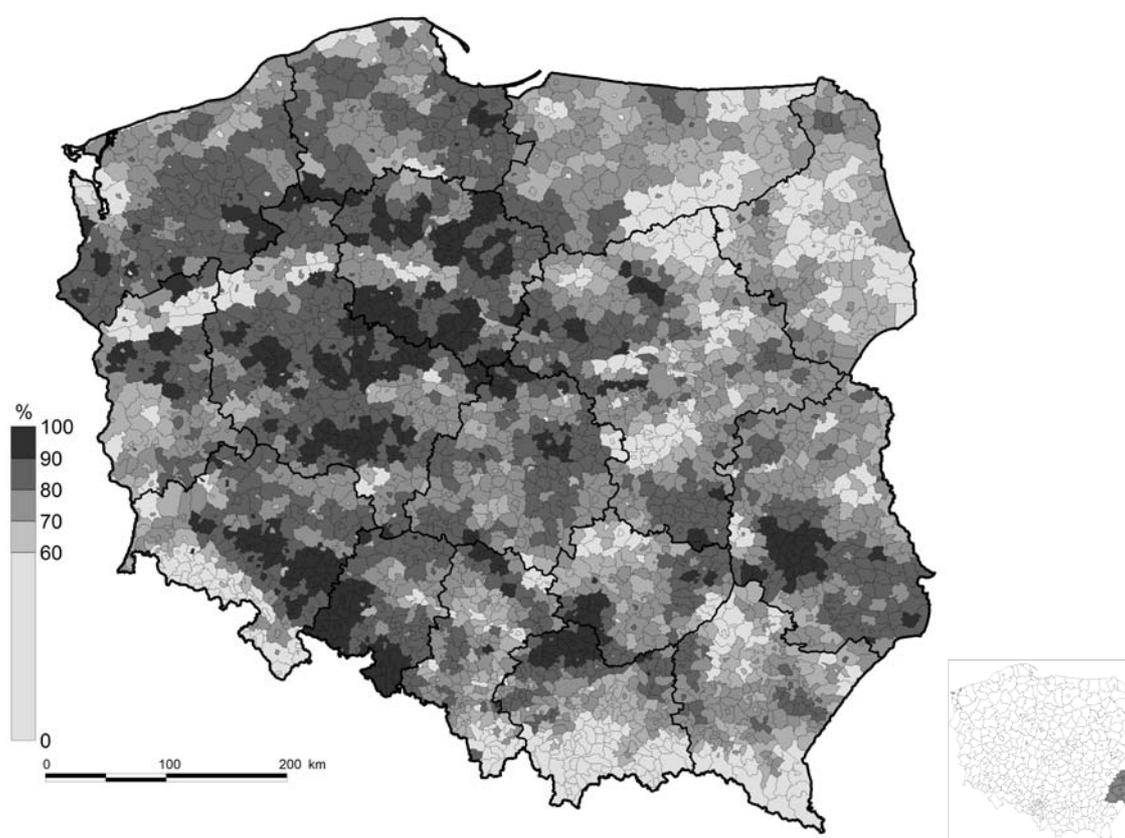
The share of forests differs significantly from the national average (around 29%), since it is at only 22% of the total area of the region. There is a strong differentiation with this respect across the region. Forests, forming large complexes, exist mainly in the south-western part of the region (close to 39% in the county of Bilgoraj). In the central and northern parts of the region the forest shares do not exceed the average for the entire region. Then, on the area of the best soils, in the eastern part of the region, the share of forests is exceptionally low (at around 13% in the county of Hrubieszow).

Electric energy consumption per capita in the region of Chelm and Zamosc was in 2004 at 333 kWh. This energy was almost exclusively produced from the conventional sources. In 2005 only 2.2% of total production of electric energy in Poland originated from the renewable resources. According to plans, this share should increase until 2010 up to 7.5%. The region of Chelm and Zamosc does not play, as yet, an important role in production of energy from renewable sources. Recent years, though, brought an increase of interest in cultivation of rapeseed for biodiesel fuel. In the coming years the region might become one of the most

important areas of production of liquid fuels of plant origin. During last years willow gained popularity as a combustibile for heating purposes. It is grown mainly within the wet river valleys, which are not proper for other crops.

In the national perspective the last years saw a decrease of the share of employment in farming. This demonstrates that an increasing proportion of rural population finds employment in other sectors of economy. It was only at the turn of the century that a slight increase occurred of the employment in agriculture, which was the result of a slowdown in economic growth of the country and a distinct weakening of labour demand.

Map 43 Share of arable land in the total agricultural land, 2005



The region of Chelm and Zamosc features high share of population employed in agriculture (approximately 55%), much above the national average (according to various estimates between 16 and 21% of the professionally active population), and even above the high average for the province of Lublin (45%). Lack of industry and low degree of urbanization cause that only around 10% of agricultural population take up additional jobs outside of farming.

In the 1990s, due to structural changes in the economy, reflected, in particular, through reduction in employment, layoffs affected first of all the farm population. This was caused not only by the usually low professional skills of this population,

but also by the possibility of getting odd jobs in farming. There was a drastic drop of the number of bi-occupational population, linking work on the farm and outside of it.

A separate and very complex issue is the unemployment of the population associated with agriculture. Statistics do not reflect unemployment in agriculture, for it is not registered, but it is commonly known that there is an excess of main d'oeuvre in the farms. One speaks, then, of hidden unemployment in agriculture (or of agrarian unemployment). According to the estimates of I. Frenkel (2003) the surplus of persons employed in agriculture in Poland amounted in 1996 to some 900,000, with entirely slack manpower numbering 440,000.

Hidden unemployment constitutes the biggest problem in the south-eastern part of the country, including the region of Chelm and Zamosc. A definite form of economic activation of the region in question is represented by the development of the tourist service, provided by the farms. This applies in a particular manner to the areas situated over river Bug and in the neighbourhood of the areas of attractive nature (the national park and the landscape parks). It is estimated that around 100 agro-tourist farms function now in the region. They are associated in the Agro-Tourist Society of Lublin, the Agro-Tourist Society of Krasnobrod, the Agro-Tourist Society of Bug River, the Agro-Tourist Society of Roztocze, the Agro-Tourist Society in Hrubieszow, the Hospitality Industry Society of the Town and Commune of Zwierzyniec, as well as the Agro-Tourist Society of the Land of Janow.

Regional focus

The basis for the ownership changes after 1989 was freeing of the land market, which allowed for the flow of land, first of all from the state sector to the private one. The prices of the agricultural land depend primarily upon the quality of this land, its location and plot magnitude. Average price of 1 ha of agricultural land sold in 1998 was 4,379 PLN. Except for the northern part of the region, where the quality of agro-ecological conditions is poor, the turnover of the agricultural land is low. Demand for land is decidedly bigger than supply. This leads in some cases to conflicts. Owners of agricultural land generally do not wish to get rid of it, and so tenancy is quite a popular form of using the land.

After 1989 the place of the three main ownership forms (private, cooperative and state) was taken by two forms: private and public (state). The public sector includes first of all the land taken over by the State Treasury, formerly belonging to the state farms and the State Land Fund⁹⁹, land of the State Forest Enterprise and the municipal property¹⁰⁰. In the private sector, on the other hand, the leading role

⁹⁹ Land of the Agricultural Property Trust of the State Treasury had been in disposal of the Agricultural Property Agency of the State Treasury, and since 2003 – of the Agricultural Property Agency.

¹⁰⁰ All the land of the State Treasury (agricultural land, forests, housing areas, transport land, fallow land, waters etc.) occupied in 2002 the area of 12,394,631 hectares, equivalent to 40% of the territory of the country. Of the remaining land 54% was owned by natural persons, 3% – by legal persons, and 3% – by communes and communal associations.

is played by the private family farms¹⁰¹, agricultural production cooperatives and the commercial law companies (Table 117).

Table 117 Ownership structure of agricultural land in Poland, 2002 r.

Land ownership form	Area (10³ ha)	Share in total area (%)
Total area of agricultural land	19,044.3	100.0
Property of the State Treasury	3,269.4	17.2
Communes and communal associations	318.4	1.7
Private farms	14,775.2	77.7
Agricultural production cooperatives	245.6	1.3
Commercial law companies	287.4	1.5
Churches and religious societies	95.3	0.4
Land associations	53.0	0.2

Source: own elaboration based on *Krajowy wykaz gruntow*, 2002, Główny Urząd Geodezji i Kartografii, Warszawa. *Sprawozdanie o stanie mienia Skarbu Państwa*, 2002, Ministerstwo Skarbu Państwa, Warszawa.

Nowadays, the leading role in the ownership structure of Polish agriculture is played by private farms. After the period of the socialist economy, during which private farming was less than tolerated by the consecutive administrations, there was a complete change of the attitude of the state towards this form of land property. Although it is true that private farming felt the most the negative consequences of the systemic transformation, but the recent period, after the accession to the European Union, indicates that the economic situation of the private farms undergoes a gradual improvement.

In the region of Chelm and Zamosc more than 90% of agricultural land is in private hands. Only at the eastern edge, where until the beginning of the 1990s state farms had been functioning, more of agricultural land remained in public ownership. The entire south-eastern part of Poland has the tradition of private family farming. Consequently, there are not so many cooperatives and other undertakings of groups of farmers. Yet, during the recent years one can observe the appearance of the new producer groups, farming unions and associations, in which the most active and enterprising farmers participate. These new entities include, in particular, the Roztocze Union of Farmers, Farmer Circles and Organisations in Tomaszow Lubelski, Association of Tobacco Producers "Krasnystaw Tobacco Group", Roztocze Association of Hop Producers, Association of Tobacco Producers "POL-TABAK" in Bilgoraj, Association of Hog Producers "Roztocze", Association of Grain Producers "AGRO", Rural Housewives Association, Agricultural Cooperative, the Agro-Tourist Associations.

¹⁰¹ According to the Central Statistical Office a farm is defined as composed of agricultural land along with forest land, buildings or their parts, equipment and livestock, if they constitute or can constitute an organised economic whole, as well as rights and duties associated with the conduct of a farm. Farms in private use encompass those owned by natural persons, having more than 1 ha of agricultural land, and also the so-called agricultural plots, i.e. private plots of up to 1 ha of agricultural land.

A serious problem of Polish agriculture is constituted by a very high number of farms, of which only a part conduct commercial activity. This applies, in a particular manner, to the south-eastern part of the country, where the Chelmsko-Zamojski region is also situated. Thus, for instance, in the most agricultural part of the region, that is – in the county of Hrubieszow, there were in 2002 as many as 12,766 farms, of which only roughly 4,200 produced mainly to market. The remaining ones produce exclusively or primarily for self-supply. Only a part of the production surplus is directed to the market. This situation results first of all from the agrarian fragmentation and application of the traditional production methods, based on high labour intensity, low degree of mechanisation (there are, on the average, 8.9 ha of agricultural land per 1 tractor in the province of Lublin), low use of fertilisers (average application of mineral fertilisers per 1 ha of agricultural land is at 102.4 kg of NPK and 91.5 kg of calcium fertilisers, while the respective values for the province of Lublin are 99.8 and 62.9 kg), as well as low use of herbicides and pesticides. Traditional production technologies bring about low profitability of farms, which, in turn, limits their investment capacity.

An increasing polarization of farms has been observed in the region considered in the recent period. The significance of the large and commercial farms increases, while economic situation of the smaller farms undergoes erosion. In the nearest years one can expect continuing elimination of the non-profitable farms, whose land would be taken over by the larger and stronger farms.

The region of Chelm and Zamosc is an example of an area characterized by the agrarian fragmentation (Figure 120 and Figure 121). It is not as serious as in southern Poland, but it still constrains in a significant manner the production effects of the region. Agrarian fragmentation is the result of a combination of the economic and political phenomena, which took place in historical past, especially during the partition period, in the 19th century. They brought about the formation of a high number of very small farms, mainly of self-supply character.

Figure 120 Shares of farms according to acreage groups in the county of Hrubieszow, 2002

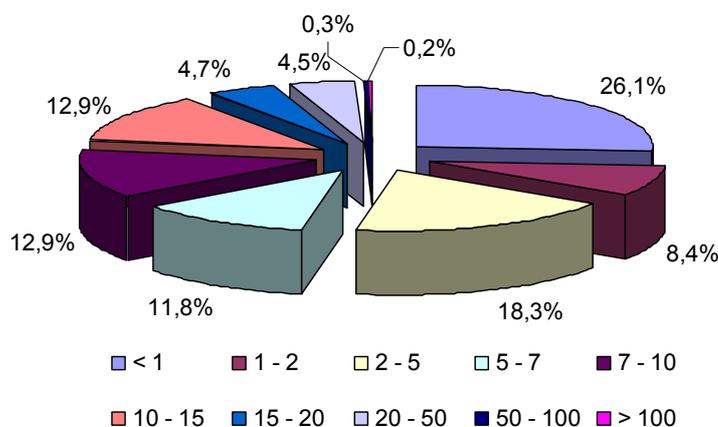
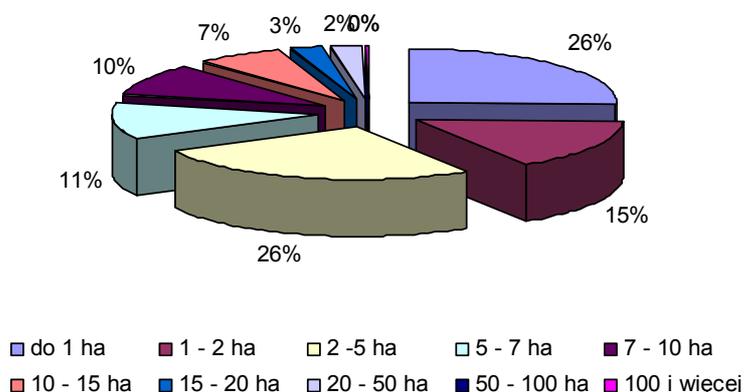


Figure 121 Shares of farms according to acreage groups in the county of Tomaszow Lubelski, 2002



Another serious problem of agriculture in the region of Chelm and Zamosc is the checkerboard pattern of fields (Figure 122). Access to the dispersed plots requires using larger amounts of fuel and unproductive spending of time of the farmer and other persons working on the farm. Consequently, dispersion of farming plots increases production costs, and thereby lowers the revenues of the farms. The plot merging work is conducted to a very limited extent.

Figure 122 Satellite image of the Polish-Ukrainian borderland in the vicinity of Hrubieszow.



Left side of the image shows the fragmentation of the Polish private farms. On the right-hand side (beyond river Bug) one can see large plots of the Ukrainian farms collectivised in the period of the Soviet Union

Source: GoogleEarth

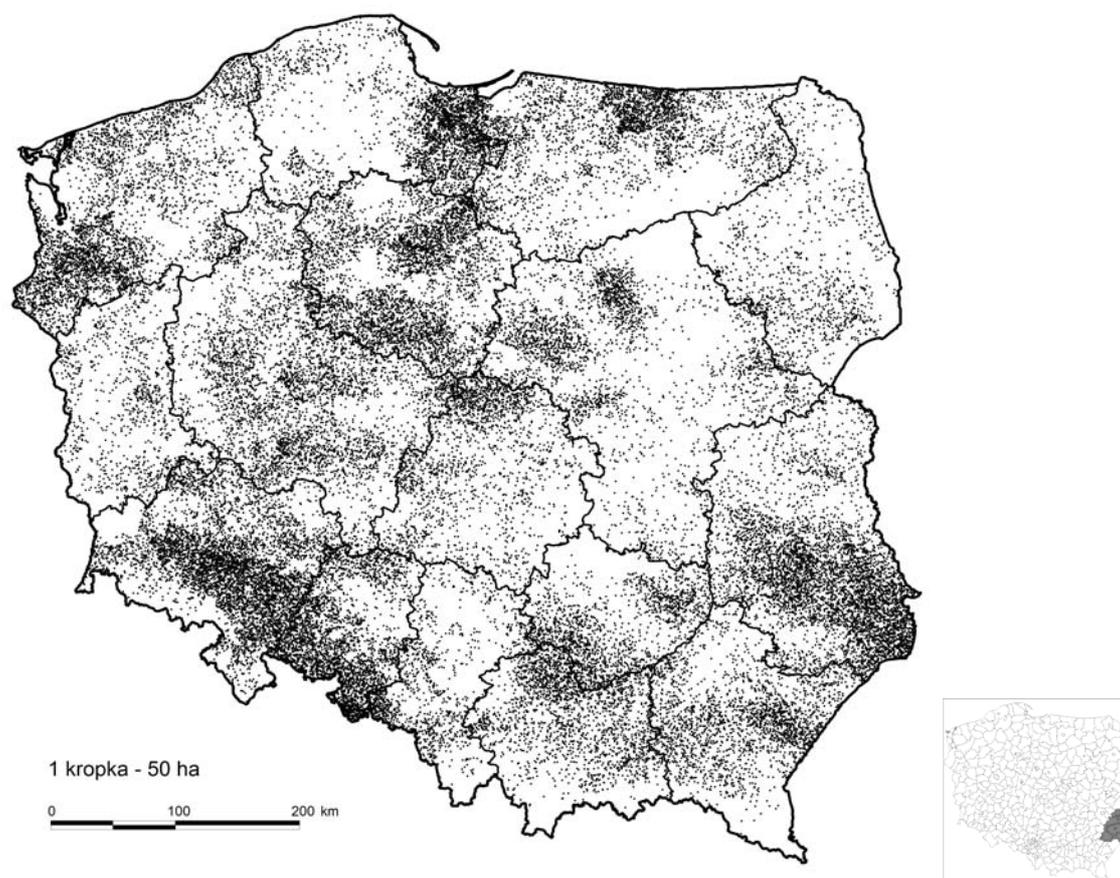
This process requires appropriate legal framework and high financial outlays. Such attempts have been undertaken in the past, but they encompassed small areas or were not consistently carried through. It can be hoped that the situation will change in the nearest years.

Side by side with operating on their own land, private farmers rent land, mainly from the Agricultural Property Agency of the State Treasury. In 2002 every fifth hectare of land used by farmers was rented. This phenomenon is particularly pronounced for the large commercial farms located in the West and in the North of the country. In the region considered renting applies mainly to private land. Increasingly frequently owners of the unprofitable farms rent out their land to stronger and commercial farms.

In the agricultural production structure of the region of Chelm and Zamosc crop production dominates. Basic crops include wheat, sugar beets, rapeseed, barley, potatoes. This region specialises also in production of tobacco, hops and raspberries, but they do not make up a significant share in production structure.

In terms of cereals, wheat is the most important one in the province of Lublin (Nowak, Nowak, 1996). This is the most important bread cereal in Poland (Map 44).

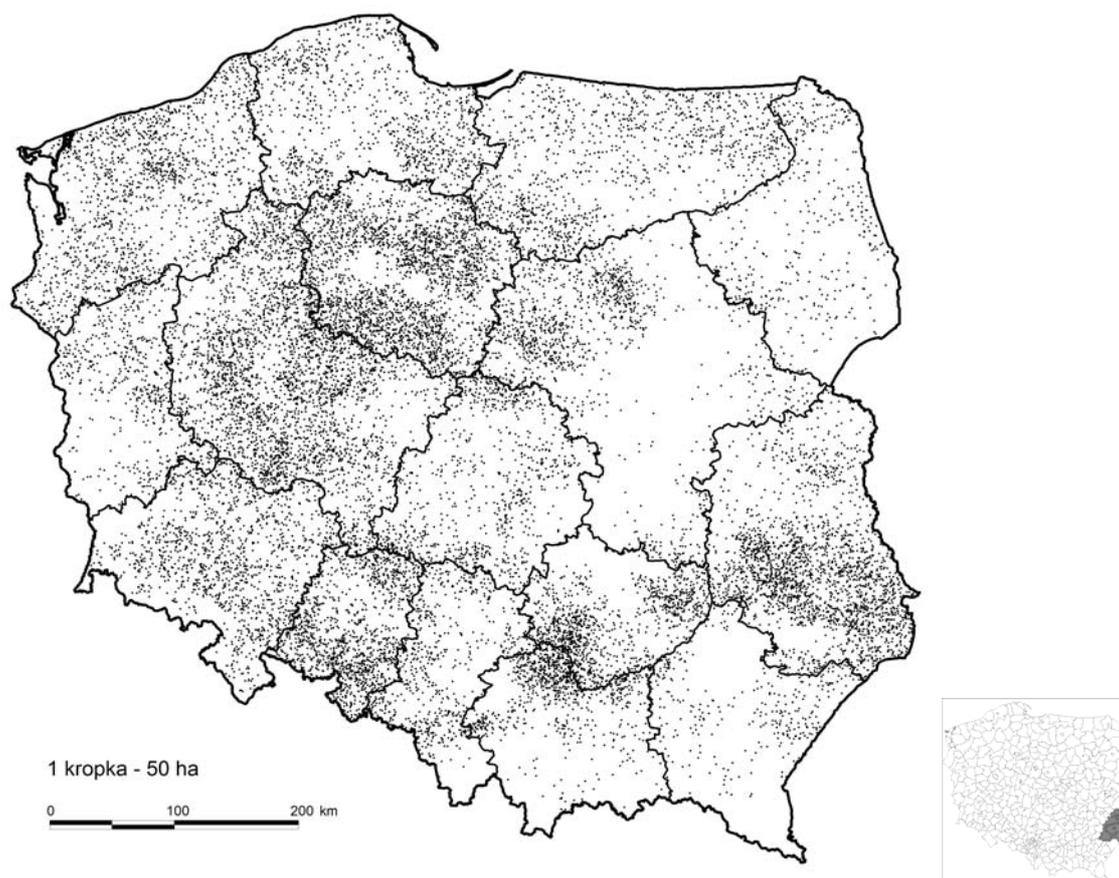
Map 44 Wheat cultivation in 2002



In the province of Lublin wheat takes around 25% of the sown area (Sobczyk, 2002). In the region of Chelm and Zamosc the share of wheat in the sown area is at 40.5% (while the average for Poland is 22.5%). The biggest share in the sown area is taken by wheat in the eastern part of the region, in the counties of Tomaszow Lubelski (46.5%) and Hrubieszow (48.5%). These areas are among those most specialised in wheat in Poland.

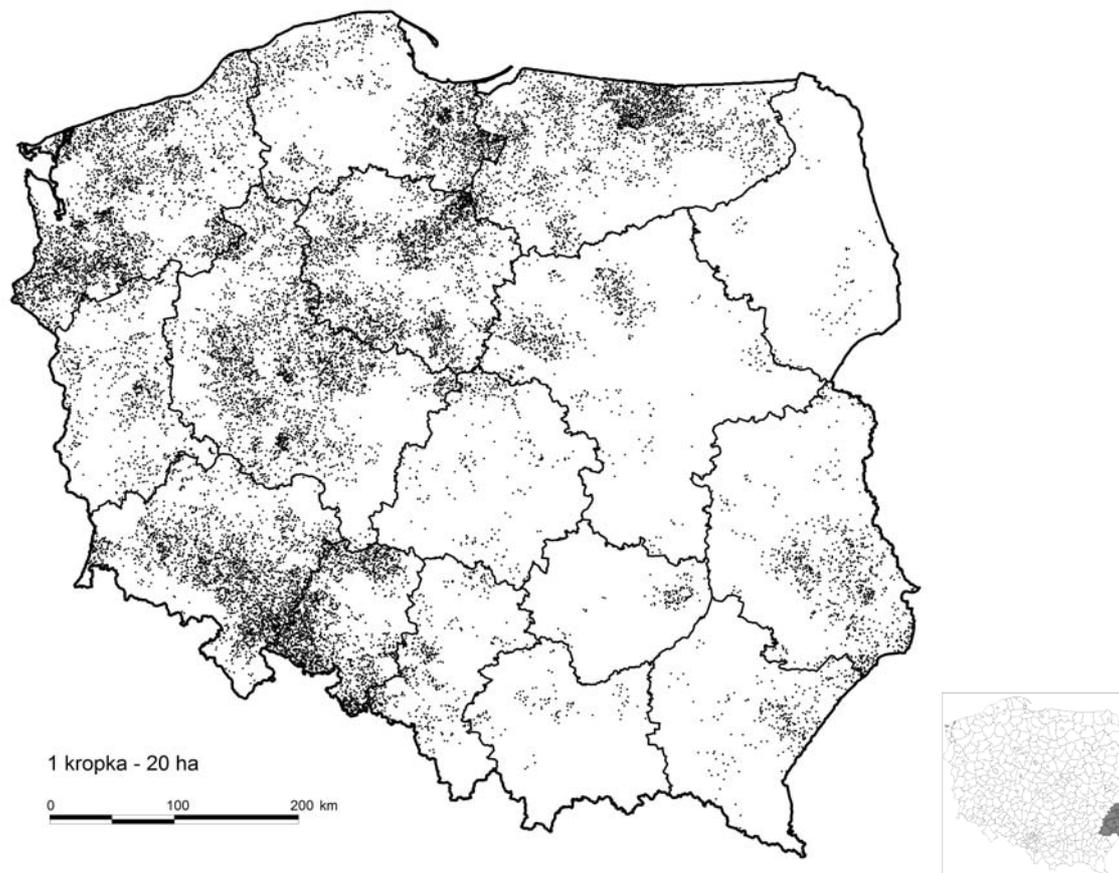
Barley has a broad range of uses. It is used to produce feedstuffs, for human consumption (as a raw material for production of groats), and for industrial processing (first of all in brewing industry). Barley grain, containing high amount of proteins, is a high quality feedstuff for pigs. Barley is the second as to importance cereal grown in the region (0). Its share in the sown area in the region amounts to 13.5% (the average in Poland being 9.5%).

Map 45 Barley cultivation in 2002



In 2007 the law on bio-fuels entered into force. This entailed a clear increase of interest of the farmers in growing rapeseed, which is the basic raw material for production of liquid bio-fuels. The region of Chelm and Zamosc is the most important area of production of rapeseed in eastern Poland (Map 46). Yet, the share of this crop in the sown area, equal 3%, is lower than on the average in Poland (4%). This share, though, varies considerably within the region. Higher values are observed in the eastern part of the region (4.5% in the county of Tomaszow Lubelski) than in its western part (1% in the county of Bilgoraj).

Map 46 Cultivation of rapeseed and turnip in 2002



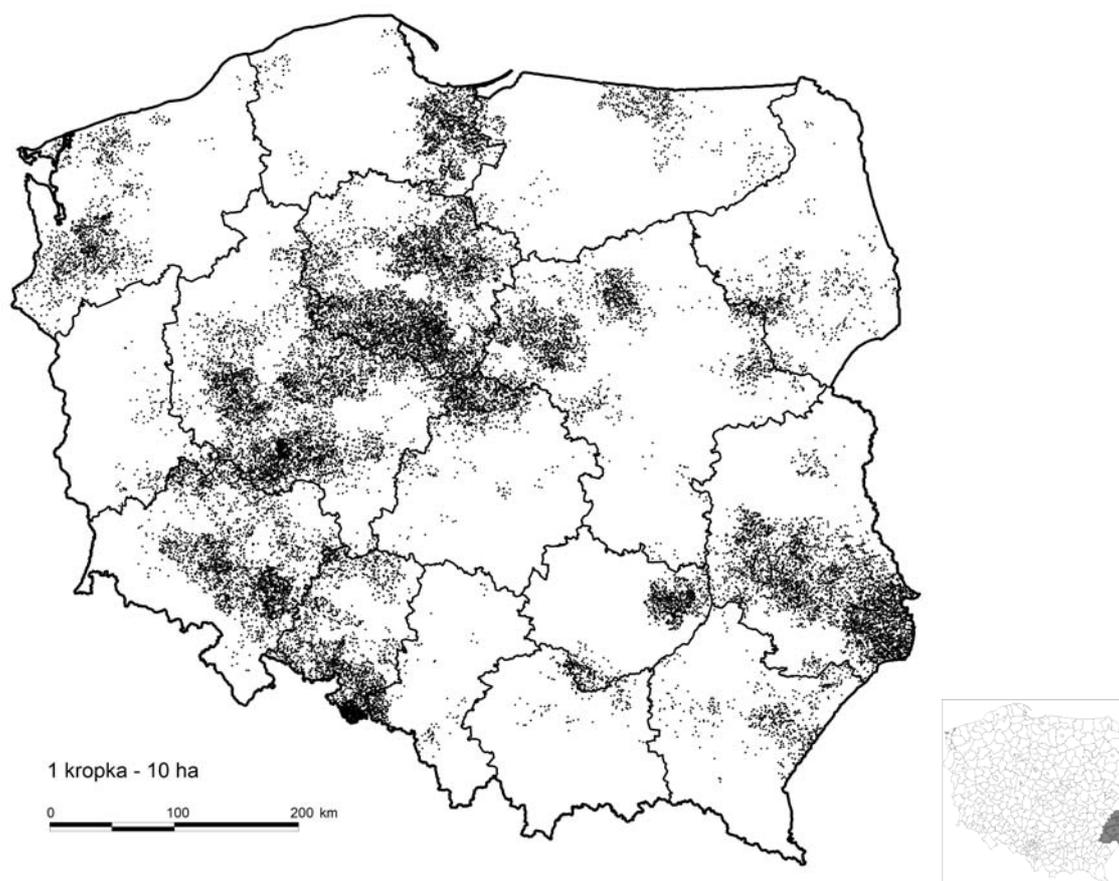
Sugar beets are not only an important raw material for production of sugar, but are also a source of feedstuffs for animals (leaves and mill cake). The region of Chelm and Zamosc is the most important area of sugar beets cultivation in the East of Poland and one of the most important in the country (Map 47). The share of sown area under sugar beets in the region amounts to as much as 7% (average for the country is 3%). Low values of this indicator are noted, in view of the much worse soil conditions, in the south-eastern part of the region (in the county of Bilgoraj the share of sugar beets is at 2.5%). The main purchasers of the sugar beets are the sugar factories of Werbkowice and Krasnystaw.

With respect to other crops it is worth emphasising that the region of Chelm and Zamosc, together with the other regions of the province of Lublin, produces 80% of the national output of hops, 43% of the national output of tobacco, and 70% of the national output of raspberries.

In view of good conditions for cultivating crops having selective cultivation requirements, animal husbandry has somewhat lesser importance in the region. In animal husbandry it is dairy cattle raising that is most important in the region (Map 48). Yet, in spite of this the number of milk cows per 100 ha of agricultural land is below the national average of 16.9, and amounts to 16. Higher values of the indicator are only observed in the western part of the region (in the county of

Zamosc – 18.4, in the county of Bilgoraj – 18.5, and in the county of Krasnystaw – 18.6).

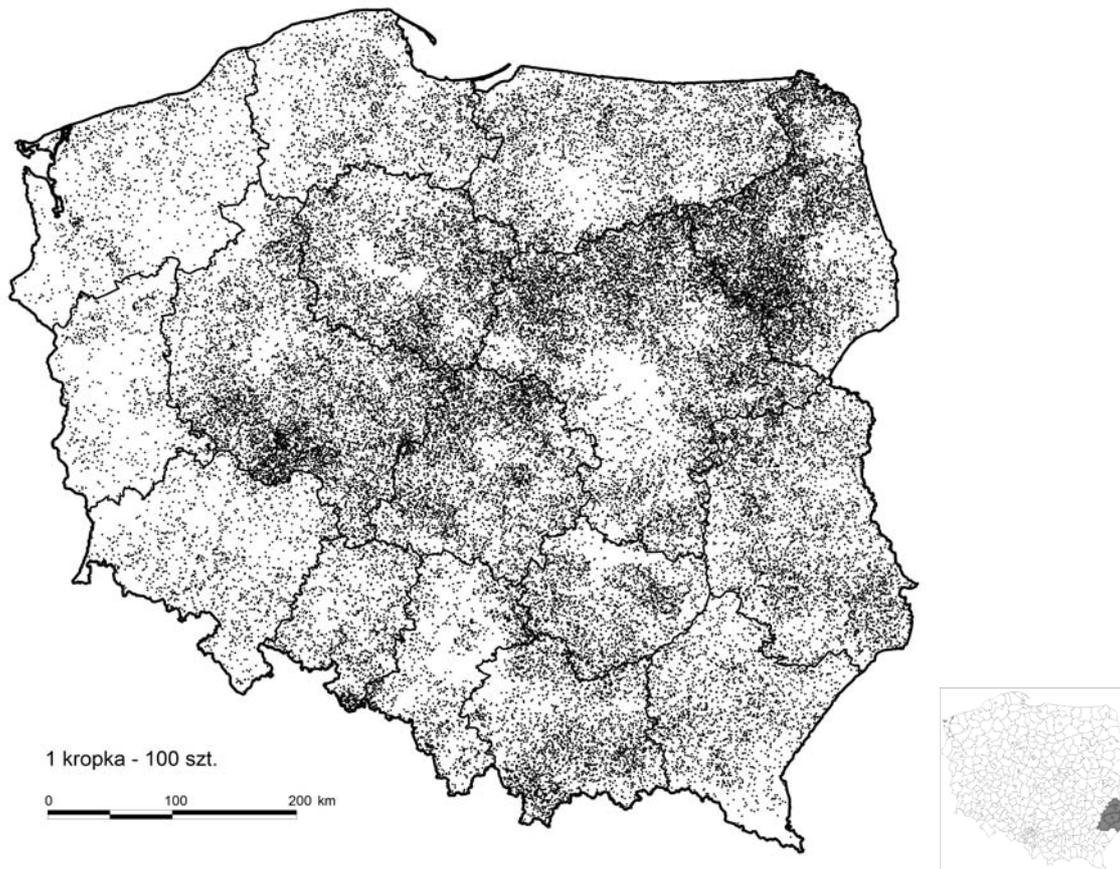
Map 47 Cultivation of sugar beets in 2002



Cattle husbandry has been concentrated until quite recently in small farms, oriented at self-supply, each raising 1-2 animals. During the last years there has been a concentration of dairy cattle in large farms, producing milk to market. Development opportunities are open only to these farms, which contracted milk supply with dairies. It is in these farms that numerous new investments arise, financed partly from the programmes of the European Union. The biggest amounts of milk are sold to dairies in Krasnystaw and Chelm.

Raising of other animals is of lesser significance in the region. The numbers of pigs and sheep per area unit of agricultural land are lower than on the average in the country. For pigs the average number per 100 ha of agricultural land is 55.5 units (the national average being at 110.2). A similar indicator value for sheep is 0.057, while the national average is at 0.106. Only goats stock in the region is somewhat higher than the national average (1.14 units per 100 ha of agricultural land), and amounts to 1.2 units. In the counties of Hrubieszow and Bilgoraj this indicator takes values lower than the national average (1.12 and 0.68, respectively).

Map 48 Cattle stock in 2002



Honey production deserves special attention. There are several large honey producers in the region, selling their produce over the entire province of Lublin. It should also be emphasized that the province of Lublin is the location of the only Polish and European school of bee-keeping in Pszczela Wola (literally: Bee Will), some 20 km from Lublin.

Despite good agro-ecological conditions, agriculture of the region does not attain satisfactory production effects (Table 118). This is the effect of the traditional methods of farming, low level of education of farmers, lack of investments and weak economic status of farms, as well as numerous other socio-economic factors. Low yields are also a consequence of the disadvantageous weather phenomena, especially of the frequent droughts, occurring during the growing season.

Table 118 Areas under and yields of the crops cultivated in the Chelmsko-zamojski region, 2002

Crop	Area sown (ha)	Yields (t/ha)
Wheat	264,002	3.46
Barley	139,967	3.07
Rye	96,224	2.48
Oats	68,740	2.59
Triticale	108,202	2.94
Cereal mixtures	141,395	2.81
Potatoes	51,665	18.35
Sugar beets	45,186	42.00
Rapeseed and turnip	29,267	2.65

Source: CSO

During the 1930s there were 213 windmills and 171 watermills within the region of Chelm and Zamosc. Only 25 of them remained until today, mostly serving as historical monuments.

Production of renewable energy does not, as yet, play a bigger role in the region. There is a definite potential in the region in terms of water power (small rivers with high gradient in the edge zone of Roztocze hills), of solar power (relatively high insolation) and of the use of biomass.¹⁰²

There are a couple of small hydropower stations in the region, producing for local needs (Table 119). All of them are located in the southern part of the region. Against the background of eastern Poland this is the area of the highest concentration of small river power stations. In general terms, though, they are of marginal significance.

Table 119 Small hydropower stations functioning in the region of Chelm and Zamosc

Location	River	Power (kW)
Gorecko Koscielne	Szum	22
Klemensow	Wieprz	50
Michalow	Wieprz	90
Tarnogora	Wieprz	200
Tuliglowy	Wojslawka	45
Zwierzyniec	Wieprz	132
Nielisz	Wieprz	370
Wierzbica	Solokija	67
Bondyryz	Wieprz	22

Source: Wojewodzki et al. 2006

¹⁰² Sporadically, in some households, wood is used as an energy source. This, though, can be treated as a symptom of economic backwardness, since wood is used for energy-related purposes mainly by the poorest of farms. There exist, as well, a relatively small group of households, making use of wood and wood-based products in modern central heating systems.

In the recent years there appeared also in the region single installations allowing for the transformation of solar energy into electric energy. These, however, are isolated initiatives, and the energy produced allows for the supply in energy of single residential buildings. In the framework of elaboration of the Development Strategy of the Province of Lublin for the years 2006-2020, the *Provincial Program of Development of the Alternative Energy Sources for the province of Lublin* was put together, with the purpose of diagnosing and estimating the potential of the region in the domain of use of the renewable sources of energy and establishing the foundations for the development of use of energy sources (Wojewodzki et al. 2006).

5.1.3.3 Structure of rural economy

Statistical profile

Table 120 Structure of rural economy – statistical profile

Indicator	unit	2000	2001	2002	2003	2004	2005
Employment in secondary sector (full-time equivalents)	no.	30,632	27,885	26,434	26,530	26,290	27,480
Employment in tertiary sector (full-time equivalents)	no.	61,261	58,476	57,569	56,682	57,070	57,694
Share of SMEs of total businesses	%			99.9	99.9	99.9	99
Number of beds in tourism	no.	6,289	6,217	7,002	6,749	6,554	5,908
Overnight stays per year	no.	303,299	282,639	284,784	279,783	302,926	302,618
Expenditure on R&D as share of GDP	%	0.49	0.46	0.42	0.4		

Source: CSO, Eurostat

Agriculture is characterised by a large absolute share in the GDP value, exceeding 10%. This share, though, is mainly due to a large area of agricultural land and a very high employment in the sector, and not to labour productivity.

The share of forestry in the GDP does not exceed 0.5%. It is low on the scale of the region in view of a small share of forests in the area of the region. Yet, forestry and wood-and-paper industry constitute an important element of economy in the county of Bilgoraj and, though to a lesser degree, in Roztocze. In the south-western part of the region the Solska Forest and the Forests of Janow supply large quantities of the raw material, processed then in numerous sawmills.

Forest economy encounters obstacles within the area of Roztocze, because of a broader use of land for farming, due to existence of good soils and because the biggest forest complex of Roztocze is included in the National Park of Roztocze (forests occupy 95% of the national park). The region lacks, however, except for the furniture factories, industrial plants dealing with further wood processing. No plants of paper industry function in the region.

Employment in industry and in service is relatively low and has been steadily declining in the recent years. This is associated not only with the drop of the share of persons employed in manufacturing and service, but also with the emigration from the region. Low number of persons employed in manufacturing results from a low number of investment projects in the region, from lack of industrial tradition and from shortage of adequate human potential.

The tourist potential of the region is not used to an adequate degree. This is caused by the peripheral location of the area, inadequate technical infrastructure (mainly in terms of transport), too little investments into the hospitality industry and low outlays into promotion of the region.

Regional focus

Food production is of high importance for the region. Among the crops grown, cereals dominate, mainly wheat and barley, followed by sugar beets. In the past the region was famous for growing hops, tobacco and flax for linen. Nowadays these crops have definitely lost in importance. In view of good conditions for demanding crops and a low share of meadows and pastures, animal production has also a somewhat lower significance. Thus, among the industrial branches, food processing takes the leading position, with the sugar factories of Klemensow, Werbkowice, Krasnystaw, Strzyzow and Rejowiec, cereal processing plant in Zamosc, fruit and vegetable processing plants in Chelm, Tomaszow Lubelski, Bilgoraj and Nieledeu, fat processing plants in Bodaczow, meat processing plant in Zamosc and the brewery in Zwierzyniec, all basing on local supply of raw materials. On the other hand, products of the District Dairy Cooperative in Krasnystaw are known and popular throughout Poland.

The remaining branches of industry in the region are of marginal importance. There are no plants of the electric-and-machinery industries. Only small plants of the metal industries function in Zamosc and Bilgoraj, of textile industry – in Zamosc and Bilgoraj as well, and of mineral industry (in Rejowiec Fabryczny and Chelm). These plants, though, are nowadays of low importance.

Besides the food processing branch the most dynamic one in the region is furniture industry. Furniture factories function in the region on the basis of wood supplied from its southern part (in Bondyryz, Zamosc, Chelm, Ploskie, and Chmielek). In view of lower costs these factories increasingly use the raw material imported from Ukraine. This is the sole technologically advanced processing of wood originating from the region, which takes place yet within its confines. There are no paper producing plants in the region.

Likewise, there are no factories of chemical industry in the area considered, which is linked with far distance from the majority of important chemical raw materials. In addition, the needs of the local market are not very pronounced, in view of the generally good quality of the agricultural production space and low intensity of agricultural production.

The most important tourist attractions include certainly the aesthetic value of the landscape of Roztocze, the frequently encountered traditional farming and numerous historical monuments, with, at the lead, the 16th century Renaissance old town of Zamosc.

There are also other localities in the region with a rich history and numerous unique monuments, linked with the centuries of mutual influence of the cultures and religions of the East and West of Europe. Of particular interest are the areas to the southeast of Zamosc, where the natural assets of Roztocze are complemented with a high number of historical monuments, associated with the functioning, between the 16th and 19th centuries, of the Zamoyski Estate-in-Tail, a vast land property of an outstanding family. On the areas of the Solska Forest and the Forests of Janow there are numerous relics from the guerrilla warfare against the Nazi occupants during the World War II.

In the southeast of the region, in the township of Belzec, there is a museum commemorating the Nazi death camp for Jews, which functioned here during the war. In the North the biggest number of tourists is attracted to the town of Chelm, famous for the long corridors excavated in the chalk underground of the town. During the recent years new investments were made into the recreation facilities. Two artificial reservoirs of recreational significance function in the region (Nielisz and Krasnobrod), used by tourists mainly during weekends and in the summer. In winter, an increasing popularity is observed of the existing four illuminated, artificially snowed and maintained ski slopes with ski-lifts, located in Roztocze (Krasnobrod, Jacnia) and in the Lublin Upland (Bobliwo, Batorz). The consecutive ones are under development.

Figure 123 Number of hotel beds per 10,000 inhabitants, 2005

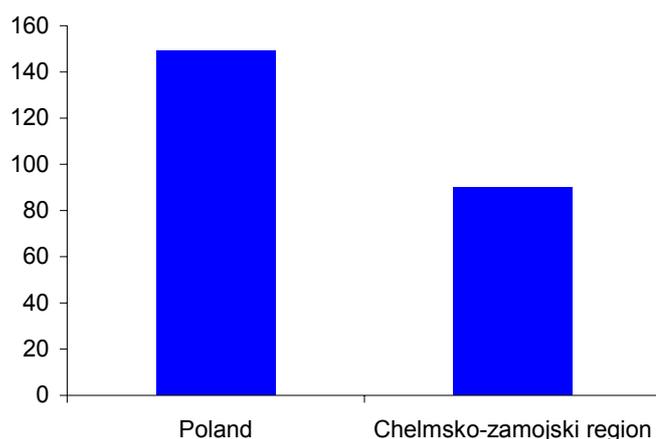
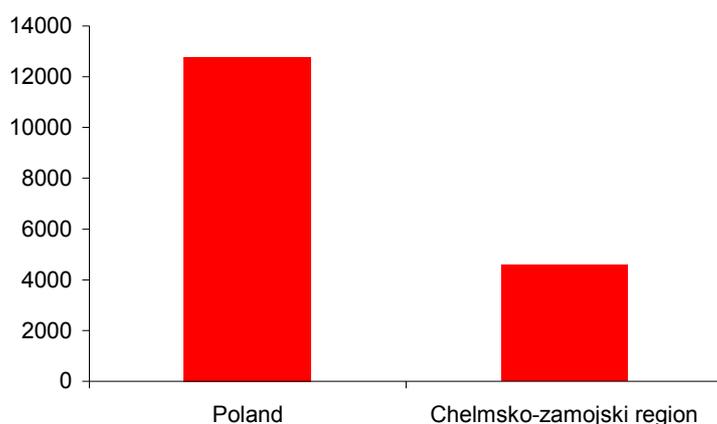


Figure 124 Number of overnight tourist stays per 10,000 inhabitants



The degree of inadequacy of using the tourist potential, existing in the region, is well illustrated by the comparison of the tourist traffic indicator values with the national averages (Figure 123 and Figure 124).

5.1.4 Rural society

5.1.4.1 Demography

Statistical profile

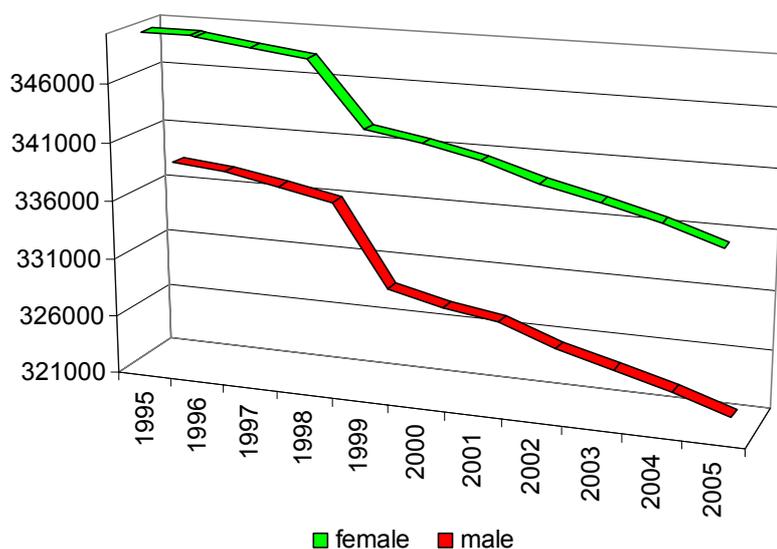
Table 121 Demography – statistical profile

indicator	unit	2000	2001	2002	2003	2004	2005
Female population	no.	342,741	341,714	340,312	339,160	337,941	336,468
Male population	no.	327,733	326,960	325,204	323,958	322,686	321,110
People aged 0-14 y	no.	137,281	132,058	126,744	121,903	117,176	112,370
People aged >=65 y	no.	97,670	98,226	98,586	98,804	98,666	98,635

Source: Eurostat

According to the data from the Central Statistical Office (GUS), the region in question was inhabited in 2006 by 657,578 persons, of whom 51.2% were women, and 48.8% were men (Table 121). During more than ten last years there has been a decrease of the population number in the region, both women and men. This is the effect of the natural decrease as well as migration outflow to other regions of Poland and abroad (Figure 125).

Figure 125 Change of the numbers of women and men in the region of Chelm and Zamosc



The region of Chelm and Zamosc has a disadvantageous age structure of the population. The consequence of the decrease in the number of births is the drop in the number of young persons in the age bracket of 0-14 years. This is accompanied by a slow increase of the share of persons in post-productive age.

Regional focus

The rural character of the region of Chelm and Zamosc is demonstrated by a clear domination of the population living in the countryside. In 2005 urban population amounted to 246,227 persons (37.4% of the total population of the region), while the rural population was 411,351 persons (62.6% of all the inhabitants).

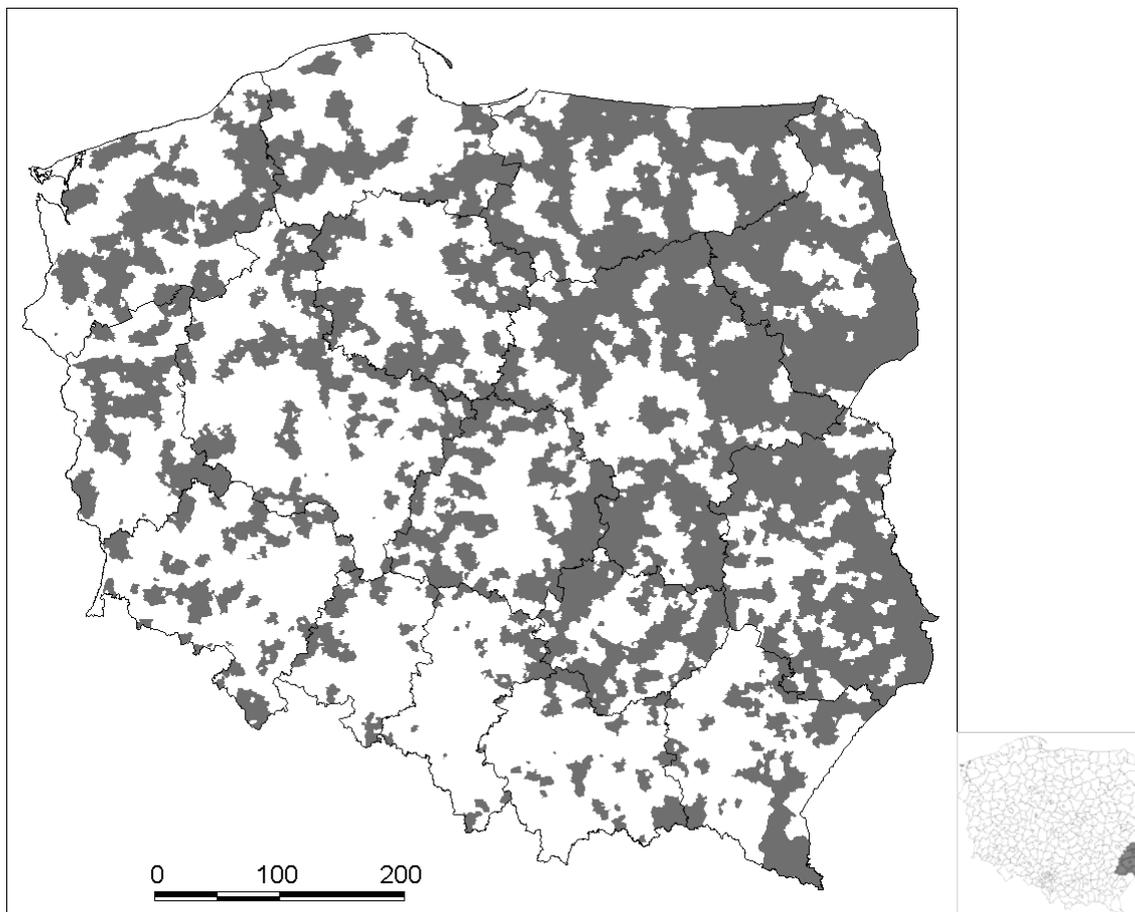
In terms of demographic situation the region can be classified as a problem area. It is characterized by depopulation, ageing of the population and the reproduction problems.

There is a slight domination of the number of women in the region, but this concerns first of all towns. In the countryside, the number of women (207,655) is very close to the number of men (203,696). There is a clear domination of the number of women in the post-productive age group (approximately 53,000 women and 26,000 men). On the other hand, there are more men in productive age (129,000) than women (109,000).

A very important indicator of the demographic condition of the area is the coefficient of feminization of the marrying age group. In these terms a major part of the region is characterized by a distinct shortage of women, which is especially

pronounced in the countryside (Table 119). This fact has a negative impact on the demographic development of rural areas. On the average, one in ten men does not find a partner for marrying.

Map 49 Areas of shortage of women in marrying age (coefficient of feminisation in age group 20-29 years below 90%)



Another disadvantageous phenomenon in the region is high share of the elderly (Figure 126). This phenomenon is observed first of all on rural areas and is strongly connected with the disadvantageous sex structure and the process of outflow of the young to towns. Mainly the active and the enterprising young migrate to towns and outside of the region. This bears a negative influence on the capacity of economic activation of the region.

Map 50 Areas with the share of population in post-productive age exceeding 17% (national average: 14%), 1999

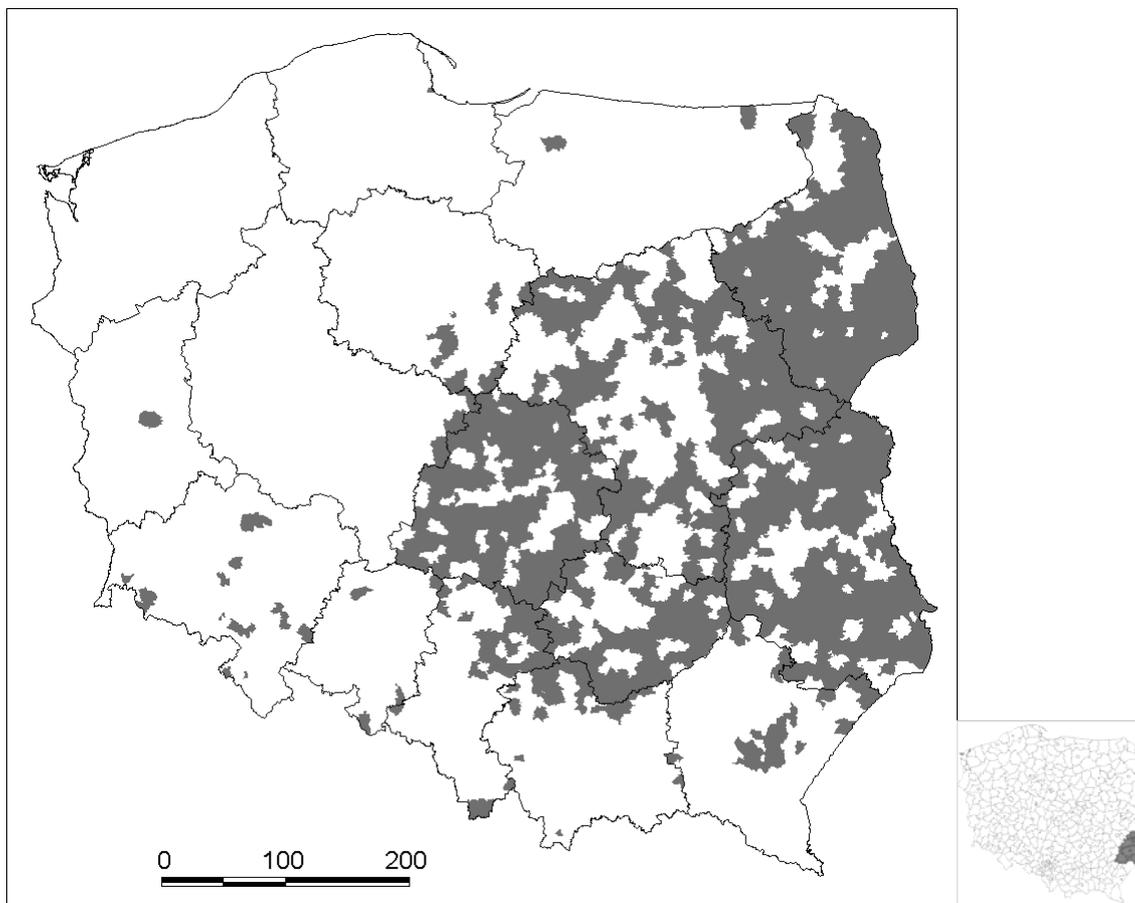
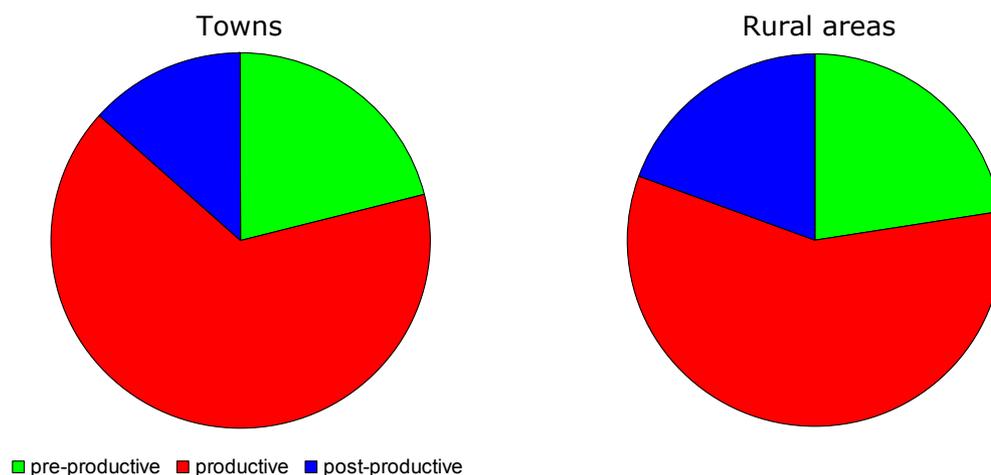


Figure 126 Age structure of the population in the region of Chelm and Zamosc



The region under consideration is also characterized by a constant migration outflow of the population. Due to limitations on the labour market and the increase of unemployment this phenomenon was curbed in the 1990s. Rural population, relatively less educated, had limited possibilities of finding jobs outside farms. Yet,

the region of Chelm and Zamosc is a depopulation area and one should not expect changes with this respect in the nearest years. In the last years, the outflow of population in the age of 20-40 years got more intensive. The most recent reasons for the emigration of this population are the new possibility of earning money abroad, as well as increasing possibilities of studying outside of the region, at the more known universities. This emigration is particularly disadvantageous, since it causes, in addition, an increase of the share of population in post-productive age, and also limits the capacities of local entrepreneurship through the decrease of the number of educated people. Hence, it can be expected that the population number in the region shall continue to gradually decrease and that this process shall be accompanied by the ageing of the rural population.

5.1.4.2 Education

Statistical profile

Table 122 Education – statistical profile

indicator	unit	2002
Share of females with secondary educational attainment	%	40.7
Share of females with tertiary educational attainment	%	8.3
Share of males with secondary educational attainment	%	32.4
Share of males with tertiary educational attainment	%	6.3
Share of population aged 20-24 having completed at least upper secondary education	%	64.3
Share of farmers with agricultural training	%	44.7

Source: Eurostat, CSO

The education level of the rural population remains, despite a constant improvement, much lower than that of the urban dwellers (Table 123). According to the data of the Central Statistical Office the share of persons with more than primary education in 2002 amounted to 56% (in 1988 39%), while only 4.3% of the rural population had university education.

Table 123 Education level of the population of 15 and more years of age in 1988 and 2002, Poland

Education level	1988		2002	
	town	countryside	town	countryside
University	9.4	1.8	13.7	4.3
Post-secondary	31.8	13.1	38.6	22.4
Secondary	23.2	24.1	21.1	29.2
Primary	32.3	49.2	22.2	38.3
Lack of education	2.9	11.2	1.5	5.0
Unknown	0.3	0.5	2.9	0.7

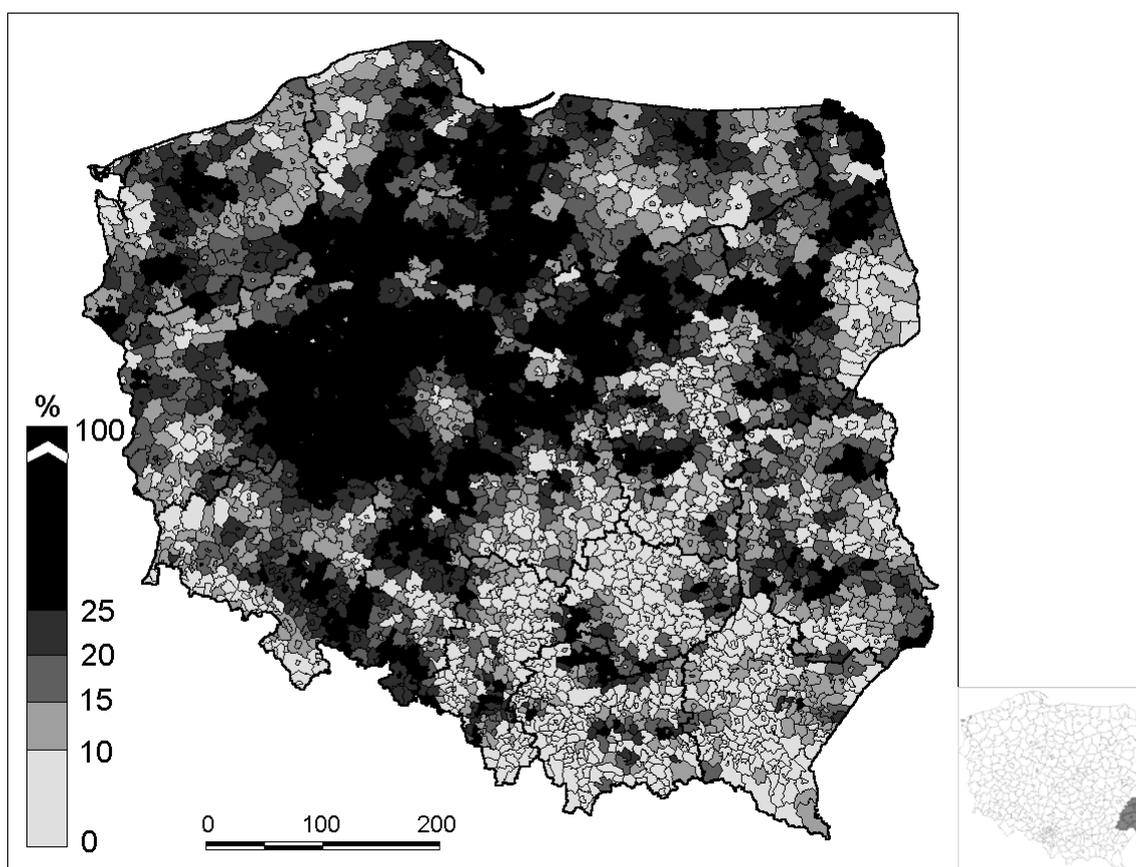
Source: GUS (Central Statistical Office)

Best educated are the young people, while the worst educated are persons in post-productive age. In the entire eastern part of the country education of the farm owners is unsatisfactory. A similarly disadvantageous situation concerns agricultural education of persons employed in farming.

Regional focus

Spatial differentiation of the education levels is the effect of the past and current socio-economic relations. Already in the period of partitions, in the 19th century, a distinct differentiation of the education of population took place. In the Austrian and Prussian parts much bigger emphasis was placed on the education of the young than in the Russian part. No wonder, therefore, that the spatial differentiation of the education level of rural population coincides to a large extent with the boundaries of the historical partitions. The relatively least educated rural population inhabits the eastern part of Poland, including the region of Chelm and Zamosc.

Map 51 Share of managers of private farms with more than primary education, 2002



The lowest level of education is noted among the farming population working exclusively on their own farm. In view of this, many farms are not capable of facing the challenges of the present days. Since they do not dispose of appropriate qualifications, one can hardly expect them to undertake non-agricultural activities.

According to sociological studies only 45% of the rural young think of remaining in the countryside and so only 55% of the farms can count on the young successors (Szafraniec, 2001). It has also become recently quite common to pass the farms over to the younger generation in order to acquire material assistance, despite the lack of real interest from the side of the young in farm management. With this respect, larger farms, better equipped, are privileged, as having better economic perspectives. In the majority of cases, though, parents accept without hesitation migration of their children to town, hoping this would improve their lives. The most capable and enterprising young flee to the city, leaving behind the frustrated and the poorly prepared to the demands of the modern labour market.

5.1.4.3 Labour market

Statistical profile

In the region considered, owing to the low number of investment projects in manufacturing and low intensity of entrepreneurship of the population, as well as overpopulation in farming, unemployment is higher than on the average in Poland (11.4%) and amounts to 13.3%. This value is, though, quite advantageous in comparison with the preceding years, since joblessness both in the country as a whole and in the region decreases. The decrease is associated with creation of new jobs in the country, largely owing to foreign investments, having intensified after the accession of Poland to the European Union, and with the possibility of job-related emigration of the population not finding employment in Poland. In the region of Chelm and Zamosc, though, the latter factor was decisive. In view of the typically agricultural character of the regional economy and its peripheral location on the scale of Poland, there have been no significant foreign investments in the second and third sector, while assistance focused on investments in farming or on its transition towards ecological production.

Table 124 Labour market – statistical profile

indicator	unit	2000	2001	2002	2003	2004	2005
Employment rate females aged 15-64 as a share of the total active population	%	33.5	33.3	33.9	32.1	31.8	31.6
Employment rate males aged 15-64 as a share of the total active population	%	38	37.4	38.6	37.5	37.9	38.6
Employment rate of workers aged 55-64 y as a share of the active population in the same age group	%	42.8	41.3	37.8	36.1	38.4	38.8
Employment rate of workers aged 15-25 y as a share of the active population in the same age group	%	33.4	39.5	42.1	36	35.8	37.4
Long term unemployed (12 months+) as a share of the total active population	%			11.1			
average personnel cost per employee/a	EUR	9,222	10,427	10,699	11,092	11,181	

Source: CSO, Eurostat

In view of the low significance of manufacturing, the difference between unemployment among men (12.7%) and women (13.9%) is not important. For comparison, the respective values for Poland as a whole, are 10.3% and 12.5%. Not only the decrease of unemployment rate is advantageous, but also a change in the age structure of the working population. Despite the ageing of the population, the share of employed below 25 years of age increases, while the share of those past 55 years of age decreases.

In connection with the decrease of unemployment rate, the cost of employing a statistical employee increases in the country as a whole. Under the pressure of emigration the labour market gradually moved from the employer market to the employee market. There are even branches (e.g. construction), in which shortage of skilled workers has started to be felt. This applies to a certain degree also to the region.

Regional focus

After 1989 a new, previously unknown phenomenon of unemployment arose. In the middle of 2002 there were in the countryside 1,279,000 unemployed, registered in Labour Offices, which constituted approximately 42% of the total number of unemployed in Poland. The biggest increase of this group took place during the first years of transformation, which was followed by a gradual curbing and decrease. In the recent years, characterized by a dynamic economic growth, unemployment dropped. Nowadays it is at 11.4% in the country as a whole, and at 13.3% in the region considered. Most probably, by 2008 the unemployment rate in Poland would have dropped to a one-digit level.

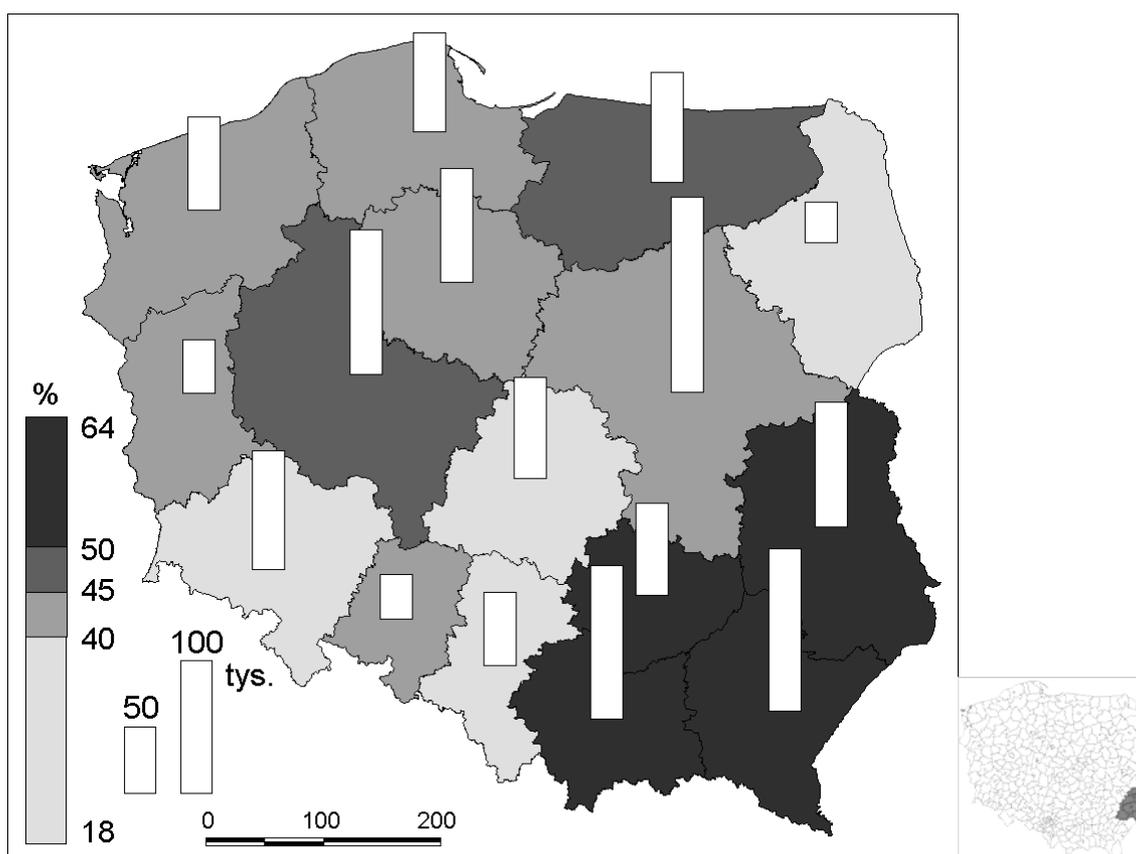
Currently, the highest percentage share of the unemployed living in the countryside is observed in the south-eastern provinces of Poland, that is – on the areas, where there is a relatively high share of rural population. This group is yet amplified by the persons slack on the farm, but not registered as unemployed¹⁰³ – this phenomenon being referred to as hidden unemployment in agriculture. According to the estimates of I. Frenkel (2003) the number of slack labour in farming was in 1996 at around 900,000, of whom 440,000 were completely not needed. This is particularly true for the south-eastern parts of the country, where agrarian structure is highly fragmented and the share of bi-occupational population is high, this population being especially vulnerable to layoffs in the restructuring companies.

The tendencies typical for south-eastern Poland concern also the region of Chelm and Zamosc. Here, as well, unemployment in the two biggest towns of the area is somewhat lower (13%) than outside of these towns (13.3%). The difference, though, is not pronounced, since these towns, in view of their geographical location and economic problems, do not guarantee a sufficient number of jobs outside of agriculture. It is also worth emphasizing that the situation on the labour market is decidedly better in Zamosc (unemployment rate of 12.6%) than in Chelm (13.4%).

¹⁰³ Holders of farms, whose area of agricultural land exceeds 2 hectares, cannot register as unemployed.

In Chelm, given that there functions a distinctly bigger number of manufacturing plants, the higher joblessness is largely due to low employment rate among women. Unemployment among women in Chelm is at 14.4%, while in Zamosc the difference between male and female unemployment is very limited (12.3% and 12.8%, respectively).

Map 52 Number of the jobless, registered in Labour Offices, and percentage share of the jobless living in the countryside, 2001



Against the background of other areas, the county of Bilgoraj, where farming plays decidedly the lowest role in the economy, stands out in a positive manner. Unemployment is also low in this county, amounting to only 11.1%. This is to a large extent due to low female unemployment, at the level of 11.9%, and only slightly higher than male unemployment. An influence on the relatively good situation of women on the labour market is exerted by the fact that both in Bilgoraj and in Zamosc the plants of textile industry function, while heavy industry is of little importance.

5.1.4.4 Civil society

Inhabitants of rural areas display a much lower social activity than urban dwellers. This observation is confirmed by the degree of involvement of the rural population in the functioning of the NGOs. There were in 2000 in Poland close to 50,000

associations and foundations, referred to as NGOs. Only some 20% of them functioned in the urban-rural municipalities and 16% in rural municipalities, while the rest functioned in towns. In the years 1995-2000 the number of NGOs per 10,000 inhabitants increased in the countryside from 1.2 to 9.1 (Kolodziejczyk, 2003). The rate of increase was higher than in towns, where the respective values were 7.3 and 16.6, but this was connected with the very low initial value.

The region considered displays a significant social activity against the background of Poland, despite the very low urbanisation degree. There are in the region 21.3 social associations and organizations per 10,000 inhabitants, while the average for Poland is 18.6. Only the county of Chelm differs negatively from this positive image, with the respective value equal 14.4. The indicator reaches somewhat higher value in the two biggest towns of the region (24.4). Yet, these two towns differ significantly with this respect. Thus, in Chelm there are only 19.9 social associations and organizations per 10,000 inhabitants, while in Zamosc – 28.9.

The number of NGOs in the region increases constantly, but this increase has not been very dynamic of late. During 2005 only six social associations and organizations were established in the region (increase by 4.29%), while in the same period in Poland as a whole 4,563 such entities were established (increase by 6.42%). There has been an important increase in these terms in the two biggest towns (increase by altogether 6.38%, of which by 4.14% in Zamosc and by 9.56% in Chelm). On the other hand, the number of social associations and organizations increases very slowly in the eastern part of the region (by 0.15% in the county of Tomaszow Lubelski and by 1.51% in the county of Hrubieszow).

5.2 Exploring policy intervention

In the framework of structural funds, after 01/05/2004, in the region of Chelm and Zamosc altogether 1,287 projects were implemented, whose total value was EUR 124,959,659 (see Table 125).

Table 125 Characterisation of the support from the structural funds in the region of Chelm and Zamosc

Items	Support value/magnitude
Total project value [EUR]	124,959,659
Value of support granted [EUR]	71,116,819
Number of projects realised [1]	1,287
Average support per project [EUR]	55,258
Support value per one inhabitant [EUR]	107
Number of projects per 10,000 inhabitants	19.37
Average contribution of support [%]	56.9

Source: Oddziaływanie funduszy strukturalnych na poziomie podregionow NUTS 3. Podregion chelmsko-zamojski (Influence of the structural funds at the level of NUTS 3 subregions. Subregion of Chelm and Zamosc)

In the region of Chelm and Zamosc these projects clearly dominated, in terms of sheer number, which concerned rural areas. They accounted for 89.4% of all projects and for 40.7% of their value. Only 5.2% of projects were realised in the urban areas. The remaining projects did not concentrate on any specific type of area. The biggest share of projects were realised by farmers (80.2%), while with respect to the value of projects the leaders were the units of territorial self-government (39.6% of the total project value and 50.0% of the support granted – see Table 126).

Table 126 Characteristics of support from the structural funds in the region of Chelm and Zamosc

Beneficiaries	Total project value		Value of support granted		Number of projects	
	EUR	%	EUR	%	no.	%
Units of central administration	21,320,186	17.1	15,187,645	21.4	5	0.4
Units of territorial self-government	49,429,492	39.6	35,570,587	50.0	148	11.5
NGOs	1,450,031	1.2	1,022,165	1.4	10	0.8
Educational units	126,339	0.1	79,954	0.1	1	0.1
Health care units	3,963,432	3.2	2,963,473	4.2	12	0.9
Companies	18,702,667	15.0	5,848,919	8.2	75	5.8
Farmers	29,619,227	23.7	10,394,933	14.6	1,032	80.2
Fishermen	348,286	0.3	49,143	0.1	4	0.3

Source: Oddziaływanie funduszy strukturalnych na poziomie podregionow NUTS 3. Podregion chelmsko-zamojski (Influence of the structural funds at the level of NUTS 3 subregions. Subregion of Chelm and Zamosc)

In the region here considered the highest number of projects concerned the sector of farming and fisheries. They accounted for 85.6% of all projects realised, and their share in the total project value was 31.8% (see Table 127).

Table 127 Characteristics of support from the structural funds in the region of Chelm and Zamosc according to the subject matter categories

Items	Total project value		Value of support granted		Number of projects	
	EUR	%	EUR	%	no.	%
Road and railway infrastructure	35,464,377	28.4	25,505,480	35.9	22	1.7
Environmental infrastructure	8,295,323	6.6	6,035,340	8.5	12	0.9
Information society	711,491	0.6	533,618	0.8	6	0.5
Human resources	11,153,592	8.9	7,889,990	11.1	62	4.8
Social infrastructure	14,340,716	11.5	10,510,940	14.8	20	1.6
Direct support to companies	14,994,541	12.0	4,664,043	6.6	61	4.7
Farming and fisheries sector	39,773,152	31.8	15,807,557	22.2	1,102	85.6
Other	226,467	0.2	169,850	0.2	2	0.2

Source: Oddziaływanie funduszy strukturalnych na poziomie podregionow NUTS 3. Podregion chelmsko-zamojski (Influence of the structural funds at the level of NUTS 3 subregions. Subregion of Chelm and Zamosc)

5.2.1 EU policies for agriculture and rural development

In the influence of the EU policies on the development of agriculture and rural areas in Poland two periods can be distinguished: before the accession of Poland to the EU (the pre-accession funds) and after the accession (structural funds, community initiatives).

The **pre-accession assistance** to the development of agriculture and rural areas in Poland could be obtained within the framework of the following programmes: **Phare** (Poland and Hungary Assistance for Reconstruction of their Economies) – a program of non-refundable assistance of the European Union for the countries of Central and Eastern Europe, established in 1989 in order to support the economic and systemic transformations in Poland and in Hungary, and thereafter extended over the remaining countries of the Central-Eastern Europe (Table 128).

Table 128 Effects of realisation of the Phare program in the province of Lublin

Items	Financial effects [EUR]	Tangible effects
PHARE SSG (Program of Social and Economic Cohesion) 2000-2003, including:	67,001,032	
PHARE SSG Human capital development	10,435,532	8,326 persons took advantage of trainings, and 2,972 of consulting service; 19 partnerships for employment were founded and 20 designs of changes in trade education were elaborated
PHARE SSG Small and medium enterprises	15,952,503	1,089 investment subsidies and 216 consulting subsidies were granted
PHARE SSG Infrastructure	40,612,997	Construction and modernisation of wastewater treatment plants (4 objects), sewage systems (9 projects), water supply systems (8 projects), roads (81 km) and road engineering objects (bridges and culverts); construction of the municipal waste neutralisation plant, of the water reservoir "Zalew", modernisation of the Old Town in Lublin; improvement of accessibility/attractiveness of the investment plots (some 1,675 ha)
PHARE CBC (Program of Support for Transboundary Cooperation) 1999-2003	3,233,070	

Source: own elaboration on the basis of the Regional Operational Program of the Province of Lublin for the years 2007-2013 (draft), Lublin, 2006

ISPA (Instrument for Structural Policies for Pre-Accession) – the assistance instrument of the EU for the ten candidate countries. In the years 2000-2003 the European Commission granted Poland the overall sum of EUR 1.48 bn for realization of 45 projects from the domain of environment and 24 projects in transport.

Within the framework of the ISPA funds one project was realized in the province of Lublin in the environmental sector, concerning wastewater treatment plant in Lublin, having total value of EUR 16,150,000, with the contribution from ISPA amounting to EUR 9,690,000. No project was realized in the framework of this program in the region of Chelm and Zamosc.

SAPARD (Special Accession Programme for Agriculture and Rural Development) – a program having as its objective the support for the development of countryside and agriculture of the new members of the EU, so as to prepare them to participation in the common agricultural policy. In Poland, in the framework of the SAPARD program, implemented since July 2002, altogether 24,397 contracts were signed, having total value of approximately EUR 1.2 bn, which constituted close to 100% of the means allotted (Table 129).

Table 129 Effects of realisation of the SAPARD program in the province of Lublin

Items	Financial effects – value of support [EUR]	Tangible effects
Activity 1. Improvement in processing and marketing of agricultural and fishery products	27,729,413	38 plants fulfilling sanitary and veterinary standards; 42 plants fulfilling minimum domestic requirements concerning production hygiene and animal well-being; implementation of the HACCP system by 32 plants; implementation of the program of adjustment to the EU norms by 42 plants
Activity 2. Investments in the farms	15,959,307	1,512 contracts with farmers in the framework of investments associated with agricultural activity
Activity 3. Development and improvement of infrastructure of rural areas	40,263,814	construction of water supply network (629 km) and sewage network (273 km); construction and modernisation of roads (more than 275 km); construction of the waste sorting plant; construction and modernisation of 41 objects of public tourist infrastructure
Activity 4. Diversification of economic activity in rural areas	6,893,936	141 projects for creation of additional sources of income and 151 for creation of new jobs outside of agriculture
Total for all of the SAPARD activities	90,861,180	

Source: own elaboration on the basis of the Regional Operational Program of the Province of Lublin for the years 2007-2013 (draft), Lublin, 2006

After the accession of Poland to the EU the development of agriculture and rural areas was supported to a large extent from the EAGGF, the European Agricultural Guarantee and Guidance Fund. The means from this fund served to finance in Poland the Sectoral Operational Program of Restructuring and Modernisation of the Food Sector and Rural Development 2004-2006 (SPO ROL in short), which is implemented in the framework of the National Development Plan. In the province of Lublin the value of support, according to the contracts signed with the beneficiaries in the framework of all the activities of Priority I (Support for changes and adjustment in the farming and food sector) and Priority II (Sustainable

development of rural areas) of the SPO ROL, attained at the end of June 2006 the value of EUR 124 mio. Altogether 4,267 contracts with the beneficiaries were signed, while another 4,159 applications were waiting for being considered. In the region of Chelm and Zamosc the total number of projects was 1,097.

The means originating from the EAGGF were also used to finance the Rural Development Programme (Polish acronym: PROW). The objective of PROW was to support the sustainable development of the rural areas and the improvement of the economic condition of the farms. The respective plan was oriented at realisation of the social, economic and ecological aspects of this development in the manner coherent with the structural programs, including, in particular, the SPO ROL, which implemented the goals of the National Development Plan in the domain of policy of the development of rural areas.

The Community means, destined for the development of agriculture and rural areas, can be subdivided into the following categories:

- market regulations,
- direct payments,
- payments concerning the Less Favoured Areas,
- means for the development of rural areas,
- other means, like subsidies for agricultural producers or food processing entities.

Market regulations. Coordination of the activities linked with the regulation of the agricultural markets in the framework of the Common Agricultural Policy (CAP), is in Poland realized by the Agricultural Market Agency (Polish acronym ARR). In the period 2004-2007 this agency disbursed for the realization of tasks in the framework of CAP the sum of EUR 953.2 mio, of which EUR 768.4 mio were the EU means, and EUR 184.8 mio – the means originating from the domestic budget.

Direct payments. Polish agricultural producers obtain this support through a simplified system of direct payments to agricultural land. This system consists in granting financial support proportionally to the area under cultivation, irrespective of the nature of the farming activity conducted. In accordance with the stipulations of the law of 18/12/2003 on direct payments to agricultural land (Dz. U. of 2004, No. 6, item 40) direct payments are composed of:

- unified area payment (JPO) – financed in its totality from the EU budget, and calculated on the basis of the area of agricultural land maintained in good cultivation conditions,
- complementary area payment (UPO) – financed from the national budget, and calculated uniquely with respect to the area of definite crops (see Table 130).

Table 130 Characteristics of the applications for direct payments filed in the province of Lublin

Item	2004	2005	2006
Number of considered applications for the direct payments	173,373	186,035	185,253
in that: number of applications for the complementary area payments	169,109	181,592	180,120
Number of JPOs	171,477	183,728	182,928
JPO payment rates [EUR/ha/y.]	55.1	58.9	72.3
UPO payment rates: other crops [EUR/ha/y.]	76.6	73.9	82.0
UPO payment rate: hops [EUR/ha/y.]	265.2	227.6	251.8
Value of realised JPOs [EUR]	68,726,356.0	77,813,265.8	96,169,167.9
Value of realised UPOs [EUR]	80,671,310.2	83,404,701.0	92,630,152.2
Payment total [EUR]	149,397,666.2	161,217,966.8	188,799,320.2

Source: own elaboration on the basis of data from the Agency of Restructuring and Modernisation of Agriculture

Since 2005 the subsidies to energy crops have been functioning as well. In the province of Lublin there were, in 2005, 20 applications filed for these subsidies. In 2006 18 applications were filed.

Since July 2006 there has been, as well, a subsidy related to sugar, meant to compensate the sugar beet producers for the decrease of revenues caused by the reform of the EU sugar market, lowering the purchase prices of sugar beets. The number of applications for these subsidies, filed in 2006, was 27,933.

Supporting farming activities on the less favoured areas (LFA, Polish acronym: ONW). In Poland, this kind of payments is realized in the framework of the PROW, Rural Development Programme – Activity 3. This activity aims at securing the continuity of agricultural use of land through financial support for the farms, which are located within the areas featuring disadvantageous conditions for farming. Financial support is granted in the form of annual flat rate payment per hectare of agricultural land. On the territory of the province of Lublin the rates of basic payments per 1 ha range from EUR 46.7 to EUR 68.9. Payments are associated with observation of standards concerning environmental protection in the domain of agricultural production, called usual good farming practice (Table 131).

Table 131 Effects of realisation of PROW – Activity 3 – in the province of Lublin

Items	Number of applications filed	Value of payments effected [EUR]	Declared area [ha]
PROW – Activity 3. Support for agricultural activity on less favoured areas (LFA-ONW)	184,410	61,432,745	441,200 in 2004 491,369 in 2005

Source: Agency of Restructuring and Modernisation of Agriculture – two years after accession. ARIMR, Warszawa, 2006

Means for the development of rural areas. In the Framework of Priority II of SPO ROL: Sustainable development of rural areas, in the region of Chelm and Zamosc 281 projects were carried out, including those related to land consolidation – 4 projects; renewal of countryside and preservation as well as protection of cultural heritage – 41 projects; diversification of agricultural and associated activity in order to ensure the diversity of activities or alternative sources of revenue – 142; management of the agricultural water resources – 4; development and improvement of technical infrastructure linked with agriculture – 88; LEADER+ Pilot Program – 2. In the entire province of Lublin 2,556 applications were filed of the total value of EUR 69,284,817.5 (Table 132).

Table 132 Effects of realisation of PROW – Activities 1, 4 and 5 – in the province of Lublin

Items	Number of applications filed	Value of payments effected [EUR]	Remarks
Activity 1. Structural pensions	5,594	48,694,456.7	No. of farms transferred – 5,465
Activity 4. Support for the agri-ecological undertakings and improvement of animal well-being	11,084	19,505,570.1	Area affected – 71,127.12 ha
Activity 5. Afforestation of agricultural land	854	5,378,034.6	Area affected – 1,507.90 ha

Source: own elaboration on the basis of data from the Agency of Restructuring and Modernisation of Agriculture

Other means. In the framework of Priority I of SPO ROL: Supporting the changes and adjustments in the food and agricultural sector, 816 projects were carried out in the region of Chelm and Zamosc, including investments in the farms – 458 projects, young farmer start-up facilitation – 356, improvement of processing and marketing of agricultural articles – 2. In the entire province of Lublin altogether 5,869 applications were filed having total value of EUR 187,995,415.1 (see Table 133).

Table 133 Effects of realisation of PROW – Activities 2, 6 and 7 in the province of Lublin

Item	Number of applications filed	Payments effected [EUR]
Activity 2. Support to farms with low degree of commercialization	29,627	58,965,886.1
Activity 6. Adjustment of farms to the EU standards	3,053	19,773,759.6
Activity 7. Groups of agricultural producers	4	153,310.3

Source: own elaboration on the basis of data from the Agency of Restructuring and Modernisation of Agriculture

In the framework of SPO Fisheries there were five projects realised in the region of Chelm and Zamosc in freshwater fish production.

5.2.2 Regionally oriented Community policies

Agriculture and rural areas in Poland could also be partly supported in Poland with the means from such funds as:

- European Regional Development Fund (ERDF), which co-finances the Integrated Operational Program of Regional Development (Polish acronym ZPORR), the Sectoral Operational Program Enhancement of Competitiveness of Enterprises (SPO WKP), Sectoral Operational Program Transport and Maritime Economy (SPO TRANSPORT), and the Sectoral Operational Program Development of Human Capital (SPO RZL);
- Community Initiative INTERREG, whose implementation is supported by the above mentioned ERDF;
- European Social Fund (ESF), which is co-financing SPO RZL and ZPORR,
- Cohesion Fund, and
- LIFE, the Financial Instrument for the Environment.

ZPORR. The magnitude of means for the province of Lublin amounted to EUR 200.1 mio, which constituted 7.28% of total value allocated to Poland. The contracts signed in the framework of ZPORR in the province of Lublin amounted to 100.8% of the allocation to this area, while the payments from the program accounts – to 54.6%. The value of means per inhabitant of the province of Lublin was EUR 98.72.

There were in the region of Chelm and Zamosc in the framework of ZPORR 116 projects realised, including: modernisation and extension of the regional transport system – 8 projects; environmental protection infrastructure – 4 projects, regional social infrastructure – 7, development of tourism and culture – 2, information society infrastructure – 6, development of skills associated with the needs of the regional labour market and the possibilities of lifelong learning in the region – 2, evening out of educational opportunities through scholarship programs – 21, occupation re-training of persons abandoning farming – 2, promotion of entrepreneurship – 7, rural areas – 15, areas undergoing restructuring – 5, degraded urban, industrial and military areas – 3, micro-enterprises – 27, and local social infrastructure – 7.

SPO WKP. The value of projects realised in the framework of SPO WKP in the province of Lublin amounted to EUR 38 mio, of which 42.5% originated from the ERDF, 16.9% was constituted by the domestic public contribution, and 40.6% – by private means. Projects from the domain of Priority I: Development of entrepreneurship and enhancement of competitiveness through strengthening of institutions of business environment, totalled the value of EUR 18.3 mio (ERDF – 61.8%, domestic public contribution – 12.2%, private means – 26.0%), while the value of those from Priority II: Direct support to enterprises was EUR 19.7 mio (ERDF – 24.6%, domestic public contribution – 21.3%, private means – 54.2%).

In the framework of SPO WKP there were in the region of Chelm and Zamosc 42 projects realised, of which in strengthening of institutions supporting the activity of

businesses – 12, increase of competitiveness of the small and medium enterprises through consulting – 7, increase of product and technological competitiveness of the enterprises – 1, increase of competitiveness of small and medium enterprises through investments – 21, support for the undertakings in the domain of adjustment of enterprises to the environmental protection requirements – 1.

SPO TRANSPORT. In the framework of this program one project was realised in the region of Chelm and Zamosc, concerning construction and reconstruction of the national roads (construction of the ring road of the town of Hrebenne on the line of the national road no. 17, along with the repair of this national road over the segment Tomaszow Lubelski – Hrebenne). The value of this project was EUR 18.7 mio, of which the support from ERDF accounted for 75%.

Table 134 Characterisation of support from the structural funds in the region of Chelm and Zamosc according to the intervention categories¹⁰⁴

Intervention categories	Total value of projects		Value of support effected		Number of projects	
	EUR	%	EUR	%	no.	%
Investments in farms	20,623,372	16.5	5,539,492	7.8	458	35.6
Startup of activity by young farmers	4,402,236	3.5	3,301,677	4.6	356	27.7
Improvement of processing and marketing of farming products	2,453,296	2.0	856,403	1.2	2	0.2
Land consolidation	1,758,682	1.4	1,441,839	2.0	4	0.3
Basic service for rural economy and population	70,955	0.1	56,764	0.1	2	0.2
Renewal and development of villages and protection and conservation of cultural heritage	3,571,179	2.9	2,134,893	3.0	41	3.2
Diversification of farming and related activities in order to provide various possibilities of activity or alternative sources of revenue	4,483,846	3.6	1,451,183	2.0	142	11.0
Management of water resources in agriculture	663,689	0.5	520,353	0.7	4	0.3
Development and upgrading of infrastructure associated with farming	1,371,117	1.1	446,538	0.6	88	6.8
Hydrocultures (aquacultures, water cultures)	374,781	0.3	58,416	0.1	5	0.4
Environment-friendly technologies, clean and sparing energy technologies	3,397,082	2.7	1,188,978	1.7	1	0.1
Material investments (devices and equipment, state support system)	10,819,179	8.7	2,940,882	4.1	49	3.8
Consulting service for enterprises	778,280	0.6	534,182	0.8	11	0.9
Material investments (information centres, accommodation facilities, catering facilities, equipment)	226,467	0.2	169,850	0.2	2	0.2

¹⁰⁴ Due to lack of data concerning only farming and rural areas the table presents the data on all the projects realised within the region of Chelm and Zamosc (areas of rural, urban and urban-rural municipalities).

Intervention categories	Total value of projects		Value of support effected		Number of projects	
	EUR	%	EUR	%	no.	%
Active instruments of labour market policy	6,783,513	5.4	4,892,492	6.9	29	2.3
Social integration	594,125	0.5	437,363	0.6	6	0.5
Development of education and professional training not attached to any definite sector	2,716,672	2.2	1,857,152	2.6	22	1.7
Flexibility of the human resources, spirit of enterprise and invention, New technologies of information and social communication	1,059,282	0.8	702,983	1.0	5	0.4
Roads	24,907,306	19.9	17,874,023	25.1	8	0.6
Regional/local roads	9,850,945	7.9	7,102,152	10.0	13	1.0
Urban transport	706,126	0.6	529,305	0.7	1	0.1
Basic infrastructure	711,491	0.6	533,618	0.8	6	0.5
Municipal and industrial waste	522,193	0.4	391,644	0.6	1	0.1
Drinking water	906,923	0.7	677,690	1.0	4	0.3
Liquid waste and water treatment	6,866,208	5.5	4,966,007	7.0	7	0.5
Development and revitalisation of industrial and military grounds	1,285,189	1.0	761,569	1.1	1	0.1
Revitalisation of urban areas	971,723	0.8	695,619	1.0	2	0.2
Preservation and reconstruction of cultural heritage	7,154,987	5.7	5,366,240	7.5	3	0.2
Infrastructure of health and social care	4,928,818	3.9	3,687,513	5.2	14	1.1

SPO RZL. The value of contracts signed with the entities of the Lublin province amounted to more than EUR 28.5 mio. Projects realised by the County Labour Offices (within the framework of Priority I SPO RZL – Active policy on the labour market and professional and social integration) in the region of Chelm and Zamosc had total value of EUR 5.5 mio, of which the Community contribution amounted to EUR 4.2 mio (71.8%).

In the framework of SPO RZL there were 39 projects, including those concerning development and modernisation of the instruments and institutions of the labour market – 6 projects, perspectives for the young – 14, fighting and prevention against long-term unemployment – 14, professional and social integration of the handicapped – 1, promotion of the active social policy through support granted to the high risk groups – 4.

INTERREG Poland-Belarus'-Ukraine. In the framework of this initiative four projects were realised in the region of Chelm and Zamosc, of which three concerning the modernisation and extension of the existing transport systems and one concerning the development of business environment infrastructure and tourism.

Cohesion Fund. There was one project in the province of Lublin, which was financed from this fund: wastewater treatment plant for Lublin (in Hajdow), whose implementation was started in the framework of the ISPA program. Total cost of the project was EUR 13,912,030 (eligible in its entirety), with support from the Cohesion Fund/ISPA amounting to EUR 8,347,218 (the share of the Cohesion Fund in the eligible costs amounting to 60%).

LIFE. One project is being carried out in the region of Chelm and Zamosc: Conservation and upgrading of habitats for the rare butterflies of wet, semi-natural meadows (LIFE NAT/PL/00100). This project encompasses the areas of the Forest of Kampinos, Calowanie Swamp, Chelm Peat Bogs and Sobowice Peat Bog.

5.2.3 National and regional policies

The pre-accession assistance. Side by side with the means having come from the EU, the development of the Polish rural areas was also financed with the loan from the World Bank in the framework of the Programme of Activation of Rural Areas (Polish acronym PAOW), implemented since 2000. This program assisted in the following activities: A. Micro-loans; B. Change in the labour force structure and institutional support (B1. Re-training of the labour force; B2. Education; B3. Building up the institutional potential of the local and regional administration); C. Rural infrastructure. Components A, B1 and B2 were addressed at selected provinces, while B3 and C encompassed the entire country. The means actually used throughout Poland amounted to EUR 117.4 mio, which constituted 99% of the value of World Bank credit (1% was the reserve of the Program, associated with the exchange rate risk). Jointly with the means disbursed from the state budget and own means of the self-government bodies as well as other beneficiaries, the value of means involved in realization of the Program was more than EUR 260 mio (see Table 135).

After the accession of Poland to the EU, in parallel with the Operational Programs, Community Initiatives and the Strategy of Application of the Cohesion Fund, implemented in Poland, another instrument serving the realisation of the National Development Plan for the years 2004-2006 was constituted by the provincial contracts, financed uniquely from the public means. The undertakings realised are co-financed from the means of the state budget and the means made available by the self-governmental partners. The legal basis for the realisation is provided by the Law on the National Development Plan. Provincial contracts, signed for the period 2005-2006 were meant, first, to serve the co-financing from the side of the state of the projects, implemented in the framework of the ZPORR, and, second, to constitute in the Polish-Polish part the complement to the large-scale projects, realised with contribution of the Community means. The regional undertakings, therefore, assumed the complementarity of particular investment projects implemented in the framework of the national programs with the projects implemented in the framework of ZPORR, forming thereby a coherent whole in the

material sphere. The provincial contract for the province of Lublin was executed in 2006 in 58.7% (see Table 136).

Table 135 Effects of realisation of the PAOW program in the province of Lublin

Items	Financial effects [EUR]			Tangible effects
	State budget	World Bank credit	Assistance total	
Component B1	1,619,100.0	1,555,339.3	3,174,439.3	9,102 persons benefited from the trainings and consultations
Component B2	0	4,454,566.5	4,454,566.5	Trainings for teachers (3,148 persons); modernisation of schools (176 objects); repairs of school care rooms and their equipment (50 objects); equipment for schools (4,510 packages of didactic tools and 5,366 sets of computer software)
Component B3	lack of data	lack of data	lack of data	training for 363 persons
Component C	0	4,141,172.2	4,141,172.2	construction and modernisation of roads (43,021 km); construction of sewage system (67,076 km; 3,914 terminals); and of water supply system (7,909 km, 43 terminals); construction of two wastewater treatment plants and one solid waste dump; training for 239 persons
PAOW total	1,619,100.0	10,151,078.0	11,770,178.0	

Source: own elaboration on the basis of the Regional Operational Program of the Province of Lublin for the years 2007-2013 (draft), Lublin, 2006

Table 136 Realisation of the contract for the province of Lublin [EUR]

State budget Plan according to the budgetary law	Self-governmental partners		Totals		
	Execution	Plan according to contract	Execution	Plan	Execution
7,985,613.7	4,096,726.1	4,426,475.4	3,184,641.2	12,412,089.1	7,281,367.3

Source: Sprawozdanie z realizacji w 2006 r. Narodowego Planu Rozwoju na lata 2004-2006 (Report from realization in 2006 of the National Development Plan), Ministerstwo Rozwoju Regionalnego, 2007.

5.2.4 Effects of Legislative restrictions

The most important legal acts and the scopes of respective regulations are shown in Table 137 below.

Table 137 The fundamental legal acts concerning agriculture and rural areas valid on the territory of Poland¹⁰⁵

Legal act	Scope of regulation
Air pollution and climate change	
Law of 21/04/2001 on environmental protection (Dz. U. 2001 no. 62, item 627) with later changes	Law determines the principles of environmental protection and conditions of using natural resources, with consideration of requirements of sustainable development
Ordinance of the Minister for Environment of 06/06/2002 (Dz.U. 2002 no. 87, item 796) on admissible levels of some substances in the air, alarm levels of some substances in the air, and the tolerance margins for the admissible levels of some substances	
Water protection and management	
Law of 18/07/2001 – Water Law (Dz.U. 2001 no. 115, item 1229) with later changes	Law regulates water management in accordance with the principles of sustainable development, and, in particular, development and protection of water resources, use of water and management of water resources
Law of 07/06/2001 on collective water supply and sewage conduit (Dz.U. 2001 no. 72, item 747) with later changes	Law defines the principles and conditions for collective drinking water supply and collective sewage conduit, including the principles of functioning of water supply and sewage companies, principles of securing continuous water supply and its adequate quality, reliable uptake and treatment of wastewater, requirements concerning quality of water for human consumption, as well as principles of protection of interests of service customers, with due account of environmental protection and cost optimisation requirements
Soil protection	
Law of 03/02/1995 on protection of agricultural and forest land (Dz.U. 1995 no. 16, item 78) with later changes	Law regulates the principles of protection of agricultural and forest land, as well as reclamation and upgrading of the utility of land
Law of 10/07/2007 on fertilisers and fertiliser application (Dz.U. 2007 no. 147, item 1033) [earlier of 26/07/2000, Dz.U. 2000 no. 89, item 991]	Law regulates, in particular, application of fertilisers and supporting means in crop production, and preventing health hazards for humans and animals as well as the environment, which may arise in transport, storage and application of fertilisers and means supporting crop production

¹⁰⁵ The analysis presented is focused primarily on Polish legislation. Reference is made to the EU and international law only when this was necessary from the point of view of completeness of analysis.

Legal act	Scope of regulation
Protection of nature and biodiversity	
Convention on biodiversity (Dz.U. 2002 no. 184, item 1532); Law of 31/08/1995 on ratification of Convention on biodiversity (Dz.U. 1995 no. 118, item 565)	The goals of the Convention, realised conform to its respective stipulations, are protection of biodiversity, sustainable use of its elements, as well as fair and just division of benefits from the use of genetic resources, through, in particular, adequate access to genetic resources and adequate transfer of appropriate technologies, with due consideration of all rights to these resources and technologies, and adequate financing
Law of 27/04/2001 on environmental protection (Dz.U. 2001 no. 62, item 627) with later changes	Law defines the principles of environmental protection and conditions of using natural resources, with due consideration of the sustainable development principles
Law of 16/04/2004 on nature protection (Dz.U. 2004 no. 92, item 880)	Law defines goals, principles and forms of protection of living and abiotic nature. Nature protection, conform to the Law, consists in preservation, sustainable use and renewal of the resources, creatures and components of nature
Law of 27/04/2001 on waste (Dz.U. 2001 no. 62, item 628) with later changes	Law defines the principles of proceeding with waste in the manner securing protection of human life and health, as well as environmental protection conform to the principles of sustainable development, and in particular – the principles of preventing the appearance of waste or limiting the volume of waste or of its negative impact on the environment, as well as recycling or neutralisation of waste
Land use management	
Law of 27/03/2003 on spatial planning and development (Dz.U. 2003 no. 80, item 717)	Law defines the principles of development of spatial policy by the territorial self-governmental units and the organs of the self-governmental administration, as well as the range and the ways of proceeding on matters of assigning land to definite uses and establishing principles of its development and building up
Law of 26/03/1982 on consolidation and exchange of land (Dz.U. 1982 no. 11, item 80) with later changes	The purpose of consolidation of land plots is to create more advantageous conditions for farming and forestry through improvement of the spatial structure of farms, forests and forest land, rational management of this structure, adjustment of the boundaries of estates to the system of water engineering structures, roads and relief
Law of 07/07/1994 – Building Law (Dz.U. 1994 no. 89, item 414) with later changes	Law regulates the activity encompassing issues of designing, constructing, maintenance and demolition of the buildings, and defines the principles of functioning of public administration organs in these domains
Ordinance of the Minister of Agriculture and Food Economy of 07/10/1997 on technical conditions that the farming buildings and their location should satisfy (Dz.U. no. 132, item 877)	
Law of 17/05/1989 on geodesy and cartography (Dz.U. 1989 no. 30, item 163), with later changes	Law regulates the matters concerning: geodesy and cartography, national system of information on land, evidence of plots and buildings, inventory and evidence of the infrastructure, boundaries of estates, state inventory of geodesy and cartography, licensing for the execution of the geodesic and cartographic work, indexation of estates in localities

Legal act	Scope of regulation
Food safety and quality	
Law of 25/08/2006 on food and nutrition safety (Dz.U. 2006 no. 171, item 1225)	Law defines the health-related requirements on food, requirements concerning hygiene of food as well as materials and products meant to be in contact with food, and requirements concerning conduct of official food inspections and the respective entitled administrative organs
Directive (WE) no. 882/2004 of the European Parliament and the Council of 29/04/2004 on official inspections conducted in order to verify conformity with the food and fodder law and the rules concerning animal health and well-being (EU Official Journal L 191 of 30/04/2004, p. 1, Polish special edition, Chapter 3, vol. 45, p. 200)	
Directive (WE) no. 1935/2004 of the European Parliament and the Council of 27/10/2004 on materials and products meant to be in contact with food, annulling the directives 80/590/EEG and 89/109/EEG (EU Official Journal L 338 of 13/11/2004, p. 4)	
Animal welfare	
European convention on protection of animals raised in agriculture	
Law of 21/08/1997 on protection of animals (Dz.U. 1997 no. 111, item 724) with later changes	Law defines the principles of care and appropriate conditions of keeping animals, including animals on the farm
Law of 11/03/2004 on protection of animal health and fighting contagious diseases of animals (Dz.U. 2004 no. 69, item 625) with later changes	Law defines veterinary requirements for undertaking and conducting activity in animal husbandry, aiming at placing them or products thereof on the market, and for monitoring and fighting contagious diseases of animals, including diseases of animal origin
Hygiene standards	
Directive (WE) no. 852/2004 of the European Parliament and the Council of 29/04/2004 on hygiene of food products (EU Official Journal L 139 of 30/04/2004, p. 1)	
Directive (WE) no. 853/2004 of the European Parliament and the Council of 29/04/2004, establishing specific regulations concerning hygiene with respect to food of animal origin (EU Official Journal L 139 of 30/04/2004, p. 55) with later changes	
Directive (WE) no. 854/2004 of the European Parliament and the Council of 29/04/2004, establishing specific regulations concerning organisation of official inspections with respect to animal products destined for human consumption (EU Official Journal L 139 of 30/04/2004, p. 206)	
Law of 16/12/2005 on products of animal origin (Dz.U. 2006 no. 17, item 127) with later changes	Law defines the competence of particular bodies with respect to hygiene and inspection of animal products indicated in the directives (WE) nos. 853/2004 and 854/2004, as well as the ways of carrying out inspections, requirements to be fulfilled by the animal products, and requirements to be fulfilled in production of animal products

Legal act	Scope of regulation
Quality labelling	
Law of 17/12/2004 on registering and protection of names and designations of agricultural and food products, and on traditional products (Dz.U. 2005 no. 10, item 68)	This law regulates the tasks and competence of respective bodies as to evaluation of applications for registration of the names of origin, geographical designations and names of the specific character of agricultural and food products, conditions of temporary protection on the territory of the Republic of Poland of the names of origin and geographical designations of agricultural and food products; tasks and competence of the organs and organisational units as to the inspection and certification of agricultural and food products endowed with protected name of origin, protected geographical designation or a certificate of a specific character; principles and procedure of inspection of agricultural and food products endowed with protected name of origin, protected geographical designation or certificate of a specific character; also: conditions for the maintenance of the list of traditional products
Regulations on organic production	
Law of 20/04/2004 on ecological farming (Dz.U. 2004 no. 93, item 989)	A producer intending to undertake activity in ecological farming declares such intention with the Inspection of Commercial Quality of Agricultural and Food Products, which oversees the units, licensed by the Ministry of Agriculture, issuing certificates for such activity
Entrepreneurship (e.g. tax conditions for businesses, tax conditions for agriculture)	
Law of 15/09/2000 – Commercial companies code (Dz.U. 2000 no. 94, item 1037)	Law regulates the establishment, organisation, functioning, dissolving, joining, division and transformation of the commercial companies
Law of 16/09/1982 – Law on cooperatives (Dz.U. 1982 no. 30, item 210) with later changes	Law defines the principles of functioning of the cooperatives, including, in particular, agricultural production cooperatives
Law of 02/07/2004 on freedom of business activity (Dz.U. 2004 no. 173, item 1807)	Law regulates undertaking, conduct and termination of business activity on the territory of the Republic of Poland, as well as the tasks of public administration with this respect
Law of 29/09/1994 on accounting (Dz.U. 1994 no. 121, item 591) with later changes	Law establishes the principles of accounting with respect to enterprises, natural persons and self-governmental units, as well as the manner of verifying the financial reports by sworn auditors
Law of 26/07/1991 on income tax from natural persons (Dz.U. 1991 no. 80, item 350) with later changes	According to this law, income tax from natural persons does not apply to incomes from agricultural activity (except for the specialised types of farming activity) and forestry activity
Law of 15/02/1992 on income tax from legal persons and on changes in some laws regulating the principles of taxation (Dz.U. 1992 no. 21, item 86) with later changes	Law regulates taxation with income tax of the legal persons and capital companies in organisation
Law of 11/03/2004 on value added tax (Dz.U. 2004 no. 54, item 535) with later changes	Law regulates taxation of activities with value added tax (including agricultural activity)
Employment and social policy	
Law of 26/06/1974 – Labour code (Dz.U. 1974 no. 24, item 141) with later changes	Law defines the rights and the obligations of employees and employers

Source: own elaboration on the basis of: <http://isip.sejm.gov.pl/prawo/index.html> – Web-Based System of Legal Acts, and <http://eur-lex.europa.eu/pl/index.htm> – Access to legal acts of the EU

5.3 Investigating networks – supply chains

5.3.1 Supply chain 1 – Milk

5.3.1.1 General description

The area considered has very good conditions for dairy cattle raising. This results from the existing area of meadows (95,000 ha) and pastures (24,000 ha), and from good quality arable land, where high yields can be obtained of the most valuable fodder crops (like, e.g., clover or alfalfa). Yet, the intensity of cattle raising in the region is at 17.8 equivalent Livestock Units (LU) per 100 ha of agricultural land, that is – by some five LU less than on the average in the province of Lublin and by some eight LU less than on the average in Poland. Fragmentation of farming structure in the region of Chelm and Zamosc brings about dispersion of the production of raw material and the need of maintaining close relations between the producers and the processing plants.

The supply chain of milk is formed by four main links, namely: milk producers, milk processing plants, retailers, and households as final consumers.¹⁰⁶ The entire milk supply chain employed 69,136 persons, which was equivalent to 36% of employment in the region considered.

Some 46,800 farms deal with production of raw milk in the region. On the average, 1 ha of land is needed to feed one cow during a year. The average acreage of a farm on the area considered has been at around 6 ha, while the average number of cattle units per farm has been three, which suggests the existence of a potential for the development of dairy cattle raising, provided no other barriers are present. The average value of annual revenue from milk production was at the level of EUR 3,278 per farm. The majority of farms dealing with production of raw milk in the region have less than 10 ha and, in economic terms, range between 2 and 6 ESU. The average number of persons employed on a farm was 1.31.

There were four companies processing milk on the area considered – District Dairy Cooperative (OSM) in Krasnystaw (with production plants also in Zamosc and Lublin), Dairy Cooperative "BIOMLEK" in Chelm, Dairy Cooperative in Tomaszow Lubelski and Dairy Production Plant Ltd. in Laszczow.

The average magnitude of a company located in the region of Chelm and Zamosc, measured through employment, was 356 persons, and was higher than on the average in the province of Lublin by 125 persons. On the average, one company from the area analysed had annual revenue of EUR 27,791,239, which was by 50% more than the average for the entire province of Lublin.

¹⁰⁶ Since 75% of liquid milk is distributed without the intermediary of the wholesalers, his link was omitted in the analysis.

There were 2,947 outlets in the region of Chelm and Zamosc, dealing with retail trade of liquid milk. The average number of employees of these entities was 2.2 persons, and their average annual turnover was EUR 57,014.

The primary consumers of liquid milk are private households. There have been 219,832 such households within the area in question. Demand for liquid milk originated also from public entities. Thus, for instance, the program "Glass of milk", realized by the Agency of Agricultural Market, involved 5,510 Polish schools (772,000 pupils). Besides, tourists visiting the region of Chelm and Zamosc are also potential consumers. The demand coming from this group can be estimated on the basis of the number of nights spent by tourists in the region. The number of nights spent by tourists in the region was 302,618.

5.3.1.2 Agricultural and forestry production actors

Production input

Average cost of producing 1,000 l of raw milk was at EUR 156.75. In the structure of costs the most important place was occupied by the use of own fodder (31%) and of purchased feedstuffs (20%). In order to produce 1,000 l of raw milk 4,200 kg of feedstuffs was used on the average in a dairy farm. Hence, an increase of prices of purchased feeding stuff could bring about a drop in milk production. Feeding stuff purchased to date could be replaced partly by fodder produced on the farm.

Manpower takes up also an important share in production cost (22%). On the average, 41 person-hours were spent to produce 1,000 l of raw milk. A vast majority (99%) of persons employed in dairy farms are farm owners and their families. Among farmers dealing with milk production persons with primary education dominate (86%). Then, 13% of farmers have secondary education, and only 1% – university level education.

Production output

Production of raw milk in the province of Lublin amounted to 1.04 bn l. This was equivalent to 26% of the gross value added of the farming sector in the province of Lublin.

The purchase price of milk ranged between EUR 137 and EUR 216 per 1,000 l, on the average farmers were cashing EUR 190 for supplying 1,000 l of raw milk. Most of the milk producers, especially those in specialized farms, were functioning above the zero profit threshold. Average profit earned for 1,000 l of milk amounted to roughly EUR 44.

The basic purchaser of raw milk was the processing industry, accounting for some 71% of the volume purchased. A small quantity of milk went to purchasing agents, not active in milk processing (3%), and directly to final consumers (4%). The

remaining part of milk production was used on the farm, to feed animals and for own consumption.

In view of the existing milk production quotas, farmers dealing with milk production do actually not compete among themselves. In the case of milk producers one can speak, in fact, only of the competition concerning the increase of individual referential volume from the national reserve of the referential quota. To the contrary, it is the processing companies that compete for the purchase of raw milk. There have been cases when milk processing companies would buy milk from outside of the region – this phenomenon had a medium intensity. Processing plants usually purchase raw milk within the confines of the region, but they are capable of transporting milk even from locations distant by up to 500 km.

External effects

The fundamental threats to the environment in a farm specialising in milk production are associated with fodder production (mainly silage) and with animal excrements. Milk production in the region of Chelm and Zamosc, in view of its low intensity and a relatively low degree of concentration, has a limited negative impact on natural environment. Besides, compared to other orientations of animal production, it belongs among the least aggressive ones with respect to the natural surroundings. In addition, in connection with the accession of Poland to the European Union, the regulations concerning environmental protection have been significantly strengthened, with inclusion of those dealing with dairy farming.

In the region of Chelm and Zamosc some 61,000 persons were working in production of raw milk. This was equivalent to 32% of all persons working within the region and 59% of all working in the farming sector in the region. The significance of those working in the dairy farms in the age of 15-25 years was high, while of those in the age bracket of 55-64 years and of women – was low.

External factors

Production of raw milk depends strongly upon the quality of natural environment. Natural conditions influence technology of production, level of production costs, intensity of production, as well as spatial differentiation of the organizational forms in milk production. Thus, for instance, quality and quantity of milk produced depends upon the quality of soil and drinking water in a given location. The province of Lublin, being one of the ecologically purest regions of Poland, is particularly predestined to production of this raw material.

Raw milk is produced in the farms during whole year. Yet, Polish dairy industry struggles with the seasonal variations of milk supply. In summer months supply is higher than during winter. In the period from April to September approximately 55% of annual volume is purchased, while during the remaining period – roughly 45% of it. The primary factors influencing the seasonality of milk production are the

quality of feedstuffs for cows (especially during winter¹⁰⁷) and the genetic as well as physiological conditioning (mainly the period of calving¹⁰⁸).

An important role in the improvement of functioning of the dairy farming in Poland – and thus also in the province of Lublin – was played by the external capital inputs, of both national and EU origin. The domestic support for the producers of cow milk encompassed preferential investment credits in the framework of the “Branch dairy program”. Between July 2002 and the accession of Poland to the EU farmers had also had the opportunity of taking advantage of the subsidies to the Extra class of milk (at EUR 15.90 per 1,000 l). On the other hand the EU means encompassed the assistance from the pre-accession funds and, after the accession – the payments and the direct means from the structural funds. In the SAPARD program, within the framework of Activity 2.1, “Restructuring milk production”, 76 applications were filed in the province of Lublin, on the basis of which 71 contracts were signed with the beneficiaries¹⁰⁹. The average value of the support granted was EUR 47,700, while the average value of eligible costs was EUR 23,300. Since the time of the accession of Poland to the European Union the farms producing milk can receive unified area payments¹¹⁰ (EUR 55.93 per hectare), supplementary payments to cultivation of fodder crops (including meadows and pastures – EUR 70.18 per hectare), as well as subsidies originating from the support to farming activity on areas with disadvantageous conditions for farming (Less Favoured Areas). Besides, starting with 2004 farmers can take advantage also of the means from the structural funds of the EU (e.g. in the framework of the Sectoral Operational Program Restructuring and Modernisation of the Food Sector and Rural Development 2004-2006). Farmers producing milk may also apply for the funds made available in the framework of the Plan of Rural Development 2004-2006, co-financed from the Section of Guarantees of the European Fund of Orientation and Guarantees in Agriculture, and from the national budget.

An essential factor, having influence on the activity of farms dealing with milk production, was constituted by legal regulations. In connection with the accession of Poland to the EU the regulations underwent changes in the direction of adjustment to the community standards. There has been, in particular, a significant strengthening of the sanitary-hygienic and veterinary regulations. Besides, a series of regulations were introduced, concerning organization of the milk market in the framework of the Common Agricultural Policy. With respect to farmers, of highest importance was introduction of the milk production quota system. All these legal

¹⁰⁷ The studies of the subject indicate that the reason for seasonality of milk supply lies, in particular, in the permanent shortage of good bulky feeds and concentrates during the winter season, see S. Juszczyk: *Sezonowosc skupu w racjonalnej gospodarce mleczarskiej (Seasonality of milk supply in a rational dairy economy; in Polish)*, Przegląd Mleczarski, No. 5/2001.

¹⁰⁸ Most advantageous time of calving for the dairy industry and for the farmers is the autumn and winter period. Moving the calving time towards this period decreases the seasonality of milk supply to processing plants, allows for attaining productivity higher by 10-20% and increases protein content in milk by roughly 0.3% in comparison with the spring-and-summer period, which constitutes an additional benefit for the farmer.

¹⁰⁹ As of 01/12/2006

¹¹⁰ In Poland, since the time of accession, a simplified system of direct subsidies was adopted, in which direct subsidies to milk production are included into the unified area payments and are not directly associated with milk production.

changes exerted essential influence on both the costs of functioning of the farms (e.g. necessity of bearing costs of modernization), and on prices of milk negotiated by the suppliers.

The decision of a farmer to take up dairy specialization in the farm is mostly influenced by the family tradition. Some importance should also be attached to the regional tradition and the self-made decision of the farm owner. The same factors conditioned, as well, the choice of production technology, but taking of this decision was also influenced by the processing plants, agricultural chambers and farming support service. Of the organizations mentioned the latter two provided advisory support to farmers, while dairy companies granted also financial support.

Diversification

A vast majority (98%) of milk producers conduct also other activity, mainly of agricultural character. This is the consequence of the fact that – as mentioned – the average number of dairy cows raised on a farm in the province of Lublin is just three. Revenues from the sale of milk produced by such a small number of cows would not allow a farmer to maintain a stable financial regime. That is why milk producers conduct also crop production and other kinds of animal production. In addition, they also gain revenues from non-agricultural business activities (self-employment – some 5%), outside employment (roughly 22%), from social payments (retirement pays, pensions, welfare payments – 26.8%), as well as accruing from the ownership (around 0.2%).

5.3.1.3 Intermediary production actors

Milk processing

Production input

Cost of production of 1,000 l of liquid milk ranged between 254 and EUR 316, with the average at around EUR 286 per 1,000 l. When speaking of the dairy branch one should emphasise high share of raw material cost in the total production cost. In the dairy plants, located within the territory of the region of Chelm and Zamosc, the expenditures associated with the purchase of milk accounted for as much as 64% of all costs. An essential place in the structure of costs is also occupied by labour cost (10%), costs of material and energy, excepting raw milk (10%), external service (6%) and value of sold materials and goods (5%). The remaining elements of costs are constituted by amortization (3%), taxes and fees (1%), and other costs (1%).

The enterprises dealing with milk processing on the area of the region of Chelm and Zamosc employed approximately 40% of all persons employed in the dairy sector in the province of Lublin. One dairy plant employed on the average 356 persons, that is – by 50% more than on the average in the province. The average annual labour cost was EUR 7,477 per employee, which was slightly more than on the average in

the province. Demand for highly specialized manpower in the sector is medium and it concerns primarily the staffing of management and administration. This demand is decidedly lower in the case of blue-collar workers, since in this case a simple training course or on-the-job training suffices.

Production output

Altogether 36.1 mio l of liquid milk have been produced in the region of Chelm and Zamosc. Thus, one company produced on the average 12 mio l of milk, the largest of them producing 24.1 mio l, and the smallest – 5.5 mio l of milk. The average price of liquid milk sold was at EUR 420/1,000 l (maximum: EUR 527/1,000 l, minimum: EUR 308/1,000 l). The average profit margin per 1,000 l of milk sold, gained by the producers, equalled EUR 134, the respective maximum having been EUR 211/1,000 l, and the minimum – EUR 57/1,000 l. All the companies active in milk processing in the region of Chelm and Zamosc were altogether profitable in the year 2005. The share of the dairy sector in the gross value added of manufacturing and construction in the province of Lublin amounted to 1.23%, while in the region of Chelm and Zamosc it was slightly higher, at 2.19%.

Liquid milk reaches the market from the processing companies mainly through the intermediary of the retailers – 67% of total sales. Wholesale outlets contribute 1/4 of the overall distribution, while 8% finds its way directly to the final consumers. The shortening of the distribution channel of this product results from its short-lived consumption usefulness period. The wholesale outlets sell primarily the longer-term duration milk.

The significance of liquid milk coming from the outside of the region is at a medium level. In case of products with short consumption periods, competition between producers is, as a rule, of regional character, while in the domain of products of longer duration (like, e.g., sterilised milk) it has national reach. The maximum distance, over which liquid milk is supplied, is 500-600 km, and it applies mostly to milk of about monthly duration. For 1 l of milk for immediate consumption of 2-2.5% of fat content in plastic foil bags producers in the province of Lublin obtained on the average 1.22 PLN, while for 1 l of milk with 3-3.5% of fat content and longer duration, in cardboard packaging – 1.59 PLN. In the adjacent provinces (Mazowieckie, Podkarpackie, Podlaskie, Swietokrzyskie) the two values were equal, respectively, 1.24 PLN per litre and 1.54 PLN per litre. The respective averages for Poland were 1.21 PLN per litre and 1.69 PLN per litre.

The marketing activities were usually conducted by the processing companies themselves. They aimed at promoting the producers or their individual brands. In the organization of these activities dairies do cooperate with other participants of the supply chain, but these are only rare cases. An example of such collaboration may be constituted by joint organization of promotion of sales with the retail shops.

External effects

The impact of milk processing plants on environmental quality refers mainly to the emissions of pollutants to the atmosphere, and to waters and soils. Boilers and the high water intensity of production in dairies, along with ample emission of liquid waste, related to the latter, have negative effects on the environment. Yet, given that there are only four dairy companies located in the region of Chelm and Zamosc (five production plants), their detrimental impact on natural environment is rather limited.

The degree of ecological purity of the province of Lublin, along with its other predispositions to milk production, exerting influence on the quality of this raw material, have, likewise, an influence on the quality of final products of the dairy industry. The quality of liquid milk, originating from the territory of the province of Lublin, is assessed as decidedly higher than on the average in Poland. The sanitary assessments of this product, carried out by the Chief Sanitary Inspectorate in the province of Lublin, disqualified only 3.8% of the samples analysed, while the average in Poland was 10.9%. The province of Lublin occupied the fourth rank in the country with this respect.

In the companies of the dairy sector, functioning in the region of Chelm and Zamosc, 1,425 persons were employed, this number being equivalent to 5.19% of employment in industry in this area. The share of employment in the dairy industry against total employment in the region (including those working on family farms) was 0.75%. The structure of employment shows higher shares of men and younger persons. There are only marginal cases of employing persons from other member countries of the EU and the third countries.

External factors

The food processing industry as a whole, including the dairy industry, clearly distinguishes itself from the other branches of the national economy through the magnitude and scope of seasonal variations of supply of the raw material. On the other hand, though, demand for food products does not display such significant seasonal oscillations – it is determined by the rhythmical, little diversified in time, consumption needs. This brings about the shortage of raw material during the winter months and the surplus during summer. Thereby an important influence is exerted on cost levels and the manner of planning production, since dairies are forced, in particular, to maintain larger production capacities or to turn out semi-products.

Among the external factors influencing the functioning of the companies in the dairy sector legal conditions play a significant role. Accession of Poland to the EU brought about numerous changes in the Polish legal system, both before the accession, and after it. Adjustment of Polish law affected, in particular, the hygienic-and-sanitary as well as veterinary requirements, and the regulations concerning the milk market within the framework of the Common Agricultural Policy.

The most important legal acts in this domain include:

- Directive (WE) no. 852/2004 of the European Parliament and the Council of 29/04/2004 on the hygiene of food products;
- Directive (WE) no. 853/2004 of the European Parliament and the Council of 29/04/2004, establishing detailed regulations concerning hygiene with respect to food of animal origin;
- Directive (WE) no. 854/2004 of the European Parliament and the Council of 29/04/2004, establishing detailed regulations concerning organization of official inspections with respect to products of animal origin, destined for consumption by people;
- Law of 20/04/2004 on the organization of the market for milk and dairy products.

Besides, an essential significance ought to be assigned also to the general regulations, concerning the activity of all businesses. Among such regulations one should first of all mention the Commercial Code, regulating the basic issues regarding the functioning of enterprises, and the Cooperative Law, since the majority of businesses active in the dairy sector in Poland act as cooperatives. Such a situation exists also in the region of Chelm and Zamosc, where among four businesses only one is a limited liability company, while the remaining ones are cooperatives.

External sources of capital, both domestic and of Union origin, played an essential role in the restructuring and modernization of the dairy companies in Poland, and so also in the province of Lublin. The domestic assistance to milk processing encompassed preferential investment credits in the framework of the "Program of restructuring and modernization of dairy industry" and "Branch dairy program". The preferential credits constituted roughly 28% of the total value of investment projects carried out in Polish dairy companies. In the SAPARD program, within the framework of Action 1.1a "Support for restructuring of processing and improvement of marketing of animal products – the dairy sector" 29 applications were filed, of which 27 contracts were signed with the beneficiaries¹¹¹. The average value of the contract signed in Poland was EUR 0.31 mio, while the average value of the payments effected was EUR 0.28 mio¹¹². After Poland joined the EU the dairy companies could take advantage of the means originating from the Community structural funds and the means put to use in the framework of the Rural Areas Development Plan 2004-2006, co-financed from the Section of Guarantees of the European Fund of Orientation and Guarantees in Agriculture, and from the national budget.

¹¹¹ As of 01/12/2006

¹¹² As of 30/06/2006

Retailers

Production input

There were around 3,000 businesses in the region of Chelm and Zamosc, dealing with retail sale of liquid milk. The average turnover of a retail shop was at around EUR 57,000 per annum (in the shops considered the revenue from sales was higher than on the average for the region).

The structure of costs of the analysed retail shops was dominated by the value of sold goods, materials and products, amounting to 80% of total cost. In the structure of costs in the shops dealing with the sale of milk an important position was also taken by labour cost, accounting for approximately 7% of total cost. The share of manpower in the sale of 1,000 l of liquid milk can be evaluated as medium. Average annual gross salary in the region of Chelm and Zamosc was at around EUR 5,880 (in the retail shops analysed it was at EUR 4,225). The average number of persons employed in the retail shops in the region of Chelm and Zamosc was above two. In the shops dealing with the retail sale of milk one can note an average demand for the specialized manpower. This applies mainly to the specialists responsible for marketing, book-keeping, computers and logistics.

Further more important positions of costs were external service (6%) and energy costs (4%). Given that the dairy products are being sold in their vast majority in the non-specialised shops along with many other food products, the data concerning water and energy intensity per unit of milk sold are not available.

Production output

The volume of milk sold (estimated on the basis of consumption) amounted in the region of Chelm and Zamosc to 39.8 mio l. The average price of sale of fresh liquid milk was at around EUR 507.10 per 1,000 l (ranging between EUR 375.3 and EUR 638.8). Retail shops exceeded, as a rule, the threshold of profitability – the average profit achieved for the sale of 1,000 l of milk sold was at around EUR 106.

The share of revenue from the sale of milk in the gross value added of the sector of service in the province of Lublin was approximately equal 1.2%.

Retail shops sell liquid milk only to final consumers. The importance of the competitive products from outside of the region can be assessed as medium. The geographical distance, at which it is still profitable to sell the product, is equal roughly 20 km.

The primary sales channel for the fresh milk for consumption, with short period of appropriateness for consumption, is still constituted by the traditional local shops and sales outlets, while the share of larger commercial networks significantly increases with respect to products of longer durability.

External effects

In the case of the retail shops one does not, in principle, observe their negative impact on the natural environment. The environment-related fees paid by these businesses include the payments for water, sewage and solid waste disposal.

The estimated number of employees of the retail shops in the region of Chelm and Zamosc is 6,450. The total number of persons working on the area in question (including family farms) was 187,165. The share of employees of the retail shops dealing with the sale of liquid milk in total employment amounts, therefore, to 3.4%. At the same time the share of employment in the food retail shops in the employment in the sector of service for the year of the analysis was at 11% (employment in the service sector was equal 57,070, of whom 39.9% in market-oriented service, while approximately 60.1% in non-market service).

External factors

Legal regulations significantly influence the cost of sale of liquid milk in the retail shops. Liquid milk for consumption has short duration, is a perishable good. It has to be transported, therefore, in appropriate conditions, and while in the shop, it must be kept in an appropriately low temperature.

Among the most important legal regulations concerning retail trade in milk for consumption one should mention the Law of 15/12/2000 on the protection of competition and consumers, and the Law of 14/03/1985 on the Chief Sanitary Inspectorate, being the institution dealing with controlling of the food retail stores with regard to fulfilment of the sanitary requirements.

5.3.1.4 End consumption actors

Demand

An average consumer, residing on the territory of the province of Lublin, consumed some 60 l of liquid milk in a year. S/he paid on the average for 1 l of this product around EUR 0.51 (actual prices ranging between EUR 0.38 and EUR 0.68). The purchasing power of a household, measured with the income per household was on the average at EUR 6,478 per annum (average number of persons per household was equal 3.23, so that the average income per person was EUR 2,006).

When purchasing liquid milk, the buyer does not bear any additional costs. The sole cost to bear is the price. Liquid milk is most often purchased close to the place of residence. Situation is somewhat different with respect to the UHT milk, with longer duration, and in this case the consumer is ready to make an additional effort and bear additional cost (associated, e.g., with the travelling to a shopping mall), especially if an additional motivation is constituted by the lower price.

Demand for dairy products is usually little elastic. These products, namely, are among the basic ones, and human habits in this domain change very slowly, even when prices change. Respective studies indicate that in case of milk for consumption some 48% of consumers, and in the case of UHT milk roughly 42-46% of consumers, declared that price increase would not change anything in their consumption – they would continue to purchase the same brands in the same quantities.

Income elasticity of liquid milk was estimated at 0.05¹¹³, which means that demand reacts to the change in income less than proportionately.

The value added tax (VAT) on liquid milk is in Poland equal 3%. Such a rate of VAT for milk shall be retained until 30/04/2008, after which it will be raised to 7%. The usual VAT rate in Poland is 22%, and its lowering for the case of liquid milk was caused by the treatment of milk as the food product of basic significance.

External factors

Main factors influencing purchases of liquid milk were: price, unique position on the market (associated with the producer brand), as well as its health-related and ecological aspects. Almost 2/3 of the consumers pay attention to the health-related aspects of the dairy products.

Generally, in the case of dairy products brands do not exert a decisive influence on the very decisions of purchase, but an important percentage share of consumers have their preferred brands and are capable of indicating them clearly. Yet, they are not very strongly tied to products of definite brands. In case of lack of the preferred brand in the shop, in which consumers do the shopping most frequently, almost 80% of them would buy another available brand in case of milk for immediate consumption. With respect to the UHT milk this share was lower – around 2/3 of consumers displayed such an attitude.

The choice of a concrete brand of a dairy product is made first of all on the basis of quality and taste of respective products. The second rank is occupied by the facility of purchase and availability in the shops. The consumers, however, of milk for immediate consumption are mainly driven by the latter aspect, quality being at the second place. Families purchasing milk for immediate consumption select brands to a large extent on the basis of relatively lower prices of products. On the other hand, the fact that a well-known company is the producer of a brand does not have a bigger significance in this case. This factor reveals a higher importance only in the case of the UHT milk (12.8%).¹¹⁴

¹¹³ R. Urban (ed.), *Polski przemysł spożywczy. Analiza makroekonomiczna* (Polish food processing industry. A macroeconomic analysis; in Polish), Polska Inicjatywa Konsumpcyjna Sp. z o.o., Warszawa 2002.

¹¹⁴ Investigations conducted by the Institute of Domestic Market and Consumption.

5.3.1.5 Dynamics of the supply chain

Reasons for major shifts in the past

The fundamental factor, enabling the initiation of changes in the supply chain of milk, was transformation of the economic sector and subordination of the dairy sector to the functioning of the market mechanisms, at the beginning of the 1990s. In the later period of key significance was the preparation of Poland to integration with the EU and the resulting actual accession.

The factors accelerating these changes were:

- active price policies of the dairy companies (e.g. supplements to the purchase price for adequate temperature, quality class, EU certificate of the Extra class, concentration of supply, contracting, owning a cooling facility, having an official assessment of livestock quality, etc.), which was made possible due to close collaboration with the farmers;
- preferential credits and subsidies from the assistance funds, as well as support of the cooperatives granted to their members (in the form of low interest loans or credit warranties and collaterals).

Effects of past shifts

During the last dozen or so years the following changes could be observed:

1. In the milk production sphere:
 - decrease of the volume of production of raw milk,
 - decrease of the number of farms raising milk cows,
 - decrease of the number of milk cows,
 - increase of the average number of cattle per (dairy) farm,
 - increase of the milk yield per cow,
 - increase of the production scale and concentration of supply of raw milk,
 - increase of prices for raw milk,
 - improvement of profitability of production of raw milk,
 - decrease of the use of milk on the farms and of direct sale, and, consequently, increase of purchases of milk by the processing plants,
 - decrease of the seasonal character of production and supply of milk,
 - sharpening of the quality requirements with respect to raw milk and a clear improvement of quality of raw milk,
 - increase of the number of wholesale suppliers of milk, who have been allowed to sell milk on the territory of the entire European Union;
2. In the processing sphere:
 - progressing consolidation of the branch,
 - increase of production scale,

- enhancement of organization of purchases of raw milk (including shortening of the milk purchase channels) and lowering of costs of acquisition of the raw material,
 - changes in the magnitude and structure of production under the influence of changed market expectations (first of all – limitation of production of the traditional dairy products, including milk for immediate consumption, to the advantage of more processed ones),
 - increase of production of liquid milk in the region considered (due to the takeover by the District Dairy Cooperative in Krasnystaw of two other plants, including one located outside of the region),
 - modernization of the production capacities,
 - decrease of the volume of raw material used to produce the final products,
 - sharpening of the quality requirements concerning dairy products and improvement of the offer and its diversity by the dairy companies,
 - increase of producer prices;
3. In the trade sphere:
- increase of retail prices,
 - shortening and broadening of the channels of final product distribution,
 - increase of the share of larger commercial networks in the distribution of milk of longer-term durability;
4. In the consumption sphere:
- decrease of consumption of milk,
 - change in the structure of consumption of dairy products (with, first of all, limitation of consumption of liquid milk and the traditional dairy products, accompanied by the increasing consumption of new, highly processed products).

Possible reasons for future shifts

It is expected that in the nearest years there will be a slight decrease of production of raw milk, resulting from the decrease of internal use on the farms. At the same time, there may occur an increase in the degree of commercialization of milk production. These changes shall be forced by the necessity of accelerating the process of concentration of milk production in order to lower costs and to improve quality parameters of the raw material, and thus to increase the incomes of milk producers.

In this connection the following directions of change in the province of Lublin might be envisaged in the time horizon of the year 2013:¹¹⁵

- concentration of production in the farms keeping more than ten milk cows, these farms taking over the production limits from the smaller farms;
- increase of milk yields of cows from 3,900 to 4,500-5,000 l per year;
- decrease of the number of farms keeping low number of dairy cattle (1-5 units), from 96,700 today, by 50-60%, with production of milk from these farms meant first of all for the "self-supply";
- of the 16,000 farms keeping nowadays 6-10 units of milk cattle some 70-80% shall increase the number of cattle raised and shall carry out the necessary modernization works in the buildings and farm equipment, and will develop this direction of specialization (a part of undertakings shall be financed from the means put to use in the framework of the Plan of Rural Development 2007-2013); the remaining farms from this group shall limit the cattle numbers and turn to production meant mainly for "self-supply";
- the 9,800 farms that raise nowadays the biggest numbers of milk cattle shall continue to develop this direction of specialization.

A factor hindering the conduct of these changes is constituted by the system of milk quotas in Poland and the valid principles of their transfers. It can be assumed that if the system of milk quotas to date is maintained, there will be some 20-25,000 farms in the province of Lublin in the perspective of the year 2020, specializing in milk production and closely associated with the processing plants. The farms from this group will also constitute a significant motive force for the land market (area concentration of the farms).

In the sphere of processing there will be in the future a continuation of the process of consolidation of the branch, consisting in the downfall of the economically weaker dairy companies and their taking over by the larger and stronger businesses. It also appears that there will be a change in the assortment structure of production in the direction of further limitation of production of the traditional products and the increase of share of the modern, more processed products. This evolution shall take place due to the product specialization of particular dairy plants, modernisation of the production potential and introduction of innovations, both concerning the very products and the sphere of organization and production process. This will bring about the increase of quality of the goods produced and a yet improved adaptation of the assortment offer to the market requirements. One can also expect an increase of labour productivity on dairy enterprises.

In the sphere of trade a decrease of significance in the distribution of milk is expected of the medium and small shops to the advantage of the commercial networks and chains, supermarkets and shopping malls.

¹¹⁵ *Program zrównowzonego rozwoju rolnictwa i obszarów wiejskich województwa lubelskiego. Tom I Diagnoza i prognoza rozwoju (Program of sustainable development of farming and rural areas of the province of Lublin. Volume I: Diagnosis and forecast of development; in Polish), IUNG Puławy, Lublin, December 2004.*

It is forecasted that there will be in Poland an increase of consumption of dairy products from 174 l per person in 2004 to even 250 l per persons (in milk equivalent) within some fifteen years.¹¹⁶ Along with the forecasted increase of incomes of the population the demand for ecological products shall also increase. That is why production of this kind of goods constitutes an opportunity for gaining new sales markets. Development of such production in Poland – and also in the region of Chelm and Zamosc – is easier and cheaper in view of the existing qualities of the natural environment.

Due to the increase of demand for dairy products it can turn out that the national wholesale quota, assigned to Poland, is too small, which will bring about further intensification of the competition for the raw material between the processing plants and the necessity of increasing imports.

5.3.2 Supply chain 2 – Rapeseed

5.3.2.1 General description

Within the here analysed supply chain of the rapeseed, the following links were distinguished: production of the raw material, processing to the form of oil for consumption, wholesale and retail trade, and consumption.

In the region of Chelm and Zamosc, in 2001, close to 92% of agricultural land was owned by private farmers (GUS, 2006). Farms producing rapeseed were equipped with agricultural machines and devices somewhat better than an average farm in the region. In view of the growing interest in the alternative ways of using rapeseed, first of all in the form of bio-fuels, there has been in the recent years an increase, as well, of the interest in rapeseed production in all kinds of farms, including those featuring relatively low farming culture. Some farmers, besides growing rape, deal with pressing of the rapeseed oil with traditional methods. This group is not big, does not exceed 100 farms, and the volume of raw material thus processed is estimated at less than 0.1% of the total harvest in the region of Chelm and Zamosc. The increase of interest in products obtained through traditional methods among the end consumers allows for drawing the conclusion that in the future there would be an increase in interest as to this form of activity among the farmers of the region.

The yields of rapeseed in the region of Chelm and Zamosc reach 20 dt per hectare, this being a noticeably lower value than the national average of 26.6 dt per hectare (GUS, 2006). The reasons for such a state of affairs include low level of professional skills among farmers, attachment to tradition, and relatively older age of farmers. A vast majority of them gain their knowledge on land management from their life experience, and not from scientific sources, which is expressed in the lower farming culture than in other parts of the country. The average employment on the farm is

¹¹⁶ J. Okrzesik, Sektor mleczarski (The dairy sector; in Polish), Agrotrendy, Warszawa, January 2005.

at four persons, in most of the cases these persons being the members of the closest family of the farm owner, helping in the conduct of the farm without additional remuneration. The low number of persons employed on the farms results primarily from the small acreage of farms, which is on the average in the province of Lublin (NUTS2: PL 31) equal 7.2 ha (see www.arimr.gov.pl). On the area of the entire province of Lublin the production of rapeseed in the years 2004 and 2005 amounted to 50,000-70,000 t (Zbiory et al., 2005). The data of the National Agricultural Census of 2002 show that the region of Chelm and Zamosc accounts for close to 70% of area under rape in the whole province of Lublin.

Processing of the rapeseed is mainly done by large oil producing plants, this sector being characterised by a high concentration of production. There is only one such plant in the region considered – the Oil Plant in Bodaczow. Its production capacity is 120,000 t of rape or sunflower seed per annum, which means that this plant is among the smaller ones on the national scale. Rapeseed oil, produced by the plant in Bodaczow finds numerous purchasers in view of its low price. The plant conducts also the wholesale activity and provides service for the rapeseed producers. The latter practice is meant to secure adequate quality of raw material for production and is quite commonly used in the branch. Given the specific character of production, employment in the plant is fluctuating over the year. Side by side with the oil plant in Bodaczow, rapeseed produced in the region is purchased also by the enterprises located outside of the province of Lublin. These enterprises are: Oil and Fat Company "Bielmar" Ltd. from Bielsko-Biala, Kruszwica S.A. Oil and Fat Company, "Elstar Oils" S.A. from Elblag, and the Oil and Fat Manufacturing Plants in Warsaw Ltd.

The third link in the chain is constituted by the wholesale activity. There are 15 wholesale facilities in the region of Chelm and Zamosc, selling rapeseed oil. Most of these facilities are among the small and the medium ones. A gradual consolidation is being observed in the wholesale sector, with the significance of the small outlets systematically decreasing to the advantage of the medium ones.

There are close to 3,000 retail shops in the region of Chelm and Zamosc, dealing, in particular, with selling of the rapeseed oil. Most of them can be classified as small and medium. In terms of numbers – especially in rural areas – the small shops dominate, employing up to three persons, but a clear majority of the sales value is generated by the shops having larger commercial surfaces and employing more than ten persons. In view of limited surfaces of shops, in the smaller ones products from Bodaczow are not always available. In the medium sized and bigger shops the rapeseed oil from Bodaczow is commonly available, mainly due to its low price.

Price is an important factor in purchasing this product, especially because the region of Chelm and Zamosc belongs among the poorest in the country – in the ranking based on the GDP per capita this region is listed as the last one in Poland. The sales market for the oil from the plant in Bodaczow, though, is much more extensive and it encompasses the entire south-eastern Poland. Consumption of oil has been slowly, but systematically increasing – during the last five years

consumption of oils of plant origin increased in Poland from 5 to more than 6 l per capita.

5.3.2.2 Agricultural and forestry production actors

Production input

In the structure of costs of rapeseed production the most important role is played by mineral fertilisers – their share reaches 45%. Labour force intensity is low, since cultivation is to a large extent mechanised. The level of mechanisation of the farms increases over time. Most of the farmers tend to establish an own equipment set, even though the rapeseed harvesters are in the majority of cases rented. Outside labour is employed sporadically, in principle only in the high season – large share of the self-employed is a characteristic feature of the strongly fragmented agriculture of the region of Chelm and Zamosc. Among remaining cost one should mention the constantly increasing cost of pesticides and herbicides. Despite the continuous improvement in the farming culture in the region, rapeseed cultivation is in many aspects traditional, frequently extensive. The educational level of the farmers in the region of Chelm and Zamosc is low, the farmers gain their knowledge on the technologies of cultivation primarily from own experience and family tradition.

Production output

The volume of rapeseed production in Poland undergoes significant oscillations (see Table 138). During the recent years a clear upward trend can, however, be observed (Wzroslyet al., 2007). The trends observed in the region of Chelm and Zamosc are similar to the national ones.

Table 138 Areas under cultivation, yields and production of rapeseed in Poland in the years 1996-2006

Years	Area under cultivation [1,000 ha]	Yields [dt/ha]	Production [1,000 t]
1996	283.0	15.9	449.0
1997	317.0	18.8	595.0
1998	466.0	23.6	1,099.0
1999	545.0	20.8	1,132.0
2000	436.8	21.9	958.1
2001	443.2	24.0	1,063.6
2002	438.9	21.7	952.7
2003	426.3	18.6	793.0
2004	538.2	30.3	1,632.9
2005	550.2	27.0	1,486.1
2006	623.9	26.1	1,628.4

Data from GUS (Central Statistical Office)

The majority of the rapeseed purchased in the region is subject to contracts. Processing companies take care of the purchase of the rapeseed, because a vast majority of rapeseed producers supply small amounts of the seed, so that individual transport to the processing plant is not profitable. The prices guaranteed in the contracts for rapeseed have been in the recent years increasing, due to the growing demand, generated by the producers of bio-fuels. Consequently, profitability of rapeseed cultivation also increases. Yet, despite this, the significance of the cultivation of rape in terms of formation of the regional GDP is still very limited.

External effects

Application of mineral fertilisers, herbicides and pesticides is relatively little intensive in the region of Chelm and Zamosc in comparison with other regions of Poland or with other countries of the European Union. Hence, the influence of the cultivation of rape on the state of natural environment should be considered insignificant.

The share of persons employed in cultivation of rape in the total employment in the region is small. Seasonal work increases this share to only a limited extent. Involvement of farmers in social activities is minimal – in principle it is limited to cooperation between the farmers residing in the same locality. It is worth emphasising that one of the essential elements, shaping the social situation in the countryside are the family ties, a typical phenomenon for the Polish rural areas, and in particular – for the villages situated in the south-eastern part of Poland.

External factors

The most important financial factor, determining the socio-economic situation of the countryside in the region of Chelm and Zamosc is constituted by the area payments from the budget of the European Union. A significant factor is also constituted by the limits of rapeseed production, currently at 30 dt per hectare. It is interesting to note that farmers do not perceive this limitation as a significant barrier to the conduct of activity, but, on the other hand, see the obstacles in the European law concerning food safety, fertilisers, herbicides and pesticides, as well as employment and social care.

Diversification

Farmers cultivating rape very rarely orient themselves uniquely at rapeseed production. The most important factors, decisive for undertaking multiple product farming, include, first of all, small acreage of farms, determining the self-supply model of farming. It is typical not just for the rapeseed producers, but characterises the majority of farms in the region of Chelm and Zamosc, and persists already for generations. The most frequent complement to production of rapeseed in a farm of the region is constituted by cereals and sugar beets, which facilitates application of crop rotation. An additional source of income is provided by employment outside of agriculture. Up to some fifteen years ago the bi-occupational model of employment

was quite common in the region. In the period of socio-political and economic transformations of the beginning of the 1990s many farmers lost their additional jobs, while now a slow return of the bi-occupational model is taking place.

5.3.2.3 Intermediary production actors

Oil producer

Production input

The most important factor, which shapes the costs of production of the rapeseed oil, is the purchase price of rapeseed. This price varies considerably, first of all owing to the increasing interest in rape from the side of the bio-fuel producers, for whom rapeseed is the basic raw material in production. The legislative work on the legal acts concerning bio-fuels gives rise to increased expectations, both among the farmers and among the bio-fuel producers. The effect is constituted by the year-to-year changes of the area under rape and of demand for rapeseed, and, consequently, the rapeseed purchase price. Oil, though, is considered to be one of the basic goods, and so, oil producers transfer the rising costs of the raw material onto the end consumer. The remaining elements of the structure of costs of oil production are of secondary significance. The wage pressure of the employees is limited in view of the unemployment levels, although after the accession of Poland to the European Union and the outflow of an increasing number of workers abroad, perceptible changes take place also with this respect.

The fat and oil manufacturing industry is characterised by high concentration of production. There is a drive towards the enlargement of the production plants with the intention of increasing the level of production automation and limitation of labour costs. These costs are close to the average for the region of Chelm and Zamosc.

Production output

The volume of production of rapeseed oil undergoes significant fluctuations. The most important factor determining the volume of production is the amount of harvested rapeseed in a given year. Costs of producing oil in the region are relatively low, and so the product offered has a very competitive price, in comparison with the oils produced outside of the region. Outlays into promotion of oil produced in the plant in Bodaczow are very small, which helps in keeping the price at a very low level: it is the cheapest oil on the market. Unit profits on sale are, therefore, also low. Most of the companies located outside of the region found their competitive edge on marketing and advertising.

The rapeseed oil produced in the region of Chelm and Zamosc is sold first of all to food wholesalers. Among other important purchasers one should mention producers of margarine and of bio-fuels, the significance of the latter having been increasing perceptibly in the recent period.

External effects

Oil producing plants dispose of highly automated production lines, so that employment is kept at a low level. The majority of persons employed are women. Managing staff originates virtually in its totality from the region of Chelm and Zamosc. The restrictive Polish migration law and high unemployment significantly limit employment of foreigners. Situation with this respect may, though, change significantly in the years to come in view of the significant outflow of labour force to work in the countries of Western Europe. It is estimated that – outside of farming – the entire chain of production of the rapeseed oil generates some 2,000 jobs.

Oil producing plants do not undertake any activity of social and cultural character, their participation in the social life of the region is limited to occasional sponsoring of cultural events.

External factors

Legal regulations associated with production of food are a significant element in terms of increase of production costs. The most important among them are the legal acts concerning safety of products turned out, protection of competition and of the consumers, quality of food and agricultural products, and safety on the job regulations. Side by side with general legal regulations, enterprises implement for their own purposes the systems of quality control, such as, for instance, HACCP (Hazard Analysis and Critical Control Points) or ISO. Other important legal regulations concern employment and entrepreneurship.

Wholesalers

Production input

Among the costs borne by the food wholesale facility in connection with the sale of the rapeseed oil the most important one is the cost of purchase of the very oil. This cost is differentiated, depending upon the state of stock of the producers and the negotiating position of the wholesaler. Ampler rebates are granted primarily the bigger wholesale networks, functioning in all the bigger towns of the region of Chelm and Zamosc.

When considering the remaining costs, one should mention the costs of logistics and labour. The former have been increasing in a significant manner with time, in particular in the case of wholesale facilities realising the orders of the retail outlets directly from the stocks of the producers. The primary advantage of such a solution is liquidation of the warehousing costs, which are transferred onto the suppliers. Owing to the cooperation with a large number of shops and to high turnover, this solution allows for gaining of a good negotiation position in bargaining with the oil producer. In many cases the wholesale facility and the shops receiving the goods ordered through the wholesale facility are associated in terms of capital.

Labour costs are lower than on the average in the region in view of the low level of skills required from the employees, even though an increase in time of the level of required skills has been observed. This increase is linked primarily with the increase of the degree of mechanisation and computer intensity of work (application of advanced inventory software), both within the storeroom and in the sales department.

Production output

The sales of the oil, in physical terms, vary from year to year. The fluctuations are to an extent dependent upon the production volume of the rapeseed in the region, which, indirectly, determines the total volume of oil production. In cases of low supply of oil produced in the plant in Bodaczow, demand for products from other producers increases. The sales price of oil to the consecutive link in the supply chain depends, first of all, upon the price of purchasing oil from the producer, since the margins of the majority of wholesalers are constant. The sales price is also influenced by the magnitude and frequency of purchases made by a retailer in a wholesale facility. In this manner the wholesalers try to attach to themselves the retailers and to strengthen their own position on the market.

The oil, produced in Bodaczow, is the cheapest one on the market. Wholesale facilities sell it almost uniquely to retailers, with the possibility of purchasing oil at such a facility by an end consumer being quite limited. Yet, some of the wholesalers conduct retail trade, as well. This is a remnant from the period of economic transformations of a dozen or so years ago, when the enterprises tried to maintain their profitability by undertaking all kinds of activities aiming to persist on the market, even if they implied a loss of advantage in some other kind of activity.

The competition among the wholesalers in the region of Chelm and Zamosc in the domain of rapeseed oil is at the medium level. In view of the specific character of activity of the wholesale facility, transport of oil over distances bigger than 100 km is not profitable. Joint marketing actions, in which wholesalers participate, are much more common than in the case of oil producer. The basic forms of promotion actions include lowered prices of products, forced retail prices, as well as free products supplied to the distinguished retail customers.

External effects

The activity of the food wholesale facilities does not exert a significant influence on the state of natural environment. The negative effects of their functioning include car transport, used in supplying oil to the retail customers and the packaging materials, usually made of plastic.

Food wholesale facilities do not play a significant role on the local labour market. Young people dominate among the employees, the share of older employees being lower in view of the required high physical dexterity in the case of work in the storage premises, or the ability of using computer software. Older employees less

frequently satisfy these requirements than the younger ones, and, similarly, women less frequently than men. One can only sporadically encounter foreigners among the employees of the wholesale outlets. Employment of persons from other countries of the European Union and from the outside of the Union is made difficult by several barriers, including restrictive labour code, relatively high unemployment rate in the region, little attractive wages and limitations to cross-border traffic with the countries outside of the European Union.

Wholesalers often sponsor local social and cultural initiatives. The ideas for such undertakings come, as a rule from the organisers of the respective events, who seek support, and not from the wholesalers as potential sponsors.

External factors

Legal acts, regulating wholesale activity dealing with rapeseed oil, do not exert a significant influence on the costs and conditions of conduct of this activity. The highest significance is assigned to the regulations, concerning food and nutrition safety, although in the case of wholesale facilities this is of lesser importance than in the case of oil pressing plants. The significance of regulations dealing with employment and social care is perceived as moderate – in the situation of a relatively high unemployment rate the employer compensates the structurally high labour costs (resulting from high taxation and social care burden) by imposing low wages in the enterprise.

Retailers

Production input

The number of retail shops in the region of Chelm and Zamosc is close to 3,000. An average grocery is a small unit, employing only 2.2 persons. This is the effect of low degree of urbanisation of the region and the significant dispersion of the population over the rural areas. There is a small grocery in almost every locality, such small groceries being usually family run. These shops, side by side with the farms, are the examples of places, where the level of self-employment is very high, and employment of persons from the outside is rare. In the towns the small shops are successively pushed out by the medium sized and large facilities.

Out of all costs, borne when selling rapeseed oil, the most important is the very cost of purchasing the product, followed as to importance by the labour cost. Groceries, as compared with the wholesale facilities, are characterised by a high intensity of labour per value of goods sold, which results from the necessity of direct contact of the shop attendant with a high number of customers. Work of a shop attendant does not require having high skills and the wages are low, which results in the lower cost of labour with respect to this group of employees than on the average in the region.

Production output

Rapeseed oil from a retail shop goes uniquely to the end consumers. Prices of oil depend primarily upon the magnitude and location of a shop. The highest prices are quoted in rural groceries and in small housing estate shops in towns, as well as in the outlets located in downtown areas. At the other extreme with this respect are the large surface facilities, usually located at the outskirts of towns, but often also in the quarters of residential character.

Shops selling rapeseed oil always get their costs returned, the retail margin being high in comparison with the ones applied at the other links of the supply chain. Much more important, therefore, is the general economic situation, which defines the purchasing power of the population. Over the period here analysed, 1993-2006, the level of real incomes of the consumers increased by more than 40%, which, given the persisting low price of the rapeseed oil produced by the plant in Bodaczow, means that the respective purchasing power of the consumers increases.

Competition from the side of products originating from the outside of the region of Chelm and Zamosc is of relatively low significance, since the average price of a bottle of such an oil equals the highest sales price of the oil from Bodaczow. The competition is, rather, mainly due to a more aggressive marketing policy of the producers from outside of the region.

The level of competition among the food shops is assessed as medium. Marketing actions are undertaken mainly in the larger facilities, although they are relatively rare with respect to the articles of basic consumption, including oil. An additional factor, which motivates not to undertake the marketing actions regarding cheaper products, is constituted by the conviction that the low price of the product offered gives a sufficient advantage to the customer.

External effects

Food shops do not occupy large surfaces, but, in distinction from the wholesale facilities, they are often located in downtown areas. In this manner there is an accumulation of the negative impact of the residential housing, transport network and commercial facilities. In the region of Chelm and Zamosc the large-scale shopping malls exist only in two biggest urban centres – Chelm and Zamosc. In the remaining localities shops are much smaller. The tendency towards construction of larger facilities, with parking lots accompanying them, this tendency increasing the negative impact on the environment, has been observed only in the recent period.

The demographic structure of the shop employees differs from the average for the region of Chelm and Zamosc. A clear domination of women is observed, and the share of employees of the age close to retirement is significantly lower than on the average. In the recent period, in connection with the mass foreign migration and the decrease of the number of persons without a job, retail trade admits more and

more employees having just finished schools, which brings the average age of employees down.

External factors

Groceries are subject to similarly restrictive regulations as food producers. The most important are the regulations concerning food and nutrition safety, protection of competition and consumers, and the commercial quality of the food and agricultural products. Majority of the small shops, facing the low clarity of the taxation regulations and a high degree of complexity of the regulations concerning accounting, employ external agents for bookkeeping, which often gives rise to a significant increase of the costs of running a shop.

5.3.2.4 End consumption actors

Demand

The basic sales market for the rapeseed oil produced in the plant in Bodaczow is constituted by the households located outside of the region of Chelm and Zamosc, first of all due to the low capacity of the local market. Since the data on the number of consumers of the oil from Bodaczow are not available, the magnitude of the local market can be estimated on the basis of the number of households in the region: there are a bit less than 220,000 of them. Low incomes, as compared to the other parts of the country, are a factor weakening the purchasing power of the population in the region. Consequently, less than 10% of the local production of oil is consumed inside the region.

The share of visitors in the group of end consumers is nowadays insignificant. Before the visa obligations and entry fees were introduced for the inhabitants of the neighbouring Ukraine, an informal cross-border trade had flourished between Poland and Ukraine. The significance of purchasers from across the border was then much higher, especially as regards the cheapest products, among which oil from Bodaczow could be classified. Currently, the role of this distribution channel is marginal.

An average consumer uses nowadays about 6 l of oil per year. This amount encompasses the rapeseed, sunflower, soybean and olive oils. Low income per capita in the region, and hence low purchasing power of the local community, allow for drawing of conclusion that cheap edible oil plays the leading role in the total consumption of such oils. Consumption of oils of plant origin increases with time – in the course of the last five years consumption of such oils increased from 5 to more than 6 l per capita per year. This development takes place at the cost of consumption of fats of animal origin.

In the opinion of consumers the increase of prices of the rapeseed oil would lead to an over-proportional drop in consumption of this good, with oil being substituted by some other kind of fat. It is expected that the increase of consumer incomes would

entail a proportional increase of consumption of oil. Rapeseed oil is one of the basic food products and that is why VAT rate for this article is lowered from the standard rate of 22% down to 7%.

External factors

For an average consumer from the region of Chelm and Zamosc most important is the price of the product. This is linked with the socio-economic conditions on the area – the already several times mentioned significant unemployment rate and low incomes of the population. This discourages the producers and the other trade intermediaries from undertaking any kind of marketing activities, since thereby the final price of the product would have to rise, and so the most important advantage of the product – its lowest market price – would be lost.

5.3.2.5 Dynamics of the supply chain

Reasons for major shifts in the past

Cultivation of the rapeseed in the region of Chelm and Zamosc has been covering during the last 14 years an increasing area in comparison with the one initially cultivated. This increase was motivated by the increasing purchase prices of the rapeseed and the increasing unit profit on sale. The volume of production of the rapeseed in Poland in the period of 14 years analysed grew by 174%. There has also been an increase in the region of Chelm and Zamosc, although much less pronounced – by close to 30%. A similar growth has been observed on the remaining stages of production and trade of the rapeseed supply chain. The changes, having taken place, concerned almost all the aspects of functioning of the farms, including the acreage structure of farms. Farmers disposing of free financial means have been extending their farms by leasing or purchasing agricultural land, which enabled an increase of intensity and mechanisation of production. This was especially important in view of the sharp increase of costs associated with employment. There has been a similar increase of the prices of seed material, mineral fertilisers, herbicides and pesticides. A frequent method of improving the financial situation of the farms was to seek employment in sectors II and III of the economy, where stability of incomes has been much higher. In the period 1993-2006 the area payments and the subsidies to production, transferred to the farmers, have not had a significant influence on their decisions concerning production.

Oil producing plants, during the last 14 years, conducted first of all an intensive rationalisation of production, in order to stand to the challenge of the market. There were also attempts of winning new sales markets. One of the most important changes regarding the oil production plant in Bodaczow was reorganisation of the enterprise in terms of ownership. It was originally owned by the state, and its privatisation entailed the need of rationalising employment. Finding an own way on the market was difficult, the company struggled with numerous problems, which brought about, in particular, a production decline. An essential factor, influencing

the condition of the firm was the increase of price of the rapeseed, which was high especially during the last five years. It resulted from the increasing interest in the rapeseed from the side of the bio-fuel producers.

Wholesale facilities function within an exceptionally dynamic market, and so during the recent years the most important reason for changes in their case was increasing competitive pressure and the resulting decreases of profits. In the period analysed many wholesale facilities only appeared, and a part of them increased their market shares. Such transformations are characteristic for the young market, which is in the course of taking shape.

The retail trade was subject to the pressure of similar factors as the preceding links of the rapeseed supply chain. Additionally, large-surface shopping mall networks entered the region of Chelm and Zamosc, constituting competition for the traditional small and medium sized shops. Consequently, a part of retailers, seeking optimum solutions on a strongly competitive market, decided to take up cooperation with the wholesale facilities on the basis of franchise. It is in this manner that on the territory of the region of Chelm and Zamosc – and the entire south-eastern Poland – the Emperia Group is functioning, encompassing the wholesale company “Eldorado” and the “Groszek” retail shops. The third element of this group is the network of retail shops “Stokrotka”, remaining under the direct management of the corporate board.

During the last 14 years the incomes of consumers in the region of Chelm and Zamosc increased by more than 40%, while there has been a slight decrease of the number of households, both in the region and outside of it. Consequently, the volume of the rapeseed oil sold increased. This development was also possible owing to the changes taking place in the nutritional structure, associated with the decrease of consumption of animal fats to the advantage of fats of plant origin.

Effects of past shifts

Important changes took place in Polish agriculture at the turn of the 21st century. The decrease of the number of births and the outflow of population from farming brought about a decrease of the average number of persons working on a farm. The share of persons of more than 55 years of age among farmers increased, which is not a good signal, as it indicates the ageing of this occupational group. The physical area of a farm increased, but a decrease of revenue per hectare occurred. Agriculture of the region of Chelm and Zamosc has been and still is undergoing structural transformations. The past 14 years were for the farmers of the region here considered a period of drastic increases of prices of all the production means. The highest were the mineral fertiliser price rises, which brought about a decrease in the intensity of fertiliser use. When seen from the perspective of effectiveness, this is a disadvantageous phenomenon, but due to this, ecological farming has important chances of becoming more common than until now as the manner of conducting crop production in the region. After the dramatic drop in the levels of

fertiliser, herbicide and pesticide use, since the middle of the 1990s a slow growth of their use in the farms has been observed.

Oil producing plants underwent in the 1990s and at the beginning of the 21st century a restructuring of employment, the resulting reduction of the number of persons employed reaching close to 50%. At the same time there has been a continuous increase of the prices of rapeseed – the raw material for the production of oil. Attempts were made to lower the costs mainly through rationalisation of work, primarily mechanisation and improvement of work organisation. This process absorbed a significant part of the current profits of the company. One of the elements of the restructuring of the enterprise consisted in the reduction of emissions of pollution to the air and water, which made it possible to avoid the increase of the negative impact of functioning of the plant on the environment. Owing to the undertakings aiming at the broadening of the sales market the turnover of the company increased significantly.

The majority of the food product wholesale facilities, functioning currently in the region of Chelm and Zamosc, have been active only since the beginning of the 1990s. Owing to this, these businesses avoided the typical ailing of the state-owned enterprises, consisting in the excess employment. The growth of the wholesale companies was linked with the increase of employment, but also with the progressing automation and computerisation of work. The fleet of the delivery cars developed, while the innovations concerning the warehouse facilities brought the decline of costs associated with the storage of products.

In the retail outlets one observes a slight increase of the sales of the rapeseed oil, both the one produced in the region and outside of it. In the age structure of the employees there has been an increase of the share of young employees, with low skill levels and also low expectations as to the wage level.

The common characteristic of the entire supply chain in the period 1993-2006 was undertaking of the attempts aiming at reduction of costs through mechanisation. A weak aspect of the chain was constituted by the low degree of involvement in the support for the local initiative groups, in the cultural or social activity. This indicates clearly a relatively early phase of organisation of the supply chain, where the economic success is most important on every stage, while the remaining aspects of functioning of a firm in a local community are treated marginally.

Possible reasons for future shifts

Farmers dealing with rape growing in the region of Chelm and Zamosc expect that demand for this raw material should be increasing in the future. They expect an abrupt increment of demand generated by the producers of bio-fuels, and a somewhat smaller increase of demand from the food processing industry. They are to an extent afraid of the increased competition on the producer market, since more and more farmers see their future in the context of rape growing, which might bring a significant increase of supply and a lower than expected increase of

revenue. Farmers are aware of the fact that rape growing will have to undergo rationalisation changes, and they see the opportunities for intensification in the changes oriented at the increase of farm acreage. An alternative to rapeseed production is seen by the farmers first of all in production of cereals.

The management of the oil producing plant in Bodaczow see the chances for taking up further activities aiming at rationalisation of production through starting of new kinds of productive activity. They could secure a higher level of economic safety through broadening of the offer or through its complete shift towards production of bio-fuels or margarine.

The activity of the wholesale facilities dealing with food products shall most probably undergo further evolution. Currently, the biggest chances for their continued development are seen in the establishment of the company stores, which would be supplied by a given wholesaler with a complete assortment of goods. The probability of appearance of new wholesale facilities in the consecutive towns of the region of Chelm and Zamosc should be considered as lower, in view of the relatively high degree of saturation of the wholesale market with the facilities specialising in this kind of activity.

Retail shops do not expect any significant changes in relation to trade in rapeseed oil. The rate of growth of consumption of the oil is small enough not to expect a significant change in the sales volume, unless an essential shift in unit price occurs. There would be an increase in the sales if the prices of the competitive products were raised together with the raise in the oil price, while it could drop, if the oil price increased only. The factor motivating to undertaking of further investments is the sharpening of the competition on the market and the outflow of population to bigger urban centres and, especially during the recent years, abroad. An additional circumstance, amplifying the feeling of instability in the conduct of business, is constituted by the frequent changes in Polish law, perceived as one of the most important threats.

The analyses of the expected behaviour of consumers imply that the future increase of incomes would not bring about a counterpart increase of consumption of the rapeseed oil. Oil, namely, is a basic good and most probably the needs of consumers are already now satisfied in an adequate manner.

5.3.3 Supply chain 3 – Hop

One of the products chosen for analysis was hop. In view of the limited share of area of the farms producing hops in total area of agricultural land of the region considered this crop is treated as a unique product. In view of the character of this product direct marketing of hop does not exist, the degree of commercialization reaches 100%, while the producer chain is strongly developed. It is composed of six links: hop producer (farmer), hop processing plant, brewery, wholesale facility, retail shop and end consumer.

5.3.3.1 General description

Hop has in Poland relatively high market significance, with the production volume in the recent years placing Poland on third place in Europe and fifth in the world (Dwornikiewicz, 2006). Hop is characterized by a very intensive spatial concentration of production. More than 80% of area of farms dealing with growing of hop in Poland exist in the province of Lublin, of which, in turn, around 1/3 in the region of Chelm and Zamosc. The number of farms, in which the main, and most often the sole domain of agricultural activity is growing of hop, exceeds 300 in the region. The average farm involved disposes of a very small acreage – the average for Poland is at the mere 2 ha, while for the region of Chelm and Zamosc – 1.76 ha. Against the background of Europe this puts Poland on a far position – in Western Europe the farms dealing with growing of hop are approximately 3.5 times bigger. The fact that in eastern Poland the farms are smaller than the average for Poland is typical, since the average area of a farm in Poland is at 7.9 ha, while in the region considered – less than half of it. Only 2% of farms dealing with hop production in the region can be considered big, with surfaces between 10 and 50 ha, and only 0.2% can be considered very big, exceeding 50 ha. The average annual turnover of a farm is above EUR 7,000, which, given the economic reality of the agriculture of the eastern borderland of Poland, the poorest region of the European Union until quite recently, this value is relatively high.

The first stage of processing of hops consists in turning it into the form of granulate, hop extraction, or the so-called pressed hops. There are three plants in Poland, dealing with this activity, all of them being located in the province of Lublin. In view of the understandable, in conditions of strong competition on the market, apprehension as to making public the secret information on the state of finance of the firm, most of the hop processing plants refuse to answer the question of turnover. This problem is a constant difficulty of all analyses, and shall keep reappearing on the successive stages in the here presented producer chain.

Of the 65 breweries, existing nowadays in Poland, four are located on the territory of the province of Lublin. Two of them belong to the decidedly biggest company in the region, dealing with beer production: Perla Browary Lubelskie S.A., two other ones are small, local breweries: Browar Janow Lubelski and Browar Jagiello. Two of the four breweries mentioned are situated in the region of Chelm and Zamosc, namely brewery in Zwierzyniec, belonging since 1970 to the group Perla Browary Lubelskie S.A., belonging among the middle-sized breweries, and brewery Jagiello in Pokrowka by Chelm. Jagiello brewery produces beer mainly with traditional methods and founds its market position on the basis of customers, who are attached to a brand of just a local reach. Some of the beer types sold are not pasteurized, which constitutes one of the key elements of the marketing effort of this company. The brewery in Zwierzyniec, due to common ownership by the Perla Browary Lubelskie S.A., collaborates closely with the plant in Lublin. This collaboration is expressed, in particular, through production of the brand of essential importance for the group – Perla.

Breweries sell their produce mainly to the wholesale outlets of alcoholic beverages and the wholesale food distributors, which supply, in turn, shops, restaurants, hotels and other retailers. There are roughly 30 wholesale facilities selling beer in the region of Chelm and Zamosc. Some of them are separate businesses, but a part of them belongs to food selling networks, so that the number of companies owning these wholesale outlets is by half smaller. The biggest, by far, and the most dynamic network of wholesale facilities is constituted by the Eldorado company. Established in 1990 in Lublin as a small wholesale business in food products, quickly and systematically developed, attaining the position of a leader on the national market. Currently, the company runs 18 own wholesale outlets, situated mainly within the south-eastern Poland, and owns a dozen or so companies of wholesale distribution, functioning under their own names. Side by side with the wholesale activity, Eldorado conducts, since 1996, also retail trade, systematically developing two parallel networks of shops, currently encompassing 50 supermarkets and more than 400 shops (www.eldorado.pl). This company is beyond any doubt the most important player on the local wholesale trade market.

Retail trade in the region of Chelm and Zamosc is strongly fragmented. Similarly as elsewhere in Poland, there exists in the region a strong opposition from the self-governmental bodies against the location of large-surface commercial objects. There is a widespread conviction that they constitute too strong competition for the small businesses and that jobs, established in them, bring about a loss of a bigger number of jobs in the smaller shops. For the large-surface shopping facilities, especially those belonging to large international networks, it is common to force the suppliers to accept the disadvantageous for them payment periods for the products provided, reaching up to three months, and to use other practices, which ultimately lead to a significant lowering of costs of functioning of the supermarkets. Location of the large-surface objects becomes increasingly difficult, mainly owing to the new legal acts of the rank of Laws, facilitating blocking of decisions on location of such shops by the local self-governmental authorities. Consequently, the number of small shops, of which a significant majority are allowed to sell beer, is very high in the region of Chelm and Zamosc. This number is close to 3,000 shops.

Beer brand Perla plays an important role in total beer sales in the region. It is considered to be the leading regional brand and more than 90% of its output is meant for the market of the province of Lublin. This beer brand is little known outside of the region of Lublin, and the efforts of the company Perla Browary Lubelskie S.A. aimed at broadening the geographical reach of the sales market have not, as yet, brought tangible results. Expansion into new market would be linked with the necessity of lowering the wholesale price of the product, in order to motivate the end consumer to buy this particular brand.

5.3.3.2 Agricultural and forestry production actors

Production input

Production of hops requires relatively high skills and relatively high capital inputs. Among the most important equipment used in hop production one should mention the support construction on the plantations as well as the set of specialized machines for hop production (e.g. for cutting hop cones, pressing, etc.). The share of machines and equipment in total production cost is estimated at 30% (Dwornikiewicz, 2006). In view of the fact that this equipment cannot be used for any other production, the capital invested in the establishment of hop plantation can only be repaid from profits accruing due to hop production. This means that a decision to take up hop production binds a farmer for many years. The entire production cycle is determined by the lifecycle of the hop plantation, estimated at some 20 years. In Polish conditions family tradition is usually a significant factor, motivating a farmer to take up production of a definite character. In the case of hop production this factor should be considered as absolutely dominating. Frequently, namely, young farmers take over the farms of their parents along with the entire infrastructure, which they try to continue using, while minimizing costs.

Among other costs of functioning of a farm, dealing with hop production, one should mention electricity and thermal energy, used in the drying house (around 22% of total cost), labour cost of employed staff (19%), as well as cost of pesticides (16%). These are the necessary costs of hop production, which, however, do not constitute a factor "tying" a farmer to this kind of production, in distinction from the cost of machines and equipment (Dwornikiewicz, 2006). Price elasticity of demand is low in all the categories mentioned above.

The contribution of manpower to hop production is at 1,200 person-hours per hectare, of which one third is associated with the employed manpower, mainly in the spring period and during harvest. Assuming the average yield at the level of slightly more than 1.5 t per hectare, this is equivalent to about 0.8 person-hour per kilogram of hops, meaning very high labour intensity.

Skills of a farmer are quite significant in hop production. Only 3% of plantation owners have university education of farming specialization, 7% have secondary education, and as much as 90% have less than secondary education. Although these indicators shed a very negative light on the education of hop producers in the context of the situation in Poland in general (10.2% of population of 24 and more years of age having university education – GUS, 2003), it should be noted that the educational structure of all farmers in Poland is decidedly even less advantageous: less than 0.5% of farmers have university education. Hence, in comparison with other farmers, hop producers are relatively well educated.

The average total cost of hop production in the region of Chelm and Zamosc is at 16,500 PLN per hectare (depending upon the exchange rate this is equivalent to EUR 4,000-4,500).

Production output

Annual hop production in the province of Lublin is close to 84% of the national total. Approximately one third of this production takes place in the region of Chelm and Zamosc, which means that the average annual production in the region is at 487 t of hops. For a couple of years already production of hops is subject to non-market regulation. There is an obligatory regionalization of cultivation and only selected counties can deal with hop production.

The prices of imported hops are, as a rule, somewhat higher than the domestic prices, which secures saleability of production coming from Polish producers. Oscillations of prices on the world markets exert, though, also a definite influence on the purchase prices in Poland. Significant oscillations of the purchase prices of hops cause that in some years the direct costs of production exceed revenues. The last such case occurred in 2005, where net loss amounted on the average to 2,200 PLN per hectare, i.e. roughly EUR 550 per hectare (Dwornikiewicz 2006). Only those farms, whose yields exceeded significantly the national average, turned out to be profitable. In practice, however, many hop producers, when conducting their own calculations of revenues and costs, neglect the costs of amortization of equipment, very often outdated and long ago repaid, which allows them, even in the years, when the purchase prices of the raw material are low, to earn a financial surplus that is in a way satisfactory for them.

Hop producers are mainly cultivating the aromatic varieties, which account for approximately 80% in the crop structure. The largest areas are occupied by the Lublin variety (86% in the group of aromatic varieties), other cultivated varieties from this group including Lomik, Tomyski and Estera. The changes in the preferences of the end consumers cause, though, that breweries order increasingly often the bitterish varieties, and so farmers switch over towards their production. Among the bitterish varieties the ones cultivated are Marynka, Izabella and Northern (Poslednik, 2000).

External effects

The influence of hop production on the state of natural environment can be referred to as limited. The most important factor exerting a negative impact is constituted, doubtless, by the commonly used pesticides, although modern cultivation technologies decrease their use and their environmental impact. Among the positive features one can mention only the unique landscape of hop fields, existing in the province of Lublin, and just locally in other parts of Poland, in the regions of Wielkopolska, Lower Silesia and Opole.

The number of farms cultivating hop is estimated at around 1,100 for the entire country. This number decreases over time – in the middle of the 1990s it was equal around 1,600 – so that, consequently, there is a slow, but steady increase of an average size of hop plantations. There are now slightly more than 300 such farms in the region of Chelm and Zamosc. During the season of spring field work and during harvest time the number of employed farmhands reaches 1,200, which, on

the scale of the region, and given the short-lived nature of this employment, is a small number.

Attention should be paid to the fact that all the respondents, including farmers, indicated a much lower, in their case, share of foreign employees among their farmhands, than the average in the region. At the same time, though, it is widely known that two fundamental types of jobs taken up by the workers coming from behind the eastern border are on agricultural plantations and in construction companies. The problem consists in the fact that they work illegally, and so information on this subject is strictly concealed.

Two local action groups function on the territory of Chelm and Zamosc. These are the Association G6 of Sokal Ridge and the Hrubieszow-Mircze Association "Better Tomorrow". Their objectives include, first of all, the sustainable and steady development of rural areas, improvement of life quality of the inhabitants, as well as development and promotion of farming. Their significance for the here considered producer chain is marginal, similarly as their general role in the development of the region, which finds its reflection, in particular, in the financial means of these associations – they do dispose altogether of slightly more than EUR 210,000 (<http://ec.europa.eu>).

External factors

Cultivation of hop is carried out on the best quality soils, mainly of the two topmost quality classes. The biggest threat for the production of hop is constituted by the recurring periods of drought, which is especially acute in the summer period. Other threats, such as floods, hailstorms, erosion or forest fires, are of secondary importance in production of hops.

Among the external sources of finance for agricultural activity the most important are area-related subsidies. In view of the character of the end product from the processing of hops (beer), subsidies of other kinds do not exist or are of marginal significance.

Legal acts of national and EU rank do not exert a significant influence on hop production. A part of farmers pay attention to the limitations on application of pesticides and herbicides as well as fertilizers, but, at the same time, they point out to the relatively liberal prerequisites with this respect, and the associated high limits, which do not constitute, for them, any kind of a barrier to production.

As mentioned already, family traditions and habits exert dominating influence on agricultural production. This concerns both the choice of the product (hop), and the technology of production. Most often, a farm is taken over by the young generation and is conducted in a traditional, well-proven manner. This sort of habit, on the one hand, allows for the diminishing of the negative influence of lack of higher agricultural education among farmers, but, on the other hand, makes introduction of innovations into production much more difficult.

Diversification

A distinct majority of farmers – some 80% of them – dispose of additional sources of income, side by side with hop cultivation. Given the low level of profitability of farming production, such a solution is a necessity. Most farmers from this group deal with production of other crops, first of all maize (50%), less frequently sugar beets (20%) or herbs (9%). A small proportion of them (1%) conduct an agri-tourist farm. The remaining 20% of farmers, in order to lower costs and increase financial safety, cooperate with other farmers, this cooperation taking the form of the commercial code or other kinds of companies. In addition, 64% of all farmers dealing with hop production take up other remunerated jobs. Most often this is work in the farming sector, with other producers, much less frequently – work in industry or in service.

The fact of undertaking additional employment for other employers is an indirect evidence for the existence of the surpluses of production capacities on the farms, but also of the instability of incomes accruing from the basic domain of activity, that is – cultivation of hop. It appears that due to high investment costs, associated with cultivation of hop, one should not expect a significant proportion of farmers to be willing to change their profile of agricultural production. Additional jobs will continue to be taken as long as income from hop production shall not secure financial safety for the farmer and his family.

5.3.3.3 Intermediary production actors

Initial processing

Production input

All the companies, dealing with hop processing, which are located in Poland, have their seats in the province of Lublin. The biggest of them is Chmiel Polski (“Polish Hop”) whose share in the market of hop granulate is estimated at 75%. The remaining companies are Polchmiel and Powisle. The two first of these three companies are located in Lublin, while the third one – in Kepa Chotecka, on the eastern bank of Vistula river. Thus, there are no companies located within the territory of the region of Chelm and Zamosc, engaged in processing of hops, while production of hop is high. It is worth noting that the basis for the functioning of the company Chmiel Polski is the storage facility, located in the locality of Suchodoly, in the central part of the province, at the border of two regions: that of Chelm and Zamosc and of Lublin.

Purchase of raw material is the essential position in the structure of costs of hop processing. It accounts, as a rule, for more than $\frac{3}{4}$ of the total production cost. This brings about high elasticity of demand for hop, and, given that there are no substitute products, causes an increase in the end price of the processing products and facilitates the expansion of foreign businesses into the Polish brewing market.

Production output

The processing plants turn out the older type of granulate, the so-called "90", the newer one, "45", as well as pressed hops. Pressed hops and extract "90" find less and less application in brewing, estimated nowadays at 15% of total input, and so their production goes down. Hop extracts and granulate "45" allow for the production of beer with better taste parameters (Poslednik, 2000).

Employment in hop processing plants is of highly seasonal character. Workers with low level of skills are being employed for the national minimum wage for the period of maximum nine weeks.

The sole purchasers of products from hop processing plants are, in practice, breweries, only 1% is purchased by the companies producing cosmetics and herb products. In distinction from the raw hop, sold almost exclusively to local customers, hop extract and granulate are sold over the whole world. This implies the possibility of expansion into foreign markets, but also a higher level of competition on the national market. Despite this, companies processing hop are constantly above the net profitability threshold.

External effects

In the structure of employment of the hop processing plants the share of young employees, in the age of up to 25 years, is perceptibly higher than the average in the region. Let us note at this point that Polish regulations allow for the full time employment of a person of at least 18 years of age, while a person of at least 16 years of age may be employed part-time. That is why, at this point, comparison with countries, where regulations concerning the minimum employment age, are different, would not be fully reliable.

External factors

Conduct of business by a company processing hops is made difficult by a number of barriers of legal character. In the opinion of managers in these companies the most important barrier is constituted by the Labour Code, which, in Polish realities, is a quite typical response. High level of protection for the employees, relatively high power of the trade unions in constraining the activity of the company board, or difficulties associated with firing an employee – these are the most frequently mentioned causes for such an assessment of this piece of legislation. Other legal acts of high significance for a company are HACCP (Hazard Analysis and Critical Control Points) and Law on competition and protection of consumers.

Brewery

Production input

There are two breweries in the region of Chelm and Zamosc – a small, local Brewery Jagiello in Pokrowka by Chelm, and the Brewery in Zwierzyniec. The first of these is a self-standing company, while the second is a part of the biggest brewing group in the province of Lublin, Perla – Browary Lubelskie S.A. This company is considered medium-sized on the scale of Poland.

The most important component of cost of producing beer is constituted by the materials for production: malt and hops. Joint cost of purchasing these two materials for production accounts for approximately 50% of total cost of producing beer. Among the remaining items the highest share is taken by the sales cost, understood as the sum of cost of marketing activities, sales support budgets and the costs of expansion outside of the traditional sales markets of the beer from the two breweries mentioned.

All the brands of beer produced in the region of Chelm and Zamosc, as well as in the entire province of Lublin, are considered local. The attempts of winning other markets are associated with the necessity of bearing high financial expenditures. An additional burden is the necessity of lowering the sales prices in order for the new product to find a place on an alien market. Consequently, paradoxically, local brands attain the highest sales prices within their own region.

The attachment of a consumer to a brand is strong, that is why changes of costs of various components of production, entailing changes in prices of end products, are not perceived as a threat to the sales volume. Ultimately, demand for production components might be referred to as inelastic.

Labour costs are relatively low. Employment in the breweries of the region increased significantly over the last years, and the majority of the newly employed took up jobs in the sales departments. In the first half of the 1990s, competition on the market was so low that the sales departments employed the smallest numbers of persons, while nowadays – the highest.

Production output

The volume of beer production in the region increases slowly, but systematically. This is linked with growing demand for beer, but also with the marketing activities of the company Perla Browary Lubelskie S.A., which, over the recent period, took over the majority of local breweries, like, for instance, the brewery in Zwierzyniec – in 1970. Three other breweries, taken over by Perla, were closed down, and their production transferred to Zwierzyniec or to Lublin. Owing to such manipulations, production of the brewery in Lublin increased over the last 15 years by roughly 240%. In the periods of increased demand for the Perla beer on the market, production is commissioned to brewery in Zwierzyniec, or even to outside plants.

The Perla beer is somewhat cheaper than other brands, present on the market, which gives it an additional competitive edge. More than 2/3 of production volume goes to wholesale facilities, and a bit more than 30% to retailers. The theoretical spatial reach of the market is enormous, since Perla is sold, in particular, in the United States. Yet, more than 90% of production is sold on the local market and it is this market that is decisive for the success of the company.

Perla beer distinguishes itself from the other brands, present on the market, by the fact that brewing ends with the product having alcohol content of the product ultimately sold to consumers, while it is very frequent in other breweries to dilute the beer produced with water in order to obtain the parameters desired. Hops used in beer production are purchased first of all on the local market.

External effects

The influence exerted by the activity of breweries on natural environment is not significant. The most important negative effect is environmental pollution caused by cars transporting beer, and also by the sales department, employing high number of sales agents.

Young and middle-aged persons dominate among the employees. The share of women is somewhat lower than on the average in the region.

The brewery gets involved in the social and cultural activity in the region. The company tries to promote its image through involvement in various projects of social, environmental and cultural character, such as concerts, festivals, etc.

External factors

It is considered that the most important of the legal acts, exerting influence on the activity of the company, is HACCP (Hazard Analysis and Critical Control Points). Of the other ones, the respondents mention regulations referring directly to production of alcoholic beverages, as well as regulations concerning VAT and excise taxes. The latter cause the increase of beer price by almost factor of three, to the level, at which competition for beer starts to be constituted by the cheap wine, made out of fruits. A typical consumer of this wine in Poland is among the poorest ones, frequently abusing alcohol. Another legal act, affecting all the entrepreneurs in Poland, is the already commented upon, inflexible Polish Labour Code.

Wholesaler

Production input

The basic cost in the functioning of the wholesale facility in the context of beer is associated with purchase of beer, accounting for 80% of total cost. Of the remaining 20% one should distinguish labour cost, warehouse maintenance cost and sales cost, the other cost items being of marginal significance. The employees

of the wholesale facility responded that demand for beer is stiff and they would not expect a drop of beer sales even in the case of a price increase.

The expected skills of manpower can be estimated as medium. The fundamental of the required skills is the use of sales software and realization of orders placed through the internet. Since the end of the 1990s more and more wholesale facilities have been introducing the possibility of placing orders through the internet. The first one to introduce this possibility was the Eldorado network, the biggest one in the region and one of the biggest in Poland. They developed, as well, a fully computerized sales system based on product code management, which accelerated fulfilment of orders and attracted to the network an even bigger number of customers.

Production output

The commercial position of a wholesale facility depends, first of all, upon its customers. Breweries, supplying beer to the local market, quote, in principle, a constant sales price for the wholesale customers, and so these customers can compete for their customers, in turn, with the sales margin and the service quality. The biggest network of food product wholesale outlets in the region of Chelm and Zamosc, namely Eldorado, offers beer from local breweries. This company, though, competes not by quoting low prices, but by its speed of service, facility of contact and of placing an order. They can afford to sell less beer, as their assortment contains more than 3,000 products. The situation of the wholesale outlets dealing with alcohol, for which beer is the basic good, is entirely different. Low price – in comparison with the competitors – is the necessary condition for these businesses to stay on the market, where competition is acute. Another way of maintaining a good position on the market is to organize sales in collaboration with the retailers. This solution takes the form of a system of rebates for the products purchased, suggested retail prices, as well as free products, supplied to the retail shops as a kind of compensation for good collaboration.

Beers, originating from outside of the region are, as a rule, somewhat more expensive than the local ones. An important part of them, though, do not constitute a competition for Perla beer, since they are perceived as luxury beers and the actual price differential plays no role.

The spatial reach of the sales markets for the particular wholesale companies varies within the range of a dozen to several dozen kilometres. In all cases, though, given the saturation of the market with wholesale facilities dealing with food products and alcoholic beverages, this reach is local.

External effects

The activity of the wholesale facilities of food products and alcoholic beverages, located usually in the peripheral, industrial quarters of towns, is not linked with excessive burden on the natural environment. The most important impact, beyond

doubt, comes from car transport, used to supply products to the customers. An additional negative factor is constituted by the packaging used when supplying beer to the wholesale facilities, and which remains on their sites – plastic foil and pallets.

External factors

Among the legal acts, which regulate wholesale beer market, none is perceived as a serious impediment to the conduct of this activity. Regulations concerning employment and social care are considered to constitute a more important difficulty to this activity (even though it is still not too hurting) than the tax regulations mentioned before. Perhaps the difference in the interpretation of significance of the tax regulations between the brewery and the wholesaler results from the fact that beer constitutes the sole object of activity for the brewery, and the competitive products (cheap wines) gain thereby in importance, while for a wholesaler beer is just one of many products on sale.

Retailer

Production input

There are 2,947 food shops in the region of Chelm and Zamosc. Most of them are allowed to sell low-alcoholic-content beverages, including beer. An average such grocery is a small shop, employing 2.2 persons. This average is the resultant of the small number of large-surface facilities and a high number of very small shops, one-person businesses. In the shops, located in the rural areas, the shop-keeper is often helped by the family members, this fact not being registered anywhere.

The cost of purchase of beer attains 76% of respective total cost. Among the remaining costs, which cannot be properly quantified, the most important ones are the costs of manpower, energy and the sales costs.

Demand for Perla beer has low elasticity, this demand depending upon price to a relatively low degree. Price elasticity of demand for the remaining basic components of cost of selling beer is even lower. The changes in energy costs and in manpower costs (labour in the groceries being very poorly paid) affect, namely, in a similar degree all those, who conduct this type of business. Wages in the retail trade in the region amount, on the average, to only 68% of the wages paid on the wholesale stage of beer trade.

Production output

Only end consumers purchase beer from the retail shops. Prices of beer differ significantly, depending upon the location and the character of the shop. The lowest prices are quoted in the large surface facilities, higher ones in the smaller urban housing estate shops and in the ones situated in rural areas, and the highest – in the round-the-clock shops located in downtown areas.

The spatial range of sales depends upon the magnitude of the facility. The customers of the small housing estate shops have to cover the distance of several hundred metres between their place of residence and the shop, while in the case of supermarkets this distance increases to a couple, or even 10 km. There are, as well, cases of persons doing their shopping in supermarkets, having come from more distant rural areas. Yet, the spatial range of the retail shops should be treated altogether as local.

External effects

The estimate of the number of employees of the groceries – including those that are not allowed to sell beer – is 6,450. The share of this group in total employment in the region could, therefore, be considered as medium. There are decidedly more women employed in retail trade than on the average in the region. The share of young employees is, likewise, higher than the respective average. There are sporadic cases of employing persons originating from abroad.

External factors

The biggest influence on the business situation of the retail shops is being ascribed the regulations obliging the shopkeepers to acquire the licenses for selling alcohol. Such licenses constitute a significant item in the budget of many shops, especially the small ones. An additional impediment is the necessity of renewing the licenses already acquired. In order to be granted such a license the shop cannot be situated within the direct neighbourhood of a facility or an area, indicated by the Law on education for sobriety and fighting the alcoholism (this law lists more than 20 categories of such objects).

Among other regulations, indicated by the respondents, one should mention the Labour Code, pointed out already several times, as well as the regulations concerning food safety. In addition, high degree of complexity of the regulations concerning accounting, force the shop managers, even in the case of one-person shops, to commission bookkeeping to outside companies, which increases the costs of shop management.

5.3.3.4 End consumption actors

Demand

The data, concerning the number of consumers regularly buying Perla beer are not available, and so we can deduce the magnitude of the market on the basis of the number of households in the region of Chelm and Zamosc (close to 220,000). The number of potential consumers of Perla beer outside of the region, even though several times higher, is of lesser importance for the sales. Similarly, tourists visiting the region, although constituting a potentially significant group of consumers (more than 300,000), are not the target group for the production of the local breweries.

Beer consumption in Poland, and also in the region of Chelm and Zamosc, has been systematically increasing. In the 1980s total consumption oscillated around 11 mio hl, while in 1998 it exceeded 20 mio hl (20,800,000). Demand for beer increases along with social transformations and changes in the habits of the population. Consumption of hard liquors dropped in the years 1995-2001 by 52.8%, and in the same period consumption of beer increased by 69% (2003). Yet, despite this, consumption of beer per capita is still several times lower than, for instance, in Czechia, Germany or Ireland. It is common to assign the responsibility for such a state of affairs to the fiscal policy of the state. Beer is charged with the excise tax and VAT, these two accounting altogether for almost 2/3 of the retail price of beer (Poslednik, 2000). In the same period there has been a perceptible lowering of the tax burden on hard liquor, meant to stem illegal traffic of these alcoholic products across the eastern border.

As mentioned several times over, price elasticity of demand for Perla beer is very low due to the strength of attachment of customers to this local brand. It is supposed that the income elasticity of demand for this beer is higher, as in the situation of increased incomes a part of consumers might start buying beer rather than the cheap fruit wines, which, in terms of alcohol content, are currently the cheapest source of alcohol available on the market.

External factors

The fundamental factor, motivating to the purchase of Perla beer is attachment to the local brand. Perla Browary Lubelskie S.A. has been conducting since the 1990s an increasingly visible advertising campaign of their product, aimed at creating positive associations with this brand of beer. This campaign takes on a variety of forms, from the sponsorship of cultural or sports events, through aggressive advertising on the billboards, up to the novel ideas consisting, for instance, in the prints on the sidewalks.

5.3.3.5 Dynamics of the supply chain

Reasons for major shifts in the past

The volume of production of hops during the period analysed, i.e., 1993-2006 increased by 39% in the region of Chelm and Zamosc. The most important reason for this development was introduction into cultivation of the new, more effective varieties of hop, and to some extent the cooperation between hop producers, consisting in the establishment of producer groups. Among other causes one should indicate increasing competition on the market, which forced increase of yields, as well as increasing production costs (especially material costs). Another significant variable was slow, but systematic outflow of population from the agricultural sector, which allowed for the increase of the average plantation area by some 15% over the period considered. Total costs of hop production increased by around 40%, which was mainly due to the increase of labour costs, followed by the costs of fertilizers, pesticides and energy.

Hop processing plants have undertaken in the recent years numerous investment projects in order to face the competition from other countries, the competitors often purchasing Polish hops and then selling in Poland the extract or the granulate of "45" type. This forced Polish hop processing plants to invest in new production lines and new production technologies. Nowadays, the quality of their products does not differ from, for instance, the German production. Increasing labour costs were yet another cause for undertaking investments into further automation and mechanization of production.

Breweries have also undertaken in the recent years numerous investment projects, mainly into new production lines, computer control of production process, and development – almost from scratch – of the sales departments, this being responsible for the increase of the number of employees in the breweries by as much as 1,400%. It is important, as well, that the brewing branch has been consolidating. Both on the national scale and in the region considered the number of breweries has been decreasing, the existing breweries joining their capital, or being taken over by the stronger ones. The sales of the breweries increased by 230%. Costs of virtually all the components increased, as well. The most pronounced was the increase of prices of raw materials for production: hops and barley malt. Against the background of changes, taking place in numerous categories, it is an important piece of information that changes were not introduced into the system of beer production, consisting in brewing beer of the alcohol and extract content equal to those in the final product, without diluting it with water for purposes of achieving the desired parameter values, which is a frequent practice in other breweries.

The turnover of the wholesale facilities has been increasing during the recent years, similarly as those of all the other links in the chain. The wholesalers owed this development to a large extent to having taken over the market from the collapsing state-owned giants, in which introduction of changes, meant to adapt them to functioning in conditions of market economy, lasted much longer. Competition among wholesale facilities forced investments improving quality and speed of customer service, investments into computer-based sale systems and numerical coding of all articles. Some wholesalers broadened the scope of their activity by forming the retail shop networks under their patronage. The primary motive force for the introduction of changes was increasing competition on the market.

The sales of the retail shops, selling beer, increased in the analysed period, as well. For fear of the decrease of revenues and the sharpening competition, the rationalization oriented undertakings were implemented, like full computerization of the sales. The overall increase of the costs of functioning was mainly due to the changes in the costs of energy, machines and equipment, and labour force.

Effects of past shifts

As a consequence of changes in production costs of hops, costs of sale to the subsequent link of the chain increased, as well, by roughly 50%. On the basis of the comparison of the rates of increase of costs and prices it can be concluded that the level of incomes increased, too (with the reservation presented in the sub-chapter on Agricultural and forestry production actors in the section on Production output). The communities inhabiting the rural areas, and, in particular, those of peripheral location, are quickly ageing, which is expressed, for instance, through the increase of the average age of the persons employed. One should mention among the significant factors shaping the socio-economic situation of the analysed rural areas the system of agricultural subsidies. Along with the accession of Poland to the European Union this factor changed the situation quite significantly by raising the income levels of farmers.

Investments undertaken by the hop processing plants resulted in a dramatic increase of their sales (by 545%), while their employment numbers decreased by close to 35% and demand for skilled manpower distinctly increased. There has also been a pronounced increase of the share of women in the employment structure. The increase of the turnover is partly the effect of the rise in raw material prices, amounting to as much as 80%. Unit profit in sales increased by 5%.

The sales prices of beer in the breweries increased in the period analysed by 45%. Sharpening competition on the market forced undertaking of additional marketing efforts, including collaboration with the wholesalers and retailers in the domain of establishing the suggested sales prices for the particular stages of production, as well as increase of involvement of breweries in the sponsorship of cultural activities. Considering the consequences of the undertakings realized one should mention a significant decrease of environmental pollution, first of all of waters.

Employment in the wholesale facilities has been increasing, because, despite the computerization of the sales process, additional main d'oeuvre turned out to be necessary. Sales value has also been on the increase. In view of the limited pressure on environmental protection there has also been an increase of the volume of waste produced, more or less proportional to the increase of sales.

A distinct increase of beer sales is observed in the retail outlets, both of the beer produced in the region and coming from the breweries outside of the region. The share of young employees is increasingly significant in the age structure of the employed.

Possible reasons for future shifts

There is a conviction among the hop producers that this production will continue to grow, which ought to contribute to the improvement of their economic situation. They also expect an increase in the unit profit on sale. This conviction may result from the awareness of the constant growth of demand for beer on the Polish market. Plantation owners expect, as well, further outflow of population from

farming and the increase of plantation acreages, which could also contribute to the increase of their incomes. They are unwilling to speak of the alternatives to hop cultivation, indicating most often as plausible alternatives intensive growing of legumes or of maize. They do not intend, rather, to give up farming, and treat the agri-tourist activity, increasingly popular in rural areas, exclusively as a complement to their activity to date. A change in the production profile could be forced upon them first of all by the increasing costs of materials and labour force.

Companies dealing with hop processing also expect further increase of the sales prices of their products and the increase of profits. They intend to continue undertaking investments into the newest production technologies, as well as into new cooling storage facilities, allowing for a more flexible reaction to the market situation. When asked about the factors motivating them to undertake such investment projects they mention the decrease of revenues and the increasing costs of materials and labour.

Breweries expect, too, a continued increase of sales volume, but their primary hopes are associated with the external sales markets. The regional market, in their opinion, is saturated, and they only aim at maintaining their position on this market. Further investment into production lines is planned, but also – establishment of an own network of wholesale distribution of beer. The respective respondents point out to the sharpening competition as the main driver of the changes planned.

Wholesalers expect an increase of the unit profit and of the turnover. In order to be able to face the competition and market demand they plan to continue expanding the network of wholesale facilities, so as to reach a bigger number of customers. They also plan developing a network of retail trade, where they expect to gain higher unit profits from their activity.

Similarly, the groceries dealing with retail selling of beer, expect further growth of turnover, but mainly through the increase of prices rather than through the increase of the sales volume measured in physical units. The primary driver for the potential future changes for the respondents is the threat from the competitors, but also the increasingly perceptible shortage of manpower. The latter is caused by the outflow of population both towards larger urban centres and abroad. Shopkeepers, especially owners of small groceries, are very much afraid of the legal changes, and the instability of Polish law is considered by them as a significant impediment to the conduct of business.

Demand for the regional beer in the region of Chelm and Zamosc shall most probably not increase significantly any more. It can be assumed that this market is saturated already with the product. The forecasted increase of the number of households in the region shall most probably be linked with the decrease of the average number of persons per household. The effect, therefore, will not be a perceptible increase of beer consumption in the region. One should expect, on the other hand, growing sales of the local beer outside of the region of its origin.

5.4 Investigating social networks

Inhabitants of the countryside display a much less intensive social activity than urban population. This observation is confirmed by the involvement of the rural population in the NGO activity. There were in 2000 in Poland close to 50,000 associations and foundations referred to as non-governmental organisations. Only some 20% of them functioned in the urban-rural municipalities, 16% in the rural municipalities, and the rest in towns. In the years 1995-2000 the number of non-governmental organisations per 10,000 inhabitants increased in rural areas from 1.2 (1995) to 9.1 (2000), see Kolodziejczyk (2003). The rate of growth was much higher than in towns (from 7.3 to 16.6, respectively), but this was the direct effect of the very low initial value.

The region considered is characterised by a significant social activity, when seen against the average Polish background, despite a very low index of urbanisation. There are, in the region, 21.3 social associations and organisations per 10,000 inhabitants, while the average for Poland is 18.6. Only the county of Chelm diverges in a negative manner from this overall positive characterisation, with the value of 14.4.

Somewhat higher value of the indicator is observed for the two biggest towns of the region, Chelm and Zamosc (24.4). Yet, these two towns are distinctly different with this respect. In Chelm, there are only 19.9 social associations and organisations per 10,000 inhabitants, while in Zamosc – 28.9.

The number of the social organisations and associations in the region is still increasing, but in the recent period not too fast. During 2005 just six new such bodies were established in the region (increase by 4.29%), while in the same year in the whole of Poland as many as 4,563 such units were established (increase by 6.42%). More important growth was noted in the two biggest towns of the region – by altogether 6.38% (by 4.14% in Zamosc and by 9.56% in Chelm). There is a notably low increase of the number of social organisations and associations in the eastern part of the region (by just 1.5% in the county of Tomaszow Lubelski and by 1.51% in the county of Hrubieszow).

A very important influence on the condition of agriculture in any region is exerted by the institutions established either by the agricultural producers themselves, or by other entities, these institutions meant to help producers on matters of promotion and sale of their products.

On the territory of the region there exists quite an extensive network of the branch associations of farmers (first of all producers of sugar beets and legumes and of bee-keepers), which help the farmers on a very broad range of matters. Thus, for instance, the Association of the Bee-Keepers of Roztocze, side by side with the matters connected with solving the problems of the bee-keepers owning small private apiaries, runs a production plant employing 30 persons. This plant deals

with production and distribution of honey over the country, and also with the export of honey abroad.

The most important organisations of agricultural producers in the region are the Lublin Chamber of Agriculture, the Regional Chamber of Commerce in Lublin, Association of Tobacco Producers "Krasnystaw Tobacco Group", Roztocze Association of Hop Producers, Association of Tobacco Producers "POL-TABAK" in Bilgoraj, Association of Hog Producers "Roztocze", and Association of Grain Producers "AGRO".

Main regional organizations:

- Lubelska Izba Rolnicza
[Lublin Chamber of Agriculture]
- Krajowa Izba Gospodarcza
[The Polish Chamber of Commerce]
- Regionalna Izba Gospodarcza w Lublinie
[The Regional Chamber of Commerce in Lublin]
- Zrzeszenie Producentów Tytoniu "Krasnostawska Grupa Tytoniowa"
[Association of Tobacco Producers "Krasnystaw Tobacco Group"]
- Roztoczanskie Zrzeszenie Producentów Chmielu
[Roztocze Association of Hop Producers]
- Zrzeszenia Producentów Tytoniu "POL-TABAK" w Bilgoraju
[Association of Tobacco Producers "POL-TABAK" in Bilgoraj]
- Zrzeszenie Producentów Trzody Chlewnej "Roztocze"
[Association of Hog Producers "Roztocze"]
- Zrzeszenie Producentów Zboż "AGRO"
[Association of Grain Producers "AGRO"]

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6 SPAIN: MURCIA

6.1 Describing the region

6.1.1 European and national context of the region

The Autonomous Community of the Region of Murcia is one of Spain's seventeen autonomous communities, located in the southeast of the country, between Andalucía and Valencian Community, on the Mediterranean coast.

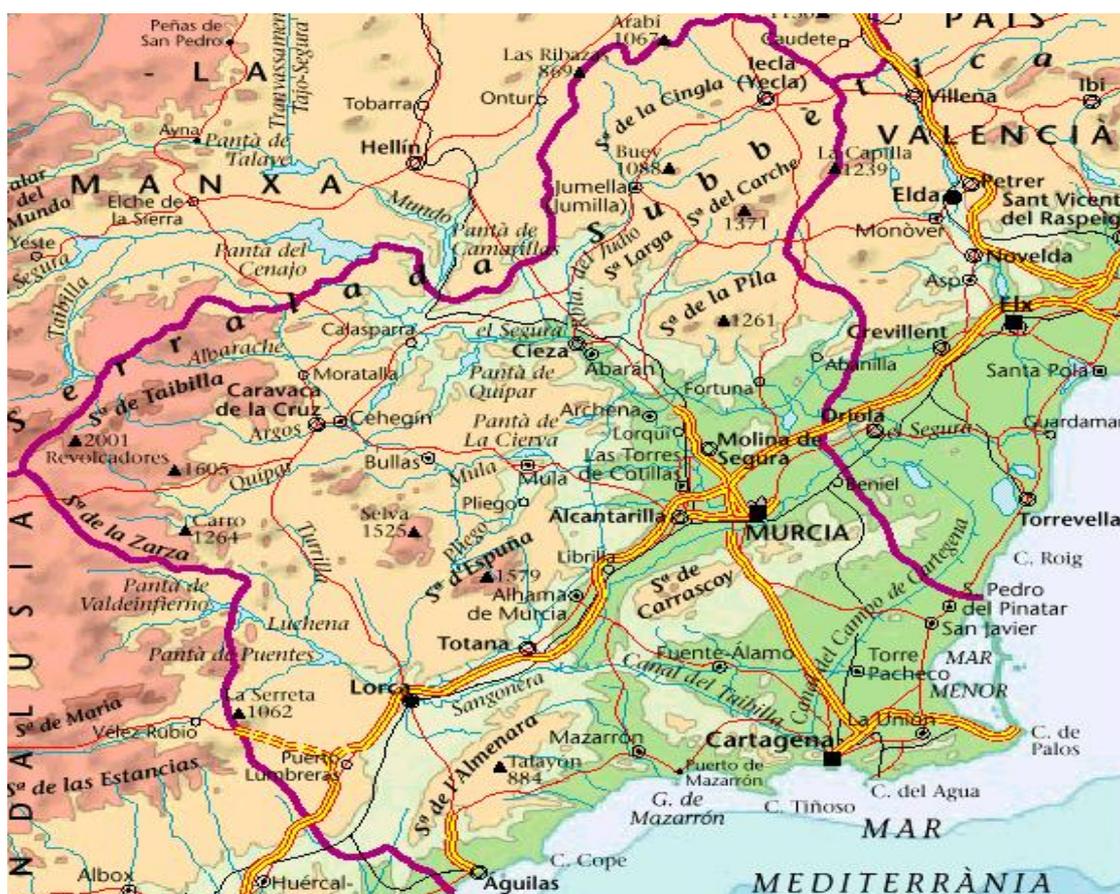
Map 53 Spain's Autonomous Communities



The autonomous community consists of a single province (region), unlike most autonomous communities, which have several provinces, within the same region. Because of this, the autonomous community and the region are operated as one unit of government. The city of Murcia is the capital of the community.

The Region of Murcia is bordered by Andalucía (provinces of Almería and Granada); Castilla-La Mancha (the province of Albacete); Valencian Community (province of Alicante); and the Mediterranean Sea. The community measures 11,313 km².

Map 54 Murcia's geographic map



In 2006 the region had a population of 1,370,306 inhabitants (121 inhab./km²) of which almost a third (30.4%) live in the municipality of Murcia (416,996 inhab.). Other towns include Cartagena (208,609 inhab.), Lorca (89,936 inhab.) and Molina de Segura (57,431 inhab.).

Until 2007 Murcia had been an "objective 1" region for the EU Cohesion policy. In the current programming period (2007-2013) Murcia has been classed as a "Statistical phasing-out" region.

The Región de Murcia is an autonomous region (Comunidades Autónomas). In Spain, Autonomous Communities (Comunidades Autónomas) are similar to the federal states in most federal nations. They have great autonomy in matters that concern them including own executive (Gouvernement Council) and legislative powers (Regional Assembly), so they can enact their own laws and design policies reflecting the will of their inhabitants.

Map 55 Murcia's detailed map

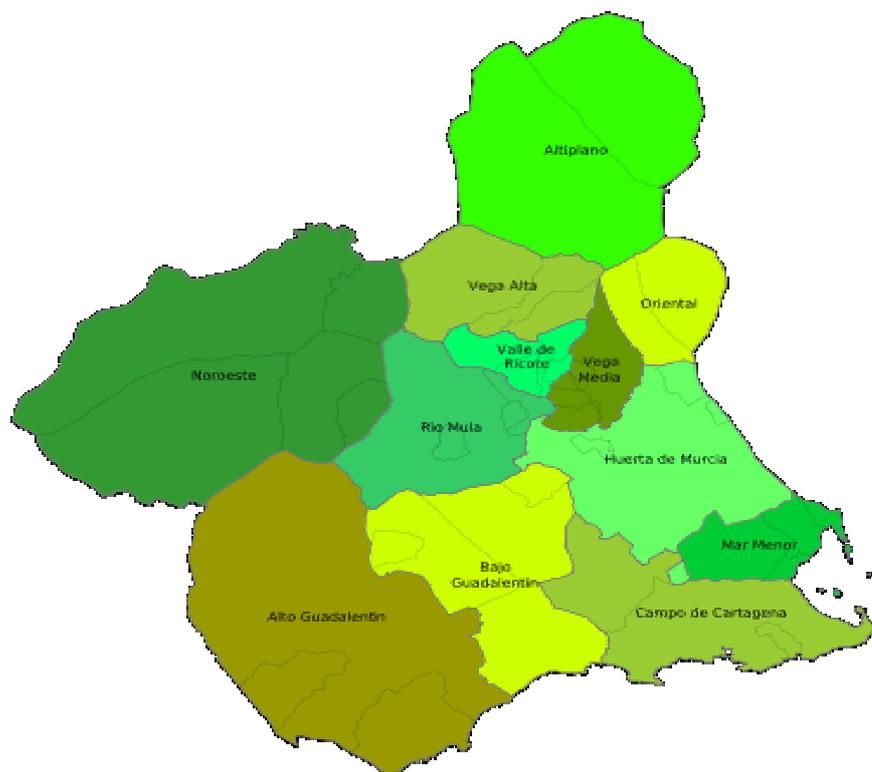


The Regional Assembly is constituted by regional deputies who are elected by means of free, even, direct and secret universal suffrage every four years. The election system is proportional. The president of the community is one of its members. Duties include the approval of budgets as well as the promotion, orientation and control of the Council and President. The President is the highest representative person of the Region of Murcia.

The Government Council comprises ten regional ministries, who are politically responsible to the Regional Assembly. It manages regional politics, the governing and administration of the Region and the exercising of legal authority for matters which are not exclusive, according to the Statute, to the normative competence of the Regional Assembly.

Murcia has a total of 45 municipalities and 12 counties. Counties do not have a legal body, the government uses them for managing public services. The counties are also utilized as a territorial unit within the agrarian Administration network.

Map 56 Murcia's county map



Murcia has 12 counties:

- Noroeste
- Altiplano
- Oriental
- Río Mula
- Vega Alta del Segura
- Vega Media del Segura
- Huerta de Murcia
- Valle de Ricote
- Mar Menor
- Campo de Cartagena
- Alto Guadalentín
- Bajo Guadalentín

Map 57 Murcia's municipality map



6.1.2 Environment

6.1.2.1 Spatial structures

Statistical profile

The total surface of Murcia is 11,313 km² (2.2% of the Spanish surface). Following the information of the INE, 53% are arable land, 1.5% meadows and pastures, 24.4% are forest and semi-natural areas and 21% are other surfaces. Following the Corine landcover the distribution is 1.4% artificial surface, 27.7% arable land, 10.9% permanent crops, 0% of pastures, 27.5% of heterogenous agricultural land and 10.4% of forest. Comparing this distribution to the one characterising Spain as a whole, we see a relatively greater importance of permanent and arable crops in Murcia as well as a much lower proportion of land dedicated to permanent pastures.

The Region of Murcia has 600,148 ha of land designated for crops (409,079 dry farming and 191,069 irrigated). Lorca is the municipality with the most agricultural surface (77,294 ha), while Alcantarilla has only 308 ha of farmed land.

Regional focus

The region is located in the eastern part of the Cordilleras Béticas mountains and it is influenced by their orography. These mountain ranges are divided as well in the Prebética, Subbética and Penibética mountain ranges (from north to the south). Traditionally it has been considered that the peak of Revolcadores, pertaining to the bulk of the same name, was the highest point in the Region of Murcia, with 2,015 m of height. Approximately 27% of the Murcian territory can be described as mountainous, 38% as intramountainous depressions and running valleys, and the remaining 35% as flat lands and plateaux.

The Region of Murcia has a Mediterranean climate of semi-arid type, with mild winters (an average of 11°C in December and January) and warm summers (where the daily maximum regularly exceeds 40°C). The average annual temperature is 18°C. With little precipitations of about 300 to 350 mm per year, in the region between 120 and 150 days in the year the sky is totally clear. April and October are the months with the most precipitation, there being frequent heavy downpours in a single day. The distance to the sea and the relief causes thermal difference between the coast and the interior, mainly in winter. While on the coast the temperature rarely descends below 10°, in the interior regions it does not usually rise above 6° and the precipitation level is higher (up to 600 mm).

The average price per m² in Murcia for new residential housing built as of the 30/06/2007, was of EUR 1,656. This is a 4.1% rise over the previous semester, and stands at 55.98% of the Spanish national average of EUR 2,874/m². The increase in Murcia's housing prices over the semester is equivalent to that experienced by the Spanish average.

6.1.2.2 Environmental protection

Statistical profile

Murcia have 19 protected spaces. Area covered by protected spaces is 68,012 ha, 6% of the regional area.

Table 139 Protected areas in Murcia (2007)

	Municipality	Size (Has.)
Regional Parks		
Sierra Espuña	Alhama de Murcia, Totana y Mula	17,804
Carrascoy-El Valle	Murcia, Alhama de Murcia y Fuente Alamo	16,724
Sierra de la Pila	Abarán, Blanca, Molina de Segura y Fortuna	8,836
Salinas y Arenales de San Pedro	San Javier y San Pedro del Pinatar	856
Calblanque-M. Cenizas-Peñas del Aguila	Cartagena y La Unión	2,453
Cabo Cope-Puntas de Calnegre	Aguilas y Lorca	2,936
Sierra del Carche	Jumilla y Yecla	5,942
Natural Reserves		
Sotos y Bosques de Ribera de Cañaverosa	Moratalla y Calasparra	225
Protected Landscape		
Sierra de las Moreras	Mazarrón	1,960
Humedal del Ajauque y Rambla Salada	Abanilla, Fortuna, Molina de Segura y Santomera	1,632
Espacios abiertos e islas del Mar Menor	Los Alcázares, Cartagena y San Javier	1,186
Cuatro Calas	Aguilas	240
Barrancos de Gebas	Alhama de Murcia y Librilla	1,875
Cabezo Gordo	Torre Pacheco	281
Saladares del Guadalentín	Alhama de Murcia y Totana	2,659
Sierra Salinas	Yecla	2,403
Natural Spaces		
Cañón de los Almadenes	Calasparra y Cieza	
La Muela-Cabo Tiñoso	Cartagena	
Islas e Islotes del Litoral Mediterráneo	Aguilas, Mazarrón y Cartagena y San Javier	

Source: CREM, Datos básicos de la Región de Murcia

Regional focus

37 sites and 142,111 ha (12.5% of total surface) area classified as Natura 2000 areas. 19% of the UAA of the region is under Natura 2000. 44% of the UAA of the region is for extensible arable crops according FSS.

23,907 ha are under organic farming in 2006. In the Region of Murcia, organic farming provides fresh products (wine, fruits, rice, vegetables, cereals, nuts and dried fruit, honey, etc.) as well as processed ones (olive oil, wine, canned

vegetables, jams, preserves, juices, cheese, spices, bread, frozen vegetables, cold meat, etc.). They contribute to establish a broad range of quality products that are distributed by means of specialized trade channels.

The turnover of regional Organic Farming increases every year. In 2001, it was over EUR 10 mio and 95% of the production was exported. The main clients are the United Kingdom, Germany, France and Denmark. Other clients are Switzerland, the U.S.A. and other European countries.

Drought and desertification are the main ecological problems affecting Murcia. This is mostly due to the climatic characteristics of the region. The over-exploitation of the region's sub-terranean aquifer system is generating special concern because of the fear that it will run-out of water in the near future.

Murcia is characterised by a dry climate and a lack of water self-sufficiency. Dry spells are usually and precipitation levels are amongst the lowest in Spain.

As with most of the Spanish territory, Murcia qualifies as a high forest fire risk area. However, it has not been hit by any major forest fire over the last decade and ranks amongst the least affected regions of Spain by fires.

6.1.2.3 Preconditions for agriculture

Statistical profile

Water is a key issue in Murcia. It is a dry region with very little rain (less than 50 mm/year in average, which is lowest in Spain and not even a fifth of the national average). Irrigation of farmland is necessary for a profitable outcome, and the insufficient water resources are a serious constriction. The outcome of the irrigated cultivations is in its turn important for the agri-foodstuff industry, which is also an export sector. 191,069 ha are irrigated (31% of the UAA), of which 60% by gravity. The hydrographic network of the region is made up of the Segura river and its affluents (Mundo, Alhárabe, Guadalentín and Sangonera or Reguerón). Due to the water supplying incapacity of the Segura river basin, contributions to this river basin are made, originated from the basin of the Tajo river, by means of the Tajo-Segura transfer.

Regional focus

Murcia's agriculture consumes 652,063,000 m³ of water a year: 491,362,000 from surface water, 130,657,000 from groundwater and 30,044,000 from others. Fruits (336,180,000 m³ of water a year) and vegetables (197,479,000 m³ of water a year) are the most important consumers.

Following the LFA payment scheme, 30% of the UUA are considered LFA mountain area, 31% other LFA area (high risk of depopulation) and 13% LFA for specific reasons (most of them are protected spaces or areas surrounding protected

spaces). In sum, around 74% of the agrarian land are included in the less favoured scheme. However, only one third of the total agrarian land must be considered surfaces affected by agrarian handicaps, the rest is included due to social elements (risk of depopulation) or environmental protection schemes.

The climate of Murcia is semi-arid and Mediterranean, warm and dry. In the period 1994-2003 the temperature was only 2.3 days per year below 0°C and 105 days per year above 30°C. Humidity is low around 56% on average and the number of hours with sun is around 3,000 per year. 15% of the territory is below 200 m under the sea level, 42.9% between 220 to 600 m, 32.2% between 1,000-2,000 m and only 10% is above of 2,000 m.

There are important temperature differences between the coast and the inland. Although coast and certain inland valleys do not experience frost in winter, permitting the production of citrics and olives.

The soil quality is very good but there is a high risk of erosion. However, local soil conditions in Murcia are very adequate for fruit and vegetable production. The climate allows for an early season production that can be sold at higher margins within the European markets. The water availability however, is a severe constraint. Moreover, there is strong competition over the most productive agricultural lands coming from the turism, residential and construction industries.

6.1.2.4 Preconditions for rural development

Statistical profile

Murcia is linked to the rest of Spain by a full road network. To the south it is connected to Andalusia by the A92 and E15 motorways, leading to Granada and Almería. Albacete and Madrid can be reached via the A3-301 motorway. The connection with the Mediterranean seaboard through Alicante and Valencia is made by an inland route using the E15 motorway, or by the N-332 trunk road which follows the coast starting from Cartagena. Daily bus services connect Murcia with the other principal Spanish cities (Alicante, Madrid, Barcelona, Bilbao, San Sebastián, Vitoria, Pamplona and Logroño amongst others), and there are also numerous international services.

Access by train from any part of Spain can be obtained through Madrid, with a daily train service, or from any part of Europe, via Barcelona. All trains arrive and depart from the El Carmen railway station, located in the city of Murcia. There is also a local train service (FEVE) which links Cartagena with Los Nietos, on the Mar Menor coast.

Currently the accessibility by train is very inadequate. Nevertheless, the railway network will be expanded with the incorporation of the High Speed Train (AVE) which will connect Murcia with Madrid and the Valencia region, a further step in the

economic enhancement of the area, making shorter journey times and the agile conveyance of a greater number of passengers.

The port of Cartagena, situated at the hub of the principal Mediterranean commercial and passenger sea routes, receives a steady influx of visitors on pleasure cruises throughout the year and is indeed fully equipped with every amenity of a pleasant cruise ship. For this reason, the Region of Murcia has become an essential stopping-off point on Mediterranean maritime routes.

San Javier Airport is located on the northern shore of Mar Menor, at a distance of 47 km from the city of Murcia by dual carriageway. It offers both flights to the principal Spanish cities, and regular or charter flights to other European airports. Nevertheless, most of the visitors use the International Alicante airport due to the low frequency and high prices of the San Javeir Airport. The Alicante airport is 80 km from the city of Murcia by dual carriageway.

Apoximately 30% of households in the region benefit from broadband internet access. The coverage is good incostal municipalities and in urban areas of the cities. But is rather poor or inexistent in the interior and in mountain areas of the region.

Regional focus

Map 58 Murcia and Spain's Main Railway Networks planned



Map 59 Main Roads



6.1.3 Rural economy

Regional performance

Average Spanish growth (GDP) is estimated at 3.34% by analysing the interannual variations of GDP in real terms corresponding to the period 2000-2006. Eight autonomous communities are above this level. The list is headed by Región de Murcia, with an average growth of 3.88% in the period 2000-2006.

However, Murcia's contribution to the national economy remained relatively stable over the last decades, around 2.5%. This is slightly lower than Murcia's share of the national population (3.1%), resulting in a below average GDP per capita in the region (83% of the Spanish average). The slight increase over the last decade in the share of Murcia's GDP per capita as compared to the national results is mostly due to the relatively greater increase of Murcia's population.

Consistent with the above observations made of Murcia's national share of GDP per capita, the region is also characterised by an average annual household income that lies under the national mean. GDP per capita was EUR 18,400 in 2006 (EUR 22,152 for Spain and EUR 24,500 for EU25). The average income per capita was EUR 10,429 in 2004 compared with EUR 12,646 per capita for Spain.

During 2000-2006 Murcia had the status of an "Objective 1 region". In 2007-2013, Murcia together with Asturias, Ceuta and Melilla is part of the Spanish "phasing out" regions. Murcia's main challenge for the next seven years will be to progressively shift from financing physical infrastructure – currently 60% of the regional operational programme – towards promoting a knowledge-based economy in line with the EU's jobs and growth agenda.

Table 140 Murcia GDP by sector, 2006, 2002, 2000

	2006	2002	2000
Agriculture	5.9%	7.7	7.0
Energy, water and gas	3.1%	3.0	3.4
Manufacture	13.7%	13.7	14.6
Construction	12.9%	8.5	7.6
Services	64.3%	57.9	57.0

Source: INE

In 2006, labour productivity per person was estimated at EUR 43,050 per capita, which is only 75% of the Spanish average.

The financial institutions of the region reached in 2006 a level of EUR 41,026 mio in loan investments and a total of EUR 21,394 mio in deposits. This represented a strong increase in turnovers as compared to the previous year.

6.1.3.1 Structure of agriculture

Regional focus

According to the Agrarian Census, 40% of farms have less than 1 ha. and 55% less than 2 ha. The very small farms are mainly part time farms, pensioners' farms or hobby farms. Semi-subsistence farming is not relevant in the region. Most of the land of small farms are Utilized Agrarian Area. It is important to point out that even 2 ha of intensive vegetable crops has a potential of generating high returns.

Table 141 Farms, total area, and Utilized Agrarian Area (UAA), 1999

	Number of Farm	Farms %	Total area. Ha.	Total area. %	UAA. Ha.	UAA. %
Total Farms	59,974	100.00	855,648	100.00	457,032	100.00
>=0.1 a < 0.2	4,954	8.26	652	0.08	568	0.12
>=0.2 a < 0.5	9,521	15.88	2,993	0.35	2,616	0.57
>=0.5 a < 1	9,450	15.76	6,496	0.76	5,603	1.23
>=1 a < 2	9,260	15.44	12,667	1.48	10,890	2.38
>=2 a < 3	5,135	8.56	12,186	1.42	10,328	2.26
>=3 a < 4	3,191	5.32	10,823	1.26	9,014	1.97
>=4 a < 5	2,320	3.87	10,118	1.18	8,520	1.86
>=5 a < 10	6,007	10.02	41,862	4.89	34,782	7.61
>=10 a < 20	4,083	6.81	56,277	6.58	45,747	10.01
>=20 a < 30	1,702	2.84	40,863	4.78	32,971	7.21
>=30 a < 50	1,421	2.37	53,465	6.25	42,215	9.24
>=50 a < 70	658	1.10	38,391	4.49	28,914	6.33
>=70 a < 100	484	0.81	40,078	4.68	29,005	6.35
>=100 a < 150	447	0.75	52,983	6.19	38,793	8.49
>=150 a < 200	208	0.35	35,663	4.17	22,901	5.01
>=200 a < 300	198	0.33	47,502	5.55	25,781	5.64
>=300 a < 500	163	0.27	60,364	7.05	34,376	7.52
>=500 a < 1000	121	0.20	82,336	9.62	41,148	9.00
>= 1000	79	0.13	249,929	29.21	32,861	7.19

Source: INE. Agricultural Census

In 1999 a little more than 75% of the UAA was owned land, this percentage has decreased 4 points in the last ten years. Around 17% of the UAA is rented, this percentage has doubled over the last ten years, mainly due to the decrease of sharecropping land. This tendency has been universal throughout the land. However, in the total land, the percentage of owned land is higher.

Table 142 Land tenure, total land and UAA (%)

	Total Land		UAA	
	1989	1999	1989	1999
Owned land	86.64	82.16	81.18	77.11
Rented land	5.57	11.84	7.93	16.96
Sharecropping land	7.26	3.02	10.42	4.75
Other land tenure	0.31	2.96	0.45	1.16

Source: Centro Regional de Estadística de Murcia

Permanent crops occupy twice the area dedicated to arable land. Non citrus fruit trees, especially apricots and peaches, are mainly located in Vega Alta del Segura, Vega Media del Segura and Río Mula counties. Campo de Cartagena county is specialized in lettuces, Alto Guadalentín and Bajo Guadalentín counties in tomatoes

(mainly in Aguilas and Mazarron), vineyard in Altiplano (High Plateau), and cereals in the Noroeste county.

Table 143 Types of crops according to Murcia's regions, 2005

Ha.	High Plateau	Cartagena field	North-East	Mula River	Guadaletín Valley	Vega of Segura	Total	%
Arable crops								
Cereals for grain	6,995	2,714	29,531	5,471	13,171	4,571	62,453	53.3
Forage crops	149	126	310	28	292	273	1,178	1.0
Industry crops	31	1,137	896	0	495	265	2,824	2.4
Vegetables	786	17,306	1,662	177	25,450	3,170	48,551	41.4
Pulses for grain	442	43	1,428	85	96	64	2,158	1.8
Total	8,403	21,326	33,827	5,761	39,504	8,343	117,164	100
Permanent Crops								
Citrics	1,812	9,105	0	1,561	7,750	19,275	39,503	18.2
Fruit tree no citrics	15,930	6,042	16,295	22,993	16,710	28,087	106,057	48.8
Olive grove	9,015	729	3,759	1,132	4,797	3,689	23,121	10.6
Other woody crops	0	504	10	144	216	125	999	0.4
Vineyard	36,731	149	1,551	1,121	4,845	2,986	47,383	21.8
"Nursery"	0	147	47	1	12	14	221	0.1
Total	63,488	16,676	21,662	26,952	34,330	54,176	217,284	100

Source: Agrarian Statistic of Murcia, 2004/2005. Agriculture and Water Council

The main crops include non citrus fruit trees (106,507 ha, mainly peaches and apricots), cereals (62,453 ha, mainly barley) in dry land, vegetables in irrigated land (49,000 ha), vineyards (47,383 ha), citrus trees (39,503 ha mainly lemons) and olive trees (23,112 ha).

As much as 77.4% of Murcia's farms have some portion of their cultivated land being irrigated. Most of the irrigated land is dedicated to fruit tree farming with a total of 78,354 ha or 41% of irrigated land (191,069 ha).

Vegetables contribute about half of the crop production. Lettuce, tomatoes, melons and peppers are the most important products. Citrus accounts for 21% (lemon is the main product), non citrus fruit for 15%, and vineyards for 6%. Most of Murcia's agricultural products are exported (80% of the total). Countries in the European Union receive more than 85% of regional exports, while the rest is exported to Eastern and Central European countries and, in smaller quantities, to Japan and the USA.

Table 144 Shares of products in crop productions, 2005

Productions	% CROP production
Cereals	2.2
Barley	1.5
Potatoes	1.6
Cotton	0.6
Vegetables	48.4
Lettuce	11.8
Melon	6.5
Tomatoe	9.8
Pepper	4.6
Artichoke	3.4
Broccoli	4.2
Citrus	21.2
Orange	4.9
Lemon	14.2
Tangerine	1.7
Non citrus fruits	14.6
Apricot	2.7
Peaches	7.8
Plum	1.4
Almond	1.1
Vineyard	5.9

Livestock production accounts for 20% of the regional agricultural production. Pigs are most important. Currently, Murcia has a production of about 4 mio pigs per year. The production of manure from livestock (mainly pork) is estimated at 2.4 mio t per year.

Following the information of the Statistics Insitute of Murcia, over the period 1990-2005 the number of bovine has increased by 40%. However, over the period 1990-95 the bovine census sharply reduced. The census of ovine has decreased by 6%, but with notorious changes along the 15 years. The caprine census has reduced slightly. The number of animals of the porcine production has increased roughly, doubling the figures in 15 years.

Table 145 Murcia's cattle census

(heads)	Bovine	Δ	Ovine	Δ	Caprine	Δ	Porcine	Δ
1990	38,548		708,925		122,320		984,846	
1995	29,090	-25	549,947	-22	154,675	26	1,405,637	43
2000	35,425	22	911,823	66	149,426	-3	1,688,299	20
2005	54,661	54	666,162	-27	118,382	-21	2,055,823	22

Source: Agrarian Statistic of Murcia, 2004/2005. Agriculture and Water Council

The production of meat is of around 260,000 t per year. Milk production is only 50,000 l per year. The production of eggs is quite important, 9,113 thousands of dozens per year. Other livestock production have minor importance. Looking at the evolution of the figures, the main increases has been in the production of honey and eggs. Meat and milk has increased 3% and 4.6% respectively over the last 4 years.

Table 146 Livestock production

	2000	2001	2002	2003	2004(*)
Meat (tons)	252,677	262,486	256,117	258,454	260,139
Milk (litres)	48,767	38,893	53,503	48,030	51,008
Eggs (thousands of dozens)	7,295	7,845	7,932	8,207	9,113
Other products					
Wool (tons)	610	411	405	404	454
Honey (tons)	864	1,505	1,505	1,710	1,541
Wax (tons)	47	35	35	25	25

Source: Agrarian Statistic of Murcia, 2004/2005. Agriculture and Water Council
(*) Provisional data

The capture of all fish species has decreased substantially throughout Spain, and consequently in Murcia the main ratios have gone down. The main reason for this has been the overexploitation of the Mediterranean sea. Fish captures have decreased by 30% in Murcia over the period from 2000 to 2005. The other two main captures, molluscs and crustaceans, have decreased 58% and 49% respectively.

Table 147 Main fishing species serie

(tons)	2000	2001	2002	2003	2004	2005
Fishes	4,159	7,175	3,380	3,976	3,082	2,880
Mollusks	333	318	225	137	148	139
Crustaceans	185	180	160	160	126	94
Total	4,677	7,673	3,765	4,273	3,356	3,113

Source: Agrarian Statistic of Murcia, 2004/2005. Agriculture and Water Council

6.1.3.2 Structure of rural economy

Statistical profile

Murcia's GDP is formed mainly by the service sector, that represents 57.9%. Industry follows with a 12.7% share, with construction at 10%, and agriculture with a share of Murcia's GDPs of 6.6%.

Inside the service sector there are several relevant accounts, the two most important are 'Real Estate and Business service', and 'Commerce' (14% and 10.4% respectively). Hotel services rank third with 5.2% of Murcia's GDP.

The main account of the Industry sector is 'Food, drinks and tobacco' industry that represents 3.3% of the total GDP. This sector increased enormously (21%) from 2000 to 2004.

Murcia's primary sector, it is dominated mainly by agriculture, livestock, hunting and forestry (94%). This production has also increased during the last years with an approximated growth of 15%.

Table 148 Murcia's GDP in current prices

(thousands of euros)	2000	2001	2002	2003	2004	%/ total	Δ
Agriculture, cattle ranch and fish	1,204,040	1,226,578	1,386,978	1,429,296	1,402,022	6.6	16.44
Agriculture, cattle ranch, hunt and forestry	1,138,064	1,153,267	1,304,932	1,348,700	1,317,977	6.2	15.81
Fishing	65,976	73,311	82,046	80,596	84,045	0.4	27.39
Energy	520,622	547,821	547,120	552,726	571,997	2.7	9.87
Industry	2,212,931	2,354,755	2,464,486	2,579,007	2,690,523	12.7	21.58
Industry of the feeding, drinks and tobacco	578,965	611,820	630,571	674,332	699,997	3.3	20.9
Textile industry and of the preparation; industry of the leather and the footwear	142,729	144,947	150,626	144,985	131,060	0.6	-8.18
Wood and cork	76,133	65,995	67,244	67,080	71,436	0.3	-6.17
Paper, graphical edition, arts and reproduction of recorded supports	90,288	103,100	117,213	114,014	116,252	0.6	28.76
Chemical industry	264,165	289,224	291,681	315,230	335,859	1.6	27.14
Rubber and plastic matters	71,579	80,147	82,037	86,240	84,147	0.4	17.56
Mineral products, diversas nonmetalists	180,048	181,446	196,830	202,465	230,009	1.1	27.75
Metallurgy and metallic product manufacture	257,039	310,177	319,701	331,553	345,320	1.6	34.35
Machinery and mechanical equipment	142,611	155,313	155,760	174,163	195,168	0.9	36.85
Material and electrical, electronic and optical equipment	54,953	55,986	57,153	60,372	61,264	0.3	11.48
Means of conveyance	150,795	147,857	177,640	178,112	163,151	0.8	8.19
Diverse manufacturing industries	203,626	208,743	218,030	230,461	256,860	1.2	26.14
Construction	1,162,016	1,348,498	1,533,040	1,798,907	2,108,501	10.0	81.45
Services	8,662,423	9,578,777	10,446,296	11,395,725	12,236,795	57.9	41.26
Hotel industry	810,578	842,969	890,966	987,734	1,091,179	5.2	34.62
Commerce and repair	1,646,464	1,848,910	2,017,207	2,203,844	2,203,844	10.4	33.85
Real estate and enterprise services	1,822,621	2,064,441	2,342,867	2,654,437	2,962,999	14.0	62.57
GDP in current prices	15,202,081	16,576,703	18,053,773	19,665,515	21,132,171	100	39.01

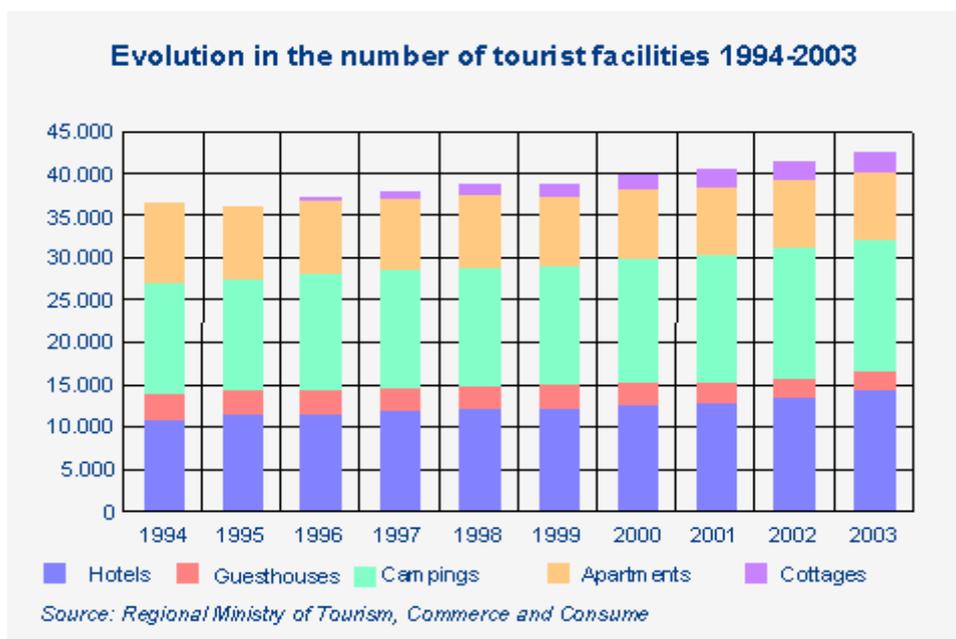
Source: Instituto Nacional de Estadística

Regional focus

Murcia has a very important tourism sector (44,527 beds and 1.5 mio over nights stays of non-residents in 2005). Traditionally, the tourism facilities were situated mainly along the coastline and concentrated in the north near Alicante.

The tourism industry in Murcia has been experiencing a constant and steady growth over the last decade in terms of the number of tourist facilities. Although still marginal in the region, the type of facility that has experienced the greatest growth over the last decade is cottages, often associated with secondary residence or rural tourism in the inland part of Murcia.

Figure 127 Evolution in the number of tourist facilities 1994-2003



Looking closely to Murcia's industrial production data from 2006, we can see that the sector 'Food, drinks and tobacco' employs most people. This industry employs a quarter of Murcia's total labour force. Nevertheless, this sector is one of the less productive.

The second most important employer is metallurgy and metal product manufacturing. It employs 15% of the occupied population and its production has increased substantially.

The third sector is mineral products and diverse nonmineral. It employs 7.5% of the occupied labour force and it is one of the best paid industry.

Table 149 Murcia's Industry structure, 2006

	Net Amount	Variation of product	Consump- tions and work car- ried out by other companies	Labour Expenses	Occupied people
1. Extractive Industries and petroleum, energy and water	3,852,993	19,729	2,975,802	16,708	4,018
2. Feeding, drinks and tobacco	3,879,726	8,738	2,493,732	481,183	20,712
3. Textile industry, preparation, leather and footwear	374,354	1,338	236,019	84,735	473
4. Wood and cork	216,326	686	135,128	46,031	2,716
5. Paper, graphical edition, arts and reproduction of recorded supports	348,438	157	165,888	79,921	3,654
6. Chemical industry	1,274,928	-13,639	656,674	151,276	4,385
7. Rubber and plastic matters	546,345	2,073	372,752	65,216	2,939
8. Mineral products, diverser nonmetalists	1,044,386	5,873	559,061	138,833	6,059
9. Metallurgy and metallic product manufacture	1,449,275	20,637	88,472	26,631	12,178
10. Machinery and mechanical equipment	750,394	7,119	515,457	127,455	4,515
11. Material and electrical, electronic and optical equipment	235,863	4,287	159,159	36,667	1,676
12. Means of conveyance	325,186	2,018	168,875	80,984	2,666
13. Diverse manufacturing industries	750,478	5,232	401,912	19,367	1,136
Total industry	15,048,692	64,248	8,928,931	1,355,007	67,127

Source: Instituto Nacional de Estadística

The table below, gives an idea of the structure of Murcia's companies. It can be seen that the majority of them are very small, with less than 5 employees.

Table 150 Murcia business by number of employees

Unit: businesses 2007	Murcia (Región de)
Total	97,374
No employees	45,489
1 to 2 employees	27,786
3 to 5 employees	11,769
6 to 9 employees	5,434
10 to 19 employees	3,897
20 to 49 employees	2,124
50 to 99 employees	503
100 to 199 employees	200
200 to 499 employees	126
500 to 999 employees	30
1,000 to 4,999 employees	16
5,000 and more employees	0

In 2004, the expenditure on R&D was only 0.66% of GDP. Agri-food research absorbed most of the budget. The region of Murcia plans to develop new research centers. According to the opinion of some interviewees, there is a lack of collaboration between universities and research centers in the region.

6.1.3.3 Non-agricultural alternatives

The non-agricultural alternative to Murcia's main supply chains would be tourism.

Agriculture percentage of Murcia's GDP has increase only 1.5% yearly from 2000 to 2006 and during the same period, the Service industry has increased by 8.6% and the construction industry 16.2%. Inside the Service sector, the hotel industry is the third main important account, representing 5.2% of Murcia's 2004 GDP.

Traditionally, tourism was concentrated in the Mar Menor region (northern coastline). The typical tourist came from Northern Europe. Tourist activity was seasonal, and therefore, concentrated in summer. Hotels and camping areas were the main tourist facilities.

Over the last fifteen years there has been an important development of new tourist areas in Murcia's southern coast and inland regions. Currently, tourists from other regions of Spain and Murcia can also be found together with the European tourist. Second residences are the main facility (apartments and houses). As a result, over the last decade the construction industry has demonstrated important GDP and employment rate increase.

Until today, the relationship between agriculture and tourism was mainly indirect. Some farmers are currently receiving important profits selling land to be urbanised, and in some cases, farmers were the direct promoters of some buildings. This,

however, is not a very usual practice. In Murcia, agro-tourism is not very relevant. It first originated in mountain areas. Employment within the tourism industry is not occupied by farmers.

Most owners within Murcia's agrifood industry have invested in the construction industry over the last period.

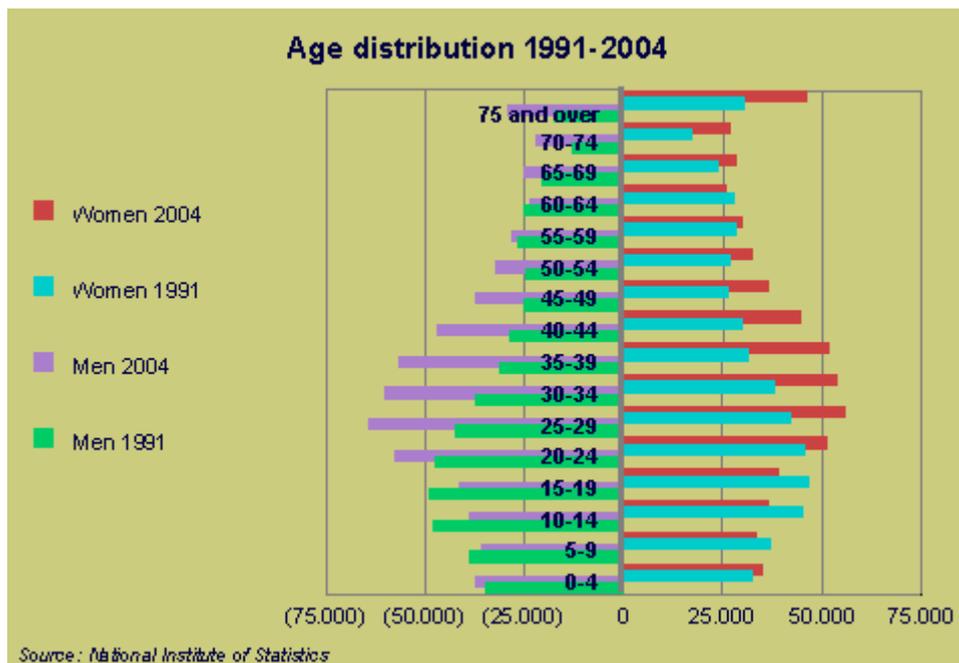
It is important to point out that tourism statistics do not reflect the "second houses phenomenon", because they do not have a specific legal tourist status and therefore they do not have an official register.

6.1.4 Rural society

6.1.4.1 Demography

Statistical profile

Figure 128 Age distribution 1991-2004



Murcia's population over the decade to 2005 has an increasingly aging population distribution. The population forecasts for Murcia its current 1.3 mio inhabitants will grow to a figure of 1.56 mio by the year 2017 (see Table 151).

Table 151 Population Forcasts Murcia (Región de)

January 1st	2005	2006	2007	2010	2017
Both Sexes					
Total	1,295,516	1,323,288	1,349,472	1,419,072	1,559,159
0 to 4 years	80,422	83,779	86,248	92,079	96,437
5 to 9 years	70,355	72,289	75,146	84,509	97,230
10 to 14 years	73,400	73,353	73,282	74,703	92,397
15 to 19 years	78,263	78,226	78,405	77,817	81,797
20 to 24 years	99,416	95,994	92,742	86,437	82,884
25 to 29 years	121,170	122,098	121,295	111,599	93,887
30 to 34 years	117,711	121,653	125,411	131,688	110,612
35 to 39 years	111,265	114,258	117,024	125,885	134,906
40 to 44 years	97,972	102,431	106,704	116,878	135,648
45 to 49 years	82,366	86,701	90,819	102,007	123,949
50 to 54 years	67,744	70,191	73,242	85,032	111,057
55 to 59 years	61,380	63,217	64,580	69,525	93,379
60 to 64 years	51,922	53,912	56,421	62,245	74,433
65 to 69 years	50,897	50,102	49,443	51,572	63,739
70 to 74 years	49,690	49,917	49,912	48,142	52,793
75 to 79 years	39,783	40,995	41,960	44,080	41,988
80 to 84 years	25,169	26,584	28,099	31,499	36,157
85 and over	16,591	17,588	18,739	23,375	35,866
Men					
Total	647,037	660,798	673,732	707,921	776,429
0 to 4 years	41,218	42,970	44,363	47,380	49,635
5 to 9 years	36,023	36,962	38,296	43,158	49,870
10 to 14 years	37,747	37,694	37,625	38,177	47,242
15 to 19 years	40,258	40,220	40,286	39,908	41,533
20 to 24 years	51,266	49,258	47,412	44,109	42,170
25 to 29 years	63,616	63,891	63,221	57,216	47,733
30 to 34 years	61,594	63,743	65,724	68,775	56,314
35 to 39 years	57,427	59,124	60,731	65,648	69,680
40 to 44 years	49,861	52,265	54,540	60,139	70,433
45 to 49 years	41,387	43,602	45,767	51,749	63,783
50 to 54 years	33,596	34,876	36,432	42,405	56,109
55 to 59 years	29,792	30,727	31,447	34,061	46,216
60 to 64 years	24,773	25,731	26,913	29,768	36,120
65 to 69 years	23,772	23,366	23,072	24,129	30,070
70 to 74 years	22,523	22,637	22,642	21,773	24,059
75 to 79 years	16,998	17,555	17,992	19,043	18,256
80 to 84 years	9,897	10,504	11,152	12,594	14,786
85 and over	5,289	5,673	6,117	7,889	12,420

January 1st	2005	2006	2007	2010	2017
Women					
Total	648,479	662,490	675,740	711,151	782,730
0 to 4 years	39,204	40,809	41,885	44,699	46,802
5 to 9 years	34,332	35,327	36,850	41,351	47,360
10 to 14 years	35,653	35,659	35,657	36,526	45,155
15 to 19 years	38,005	38,006	38,119	37,909	40,264
20 to 24 years	48,150	46,736	45,330	42,328	40,714
25 to 29 years	57,554	58,207	58,074	54,383	46,154
30 to 34 years	56,117	57,910	59,687	62,913	54,298
35 to 39 years	53,838	55,134	56,293	60,237	65,226
40 to 44 years	48,111	50,166	52,164	56,739	65,215
45 to 49 years	40,979	43,099	45,052	50,258	60,166
50 to 54 years	34,148	35,315	36,810	42,627	54,948
55 to 59 years	31,588	32,490	33,133	35,464	47,163
60 to 64 years	27,149	28,181	29,508	32,477	38,313
65 to 69 years	27,125	26,736	26,371	27,443	33,669
70 to 74 years	27,167	27,280	27,270	26,369	28,734
75 to 79 years	22,785	23,440	23,968	25,037	23,732
80 to 84 years	15,272	16,080	16,947	18,905	21,371
85 and over	11,302	11,915	12,622	15,486	23,446

Source: INE; based on 2001 census

Regional focus

In comparison with the rest of Spain, Murcia's population is relatively young, but lately there has been a shift in the demographic trend towards an increasingly aging population.

6.1.4.2 Education

Statistical profile

As of 2002, Murcia's male population demonstrated higher levels of formal education than women, with almost 27.9% of men having attained tertiary level education as compared to 24.1% for women. This gap widens when we consider those who have attained secondary level education, with close to 45% of men and only 17% of women. The level of formal agrarian training of Murcia's farmers is very low (5.7%) with the main source of agrarian training coming exclusively from practical experience (see Table 152).

Table 152 Agrarian Training of Farm Head

	Farms
Total Farms	59,974
Exclusively practical experience	57,719
University agrarian training	397
Professional agrarian training	474
Other agrarian training	1,384

Source: INE

6.1.4.3 Labour market

Statistical profile

Whilst the employment trend within the primary sector in Spain is on the decline, with the full-time equivalents in 2007 being only 82.6% of what it was in 1995, in Murcia primary sector employment has been increasing.

Table 153 Employment in the primary sector Murcia and Spain, series 1995-2007

	1995	2000	2005	2007	1995-2007 (change in %)
Spain	1,114,700	1,037,400	986,600	921,000	-17.4%
Murcia	40,800	47,500	63,100	65,700	61.0%
Murcia/Spain	3.7%	4.6%	6.4%	7.1%	

Source: INE

The share of employment in primary sector activities in Murcia has been increasing. When we look at this sector's contribution to GDP we notice a decline in 2005 of 7% with respect to its 2000 level. This decline is accentuated by the fact that Murcia's GDP in 2005 was 20.7% above its 2000 mark.

In 2003, Murcia's unemployment rate was slightly below the national average. But unemployment in Spain has been dropping rapidly over recent years, and although this has also been the case in Murcia, it was not to the same extent as in the rest of the country. The latest figures have set Murcia's rate of unemployment at 8.6% while Spain's was 8.03%. Moreover, the composition of Murcia's unemployment is much more chronic than Spain's with long term unemployment (12 months+) as high as 18.23%. The composition of unemployment carries a relatively higher burden on Murcia's industry, while its construction industry has a lower rate than Spain.

We can see from the figure below that Murcia's labour distribution is dominated by service industry employment. The region is characterised by an employment dedicated to agriculture above the agriculture (see Figure 129). The average salary in Murcia lies below the Spanish average and has followed roughly the same evolution as on national level over the last decade (see Figure 129). The average

personnel cost per employee in secondary and tertiary sector is EUR 1,434.90 per worker per month (2005).

Figure 129 Murcia's Unemployment and labour distribution

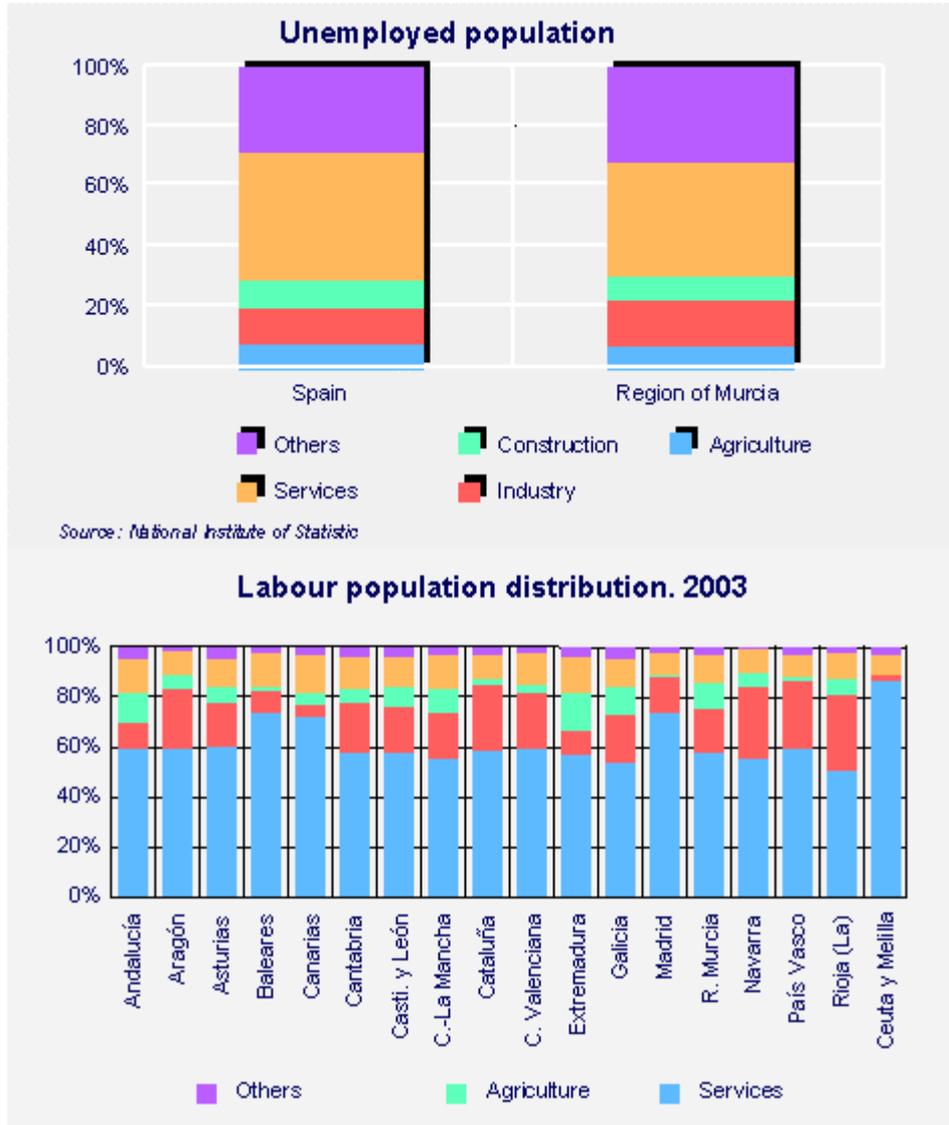
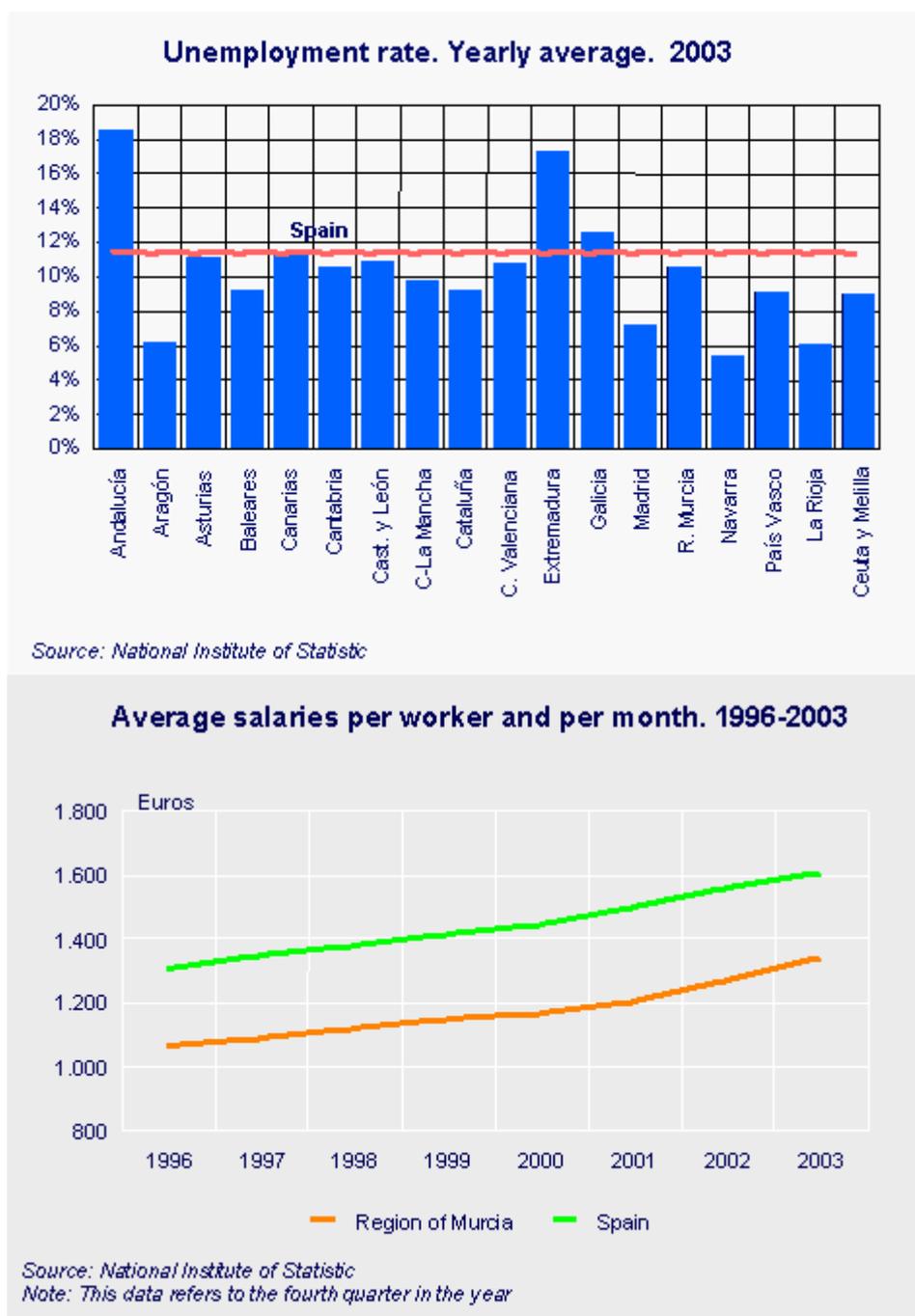


Figure 130 Murcia's unemployment rate and average salaries



The statistics for Murcia clearly shows disfavoured conditions for women within its labour market, where the employment rate for this group is only 48% of its active population compared to 76.8% in the case of men. This situation is even further accentuated when observing the age groups that are most vulnerable to employment hardships. The employed male workers aged 55 to 64 represent 41% of that age group's active population, with the figure falling to 23.2% in the case of women. As for the youths aged 15 to 25, women also have a relatively low employment rate at 42.7%. But is not as pronounced as what is found in other age

groups, with employment figures of 34.1% for women as compared to 50.6% for men.

Looking at the same situation but from another point of view, we can observe that unemployment in Murcia is very unbalanced in terms of gender. Some 10.9% of women are unemployed as compared to just 5.8% of men. When distinguishing between different age groups, we can see that the relation of unemployment between men and women remains unbalanced throughout all classifications. Likewise, the unemployment rate of people under 25 is more than twice the rate registered in people older than 25 years. However, the historical perspectives shows that women's unemployment rates have decreased around 9% during these last 6 years.

Table 154 Murcia's rate of unemployment by age and sex

	Below 25 years				25 years and more				Total by sex			
	Men	%	Women	%	Men	%	Women	%	Men	%	Women	%
2000	9,390	17,7	13,600	35,0	17,960	6,7	23,820	16,0	27,350	8,5	37,420	19,9
2001	6,850	12,5	11,150	30,4	16,100	5,9	21,010	13,9	22,950	7,0	32,160	17,1
2002	8,080	15,0	11,620	29,3	19,930	6,9	22,660	13,7	28,010	8,2	34,280	16,7
2003	8,330	15,4	10,210	26,6	18,820	6,2	24,480	13,5	27,150	7,6	34,690	15,8
2004	8,100	14,3	9,390	25,7	19,300	6,1	27,920	14,1	27,400	7,4	37310	16,0
2005	6,370	12,1	7,530	20,7	15,600	4,8	20,090	9,9	21,970	5,8	27,620	11,6
2006	6,590	13,1	8,280	22,5	16,410	4,8	19,620	9,0	23,000	5,8	27,900	10,9

Source: Centro Regional de Estadística de Murcia

6.1.4.4 Civil society

Regional focus

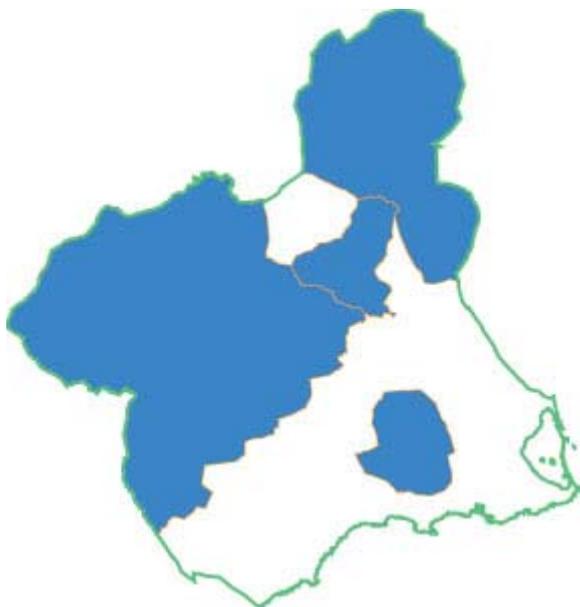
The civil society in Murcia is predominantly centered on economic, cultural and/or recreational associations. On the economic front, sector-specific industrial organizations, chambers of commerce cooperatives, tourism associations, and labour unions are of special importance. In the cultural and recreational front, there are powerful football associations and local and religious traditions associations in almost each municipality.

Murcia has also some active associations in the environmental issues. In the last decade, the immigrated people have created a high number of associations and networks. Under the LEADER programme a total of 4 Local Action Groups were implemented

- *Campo de Cartagena*
- *Nordeste de Murcia*
- *Noroeste, Río Mula, Pedanías Altas de Lorca y Sierra Espuña*
- *Vega del Segura*

PRODER is a Spanish program included in the Rural Development Plan of each region that follows the LEADER philosophy. The PRODER programme was set up for the rural municipalities not included in LEADER initiative.

Map 60 Regions with PRODER Groups



6.2 Exploring policy intervention

6.2.1 EU policies for agriculture and rural development

Murcia receives funds from the EAGGF ever since the integration of Spain to the EU (1986). These funds significantly increased over the decade of the 1990s as a result of the CAP reforms of 1993 (McSharry) and 1999 (Agenda 2000).

Table 155 Murcia: EAGGF-Guaranty funds received (EUR)

1997	28,139,920
1998	45,789,173
1999	100,055,201
2000	108,489,598
2001	105,132,999
2002	109,993,473
2003	102,061,173
2004	108,285,877
2005	118,910,817
2006	133,151,847

Source: FEAGA

In 1997 the bulk of the EAGGF-Guaranty funds went towards wine, cereals and oilseeds, as well as sheep and goatmeat.

Table 156 Allocations of the EAGGF-Guaranty payments. 1997 (EUR)

Sector	EUR	%
Cereals and oilseeds	5,433,204	19.31
Olive Oil	2,489,945	8.85
Wine	7,985,029	28.38
Dairy products	128,163	0.46
Beef and veal	1,205,482	4.28
Sheepmeat and goatmeat	5,184,982	18.43
Other	5,713,115	20.30
Total	28,139,920	100.00

Source: FEGA

In 2006, fruits and vegetables represent over half the EAGGF-Guaranty funds. In the last ten years fruits and vegetables became the most important receiver (Table 157). Thus, the distribution of the fund differs largely as compared to the national level.

Table 157 Allocations of the EAGGF-Guaranty payments. 2006 (EUR)

Sector	Murcia		Spain
	EUR	%	%
Fruits and Vegetables	69,388,815	52.1	7.0
Sheepmeat and goatmeat	14,564,125	10.9	7.2
Textile crops	11,766,260	8.8	3.3
Wine	10,314,701	7.7	7.9
Beef and veal	7,891,166	5.9	11.6
Cereals and oilseeds	7,735,115	5.8	26.9
Rural Development	5,271,450	4.0	10.2
Olive oil	3,465,378	2.6	14.8
Others	2,754,837	2.1	100.0
Total	133,151,847	100.0	100.0

Source: FEGA

The total funds for rural development was EUR 12,689,000 from EAGGF-Guidance and 5,271,450 from EAGGF-Guaranty.

Most of the rural development resources from EAGGF-Guaranty were spend in agro-environmental measures (Table 158 and Table 159).

Table 158 Resources from EAGGF-Guaranty for Rural Development (in 2006)

	EUR
Agrienvironmental measures	4,676,554
Early retirement	790
Forest	782,278
Less Favoured Areas	791,810
Others	-979,982
Total EAGGF-Guaranty	5,271,450

Source: FEAGA

Most of the resources from EAGGF-Guidance go to irrigation infrastructure.

Table 159 Resources from EAGGF-Guidance for Rural Development (in 2006)

	EUR
Irrigation infrastructure	9,677,000
Modernisation of agricultural holdings	1,250,000
Setting up of young farmers	1,005,000
Others	1,760,995
Total EAGGF-Guidance	12,689,000

Source: MAPA

6.2.2 Regionally oriented Community policies

Ever since the integration of Spain within the EU, the region of Murcia has been considered as Objective 1 (its GDP per capita falls below 75% of the EU average).

Since 1986 the region of Murcia has received funds coming from the European Structural Funds (FEDER, FSE, FEOGA-O). The amounts received are detailed in the following table.

Table 160 Structural Funds Assigned to the Region of Murcia (1986-2006)

Period	EU funds	Total public funds
1986-1988	108,933,444	196,579,039
1989-1993	290,889,858	550,671,330
1994-1999	933,437,909	1,386,234,419
2000-2006	1,752,022,406	2,615,532,557
TOTAL (current prices)	3,085,283,617	4,749,017,345

Source: CARM

Transport infrastructures have absorbed the bulk of the structural funds, especially in the 1986-1999 period (See the following table).

Table 161 Objective 1 Programme for Murcia (ERDF), 1994-1999, Priority area

Sub-programmes/Measures	Total cost (in EUR mio)	EU contribution (in EUR mio)
Transport Infrastructures	430,007	265,522
Industry, services and other businesses	14,481	6,644
Tourism	5,250	3,150
Agriculture and rural development	4,600	2,760
Fisheries	3,411	2,388
Infrastructure to support economic activity	192,004	123,922
Human resource development	115,383	80,768
Technical assistance, monitoring and information	2,170	2,170
Total	767,306	487,324

Source: CARM

Over the 2000-2006 period, additional steps were taken to diversify the destinations of structural funds.

Table 162 Objective 1 Programme for Murcia (ERDF), 2000-2006, Breakdown of Finances by priority area (EUR)

Priority area	Total cost	EU Contribution
1 Improvement of competitiveness and employment, and development of production structures	203,376,588	144,033,513
2 Knowledge-based society (Innovation, R&D and the information society)	65,918,456	46,142,917
3 Environment, natural habitats and water resources	681,558,444	428,463,746
41 Education infrastructure and reinforcement of professional, technical education and training	121,903,120	78,049,658
42 Insertion and professional reinsertion of unemployed people	50,848,063	33,051,241
43 Reinforcement of stability in employment and adaptability	13,710,062	9,597,043
44 Insertion of people with particular difficulties in the labour market	21,993,678	15,395,574
45 Participation of women in the labour market	11,026,818	8,270,113
5 Local and urban development	215,503,824	120,562,040
6 Transport and energy networks	504,233,195	284,068,911
7 Farming and rural development	20,603,444	14,422,410
999 Technical Assistance	7,158,734	5,369,052
Total	1,917,834,426	1,187,426,218

Some of the positive impacts of the EU transfers for the Region of Murcia are given as follows:

- ➔ Murcia has growth rates above those for Spain for the greater part of the last decade, The average annual GDP growth over the period between 1995-2004 of 4.1% for Murcia (as compared to Spain's 3.3%),

- The number of active individuals in Murcia has increased by 51.7% between 1992 and 2004, with an increase of 166,140 new jobs.
- The unemployment rate has past from 25.3% of the active population in 1994 to 10.5% in 2004,
- The GDP per capita for the region in comparison with the rest of the EU15 has passed from 65 (EU15 index = 100), to 72 in 2002.

6.2.3 National and regional policies

National and regional policies have co-financed the activities falling under the Structural funds.

The air, water and soil quality laws applying to Murcia, as well as those regarding entrepreneurship and employment are largely the same as the Spanish ones, which in many aspects follow the same lines as the rest of the EU.

Murcia Public Water Commission (EPA) works to guarantee water supply, as well as to promote all kinds of water saving and conservation practices, education and understanding on water resources, like development and innovation on this field are encouraged from this Commission.

6.2.4 Effects of Legislative restrictions

Urban development planning

Urban development planning and land zoning policy falls under the responsibility of the local public Administrations (municipalities and diputaciones). Over the last twenty years Murcia has undertaken important urban plan revisions that has allowed the transfer of important amounts of agrarian land into building/residential land.

This almost indiscriminate zoning legislation primarily motivated by the important economic gains driving the construction industry was only restricted by existing protection schemes (mainly regional parks). These protected areas were the only way to limit the process of urbanisation. As a result, and because of the much greater economic benefits to be gained in real estate relative to agriculture, many farmers have converted cultivated land into land to be used within real estate development projects.

Recent social concern and greater media coverage of the rampant rezoning of agrarian land by public officials with vested interests, has put somewhat of a damper on the process. The recent stagnation of the construction industry is also slowing down this practice.

Environmental regulations

The environmental regulations have significant impact over Murcia's agrarian industry. The main agrarian associations active in the region have introduced within their internet web-pages information sections dedicated to environmental regulations and technical records regarding specific environmental issues so that local farmers and processors can be kept up to date with the rapidly changing legislation in this area. Most associations are recommending their members the use of 'environmental operators' to resolve doubts and search for solutions that are specific to the needs of every farm. The growing social concerns over environmental protection and the retailing industry requirements have led many of these associations to promote an agrarian practice that not only respects and abides by the given legislation, but which goes further by encouraging the development of socially responsible activities. The large majority of Murcia's agrarian production is currently certified by internationally accepted agro-environmental and food safety standards.

The main effects of legislation has been to modify the production process in terms of waste management and transport; the destruction of pruning residues and stripped leaves; manure management in order to avoid the pollution of underground water by nitrates; appropriate use and storage of phytosanitary products and fertilizers; etc. The consequences of these actions for the local agrarian producers are increases in the costs of production.

Safety regulations

The current legislation has put strict norms in order to have the agrarian sector in Murcia make an appropriate use of phytosanitary products and fertilisers. Besides norms concerning their use, legislation has also been developed to regulate the storage and disposal of these products.

Over 400 t of phytosanitary packaging are generated by agricultural activities and associated industries every year in Murcia. The legislation obliges the industry to collect the empty packaging from the phytosanitary products, sanitise them, and recycle or re-use. Most of the agents of the local agrarian sector are members of the Integrated Management System (SIG) whose objective is to adequate the management of waste to the applicable legislation. For the agrarian sector the impact of these legislation are additional cost.

Local farmers have also responded to legislation by developing management techniques for non-dangerous waste and by-products. Over 145,000 t of vegetable waste is generated by local farmers each year. Again the strategy adopted by the region's farmers has been to reduce, re-use, and recycle in order to find solutions that are both environmental and economically viable for the producers. For example, local farmers are using vegetable waste as agricultural amendment on poor land as well as for cattle feed.

There are growing concerns on the part of consumers over the presence of residual chemical substances found on cultivated products. These products, which are usually toxic, are used to control pests which affect fruit and vegetable crops. As a

result of these concerns and in a strive to meet the demands of both legislation and retailers, an increasing number of producers in Murcia are turning towards the biological fight. The biological fight is carried out by using local predator insects to combat those pest insects which affect crops. Among the different techniques used in the biological fight, two are particularly worth pointing out. One is the release of auxiliary fauna such as *Eretmocerus Mundos* to protect crops from virus infection carried by whitefly (*bemisa tabaci*), which has affected tomato crops for years in Murcia. The other is the use of bumblebee colonies for the crop pollination of tomatoes and other vegetables.

In order to comply to legislation and to the local industry's self-imposed norms, several steps are taken by local farmers to help preserve soils. Soil conservation implies maintaining its fertility, avoiding its impoverishment and contamination, and to lessen, as much as possible, any soil loss because of erosion. The strategy used by most local agrarian producers in this fight is based on a series of agronomic measures amongst which two may be highlighted. Organic matter (manure) is periodically used to keep the soil fertile. Moreover, local farmers attempt to use agricultural practices that significantly reduce the risk of erosion.

Livestock production

The existing legislation in this field is focused on reducing the impact of intensive livestock production over air, soil and water pollution. The legislation established a maximum distance between farms and obliged farmers to elaborate a manure management plan (for a single or several farms). It is therefore impossible to operate a livestock farm without land or without an alternative way to process the manure. The legislation is limiting the process of growth of the livestock industry and it is also a reason for the localisation of the farms in outside counties that border Murcia (especially in Albacete and Almeria).

More information about the effects of legislation is included in the chain supply analysis.

6.3 Investigating networks – supply chains

6.3.1 Supply chain 1 – Pig meat

6.3.1.1 General description

The production of pigs to be slaughtered for pork is a process involving two main phases: 1) breeding, farrowing, nursery, and 2) finishing (fattening pigs from 15 Kg. to 150 Kg.). Pig producers in Murcia are commonly classified into three types: type 1) farrow-to-finish (the two phases), type 2) farrow- to-feeder pig (phase 1), type 3) feeder-pigs-to-finish (phase 2).

The majority of Murcia pig production was farrow-to-feeder. In the last decade there has been an important increase in the number of farms in type 1 and 3.

Around 80% of the production feeder-pigs-to-finish falls under integration contract. Contract production is an arrangement between a feed or fodder firm (the contractor) who engages a producer (the grower) to take custody of the pigs and care for them in the producer's facilities. The producer is paid a fee for the service provided (around EUR 10 only for phase 2). Integrators typically furnish inputs for growers, provide technical assistance, and market pigs. Some of the contractors own slaughter plants and meat plans. In sum, vertical integration is very relevant.

The estimated contribution of pigmeat to the regional GVA for agriculture is 13.3%.

6.3.1.2 Agricultural and forestry production actors

Production input

The first stage of the value chain for pork meat is the actual production of pigs as livestock. There are an estimated 1,856 agricultural units involved in the production of pigs in the region of Murcia. It is however possible to produce pigs without land. Nevertheless, it is necessary to rent land for manure management purposes. The average size of a pig farm is of 5 ha, with only 20% surpassing 10 ha in expansion. The average number of workers per farm is set at 5 (including other activities). The medium turnover of the typical pig farm in Murcia is EUR 200,000.

The cost of producing a pig, ready for slaughter is about EUR 85, with a variance between EUR 97 and EUR 78 according to the efficiency of the pig farm. The main share of the production costs is taken up by the feed, which represents 61% of total costs over the period 2004-2006. Installations and machinery represent a further 16% of total costs, whereas energy and labour costs take up between 2.7 and 16.3% of total production costs. Another moderately important cost item is pharmacological products needed to care for the livestock.

The absolute quantity of fodder required to produce a slaughter-ready pig is 240 kg. The amount of energy consumed in this process is estimated at 10 kw, the related water consumption is estimated at 1 m³.

Price for fodder increases, as has been the case in recent months, the more likely reaction would be to search for substitute feeds such as cereal substitutes or protein concentrates to replace soybean. The time estimated to adjust the production to changes in feed costs (price of feeding stuffs) is 11 months. It is impossible to substitute feeding stuffs, but it is possible to use very different inputs (cereals, soybeans, concentrates, derivatives, ...).

Only 4.2 man hours are required for the production of one pig, ready for slaughter. The proportion of self-employed farmers to wageworkers in pig production is as

high as 60%, where the annual labour cost runs at about EUR 14,400. This is higher than the average wage for other primary sector workers of the region.

Pig farming requires very little specialised knowledge from its workforce for fattening, but does require training in the case of breeding. The very large majority of Murcia's pig farmers have only basic agricultural training, with only the rare exception reaching university training.

Production output

The estimated annual production of pigs in Murcia reaches 4 mio units ready for slaughter. And although the region's pig producers have the capacity to sell their pigs nation-wide, up to 80% of these are slaughtered within the region of Murcia. A similar number of pigs coming from other regions of Spain, outside Murcia, are imported to be slaughtered in Murcia. The international import and export of living pigs is almost 0 due to the transport cost and sanitary risks.

The sales price in 2006 for a slaughter ready pig is around of EUR 115, which allows the pig producer to gain an average of EUR 20 per pig over the period 2004-2006, with only the rare occurrence of producers running a loss and not breaking even. However, the situation in the industry has changed considerably over the last few months due to the increase in the price of cereals.

The presence of imported pigs is rare which helps keep the competitive intensity of pig production in Murcia down. However, competition amongst the different producers within the region is sometimes intense. The competition is high mostly in the segment for pigs under 20 kg.

External effects

The main negative external impact of pig farming in the region is the unpleasant 'smell'. The nitrates from the pig manure must be well managed in order to not cause water and soil contamination. Because of the important improvement made in this area over recent years, most experts considered the pollution externalities of pig farming to be low.

The influence of pig farming on the landscape is probably negative, especially concerning tourism activities, because of the 'smell' effect and the lack of aesthetic appeal of the pig farm. The same can be said of the contribution of pig farming towards providing areas for human recreation. The type of relatively intensive pig farming conducted in Murcia does not contribute to local biodiversity. Negative effects are arising as mostly only one predominant species is used.

From a labour point of view, there are as many as 10,000 workers involved at this production stage of Murcia's pig meat industry. Whereas the farm owners are usually older (55-64 years) men, native of Murcia, their employees are mostly younger males immigrants from countries outside the EU.

External factors

The pig production season lasts about 11 months of the year, with the remaining month being used for maintenance tasks within the farms. The average time needed to produce a slaughter-ready pig is 5 months. Both climate and soil quality are of no relevance to pig farming. Climate does affect the cost of pig production. The moderate climate in Murcia helps contribute to lower production costs.

Pig production does not benefit from direct payment and subsidy schemes, and therefore is little influenced by changes in the sectoral CMO measures. However, Murcia's pig producers have benefited from market support measures coming from storage assistance.

Water, waste, and food safety legislations influence the production process and costs of pig producers in Murcia. Water regulations from the water framework directive for the Tajo-Segura water transfer have set strong restrictions over water use in Murcia. But, due to the low levels of water used within the pig production process, this constraint has been relatively moderate. Much more significant is the constraints imposed upon the pig farmers as a result of the strict manure management regulations aimed to assure a secure disposal of wastes to avoid the nitrate contamination of soil and water resources. The resulting increase in the costs of production are said to be from 2-5% as a consequence of manure management regulations. Likewise, recent legislation aiming to increase and assure food safety has also a significant impact over the cost structure of producers as they have to assume the disposal cost of destroying animal carcasses. Finally, recent animal welfare regulations have had minimal influence over pig farmers.

While the choice of producing pigs is mostly linked to the farmers' own self-assurance, pressures from major players within the local pork meat industry (namely ElPozo- Fuertes) certainly has played an important role in the increase in the number of pig producers in Murcia. The main influence over the choice of production process comes mainly from the large players down the supply chain exercising their bargaining power. There is also a degree of imitation amongst the different Murciano producers, where the smaller farms tend to copy the trends and innovations that larger farms develop. The main marketing decisions are taken from the main players within the supply chain. The importance of the main players within the supply chain is mostly the result of the strong presence of integrated production within the pork meat industry.

The opportunity cost of production has significantly increased in Murcia. This is mainly due to the lack of urban planning and clarity within the landuse legislation of the region, leaving local administrations with the power to change zoning at will, together with the significant increase in the demand for residential land and the resulting important rise in the price of land.

Diversification

The region's pig producers are mostly monoproducers, in the sense that they are exclusively dedicated to the production of pigs and other agrarian activities. Nevertheless, an estimated 20% of producers have alternative sources of revenues coming essentially from real estate operations.

Pig production in Murcia has experienced an exponential growth over the last decade. This growth came as much in the number of pig farms as in the increase in the physical size of Murcia's farms. The average number of employees per farm also increased substantially over the last decade. The main changes in production have come from the rationalisation of production, leading to larger and more cost efficient farm operations. Pig farming in Murcia has also seen more intensification of production as well as a greater proportion of integration contracts. The main stimulus leading to these changes came from the attractive margins that were available through these production techniques. Integrated farming gave a certain feeling of stability and security to pig farmers, who often chose this alternative over exposure to market fluctuation. Pig exports also increased sharply during the period as this became a very profitable activity.

For the future, the industry will probably continue its growth in volume, although probably in a slower pace than before. There are some predictions that the industry in Murcia will witness some concentration, which will diminish the number of active producers in the region. The remaining producers, mostly controlled by upstream processing firms, will be less in number but will have greater volumes of production. It is expected that integration contracts will remain an important characteristic of Murcia's pig meat industry.

6.3.1.3 Intermediary production actors

Production input

The second stage of the pig meat industry's supply chain is made up of slaughterhouses and processing firms. There are a total of 125 such firms in Murcia, which normally employ an average of 34 employees each. The average cost per ton of pig meat slaughtered and processed by these firms is EUR 1,650. The cost of this stage's main input, the live pig, only represents 60% of total costs. Labour actually represents a greater proportion at 10%. Other important cost items are machinery purchase and maintenance which take up 15% of total costs, and storage facilities that cost the slaughter houses up to 10% of all their costs. On the other hand 5% of the costs are related to the energy used during the process.

At this stage, only of 2 man/hour is needed per ton of processed pig meat. The proportion of labour coming from self-employment at this stage of the supply chain is relatively low at 10%, where the average annual salary per work is somewhat higher than that of similar industries of the region. There is little need for specialised training on the part of workers.

Production output

The recent average production level of firms at the slaughter and processing stage of the pig meat industry has been 350,000 t. The current prices are EUR 1,500 per ton. And the more recent estimated profit is EUR 50 per ton.

About 20% of this output is sold outside the region. This share is rapidly increasing as more firms realise that export markets offer greater possibilities for positive margins. The recent sales price for a processed ton of pig meat has been such that all firms at this stage were able to comfortably break even and generate positive profits for themselves over the last few campaigns. There is only the rare instance of competition coming from imported pig meat at this stage of the industry's supply chain, and generally, the competitive intensity that Murcia's slaughterhouses must face is relatively moderate.

External effects

The slaughtering and processing stage of the pig meat supply chain generates almost no influence over the local environment. As for these firms' impact over local employment, they provide work for an estimated 4,245 workers. These workers are partly immigrant men from countries outside the EU.

The slaughterhouses and processing firms within the pig meat industry exercise great influence over the social and political spheres in the region. They are active in most public consultation and planning organs, and form a strong lobby working on the part of local interests.

External factors

Regulations have had only a moderate effect over the firms at this stage of the pig meat supply chain. Food safety and animal welfare regulations have influenced the process used at this stage, but these have only had minor effects upon the cost structure. Land use legislation, or the lack of, has led to pressures upon the contracted pig producers' opportunity costs, which consequently has influenced the supply of pigs to the slaughterhouses.

6.3.1.4 End consumption actors

Demand

The final consumers of the pork meat industry are mostly private households that purchase the meat from major grocers and retail outlets. The mayor part of the pork meat produced and processed in Murcia is consumed outside of the region. Nevertheless, the average annual consumption per capita of pork meat in the region of Murcia is 56 kg. Although the final consumer price varies tremendously depending on the cut and the point of purchase, the latest average price per kilo of pork in the region was of EUR 5.65.

The average annual income per capita for Murcia over the last year was of EUR 10,424. Even though the disposable incomes of households would increase, it is not expected that any significant change in pork consumption habits would occur amongst residents of Murcia. In the event of price increases, consumers may react by slightly diminishing their consumption of pork meat, substituting pork with other meats. The main substitute products for pork are alternative meats, fish and vegetable proteins.

External factors

The main influence over pork meat consumption in Murcia on the part of the general population comes from regional traditions and culinary heritage, which makes a heavy use of pork meat within its dishes. The media, and the image it portrays of pork has influenced the growing perception that pork should be excluded from a healthy diet. There is also growing popular concern about the environmental impact of nitrate contamination resulting from intensive pork production. Nevertheless, the demand for pork and derived products has increased over the past decade.

6.3.1.5 Dynamics of the supply chain

Reasons for major shifts in the past

The supply chain for pigmeat was affected by the following facts:

1. In the 60's the industry benefited from the fast growth of the Spanish meat demand. In accordance, meat production increased due to the establishment of an intensive livestock model, based on pork and poultry. The cereals and soybeans needed for fodder's production, were practically all imported.
2. The Spanish economic opening-up process due to: a) the preferential treaty (1970) with the EEC; b) the access of Spain to the EC (1986), c) the Single Market Agreement (1993).
3. Sanitary hazards – african pig plague – limited exports. Until 1989 exportation was completely forbidden and just a few regions were able to sell abroad. Murcia was one of the first regions allowed to export. In 1995 the disease was totally eradicated, and therefore exports were liberalised in November of that year. Since then, the level of export has grown at an increasing rate.
4. Technological developments have facilitated the establishment of an intensive and specialized model of production.
5. The establishment of local big companies in the 80's, amongst which is one of Spain's most prominent: the Fuertes El Pozo group.

Effects of past shifts

This sector has grown very fast in the last fifteen years. Particularly, new stages of the productive process have been introduced to Murcia pig meat industry.

Possible reasons for future shifts

Any future shifts will possibly be due to the instability of the grain markets, which extends to the instability of the pig meat industry's production costs. As the price of grain rises, the cost of feed and production within the pork industry will also increase. The main issue is that over recent months, pork production firms from the region have not been capable of transferring these additional costs to the final price of the pigmeat.

6.3.2 Supply chain 2 – Fresh tomatoes

6.3.2.1 General description

The supply chain for tomatoes produced in the region of Murcia, is mostly characterised by three stages before reaching the final consumer. The production stage, which in Murcia is mainly carried-out by large-scale intensive private farms. Only a small percentage of the region's commercialised tomatoes are produced by small-scale, part-time farms. Although there is some organic production of tomatoes and some instances of direct marketing, these are far from being usual.

The cultivated tomatoes are mostly passed on to the second stage of the value chain, where private and cooperative processing and packaging proceed in cleaning, categorising, packaging, bulking and distributing the produce in accordance to the demands of the major retailers found in the following stage of the value chain. These firms are usually large in size and have significant bargaining power over the smaller producers. Nevertheless, there tends to be a greater feeling of collaboration between the agents of these two stages of the value chain instead of one of confrontation, especially in the case of the cooperative enterprises.

The processing and packaging firms within the tomato value chain usually sell most of their goods to grocers and retailers, (in foreign countries). This stage is characterised by huge multinationals that for obvious reasons were left out of this analysis.

At the final stage of the value chain, where the end consumption of fresh tomatoes takes place, private households mostly found. These households consuming fresh tomatoes produced in the region of Murcia are distributed throughout Europe.

The estimated contribution of tomatoes to Murcia's regional GVA for agriculture is 7.8%, and the agricultural area covered in the region is 2.7%.

6.3.2.2 Agricultural and forestry production actors

Production input

In Murcia some 700 farms are growing tomatoes. The average size of a tomato farm is 3.75 ha. It is estimated that an average of 8 workers are employed on a typical tomato farm. The average amount of tomatoes that can be harvested in a year from 1 ha of land is 79 t, therefore the average farm produces some 300 t of tomatoes a year. From this produce, it is estimated that the average economic size of the tomato farm stands at an annual turnover of EUR 168,000.

About 3,800 ha of tomatoes were cultivated in Murcia over the last production year. This area gave a total production of some 320,000 t of tomatoes for that year.

The percentage of farmers in this stage of the supply chain that are aged over 55 stands at about 40% of all tomato producers. Younger producers are said to be involved in larger, more intensive tomato farming, whilst older tomato farmers in Murcia tend to have less intensive and technical farming practices.

The average cost per ton for a tomato farm is approximately EUR 370, where the maximum production cost could be up to EUR 430 and the minimum is about EUR 320 per ton.

The most relevant components of the production costs are labour and machinery. The workforce required for the production of tomatoes adds up to about 48% of the total costs of production. Machinery investment and maintenance costs are especially important for those tomato farmers who have adopted intensive and technical production processes for growing tomatoes that usually involves greenhouses cultivation. The proportion of the total costs that on average goes to machinery for tomato production is about 21%. The only other significant cost item which represents a share above 10% of total production costs is the purchase of fertilisers.

The production of tomatoes utilises an average of 49.5 m³ water per ton. The energy consumption of the crop reaches 60 kw per ton and the average amount of fertilizers required is seeds required is 3.8 kg per ton. Of course these numbers vary tremendously according to the production process and consequently according to the level of the productive intensity, with a more efficient use of resources being made by the more intensive tomato production techniques.

If there were any increase in the price of fertilisers or of water, these would probably have little impact over the current production process of tomatoes, with the exception of possible stimulating even greater efficiency levels in the use of these components. The tomato farmers of the region of Murcia are using the resources within their production process, and especially water very efficiently.

In the case of an increase in the overall cost of labour, the reaction would most likely be to turn towards production processes that would be less labour intensive, such as those requiring a greater amount of mechanisation. This tendency is already being seen amongst some of the region's larger producers. In the case of an increase in the cost of irrigation and water, the reaction would probably not be towards substitutes (for the lack of) but rather towards better irrigation systems and more efficient usage of this resource.

There is very little sharing of production goods and services amongst Murcia's tomato farmers, and this even in the case of members of the same producer's cooperatives.

An average of some 38.5 man/hours of labour are required annually for every ton of tomatoes. Of these, there is a low proportion of labour coming from the contribution of the self-employed farmer (about 20%). The annual labour cost per full time employee in the production of tomatoes is about EUR 10,000, which is roughly the same compensation as in other primary sector farms.

Tomato farming requires very little specialised knowledge from its workforce. However the growing technification of the production process is increasing this need. The very large majority of Murcia's tomato farmers have only basic agricultural training, with only the rare exception reaching university training.

Production output

The number of hectares dedicated to tomatoes over the last production campaign in Murcia was roughly 3,800 ha, of which over 320,000 t of tomatoes were produced. This production goes entirely to the next stage of the supply chain which is located locally. The most recent price per ton of tomatoes to the next stage of the supply chain was EUR 560 per ton, with a maximum of EUR 670 and a minimum of EUR 500 depending on the variety, quality and date of delivery of the tomatoes. The estimated profit per hectare of tomatoes for producers over the latest period is roughly EUR 240 per ton, with a high of EUR 670 for some producers and a minimum of EUR 500 per hectare.

Because the main final consumption market for Murcia's tomatoes is foreign, the competitive relevance of imported tomatoes to Murcia is very low. There are some producers from Murcia who have established complimentary production sights outside the region, e.g. in Morocco. These foreign grown tomatoes are often distributed under the same brand as the local produce, which makes differentiation difficult. However, these foreign crops do not act as a relevant local competitor. Foreign production is nevertheless increasing competitive intensity further down the supply chain, which consequently affects the prices paid to producers in Murcia.

The vast majority of Murcia's fresh tomato production is passed over to the processing and packaging firms established within the region.

It is important to point out that most of the producers of tomatoes are at the same time processors or are part of a cooperative. The integration of both stages is very relevant.

The local competitive intensity amongst Murcia's tomato producers has become harsh. Although the region's producers mainly send their tomatoes to the local processing and packaging facilities, they would be capable to sell and send their produce to pretty much anywhere in Europe.

External effects

The negative impact of tomato production, in terms of pollution is moderate. There have been important improvements in this area mostly as a result of the development of intensive and integrated farming practices as well as a result of the stricter requirements of distributors. The main source of contamination comes from the over-exploitation which has been made in some instances of the aquifer. This has been related to some concerns over water contamination and salinisation in the area as well as the loss of soil fertility.

The production of tomatoes is concentrated in the Mazarrón-Aguilas region. The water for irrigation comes from aquifers. Because of the high level of salts in the water several desalinisation plants have been built over the last decade. Tomatoes are one of the vegetables that tolerate a high rate of salts in the water best.

The impact of tomato farming over the regional labour market is relatively low. There are about 8,500 mostly temporary and seasonal workers working in Murcia's tomato farms. This forms about 15% of the workforce dedicated to primary sector jobs in Murcia. This workforce is mostly composed of foreign labour coming from outside the EU.

Murcia's tomato farmers are fairly implicated within the region's social activities.

External factors

The tomato production season stretches across 10 months of the year. The influence of soil quality on tomato production is rapidly diminishing in response to the growing use of intensive greenhouse farming. More important is the climate, including both temperature and the proportion of natural sunlight. Tomato producers in Murcia have not suffered from many natural hazards over the last decade, with a few exceptions coming from the rare occurrence of hail. Much more catastrophic has been the occasional presence of high winds that cause important damages to the greenhouse infrastructures of intensive tomato farms.

Tomato production does not benefit from direct payment and subsidy schemes, and therefore is little influenced by changes in the sectoral CMO measures. However, Murcia's tomato producers do benefit from supportive measures coming from the operative funds that are used to destroy and/or dispose of a proportion of the

harvest as a result of low prices. This has tended to be a recurring event over the last few years.

The greatest influence of regulation over the production process and costs of tomato producers in Murcia comes from environmental, real estate and labour safety legislations. Water regulations from the water framework directive for the Tajo-Segura water transfer have set strong restrictions over water use in Murcia. These restrictions resulted into less water availability and higher water costs for tomato producers. In the case of integrated farmers, regulations on the use of fertilizers and pesticides have greatly influenced the production process of tomatoes. Recent legislation aiming to increase and assure food safety has also had a significant impact. Real estate speculation and the booming housing market over the last decade has led municipal land planning legislation to have great impact over the production decisions of tomato farmers. Many have converted cultivated land into residential land following changes in land designation by local administrations. Finally, recent labour safety regulations have increased the relative labour costs for tomato farmers.

While the choice of producing tomatoes is mostly linked to inertia, pressures from the producer's co-ops and from the goal to maximise the benefits from the sunk costs invested into the infrastructures and greenhouses needed for their cultivation, the main influence over the choice of production process technology comes from large players down the supply chain exercising their bargaining power. There is also a degree of imitation amongst the different Murciano producers, where the smaller farms tend to copy the trends and innovations that the larger farms develop. The main marketing decisions are taken from the producer's cooperatives as from the main players within the supply chain.

Diversification

The region's tomato producers are mostly monoproducers, in the sense that they are exclusively dedicated to the production of tomatoes. Nevertheless, an estimated 30% of producers have alternative sources of revenues from their land. Almost a third of these are also involved in the production of melons. Another 20% get revenues from real estate and housing developments operations.

Over the last decade there has been a slight increase in the production output of tomatoes in Murcia. The main changes in production have come from the rationalisation of production, leading to larger and more efficient farm operations, as well as greater intensification of production through the use of new technologies. The main stimulus leading to these changes have been the increasing competitive intensity in the region as well as the decreasing profitability of the crop under tradition production processes. The lack of water resources has also encouraged many tomato farmers to adopt more intensive and efficient production techniques.

For the future, the industry will probably witness a greater proportion of dislocalisation of production on the local tomato farmers. But, although demand

predictions for the consumption of fresh tomatoes are reasonably good for the near future, the increasing production capacity in Europe and the Mediterranean arch will probably lead to a continuation of low prices and over production. However, competition with real estate and tourist interests for land use will probably see a proportion of Murcia's existing tomato production capacity disappear. This slack will most likely be compensated by the increase productivity of the remaining cultivations. It is also very likely that the industry will begin to introduce a greater number of differentiated products in the market to escape the rising competitive intensity.

6.3.2.3 Intermediary production actors

Production input

The second stage of the fresh tomato industry's supply chain made up of processing and packaging firms that collect the tomatoes from the farmers, cleaning, categorising, packaging, bulking and distributing the produce in accordance to the demands of the major retailers found in the following stage of the value chain. There are a total of 25 such firms in Murcia, which normally employ an average of 260 employees each (those enterprises process several other vegetables not only tomatoes). The estimated annual turnover of these processing firms related to tomatoes processing is of EUR 12.8 mio. The average cost per ton of tomatoes processed by these firms is EUR 670 per ton, 85% of which is represented by the cost of the raw material, the tomato. The proportion of labour cost to total cost for tomato processing firms is 9%. On the other hand 5% of the costs are related to consumables used during the packaging process.

An average of 10.2 h of labour is required to process a ton of tomatoes. The proportion of labour coming from self-employment at this stage of the supply chain is relatively low, where the average annual salary per work is more or less the same as those of similar industries at EUR 12,000. There is little need for specialised training on the part of workers. Because of the high seasonality of production at this stage of the supply chain, most of the labour needs of processing firms are met through the use of temporary work agencies.

Production output

The recent average production level of firms at the processing stage of the tomato industry has been 320,000 t. Over 70% of this output is exported (outside Spain). The recent sales price for a processed ton of fresh tomatoes has been EUR 1,000. There is increasing competition at this stage of the supply chain coming from new firms being established in countries outside the EU. Some competition is also being felt from tomato processors established within the Union, mostly Belgium.

External effects

The processing and packaging stage of the tomato supply chain generates very little influence over its environment. As for these firms' impact over local employment, they provide work for an estimated 6,500 workers. These workers are mostly immigrant women from countries outside the EU.

The processing and packaging firms within the tomato industry have great influence on the social and political spheres in the region. They are active in most public consultation and planning organs, and form a strong lobby working on the part of local producers.

External factors

Food safety regulations have had a moderate effect over the firms at this stage of the tomato supply chain. If any, they increased the value added and necessity of processing and packaging firms within the supply chain. Labour and employment regulations have restricted the operationality of these firms and increased the legislative burden involved in their personal management policies. As a result, most firms have turned towards temporary work agencies in order to adopt to their cyclical labour needs.

6.3.2.4 End consumption actors

Demand

The final consumers of fresh tomatoes are mostly private households that purchase tomatoes from major grocers and retail outlets. About 94% of fresh tomatoes grown in Murcia are bought and consumed outside of the region.

The average annual consumption per capita of tomatoes in Murcia is of 14.12 kg. Although the final consumer price varies tremendously depending on the point of purchase and on seasonality, the latest average price per kilo of tomatoes in the region was of EUR 1.34.

The average annual income per capita for Murcia over the last year was EUR 10,424. In the event of a strong price increase, as it is often the case due to seasonal variations in supply, consumers tend to decrease their levels of consumption of fresh tomatoes. The main substitute products for tomatoes are other vegetables. Tomatoes are not considered to be a status influenced product, and therefore is not expected to experience any significant change in its consumption levels as a result of an increase in the income levels of consumers.

External factors

Some of the principal influences over tomato consumption on the part of the general population have come from the increasing social consciousness of the

benefits of maintaining healthy dietary habits. In this sense, eating fresh tomatoes is rightly perceived as part of a healthy diet. Likewise, the promotion of the Mediterranean diet, rich in fresh fruits and vegetables has also had a beneficial effect on tomato consumption levels.

6.3.2.5 Dynamics of the supply chain

Reasons for major shifts in the past

La tomato supply chain as most of the vegetables produced in Murcia were affected by the following facts:

1. The Spanish economic opening-up process due to: a) the preferential treaty (1970) with the EEC; b) the access of Spain to the EC (1986), c) the Single Market Agreement (1993). In 1993 the transitory period for fruit and vegetables came to a close, from that moment the exports of vegetables increased sharply.
2. The technological development facilitated the establishment of an intensive and specialised model of production and the integration of the processing, packaging and transport all carried-out by the same firms.
3. The technological innovation produced a more standard product and new long life varieties of tomatoes that are more appreciated for long distances.
4. The increase and diversification of the European vegetable demand.
5. The concentration process in the retailing sector. The large supermarkets call for new requirements in the production process, packaging, logistics, etc.

Effects of past shifts

During the last fifteen years Spain was the main tomato supplier for the EU market. Tomato imports from third countries were limited by quotas and tariffs. The Murcian tomato industry has evolved towards the development of big firms able to offer large quantities to the European retailing sector. New varieties were introduced to assume longer conservation periods.

Possible reasons for future shifts

The possible future shifts will be due to the increase competition. New preferential agreements between EU and other important vegetable producers is increasing the imports of lettuce and other vegetables. New WTO negotiations will most likely open the EU's door to a greater number of fruit and vegetable imports from outside countries.

The production of tomatoes is concentrated in the Aguilas-Mazarron region, which is one of the most dynamic turistic areas of the region, with very high levels of

construction for secondary housing. As a result, considerable competition for land is appearing.

6.3.3 Supply chain 3 – Lettuces

6.3.3.1 General description

The supply chain for lettuces produced in the region of Murcia, Spain, is mostly characterised by three stages before reaching the final consumer. The first stage is of-course the production stage, which in Murcia is mainly carried-out by intensive private farms, whereas only a small percentage of the region's commercialised lettuce is produced by small-scale, part-time farms. The lettuce is then mostly passed on to the second stage of the value chain, where private and cooperative processing and packaging proceed in cleaning, categorising, packaging, bulking and distributing the produce in accordance to the demands of the major retailers found in the following stage of the value chain. These firms are usually large in size and have significant bargaining power over the smaller producers. Nevertheless, there tends to be a greater feeling of collaboration between the agents of these two stages of the value chain instead of one of confrontation. This is especially the case with the cooperative enterprises present at this stage.

The processing and packaging firms within the lettuce value chain usually sell most of their goods to grocers and retailers, (in foreign countries). Some of the firms commercialize 'fourth-range' lettuce products. The retailer stage is characterised by huge supermarkets that belongs to multinationals firms and by purchasing centres (most of them are part of the supermarkets' corporate structure).

At the final stage of the value chain, where the end consumption of lettuce takes place, private households are mostly found. Households consuming fresh lettuce produced in the region of Murcia can be found throughout Europe.

6.3.3.2 Agricultural and forestry production actors

Production input

In Murcia about 1,300 farms are producing lettuces. The average size of a lettuce farm is 10 ha. It is estimated that an average of 6 workers are employed on a typical lettuce farm. The average amount of lettuces that can be harvested in a year from 1 ha of land is 23 t, therefore the average farm produces about 230 t lettuce a year. About 13,000 ha of lettuce were cultivated in Murcia over the last production year (that number included the multi-crops operated (repetition of crops) in the same parcel). This area produced about 300,000 t lettuce in that year. About 70% are iceberg lettuces, 15% romana and 10% boby. The production per ha is very different: in iceberg is around 27 t per hectare while boby is only 12.5 t per ha.

Although it is difficult to estimate the percentage of farmers aged over 55, some experts pointed out that young farmers are frequent in the production of lettuce. Large scale lettuce production compared with tomatoes is relatively new in Murcia.

The average cost per ton for a lettuce farm is approximately EUR 200, the maximum production cost could rise up to EUR 230 and for some very efficient farms, the minimum is about EUR 160 per hectare.

The most relevant components of the production process are labour and seedling costs. The workforce required for the production of lettuce adds up to 41% of the total costs of production. The proportion of the total costs for purchasing and planting lettuce seedlings is 21%. Other significant cost items for lettuce cultivation are irrigation and energy, each representing a 10% share of total cost of production.

The production of lettuce utilises an average of 9,000 m³ water per hectare or 391 m³ per ton. If there were any increase in the price of water, this would probably have little impact over the current production process, with the exception of possibly stimulating even greater efficiency levels in the use of this input. The lettuce farmers in Murcia already use water within the production process very efficiently.

In case of an increase of the overall cost of labour, the reaction would most likely be to turn towards less labour intensive production processes, such as those requiring a greater amount of mechanisation. In the case of an increase of the costs of irrigation and water, the reaction would probably not be towards substitutes, but rather towards better irrigation systems and a more efficient usage of this resource.

There is very little sharing of production goods and services amongst Murcia's lettuce farmers, and this even in the case of members of the same producer's cooperatives.

An average of some 14 man/hours of labour are required annually for harvesting a ton of lettuce. Only 10% of the labour are self-employed farmers. The annual labour cost per full time employee is about EUR 10,000, which is roughly the same amount as in other primary sector farms of the region.

Lettuce farming requires little specialised knowledge from its workforce. However, the growing technification of the production process is increasing this need. The very large majority of Murcia's lettuce farmers have only basic agricultural training, with only the rare exception reaching university training.

Production output

The number of hectares dedicated to lettuce over the last production campaign was roughly 13,000 ha, of which over 29,9000 t lettuce was produced. This production

goes entirely to the next stage of the supply chain which is located locally. The most recent price per ton of lettuce to the next stage of the supply chain was EUR 290, with a maximum of EUR 5,300 and a minimum of EUR 280 depending on the variety, quality and date of delivery of the lettuce. The estimated profit per hectare of lettuce for producers over the latest period is roughly EUR 90, with frequent losses being reported over the last year.

As the main final consumption market for Murcia's lettuce is foreign, the competitive relevance of imported lettuce to Murcia is very low. Foreign production is nevertheless increasing competitive intensity further down the supply chain, which consequently affects the prices paid to producers in Murcia. Due to the favourable climatology, in some periods of the year Murcia-grown lettuce is the only lettuce available to retail outlets throughout Europe.

All of Murcia's lettuce production is passed over to the processing and packaging firms established within the region. It is important to point out that most of the producers of lettuce are at the same time processors or part of a cooperative. The integration of both stages is very relevant.

The local competitive intensity amongst Murcia's lettuce producers is moderate. Although the region's producers mainly send their lettuce to the local processing and packaging facilities, they would be capable, if need be, to sell and send their produce to pretty much anywhere in Europe.

External effects

The negative impact of lettuce production in terms of pollution is moderate. There have been important improvements in this area mostly as a result of the development of intensive and integrated farming practices as well as a result of the stricter requirements of distributors. The main source of contamination comes from the loss of soil fertility due to the intensive character of lettuce farming, together with the promotion of some pests that have become an increasing nuisance to production.

The impact of lettuce farming over the regional labour market is relatively low. There are about 7,800 mostly temporary and seasonal workers working in Murcia's lettuce farms. This forms about 14% of the workforce dedicated to primary sector jobs in Murcia. This workforce is mostly composed of foreign labour coming from outside the EU.

For the most part, Murcia's lettuce farmers are fairly implicated within the region's social activities.

External factors

The lettuce production season stretches across 9 months of the year. The influence of soil quality over lettuce production is low. More important is the climate,

including both temperature and the proportion of natural sunlight. Lettuce producers in Murcia have not suffered from many natural hazards over the last decade, with a few exceptions coming from the rare occurrence of hail. Pests are starting to be a problem, with fungal infections common amongst more intensive producers. To avoid this, producers are rotating their fields leaving areas fallow. This also improves the soil quality.

Lettuce production does not benefit from direct payment and subsidy schemes, and therefore a little influenced by changes in the sectoral CMO measures. However, Murcia's lettuce producers do benefit from supportive measures coming from the operative funds that are used to destroy and/or dispose of a proportion of the harvest as a result of low prices. This has tended to be a recurring event over the last few years.

The greatest influence of regulation over the production process and costs of lettuce producers in Murcia comes from water and fertiliser use regulations as well as food safety legislations. Land use legislation also had an impact in recent years as many producers are reassigning agricultural land for residential building use. This is leading to important competition for land between real estate and agricultural interests.

While the choice of producing lettuce is mostly linked to habit and peer-observation, the main influence over the choice of production process technology used to cultivate the crop comes from large players down the supply chain exercising their bargaining power over producers. There is also a degree of imitation amongst the different Murciano producers, where the smaller farms tend to copy the trends and innovations that the larger farms develop. The main marketing decisions are taken from the producer's cooperatives as from the main players within the supply chain.

Diversification

The production of lettuce is concentrated in Campo de Cartagena. The region's lettuce producers are mostly monoproducers, in the sense that they are exclusively dedicated to the production of lettuce. Nevertheless, about 30% of the producers have alternative sources of revenues from their land coming from the cultivation of other types of vegetables. Another 20% get revenues from real estate and housing developments operations.

Over the last decade there has been a major increase in the production output of lettuce in Murcia. The main changes in production came from a greater intensification in the cultivation of this crop as a result of new production technologies. The lack of water resources has also encouraged many lettuce farmers to adopt more intensive and efficient production techniques. Although still marginal, organic production is rapidly growing as an alternative cultivation method for lettuce in the region.

For the future, the industry will probably witness a greater diversification towards a larger number of varieties of leaf and lettuce crops. 'Fourth-range' lettuce products will also most likely take up an increasing share of the region's lettuce production. Hence, competition with real estate and tourist interests for land use will probably see a proportion of Murcia's existing lettuce production capacity disappear.

6.3.3.3 Intermediary production actors

Production input

The second stage of the lettuce industry's supply chain is made up of processing and packaging firms that collect the lettuce from the farmers, clean, categorise, package, bulk and distribute the produce in accordance to the demands of the major retailers found at the following stage of the value chain. There are 15 firms in Murcia, which normally employ an average of 500 employees each. The estimated annual turnover of these processing firms is EUR 24 mio. Those firm process several vegetables. The average cost per ton of lettuce processed is EUR 454, 62% of which is represented by the cost of the raw material, the lettuce. The proportion of labour cost to total cost is 13%. 20% of the costs are related to consumables and the facilities used during the packaging process.

An average of 8.7 h of labour is required to process a ton of lettuce. The proportion of labour coming from self-employment is very low, where the average annual salary per work is more or less the same as those of similar industries at EUR 12,000. There is little need for specialised training on the workers. Because of the high seasonality of production at this stage of the supply chain, most of the labour needs of processing firms are met through the use of temporary work agencies.

Production output

The recent average production level of firms at the processing stage of the lettuce industry has been of 300,000 t. Over 80% of this output is sold outside the region, mostly outside Spain. The recent sales price for a processed ton of lettuce was EUR 500. The average profit margin per unit of lettuce processed is EUR 46, although not all of the firms are able to reach breakeven. Competition coming from firms established outside the region is relatively low. All of the produce processed at this stage of the value chain is sold to major retailers or producers of 'fourth-range' products.

External effects

The processing and packaging of lettuce generates very little influence on the environment. These firms provide work for estimated 4,500 workers. These workers are mostly immigrant women from countries outside the EU.

The processing and packaging firms within the lettuce industry have great influence on the social and political spheres in the region. They are active in most public consultation and planning organs, and form a strong lobby working on the part of local producers.

External factors

Food safety regulations had a moderate effect over the firms producing lettuce. If any, they have increased the value added and necessity of processing and packaging firms within the supply chain. Labour and employment regulations have restricted the operability of these firms and increased the legislative burden involved in their personal management policies. As a result, most firms have turned towards temporary work agencies in order to satisfy their cyclical labour needs.

6.3.3.4 End consumption actors

Demand

The final consumers of lettuce are mostly private households that purchase lettuce from major grocers and retail outlets. About 95% of the lettuce grown in Murcia are bought and consumed outside the region.

The average annual consumption per capita of lettuce in the region of Murcia is 5.7 kg. Although the final consumer price varies tremendously depending on the point of purchase and on seasonality, the latest average price per kilo of lettuce in the region was of EUR 3.

The average annual income per capita for Murcia in the last year was EUR 10,424. As the disposable incomes of households increase, there is a tendency for a greater consumption of 'fourth-range' lettuce products. When the price increases, consumers do not tend to modify their consumption levels of lettuce. The main substitute products for traditional lettuce are other leaf crops and alternative lettuce varieties.

External factors

Impact on the lettuce consumption derived from the increasing social consciousness of the benefits of maintaining healthy dietary habits. Eating lettuce is rightly perceived as part of a healthy diet. Likewise, the promotion of the Mediterranean diet, rich in fresh fruits and vegetables has also had a beneficial effect on lettuce consumption levels. Lettuce is also influenced by climatology, where its consumption increases in periods of high temperature.

6.3.3.5 Dynamics of the supply chain

Reasons for major shifts in the past

The supply chain for lettuce, as is the case for most of the vegetables produced in Murcia, were affected by the following facts:

1. The Spanish economic opening-up process due to: a) the preferential treaty (1970) with the EEC; b) the acces of Spain to the EC (1986), c) the Single Market Agreement (1993). In 1993 the transitory period for fruit and vegetables was finished and the European markets were open for the spansih vegetables and fruits.
2. Technological developments facilitated the establishment of an intensive and specialised model of production and the integration of the processing, packaging and transport tasks within the same firms.
3. The increase and diversification of the European vegetable demand, with an increase demand for lettuces in the northern and central countries of Europe
4. The concentration process in the retailing sector. The large supermarkets call for new requeriments in the production process, packaging, logistics, etc.

Effects of past shifts

Over the last fifteen years Spain has been the main lettuce supplier for the EU market. The lettuce imports from thirds counties was limited by quotas and tariffs. The Murcian lettuce industry developed big firms being able to offer large quantities to the European retailing sector. New varieties were introduced to assume longer conservation periods.

Possible reasons for future shifts

The possible future shifts will most likely result in an increase of the competitive intensity and due to changes in the demand. The preferential agreements between EU and other important vegetable producers are increasing the imports of lettuce and other vegetables. The WTO negotiation will offer new opportunities for lettuce imports from third country producers.

In addition, for some experts, the European consumption of lettuces will likely increase as a result of changes in the dietary habits of the population and influenced by institutional iniciatives orienteded to increasing the consumption of fruits and vegetables. Lettuce has vitamin C and E and potassium, iron, maganesiu and calcium and it is a very powerfull anti-oxidante. It is a product consume all year long. Climate change will also benefit lettuce consumption. There is also an increased demand for quality products and prepared vegetables (4th. and 5th range).

6.3.4 Alternative supply chains

Alternative supply Chain 4: Labelling Pig meat

According to the opinion of the experts there is not a real alternative for the pork meat industry in Murcia. The opening-up process of the European economy will most likely lead to an increase in competition within the pigmeat industry. Recently there has been an important reduction in the profits of pigmeat producers as a result of the increase in the price of the feedingstuffs. Due to this situation, some actors are considering the possibility to move to a differentiated production. This is not easy. The main advantage of the intensive production of pigs is its cost efficiency. Pigmeat produced in Murcia is not a labeled product.

With the objective of differentiating the product, the only proposal pointed out by those interviewed was to introduce a label to differentiate the European production from the rest. The label will inform the consumers that the products have been produced following the European regulations related to safety, environment and animal welfare. The label can incorporate the local origin of the product.

Alternative supply Chain 5: Unique tomato species (RAFT)

Supply Chain definition

The alternative supply chain of Murcia's tomato industry would be reached by adding greater differentiation and quality in order to get new tomato varieties such as the increasingly popular RAFT tomato. RAFT tomato was originally developed as a new variety more resistant to certain pests affecting existing typologies, but due to its taste and distinction, it has generated a growing demand as one of the top tomato varieties. Certain major distribution chains work with local tomato producers in order to develop new high quality varieties exclusive for them. As a result, the chain unique tomatoes species (RAFT), must be classified as an unique product.

The unique tomatoes species (RAFT) chain, includes the same stages as the tomatoes chain.

Production Actors

The production of RAFT tomatoes is done by some of the traditional tomatoes producers. Most of the RAFT tomatoes producers keep producing other varieties. It is very difficult to determine the number of producers and the quantities produced due to the fast changes occurring in the production of the variety. It is estimated that the production of 7,000 t in an area of 100 ha, so the output is 70 t per ha. Therefore, the estimated number of agricultural units produced of tomatoes RAFT is 70.

Production inputs, labour and production output

Adapting the existing supply chain to this new product is relatively easy from the producers' point of view.

Following the information collected, its cost production structure is similar to that of the other varieties. We estimate an increase of 10% of the cost, due to the added machinery costs.

Considering a sale price of EUR 2,000 per ton, tomatoes producers obtain very high profits (EUR 1,590 per ton). Hence, processors profit is estimated around EUR 500 per ton.

Difficulty usually stands at distribution and commercialisation stages of this new variety, because these two stages do not necessarily coincide with the ones appearing in the traditional channels. Although the demand of this differentiated tomato is still marginal in Spain and abroad, it is rapidly increasing, forcing major distributors to open up shelf space.

Reasons for past changes for the specific production

During the last years, the price premium for this differentiated variety of tomatoes, reached up to 500% in comparison to traditional varieties. In 2006, the price premium was 350%. However, over the last months, this difference has decreased sharply.

Future changes

Some of the experts have pointed out that the strategy of new varieties will be the future for this sector in Murcia. As a consequence, the production of standardised tomatoes varieties will probably be produced in northern Africa.

Nevertheless, high profits for these new varieties are due to their niche market situation. Prices decrease sharply when supply increases. RAFT tomatoes production is increasing so fast that prices are decreasing rapidly.

Alternative supply Chain 6: Processed lettuce or four range salads

Supply Chain definition

The alternative supply chain for lettuce production would most likely take presence in the greater adoption of the 'fourth range' prepared salads and lettuce. These are pre-washed, cut and packaged salads ready for consumption. The processed lettuce supply chain includes the same stages as the lettuce supply chain but has a new pre-stage related to the pre-washed, cut and packaged salads.

This alternative supply chain is already being developed by some of the major lettuce processors and packaging firms in Murcia (Verdmed S.A. already has 50% of its production dedicated to 'fourth range' and is the main supplier of these products to Mercadona, Spain's largest grocery retailer), Kernel Export S.L. produces 'Fourth range' salads for European export markets, and Intercrop Iberica S.L. produces 'Fourth range' products (outside the region) with lettuce produced in Murcia.

Agricultural and forestry production actors

Such a change in the supply chain would not require adaptation for lettuce cultivators. The same structure of costs, prices and employment has been considered. The majority of lettuce varieties are used in the 'Fourth range' prepared salads. From farmer's perspective, if lettuce is sold as a fresh vegetable or as a prepared salad there is not any difference.

Processing and packaging

The production of 'Fourth range' prepared salads represent important investments for the processing and packaging firms of the region.

Future

There already exists a significant domestic and institutional demand of this new supply chain. The opinion of some experts stress that the proximity of the firm to the final market is an important factor to take into account in the localisation of factories oriented to the 'Fourth range'. According to this point of view, it is more likely that new establishments offering 'Fourth range' product be established near big European cities rather than in the region of Murcia.

6.4 Investigating social networks

Table 163 Main organization in social networks

General	Agrarian	Rural
CROEM (Entrepreneurs association)	COAG, ASAJA & UPA (Agrarian Organizations)	LEADER Actions Groups
Camaras de Comercio de Murcia, Cartagena y Lorca (Trade chambers)	Federación de Cooperativas Agrarias de Murcia (FECOAM) (79 Cooperatives)	NORATUR (Rural Tourism Association)
UGT & CCOO (Trade unions)	Asociación Empresarios Hortofrutícolas Asociación de Productores Exportadores de frutas y hortalizas de la Región Murcia (PROEXPORT) Asociación de Productores Exportadores de Frutas y otros Productos Agrarios (APOEXPA) (Agrarian producers associations) Comunidades de Regantes (243 comunidades and 176,405 ha,) Cámara Agraria Consejos Reguladores, D,O, Jumilla, Yecha y Bullas (wine), Calaparra (rice), Queso de Murcia (Cheese), Pimentón, Pera de Jumilla (Pear) and Organic Agriculture	

Forums

Región de Murcia, Horizonte 2010: The "Región de Murcia, Horizonte 2010" initiative was set up as a forum of discussion where all sectors of Murcia's society could express their concerns and contribute to the general design of Murcia's next Strategic Plan for the period 2007-2013.

Consejo Economico y Social (CES): the Economic and Social Council, made up of employees' organisations, trade unions and other representatives of public interests, is a government advisory body, which means that its voice is heard in decision-making process affecting the various sectors of Murcia's society. With this objective, the Council issues mandatory opinions on draft bills for laws, draft legislative royal decrees regulating socioeconomic and labour policy, and draft royal decrees considered by the government to be of particular significance in this field. CES is an important institutional moderator amongst social agents, especially between the industrial syndicate (CROEM) and the labour unions (CCOO and UGT).

Rural Development Programme – Region of Murcia – 2007-2013: through discussions with the economic and social partners (partners at regional and local level and in the economic, social and environmental spheres),

LEADER Action Groups (LAGs)

The LAGs play an important role in rural areas of Murcia. On the one hand they group the region's 'social forces' (cooperatives, rural tourism associations, agrarian

organisations, women's groups, ...). On the other hand, they also represent institutional motors to the region's dynamics.

Table 164 Composition of the LEADER Action Groups

	Asociación para el Desarrollo Integral del Campo de Cartagena	Asociación para el Desarrollo Comarcal del Nordeste de la Región de Murcia/ Association for the regional development of the North-East of the region of MURCIA	INTEGRAL, Sociedad para el Desarrollo Rural	Asociación para el Desarrollo Rural Integrado de los Municipios de la Vega del Segura
Employer's association	AJE, CEOC		ASAJA, UPA, COAG	ARAVAR
Trade unions			CCOO, UGT	
Agrarian organizations	ASAJA	ASAJA, COAG & UPA		
Cooperatives	Coop, Almendras	Federación de Cooperativas Agrarias de Murcia (FECOAM)	Federación de Cooperativas Agrarias de Murcia	Federación de Cooperativas Agrarias de Murcia
Rural Tourism			NORATUR	
Asociaciones de vecinos				
Town councils	Murcia, Cartagena y Fuente Alamo,	Yecla, Fortuna, Jumilla & Albanilla	Albudeite, Aledo, Alhama de Murcia, Bullas, Calasparra, Campos del Río, Caravaca de la Cruz, Cehegín, Lorca, Moratalla, Mula, Pliego y Totana	Archena, Aguazas, Ricote Blanca, Ceutí, Lorquí, Ojós, Ricote, Ulea & Villanueva del Segura
Youth	Asociación de jóvenes de Lobosillo		Consejo de la Juventud de Lorca	Federación de Asociaciones de Jóvenes de la Vega del Segura
Woman	Afammer Asociación de mujeres de Santa Barbara	Asociación de Mujeres "La Purísima" Asociación de Mujeres para el Desarrollo de Abanilla	Asociación de mujeres Progresistas	Federación de Asociaciones de Mujeres de la Vega del Segura
Cultural associations			Asociación Cultural "El Jardincico", Mercadillo Zacatín	Federación de Asociaciones Culturales de la Vega del Segura
Regional Administration		Dirección General Infraestructuras de Turismo	Medio Ambiente y Comercio	Consejería de Turismo

Source: UAB

The **Confederación Hidrográfica del Segura** (CHS) is an autonomous organism of the State General Administration, assigned, for administrative effects, to the Ministry of Environment. It is an entity of public law with its own jurisdiction possessing the autonomy to govern and self administer its interests; to acquire and to alienate the goods and rights that can constitute self patrimony; to contract, oblige and to act in tribunals, all gender of actions, without further limitations than those imposed by the law.

The CHS is an important institution due to the importance of water to the region's agriculture. The CHS decides on the water flows to be destined towards irrigation, they authorize new irrigation schemes and charge taxes to farmers for their water use. The CHS maintains a close relationship with the Comunidad de Regantes (CR), which groups those farmers with irrigation together with the local agrarian organizations (COAG & ASAJA). There are frequent confrontations between these organizations (that want large quantities of cheap water) and the CHS that has the responsibility of distributing and charging farmers for water.

Institution that distribute subsidies

Instituto de Fomento (INFO)

INFO is the name of Murcia's regional development agency, which is organically attached to the Regional Ministry of Industry and Environment, One of the main objectives of the development agency is to ensure the upgrading and economic growth of regional SMEs by means of the following lines of work:

- Promote technological development by cooperating to ensure that each company can access the technology that best suits its needs,
- Boost international corporate expansion through the Foreign Trade Promotion Plan,
- Promote investment, development and enlargement projects by providing companies inside and outside the region with information, consultancy and counselling services,
- Help finance business projects concerning investment in assets, quality, technology, internationalization and industrial equipment,

One of INFO's main lines of work is aimed at providing global corporate support by means of the following development policies and tools:

- R+D and technology transfer promotion
- Business internationalization
- Incentives to the implementation of high-added-value facilities and equipment
- Information Society Development and comprehensive innovation promotion

The services rendered by the INFO in Murcia are implemented through county delegations and through the PuntoPyme network that is made up of 90 different information points distributed throughout Murcia's territory. This network integrates most of the organisations that work with SME's and self-employment initiatives, INFO also reaches local business through its "Euroventanilla" information site. INFO counts 19 different county offices.

Because of the advisory services and financial assistance offered, INFO is a key institution for the region's entrepreneurs and businesses. Most of Murcia's business support services and initiatives are channeled through INFO.

Consejería de Agricultura y Agua (Regional Ministry of agriculture and water):

- General Office for Agriculture and the Agrarian Industry
- General Office for irrigation and Rural Development
- General Office for Research and Technological Transformation
- General Secretariat

The Consejería de Aricultura y Agua counts 20 different county offices. This public office is important since it manages the application of the EU's Common Agrarian Policy in the region and carries out the implementation of its assistance measures.

Murcia's Social Action Institute: Manage the regions social policies and the employment and training assistance.

Instituto Murciano de Investigación y Desarrollo Agrario y Alimentario: Murcia Institute of Agrarian and food Research and Development (**IMIDA**), The IMIDA is an autonomous public research institute that aims to serve the R+D needs of Murcia's Agrarian industry.

Instituto de la Juventud: Youth institute, Murcia's Instituto de la Juventud is an autonomous institution that looks over Routh policies, and encourages the free and efective participation of youths within the political, social, economic, and cultural development of the region.

Instituto de la Mujer/Women's Institute: The Instituto de la Mujer offers support and assistance in the following areas:

- Encourage women entrepreneurship,
- Facilitate access, permanance, and promotion of women within the labour market,
- Improve the occupation rate of women,
- Promote igual opportunities within the labour market

Servicio Regional de Empleo y Formación de la Región de Murcia: This institution is Murcia's regional employment and training service organisation under the competence of the Ministry of Employment and Training. This institution was created to promote employment, improve the qualifications of the workforce and assist Murcia's citizens in their search for work opportunities. The importance of this institution comes from the support it lends to job creation and training initiatives in the region.

Consejo regulador de la producción organica: The Regulating Council of Organic Farming of Murcia is the body that certifies and controls the organic production. Regularly, they participate in promotion activities organized by the INFO (Development Agency) and the ICEX (Spanish Institute for Foreign Trade).

7 ROMANIA: TIMIȘ

7.1 Describing the region

Timiș County is the most Western county of Romania neighboring Csongrád County from Hungary to West, Voievodina Province from Serbia to South, Arad County to North and Hunedoara and Caras-Severin counties to East. The total area of the county is of 8,696.7 km² being the largest county in Romania (3.65% from total).

The central and western part of the county is part of the Western Plain, while the remaining area is covered by hills and sub mountain relief. The rivers Bega and Timiș are crossing the county East to South-Southwest while Mures and Aranca are crossing its northern part East to West. Little lakes are present (Poganis, Surduc, Barzava). Worth to mention that two other lakes (Radmanesti and Forocici) have thermal water (over 20 centigrade).

The climate of the Timiș County, as for the Southwestern part of Romania, is transitional temperate continental with sub-Mediterranean influences. The average yearly temperature amounts 10.7 °C and the average yearly rainfall places between 500-700 mm.

At 01/07/2006 the Timiș County had 659,299 inhabitants, out of which 47.9% men and 52.1% women with a density of 75.8 inhabitants/km², under the national average of 90.7 inhabitants/km². The urbanisation degree of the county is 62.9% counting 12 urban localities, 85 communes and 312 villages.

The Timiș County is multi-ethnic and multi-religion region where next to Romanians we find Hungarians, Germans, Slovaks, Serbians, Roma, Bulgarians and others.

The natural growth rate of the population, even if the highest in the region (NUTS 2 region) is still negative, -2‰ being caused by a decreasing birth rate and a relatively high general mortality. The total migration ratio is positive, amounting 2.4‰, again the highest in the region (NUTS 2) attracting population from the less developed areas but also losing through external migration as result of the brain drain.

The county labor is highly educated and well instructed given the presence of several prestigious higher education institutions and the multi-ethnic environment generating the knowledge of foreign languages. The highest rate of occupied population in 2005 was recorded in the tertiary sector (41.5%); an important ratio of the total population was active in agriculture (24.9%), while industry retained 28% and 5.6% were active in constructions.

In 2005, the unemployment rate was 2.3% situated below the regional (NUTS 2) average, 5.1% but also under the national average 5.9%, facing low unemployment and unbalanced offer-demand ratio.

The agriculture represents the third economical branch with importance in the county, both as occupied active population and contribution to the county GDP creation. The agricultural potential is remarkable given the wide agricultural area (81% from total county area) but also taking into account the good quality of soil. Authorities estimate that even if underused in present, it could become a very attractive offer for foreign investors, in terms of economical cooperation.

The Timiș County industry is considered strong and diversified given the long tradition, the western position of the region and the highly qualified labor. This situation is confirmed by the presence of numerous investors, both indigenous and foreign. The highest ratio in total county production is held by the transforming industries (70%) counting here the food processing industry, chemical industry, fabric industry, metal processing industry and wood industry. Other important sectors are represented by leather, equipment and machineries.

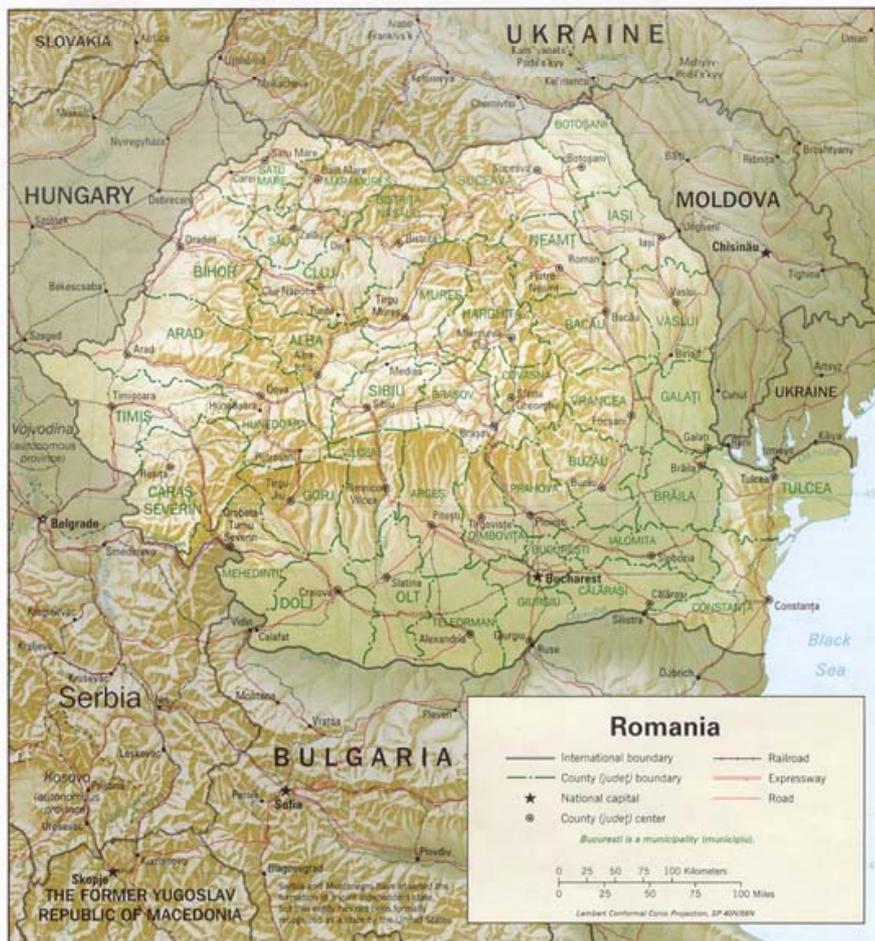
The services sector is the main economical branch in Timiș County concerning occupied population and investment volume. Both public and private services had a rapide quantitative and qualitative positive evolution during the last years, improving efficiency and the professionalism level. To the classical services certain innovative domains were added, such as: ITC, banking-financial and insurance, personal care, consulting, events organization, etc.

Regarding the touristic offer the infrastructural pre-conditions are met although the county is less diversified naturally and especially when compared to the other counties in the regions V West (NUTS 2). However the business tourism is well represented next to the spa and cultural tourism.

The Natural Park Mures River Meadow is hosted together with the neighbor county of Arad and other natural reserves and parks are available. However, the touristic infrastructure is underused amounting only 29.5%.

Regarding the infrastructure the city of Timișoara represents an important infrastructure crossing. The TEN-T 7 (Trans European Network for Transport) for roads and TEN-T 22 for railroads are crossing the county, while the project Nadlac – Constanta Highway is being prepared allowing the link between Budapest and the Black Sea. The public roads density (33.4 km/100 km²) in Timiș county is comparable to the national average (33.5 km/100 km²), while in terms of railroads the density (91.9 km/1,000 km²) is far over the regional (59.4 km/1,000 km²) and national averages (45.9 km/1,000 km²). The air transport is covered via the Timișoara International Airport, the second largest airport in Romania and the most important one in the DKMT Euroregion.

Map 61 Map of Romania



A first positive development can be observed at the level of the Regional Operational Programme as the Regional Development Agencies are acting as Intermediate Bodies in the deployment and management of the structural funds in regional development. Moreover, the original approach of having a single national regional development programme was renewed and now the programme is reshaped with one programme for each region (NUTS 2), with priority axes and interventions more adapted to the region's realities.

In terms of financial budgetary management, the region has no role to play at all, and does not have any financial instruments of its own. Regarding agriculture, rural development, forestry and fishery, SAPARD (Special Accession Programme for Agriculture and Rural Development) had regional (NUTS 2) structures in appraisal and evaluation which are now, most probably, turn into the Payments Agencies for Rural Development and Fishery, the parallel structures to the Payment and Intervention Agencies for Agriculture – dealing with direct payments. Again, no financing source existed for agriculture and rural development at any other level than national.

In terms of development level, although the first agricultural county in Romania the County of Timiș has similar structural issues related to the fragmented property, productivity, de-capitalised farms as the rest of the country only to a less extent given the "natural" re-organisation of plots by private initiative and foreign investments.

The county has an Agricultural University – Banat's University of Agricultural Sciences and Veterinary Medicine, created in 1945 with seven faculties, good level of knowledge and involvement in research but less involved in extension activities. Agricultural high-schools (secondary education) are still functional but far too theoretical most of the graduates following university or changing the sector. One major issue in education/formation is that the two are not separated! One clear and well formulated demand of the agricultural sector – vocational training, is still an intention. Very often, foreign investors in agriculture send their employees abroad to Austria, Germany, Italy or even France to have them trained to the expected working and knowledge level.

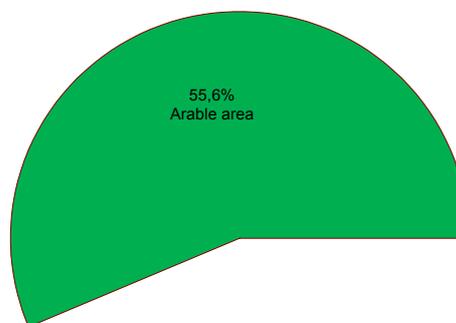
In terms of infrastructure and accessibility, the County of Timiș is not linked by any highway but the Transport Operational Programme aims to finalise by 2013 the highway going from the Western Romania to its far South-Eastern part, passing through the county, linking Timișoara – County capital city, to Constanta – main commercial harbour at the Black Sea and all Central European highways. The County of Timiș is considered to be the most occidental county of Romania by all characteristics, but infrastructure also considering the distances: 3.5 h to Budapest or 2.5 h by car to Belgrade and 7.5 h to reach Bucharest by train.

7.1.3 Environment

7.1.3.1 Spatial structures

Statistical profile

The total area of the Timiș County is of 8,696.7 km². Only 5.5% of total is covered by artificial surfaces, less than 6% (5.9%) is represented by pastures, while permanent crops only share 1.4%. Almost one sixth (14.8%) of the county can be accounted for heterogeneous agricultural areas. Forests cover 12.4% of total county area being grouped mostly in the eastern part. No cultivated forest is present, the present forests being natural forests, or naturally installed. More than half of the county is “dedicated” to the agriculture seen the high share of the arable land, 55.6%.



Regional focus

The Timiș landscape changes from West where the flat plains are the only relief forms to medium high hills to the East as higher regions are neighbouring the county. The soils are of very good quality in the central and western parts with certain restrictions given by the physical structure and the evolutions during the recent history. 150 years ago, the region was dominated by muddy soils and special land improvement works turned important areas to agriculture. However, certain spots are restrictive given the salt tenure or the heavy verti-soils structure, even if they do not represent important areas. Given the soils evolution in the region and the fact that ground water is situated between 1.5-2.0 m depth, excessive rainfall may cause problems especially to the soil airflow and affect the crops.

During the communist period certain areas were regrouped and land improvement works eliminated certain protective vegetation in order to facilitate large plots and mechanical works. Although not always in favour of the environment and landscape, this was the only major regrouping of land during the last 70 years in the region. Considering the background the Land Law 18 from 1991 (amended later) and aiming the restitution of the land (agricultural properties) to the owners could have produced better effects in Timiș County. The reality was very different at the beginning of the 1990s as most commission in charge with the restitution split former properties into more plots than before. Certain owners or foreign investors did purchase neighbouring plots in order to consolidate their farms, or even purchased only grouped plots in order to have the farm in a single, maximum two locations. The scan of the current situation will be given after the first statistical data from the direct payments system, expected to occur within the next two months. Estimations are that an average family farm will have at least 3 to 4 locations with minimum 5 to 8 plots.

One issue when discussing the preconditions for agriculture, especially related to land and land market is that in Romania, generally speaking, the land market is not functional. Before accession there were no initiatives in organising a land market in Romania. Several examples can be given when processing or storage facilities were sold to entrepreneurs without selling the land on which the construction was situated. The State Domains Agency which was supposed to be created within six months after the Land Law entered in force appeared only several years later. As all land transaction is submitted to the pre-emption rights and the State was the third on the list, no official transaction was possible. This was a major bottleneck in the creation and consolidation of the land market in Romania. Given all presented elements it is hard to have correct price estimations when it comes to the land price. Under the current circumstances the variations are between EUR 500 and EUR 1,000 per agricultural hectare. Values are certainly higher when we speak about grouped plots in a single location and when the area is larger than few hundred hectares. For comparison reasons we will mention that a built square metre in Timișoara varies between EUR 1,000 and EUR 1,500.

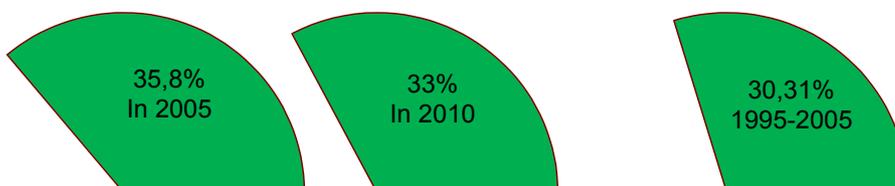
7.1.3.2 Environmental protection

Statistical profile

The statistical profile for the environment protection contains national data only as data to all other levels are not available. Concerning the percentage of change since base year according to Kyoto protocol/EU Council decision 2002/358 (expressed in CO₂ equivalents base year=100) Romania has the 10th place together with Greece, accounting 111.39 mio t in 2003. This amount represents 2.74% of the EU25 level and 3.23% of EU15 level (2003).

Regarding the gross consumption of energy Romania places the 14th with 24,502 thousand tons. The gross inland consumption of primary energy assures the 12th place with 39,146 thousand tons in 2003 and represents 2.16% at the EU27 level.

The gross consumption of renewable energy places Romania to an honourable position, the 7th place, over the average of EU15, 25 or 27. The shares are presented below.



No data are available at any level regarding the area under NATURA 2000, area under the National Parks protection, agricultural intensity and the share of Utilised Agricultural Area under organic farming.

Regional focus

Since the beginning of the current year serious efforts are spent inside the local and regional offices in the direction of protected areas and sites and NATURA 2000. Specialised services of the County General Directorates for Agriculture are considering all aspects, support and interventions within the frame of NATURA 2000 all while concerting their efforts with the County Environment Agency. The reason lays in the complementary interventions both through National Programme for Rural Development and the Operational Programme for Environment. However we should mention that serious damage was done in the decades 1980 and 1990 of the last century by intensive agriculture. Given the low depth of the ground water and the important quantities of chemical fertilisers used in the past, certain areas do not use for human consumption the first 2 or even 3 layers of ground water.

7.1.3.3 Preconditions for agriculture

Statistical profile

In 2000 the forest fires affected only 75 km² of wood in two locations. We should bear in mind that forest area is not very large in Timiș all while neighbouring Caras Severin the second county in Romania covered by forest.

Even if the degree of vulnerability in flood events is 1 and the regional flood hazard potential is 2 we have to remember the tragic events from 2005 when several thousand hectares were covered by water for more than two months and an important number of private households were destroyed. Although an isolated event it produced serious damages in agriculture, both crops and animals, and rural residences.

At the same time, during the last hundred years the region was hit by six large scale droughts. Another two severe droughts occurred during the last five years. It is equally important to foresee and prevent such hazards and the Ministry of Agriculture and Rural Development founded a Direction for Hazard Prevention after the last very unfavourable years. If droughts could be prevented by irrigation possibilities, in Timiș County only a limited area is equipped for and the core reason is the feasibility of irrigations in a low depth ground water condition.

No data about the Less Favoured Areas is available at this time as the inventory and the maps are still under development within the Ministry of Agriculture and Rural Development as part of the National Programme for Rural Development.

Regional focus

As mentioned in the introduction, the climate in the Timiș County is transitional temperate continental with sub-Mediterranean influences. The average yearly temperature amounts 10.7 °C and the average yearly rainfall places between 500-

700 mm. Worth to mention that the distribution of the rainfall is highly unequal along the year.

After the summer season, which is the most deprived of precipitations, spring is the most important moment when the lack of sufficient rainfall can seriously affect the crops.

For the extreme west part of the county, given the presence of the verti-soils, the humidity in autumn can endanger soil preparation as labouring becomes impossible.

As mentioned earlier, the communist period affected the field biodiversity by eliminating vegetation in order to facilitate mechanical works in the field. In this respect, the dry years (severe or moderate drought) encounter serious invasions of field mice as apparently together with the former vegetation (trees or shrubs) certain species of birds were removed or relocated.

7.1.3.4 Preconditions for rural development

Statistical profile

The 2001 data account and average access time to the nearest seaport by car of 686.8 minutes while the connectivity to the nearest seaport is covered in 3 h by car. Timișoara used to be linked by water to Danube by a channel that was not properly maintained during the last 50 years so that today only leisure trips can be made on Bega Channel for short distances in the town area. The connectivity to an airport by car is assured in 1.54 h as Timișoara has an International Airport, the second largest in the country and its position is central in the county.

The access to the nearest motorway by car is consuming 180 minutes or 3 h, as average between national and foreign highways. If we take into account the near future developments, the building of the West-East highway from Arad to Constanta, these access values are diminished considerably as the future motorway is cutting the county by its median.

The potential accessibility by air and rail in 2001 is presented in the table below

Table 165 Potential accessibility by air and rail in 2001

Timiș county	ESPON space = 100	EU27 = 100	EU25 = 100	EU15 = 100	Accession countries = 100
By air	95	95	92	88	130
By rail	52	52	50	47	83

Source: WP 1 TERESA

In terms of internet access Romania places last on the list as the percentage of households who have Internet access at home only amounts 14% in 2006. The

Economical Competitiveness Operational Programme has a priority axes dedicated to IT and broadband access which will improve considerably this indicator. Also the differences between urban and rural areas in terms of accessibility to internet are to be reduced via the same interventions.

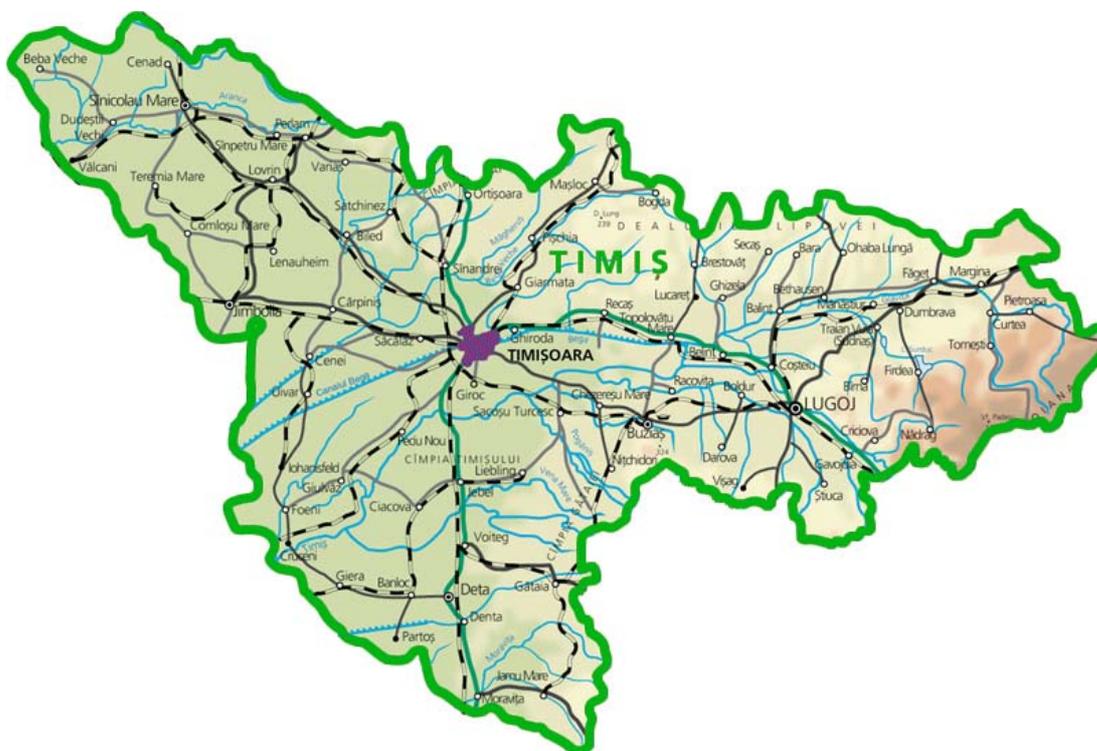
The total length of the public roads accounted 2,902 km in 2005 with a density of 33.4 public roads per km². The railroads network in Timiș measured 799 km as total length in 2005. The same year the total number of vehicles for passengers transports amounted 130,404 and 129,033 private cars.

155,594 fixed phone connections/subscriptions were contracted at the end of 2005. An important number of contracts are subscribed for mobile telephony. Our estimations are placing this second category with figures 2-3 times higher than the fixed telephony.

Regional focus

As seen on the map the communication networks, especially roads and rails are well serving the county.

Map 63 Map of main communication networks in Timiș County



63 communes (NUTS 5) in the county had water distribution networks installed and functional, accounting together with the cities in the county a total of 2,027.9 km of networks were recorded in 2005. In the same year only 9 communes had public sewage networks and the county total length was of 727.4 km. The natural gas distribution networks were present in 20 communes and the total county distribution network had 1,055.4 km.

The health infrastructure accounted 5,946 beds in hospitals in 2006 and 189 pharmacies in the same year. The number of physicians in 2006 amounted 2,479, while the other medical staff (secondary and vocational education) accounted 4,185 persons.

The educational system (of all types) counted 591 institutions in the 2005/2006 (regressing from 748 institutions in 2002/2003) serving 158,358 persons (from pupils to students) and hiring 10,833 educational staff.

To the current rural state we shall add the fact that during the communist period most of the active population was involved and hired in cities travelling on daily basis, which explains the rail and road networks (as presence and not as quality). The collective state agriculture did not allow any capitalisation in the households. Given the rural poverty very little services were present in non-urban areas before 1990. This explains the low level of the rural infrastructure. However among different counties in Romania, Timiș County is placed on the upper part of the list, also due to recent investments and low unemployment.

7.1.4 Rural economy

7.1.4.1 Regional performance

Statistical profile

The table below presents the evolution of GDP at national, regional and county level for the period 1998-2004. As data shows, there is a constant growth of 50% at national level and almost doubling the base level for the region and the county. The values are explainable as passing the transition and approaching the accession to EU produced deep transformations and important investments were recorded during this period, especially productive investments both indigenous and foreign.

Table 166 Gross domestic product (GDP) at current market prices at NUTS level 3 (Millions of Purchasing Power Parities)

	1998	1999	2000	2001	2002	2003	2004
Romania	104,764.1	105,589.3	111,007.4	120,925.1	130,516.0	139,846.3	158,230.2
V West region (ro42)	9,679.0	10,473.2	10,408.5	11,693.3	12,736.4	14,189.6	16,269.7
Timiș County (ro424)	3,497.4	3,784.4	4,069.9	4,667.4	5,183.5	5,932.7	6,676.3

Source: WP 1 TERESA

The gross domestic product per inhabitant, even if far from the 10,000 ceiling, as half of the other European countries, recorded important increase during the 2000-2004 period, from about 5,000 to almost its double at regional level (NUTS 2). This growth is systematic and continuous, and the region is constantly above the national average.

Table 167 Regional gross domestic product (PPS per inhabitant)

	2000	2001	2002	2003	2004
EU (27 countries)	18,943.8	19,668.2	20,353.2	20,595.6	21,502.9
Euro area (13 countries)	21,588.5	22,315.7	22,874.6	23,011.4	23,805.5
Euro area (11 countries)	21,901.6	22,631.3	23,160.2	23,266.2	24,049.2
Romania	4,948.0	5,396.5	5,988.3	6,434.4	7,300.8
Vest	5,101.1	5,754.9	65.8	7,289.6	8,395.1

Source: WP 1 TERESA

The contribution to the GDP creation by the secondary sector has comparable values at all levels, national regional and county level and decreasing from around 40% in the mid nineties to around one third in 2004.

Table 168 Contribution to GDP in secondary sector % – Gross value added at basic prices at NUTS level 3

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Romania	42.7	42.5	39.2	35.4	33.9	36.8	37.0	37.9	34.8	34.3
V West	40.6	38.8	33.9	27.4	38.5	37.3	36.4	36.8	33.6	34.3
Timiș County	40.3	41.4	35.9		34.7	39.8	37.6	38.7	35.2	36.0

Source: WP 1 TERESA

Similar comparison can be made for the tertiary sector contribution to the GDP formation, only the ten years trend is moving up from 40% in 1995 to 50% in 2004.

Table 169 Contribution to GDP in tertiary sector % – Gross value added at basic prices at NUTS level 3 – Services (excluding extra-territorial organizations and bodies)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Romania	39.1	39.2	41.8	50.1	52.7	52.3	49.8	50.6	52.2	51.6
V West	38.9	38.6	46.7	54.6	47.6	50.8	47.0	49.4	51.2	49.9
Timiș County	37.8	35.3	44.7		51.8	50.1	46.6	48.6	50.3	49.5

Source: WP 1 TERESA

The labour productivity per employed person GDP PPS is still far from 50% when compared to the EU25. Estimates are that this level could reach the value of 43 by 2008.

Table 170 Labour productivity per person employed – GDP in Purchasing Power Standards (PPS) per person employed relative to EU25 (EU25 = 100)

	2002	2003	2004	2005	2006	2007	2008
EU27		96.3	96.4	96.5	96.5 (f)	96.1 (f)	96.1 (f)
EU15	107.0	106.8	106.5	106.4	106.3 (f)	105.7 (f)	105.5 (f)
Euro area	107.5	107.2	106.5	106.4	106.1 (f)	105.1 (f)	104.8 (f)
Romania	32.1	34.1 (f)	37.0 (f)	38.9 (f)	40.1 (f)	41.5 (f)	43.0 (f)

Source: WP 1 TERESA

Gross value added at basic prices at NUTS level 3

The total values for GVA are increasing to double or more in 2004 compared to 1995 at the total national, regional or county level. However, the agriculture contribution to GVA decreases as share in total from 21% to 14% at national level, from 24% to 16% at regional level and even more significantly, from 25% to 14% at county level. A less important decrease is recorded in the secondary sector with less than 10%, as follows: 43% to 34% at national level, 40% to 34% at regional level and 40 to 36% at county level. By redistribution parallel to the general growth, the services are increasing with 13% at national level (from 39% to 52%), 11% at regional level (from 39% to 50%) and with 12% (from 38% to 50%) at county level.

Regarding the households income in Timiș County, the level increased to its double in only four years, from 2001 to 2004. Only we have to observe that the farmers' income is rather near to the level of a pensioner or unemployed than to other employees or even to the average.

Table 171 Total Income of Households (in Lei)

	2001	2002	2003	2004
Income in LEI	5,217,948	6,585,081	7,950,871	10,857,949
Incomes for employees	7,292,616	9,227,895	11,178,681	14,787,911
Incomes for farmers	4,330,845	5,584,304	6,960,832	9,880,453
Incomes for unemployed	3,850,430	4,562,012	5,873,937	7,589,747
Incomes for pensioners	4,187,008	5,184,464	6,154,116	8,433,557

Source: INS – Regional Direction for Statistics Timiș, Statistical Yearbook of Timiș County 2005, Timișoara, 2006

Regarding the structure of the household incomes we observe that less than 5% is actually represented by the agricultural incomes while the core income originates in the outside agriculture jobs for almost a half (44.6% in 2004).

Table 172 Total households (share of total)

shares of total	2001	2002	2003	2004
Brut wages and other salary rights	44.9	46.4	44.8	44.6
Incomes from agriculture	4.2	4.1	4.2	4.1
Income from non-agricultural independent activities	2.4	2.5	2.6	3.1
Incomes from social services	19.5	19.6	19.2	19.3
Incomes from property	0.3	0.3	0.3	0.6

Source: INS – Regional Direction for Statistics Timiș, Statistical Yearbook of Timiș County 2005, Timișoara, 2006

When analysing the situation in 2004 regarding the average monthly labour costs and average hourly labour costs in the national economy, the agriculture is not the last on the list given the category and having higher values giving the association with the forestry.

Table 173 Average monthly labour cost and average hourly labour cost, by activity of national economy, in Lei, in 2004

Activity	Average monthly labour cost, per employee – ROL	Average hourly labour cost – ROL/hour
Total	11,058,644	63,881
Agriculture, hunting and forestry	8,601,155	49,786
Fishing and fishery	6,850,246	39,912
Industry	11,156,215	64,218
Constructions	9,116,703	52,609
Trade	7,536,541	43,793
Hotel and restaurants	7,355,484	42,817
Public administration and defence	11,689,703	68,017
Education	11,876,823	68,389
Health and social assistance	10,566,331	60,854

Source: INS – Regional Direction for Statistics Timiș, Statistical Yearbook of Timiș County 2005, Timișoara, 2006

Regional focus

With a constant growth of the GDP at all levels in Romania, especially at regional and moreover at the level of Timiș County still the GDP per inhabitant is under the half of the other EU Member States.

Considering the GDP creation during the last years there was a reduction for the secondary sector and a growth for the tertiary.

The labour productivity is less than half when compared to the EU25 while the GVA from agriculture decreases by more than 10% of the total, similar situation with the industry and more than 10% increase for the services.

Although the household incomes doubled their level in 2004 compared to 2001 the farmers are earning almost half of the general employees' level. We should mention here that active labour in agriculture is rather self-employment or family labour than employment in the pure sense of the term.

As for the income structure, less than 5% is generated in agriculture or agricultural related activities while the major part is coming from "ordinary" employment outside agriculture.

The average labour costs are moderated by the fact that statistically agriculture goes together with hunting and forestry. However, small scale agriculture is very demanding in terms of labour giving the obsolete techniques and the technical level of the machinery.

The agriculture has no other taxes but on property (for both land and household). Given the situation a political decision related to the introduction of production or agricultural activities taxes was always regarded as very unpopular and therefore avoided until present. Most farms, actually very few farms, have a juridical status today. The farmer profession is acknowledged as occupation but not as entrepreneurship or business. It is expected that this situation will be fixed soon; otherwise certain issues may appear when implementing the National Programme for Rural Development.

The average taxation level for incomes (business or salaries) is unified at 16%. Regarding the loans there are differences according to the crediting instrument, type of credit, commercial bank or currency. For the loans in lei, the announced interest rate is around 7-8% but together with all charges the yearly effective interest rate goes to 11-12%. As for euro loans the 7-8% interest rate can be taken into consideration (with the earlier mentioned variations) as charges are considerably lower.

7.1.4.2 Structure of agriculture

Statistical profile

The Utilised Agricultural Area in Romania is 13,906,700 ha out of which Timiș County has 701,225 ha. The arable land at national level counts 8,866,590 ha, respectively, 532,506 ha in Timiș.

The shares of different categories of land use are presented in the table below as share of Utilised Agricultural Area.

Table 174 Agricultural land use in share of UAA

	Total Agricultural area	Arable land	Permanent pasture and meadows	Permanent crops	Woodland
Romania	100.0	63.0	33.3	2.5	7.4
V West	100.0	57.0	40.5	1.4	6.1
Timiș County	100.0	76.5	21.4	0.9	1.6

Source: WP 1 TERESA

It is absolutely surprising to realise that during two years the agricultural holdings with other gainful activity than agriculture practically multiplied by factor five!

Table 175 Agricultural holdings with another gainful activity than agricultural production – (% of all holdings)

	2003	2005
EU27	6.2	12.0
EU25	7.3	8.1
EU15	8.6	10.0
Romania	4.2	22.1

Source: WP 1 TERESA

The figures presented in the table below show a slightly different situation in 2003 as area is diminishing constantly not with large amounts but still reducing. Between 2002 and 2005 almost 1,000 ha of arable land were lost. The situation is similar for the other categories, only less visible when we take as example the woodland.

Table 176 Structure of agricultural holdings by region, main indicators – Land use: Uses of UAA in ha

2003	Total Agricultural area (AA)	Arable land	Permanent pasture and meadows	Permanent crops	Woodland
Romania	13,930,710	8,773,750	4,644,000	344,090	1,037,170
V West	1,869,470	1,065,280	757,350	25,550	113,770
Timiș County	703,680	538,030	150,500	6,260	11,050

Source: WP 1 TERESA

Table 177 Employment in primary sector at NUTS 3 level (in 1,000 persons)

	2003	2004	2005	2006
Population at working age	416.3	420.6	423.8	427.3
Total occupied population	301.8	302.7	309.1	318.8
Total employees	185.4	187.0	192.9	203.1
Agriculture, hunting and forestry	88.0	84.2	76.9	79.4
Unemployment rate (%)	3.9	3.5	2.6	2.3
Active civil population	314.1	313.6	317.3	326.2
Population in formation/training/education	101.7	107.4	113.5	109.5

Source: WP 1 TERESA

Regarding the number of the agricultural units/holdings according to their legal status, the data are presented in the table below. As we can easily observe, there are few situations in which the agricultural holdings have a legal status. This may represent a serious bottleneck in the implementation of the National Rural Development Programme.

Table 178 Juridical status of agricultural operations (national data, 2003)

Legal status of holdings	Number of agricultural holdings	Number of agricultural holdings utilizing agricultural area	Utilized Agricultural Area (ha)	Average Utilized Agricultural Area (ha)	
				Per holding	Per holding utilizing agricultural area
Individual agricultural holdings	4,462,221	4,277,315	7,708,757.61	1.73	1.80
Units with legal status:	22,672	22,046	6,221,952.49	274.43	282.23
Agricultural Companies/Associations	2,261	2,224	975,564.26	431.47	438.65
Commercial companies	6,138	5,706	2,168,792.03	353.34	380.09
Public administration units	5,698	5,618	2,867,368.41	503.22	510.39
Cooperative units	87	77	2,365.14	27.19	30.72
Other types	8,488	8,421	207,862.65	24.49	24.68
TOTAL	4,484,893	4,299,361	13,930,710.10	3.11	3.24

Source: WP 1 TERESA

Regarding the farm structure at the level of the V West Region (NUTS 2 level) the data for both areas and number of farms are presented in the following two tables.

Table 179 Distribution of farms by size

Size (ha)	> 1	1-5	5-10	10-50	50-100	> 100	total
Number of farms	159,305	130,613	40,416	11,659	596	1,247	343,836
Area of farms	39,917	331,165	273,002	179,612	39,526	1,006,252	1,869,474

Source: INS – Regional Direction for Statistics Timiș, Statistical Yearbook of Timiș County 2005, Timișoara, 2006

Table 180 The different crops' distribution by number and area of farms

Region	Land use/different crops						
	Cereals for grains	Oil crops for seeds	Industrial crops	Potatoes	Sugar beet	Root-fodder crops	Vegetables
Farms (<i>number</i>)							
V West	194,377	5,659	16,846	139,227	2,187	8,124	7,7972
Romania	2,889,082	220,061	404,851	1,108,312	85,053	68,253	465,461
Utilised Agricultural Area (<i>ha</i>)							
V West	665,068.43	1,576.47	73,720.59	22,337.14	2,078.95	844.70	7,408.70
Romania	5,963,882.61	52,832.64	1,065,879.99	185,726.83	28,878.62	7,303.15	81,727.92

Source: INS – Regional Direction for Statistics Timiș, Statistical Yearbook of Timiș County 2005, Timișoara, 2006

Table 181 Economic Size Units farm structure, by legal status, labour force, agricultural area and livestock size

Economic size (ESU) Holdings	<1	>=1	1-<2	2-<4	4-<8	8-<16	16-<40	40-<100	>=100	
total number	(1,000)	3,273.1	1,211.8	865.5	268.5	51.6	12.6	6.7	3.9	3.0
by legal personality of the holder (%)										
sole holder		99.7	98.8	99.7	99.5	97.9	89.1	60.3	29.4	8.7
legal person		0.3	1.2	0.3	0.5	2.1	10.9	39.7	70.6	91.3
group holders		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
by employed labour force (%)										
under 1 AWU		91.9	52.7	58.6	40.2	32.8	29.9	25.3	19.7	9.8
from 1 to less than 2 AWU		7.5	36.8	35.0	43.4	39.3	32.8	24.0	14.9	5.6
from 2 to less than 3 AWU		0.6	8.2	5.7	13.5	19.5	19.7	16.6	11.7	3.6
3 AWU and over		0.1	2.2	0.7	2.9	8.4	17.6	34.0	53.7	81.1
by agricultural area (%)										
under 5 ha		98.6	80.6	90.8	62.3	38.2	22.5	9.9	4.4	4.8
from 5 to less than 20 ha		1.3	17.5	9.1	37.2	54.6	36.8	13.1	1.3	1.7
from 20 to less than 50 ha		0.0	0.7	0.1	0.3	6.2	26.1	10.3	5.0	1.2
from 50 to less than 100 ha		0.0	0.3	0.0	0.1	0.5	9.9	22.6	3.8	3.2
100 ha and over		0.0	0.8	0.0	0.0	0.5	4.6	44.2	85.4	89.0
by livestock size (%)										
without livestock		25.5	5.8	4.6	5.6	10.2	21.9	45.5	67.6	64.3
under 10 LSU		74.5	91.1	95.0	89.1	65.5	42.9	27.1	14.7	10.4
from 10 to less than 20 LSU		0.0	2.2	0.4	4.5	16.7	14.2	6.3	3.4	3.1
from 20 to less than 50 LSU		0.0	0.7	0.0	0.8	6.8	16.5	10.8	4.9	4.4
from 50 to less than 100 LSU		0.0	0.1	0.0	0.0	0.8	4.0	7.5	3.5	3.2
100 LSU and over		0.0	0.1	0.0	0.0	0.0	0.6	2.8	5.9	14.5

Source: Structure of agricultural holdings in Romania 2002, Eurostat, Statistics in focus, 2005

The production of renewable energy is still at its potential status as the support instruments are not prepared yet. It is expected that a number of farmers could shift to this category most probably from small cereal areas to energy crops as financially it appears interesting.

Considering the earlier presented situation about the irrigation and irrigated land, especially in the case of Timiș County, this category appears irrelevant.

Subsistence and semi-subsistence farming has an important dimension in the contemporary Romanian agriculture. However no relevant statistics are available at any level until now. It is expected that NRDP has consistent data about it.

The number of farms with agro-tourism has values under 1% in the region and therefore will not be mentioned here. The potential is limited to certain eastern areas of the county as the rest is rather flat, landscape-less and dominated by cereals and pig production.

Regional focus

Table 182 Areas of main crops in Timiș County

Crop	2002	2003	2004	2005
Total	479,494	485,829	449,561	450,720
Cereals	347,844	352,760	360,697	343,855
Wheat and rye	126,965	130,341	138,161	133,221
Barley and two-row-barley	56,642	48,218	50,782	45,085
Maize	143,954	153,342	145,824	143,955
Sunflower	46,142	51,958	48,646	41,537
Sugar beet	1,506	690	365	1,098
Potatoes	11,424	11,120	10,295	10,853
Vegetables	13,022	12,379	9,762	12,359
Fodder crops	47,454	41,859	11,421	34,497
Perennials	23,764	24,796	8,825	17,009

Source: INS – Regional Direction for Statistics Timiș, Statistical Yearbook of Timiș County 2005, Timișoara, 2006

The agricultural vocation of the county is maintained cereals covering the major part of arable land. Sugar beet decreased at the end of the 1990's following the collapse of the sugar processing factory in the county combined with a low level of mechanical works for this crop and very labour demanding therefore.

Table 183 Yields of main crops cultivated in Timiș (in t)

Crop	2002	2003	2004	2005
Cereals	1,108,811	1,228,714	1,670,001	1,292,947
Wheat and rye	406,988	432,747	662,506	469,726
Barley and two-row-barley	151,121	134,159	198,549	127,698
Maize	512,565	611,540	742,786	656,229
Sunflower	78,297	106,975	76,659	70,082
Sugar beet	28,171	13,023	11,930	33,538
Potatoes	155,376	145,257	152,933	135,777
Vegetables	160,121	142,354	175,790	150,978
Perennials	386,728	547,258	200,854	492,778

Source: INS – Regional Direction for Statistics Timiș, Statistical Yearbook of Timiș County 2005, Timișoara, 2006

Although the values are referring to the total production by crops the yields are rather moderated and at the half level compared to an European average. There is still room to intensification, only given the environmental potential restriction to a rational increase of yields. The table below presents the values recorded for the period 2002-2005.

Table 184 Yields (per ha) of main crops

Crop	2002	2003	2004	2005
Wheat and rye	3,206	3,320	4,795	3,526
Barley and two-row-barley	2,668	2,782	3,910	2,832
Maize	3,561	3,988	5,094	4,559
Sunflower	1,666	2,059	1,576	1,687
Sugar beet	18,706	18,874	32,685	30,545
Potatoes	13,601	13,063	14,855	12,511
Tomatoes	14,174	13,127	19,602	13,149
Cabbage	19,059	17,980	17,831	17,358
Lucerne (green mass)	18,458	24,851	25,165	31,574

Source: INS – Regional Direction for Statistics Timiș, Statistical Yearbook of Timiș County 2005, Timișoara, 2006

The following two tables are presenting the livestock situation in number and as charge of 100 ha.

Table 185 Livestock (in 1,000 heads)

Specie	2002	2003	2004	2005
Bovine	59.8	61.5	57.1	57.5
Swine	299.8	327.9	357.1	361.8
Sheep	325.0	342.9	422.6	417.1
Poultry	1,695.5	1,688.2	2,102.6	2,071.1

Source: INS – Regional Direction for Statistics Timiș, Statistical Yearbook of Timiș County 2005, Timișoara, 2006

Table 186 Livestock per 100 ha

Specie	2002	2003	2004	2005
Bovine	8.7	8.9	8.3	8.4
Swine	56.1	61.4	67.0	67.9
Sheep and goats	48.9	51.7	62.3	61.6

Source: INS – Regional Direction for Statistics Timiș, Statistical Yearbook of Timiș County 2005, Timișoara, 2006

Even if the productivity does not increase, in fact, for the main crops it remains more or less stable over the same period of time, the value of the agricultural production records spectacular developments, especially for the livestock. Here we should mention that the quality of the livestock increased during the recent past as most enlargements of livestock were performed by input of high quality genetic material.

Table 187 Value of the agricultural production (Mil. Lei current prices)

	2002	2003	2004	2005*
Total	13,101,184	18,394,406	22,864,356	1,711,445
Crops	8,734,105	13,760,859	17,041,104	1,195,743
Livestock	4,313,907	4,562,416	5,710,220	490,741

* values for 2005 are expressed in RON (denominated value by 10,000)

Source: INS – Regional Direction for Statistics Timiș, Statistical Yearbook of Timiș County 2005, Timișoara, 2006

For a number of statistics of interest there are no available data for NUTS 3 or NUTS 2 level. In this category we can include all foodstuff processing, of different types.

7.1.4.3 Structure of rural economy

Statistical profile

Table 188 Number of establishments, bedrooms and bed places – NUTS 3, annual data, national statistics

year	Item	Romania	Region V Vest	Timiș County
2002	Hotels and similar establishments	197,320	15,653	3,744
	Other collective accommodation establishments, Total	75,276	4,537	811
2003	Hotels and similar establishments	201,636	16,741	4,289
	Other collective accommodation establishments, Total	71,978	3,972	649
2004	Hotels and similar establishments	207,810	17,328	4,538
	Other collective accommodation establishments, Total	68,131	3,738	649
2005	Hotels and similar establishments	216,499	17,651	4,817
	Other collective accommodation establishments, Total	66,695	3,640	593
2006	Hotels and similar establishments	226,383	18,658	5,415
	Other collective accommodation establishments, Total	60,775	2,765	519

Source: WP 1 TERESA

The touristic accommodation facilities, in the classical sense, were developing during the recent years mostly due to the business tourism. The traditional touristic spots in the county have developed or were renovated less compared to the new hotels in the cities. As mentioned earlier the other forms are more specific for the leisure and landscape tourism and these categories develop with a lower speed. Agro-tourism has a number of localised areas where it can develop. Even under these conditions the number of agro-touristic establishments multiplied by two whiles the rural touristic establishments by four.

Table 189 Number of tourists hosted in Timiș County

Type of accommodation	2002	2003	2004	2005
TOTAL	172,271	175,752	190,335	200,376
Hotels	141,737	144,968	152,328	163,370
Youth hostels	2496	469	270	1,462
Motels	7,894	7,193	5,879	5,145
Camping	5,276	5,092	6,391	5,618
Touristic villa	3,951	2,631	2,645	2,576
Urban touristic pensions	7,670	9,831	17,205	18,795
Rural touristic pensions	356	1,112	884	1,389
Agro-touristic pensions	236	472	486	-
Pupils vacation camps	2,168	3,209	3,006	1,708
Number of nights	478	481	614	518

Source: INS – Regional Direction for Statistics Timiș, Statistical Yearbook of Timiș County 2005, Timișoara, 2006

Regarding the expenditure for research and development, Romania tends to stabilise at around 0.4% of GDP which represents 4-5 times less compared to any other European level. The accession to the EU and the recent strategies will bring along considerable allocations as the knowledge based economy is core of the economical competitiveness.

Table 190 Gross domestic expenditure on R&D (GERD) – Percentage of GDP

	1998	1999	2000	2001	2002	2003	2004
EU27	1.8 ^(s)	1.85 ^(s)	1.86 ^(s)	1.88 ^(s)	1.88 ^(s)	1.87 ^(s)	1.84 ^(s)
EU25	1.8 ^(s)	1.86 ^(s)	1.87 ^(s)	1.88 ^(s)	1.89 ^(s)	1.88 ^(s)	1.85 ^(s)
EU15	1.85 ^(s)	1.9 ^(s)	1.92 ^(s)	1.94 ^(s)	1.95 ^(s)	1.93 ^(s)	1.91 ^(s)
Euro area 13	1.79 ^(s)	1.83 ^(s)	1.85 ^(s)	1.87 ^(s)	1.88 ^(s)	1.87 ^(s)	1.86 ^(s)
Euro area 12	1.79 ^(s)	1.84 ^(s)	1.85 ^(s)	1.87 ^(s)	1.88 ^(s)	1.87 ^(s)	1.86 ^(s)
Romania	0.49	0.4	0.37	0.39	0.38	0.39	0.39

Source: WP 1 TERESA

The employment, especially in secondary and tertiary sectors increased constantly after the year 2000. At a certain moment, localities in Timiș reported zero unemployment due to industrial implantations. Less fortunately for the perspectives of the rural development these industries are dealing with chemical and wire-cable production and not integrating natural resources processed via agriculture or other gainful rural activities. For most important categories of activities in the national economy the figures are presented in the following table.

Table 191 Employment by branch of economy Timiș County (in 1,000 persons)

	2002	2003	2004	2005
TOTAL	179.2	181.0	181.2	189.9
Agriculture, forestry, hunting	5.9	5.2	4.7	6.2
Industry	76.1	79.9	78.7	75.8
Constructions	12.0	12.4	12.5	14.8
Trade	20.6	19.6	22.6	29.6
Hotels and restaurants	4.2	3.8	3.2	3.7
Transport and communications	12.5	11.7	11.0	12.6
Education	15.0	15.7	14.3	14.2
Health and social assistance	13.3	12.9	13.1	12.5

Source: INS – Regional Direction for Statistics Timiș, Statistical Yearbook of Timiș County 2005, Timișoara, 2006

The entrepreneurial spirit materialised via commercial companies has an ascendant trend especially for the micro-enterprises.

Table 192 Active commercial companies by size

	2002	2003	2004	2005
TOTAL	12,318	14,029	16,525	18,576
Micro (0-9 employees)	105,236	12,005	14,476	16,328
Small (10-49 employees)	1,338	1,515	1,556	1,737
Medium (50-249 employees)	370	420	409	430
Large (over 250 employees)	74	89	84	81

Source: INS – Regional Direction for Statistics Timiș, Statistical Yearbook of Timiș County 2005, Timișoara, 2006

Regional focus

Local industry, as mentioned, integrates little other products than typical raw material in food processing industry. This refers to the indigenous productions, within the county boundaries, originating in agriculture and forestry. It is important to make this comment as systematically more raw material is imported from other regions or even from abroad. The best example comes from the pork meat industry where the slaughtered pigs (in carcasses) varies little between 10,000 and 14,000 t while the meat products processed for the market are going from 715 t in 2002 to 2,313 t in 2005. Similar situations are observed for all other food processing units of different profiles in the county given an increasing consumption trend and a diversification of tastes and preferences.

Agro-tourism remains an important diversification path for rural households, yet due to the landscape value to sell only parts of the county can seriously take into account this development as potential. Data are showing a positive development still the figures are not as high as expected. The few remote rural areas in the county can benefit of both conditions and demand for agro-touristic hosting.

The total county trade balance is negative: EUR 1,890,802,000 imports versus EUR 1,760,313,000 exports. Not only the totals are important but the content and the level of processing for the merchandise subject to trade.

Table 193 Trade balance of Timiș County in 2005 for selected products' categories (EUR)

	Export	Import
Live animals and animal products	18,330,000	61,665,000
Crop products	7,559,000	10,526,000
Foodstuff, drinks and tobacco	1,998,000	8,929,000
Chemical products	40,872,000	114,353,000
Wood products	33,798,000	5,812,000
Machinery, electronic equipment	813,527,000	681,425,000

Source: INS – Regional Direction for Statistics Timiș, Statistical Yearbook of Timiș County 2005, Timișoara, 2006

As it appears from the table above, except for wood products and less importantly machinery and electronic equipment, the balance is highly negative for all agricultural and food products in different processing stages. We are actually importing three times more animals and animal products than exporting. Unfortunately the foodstuff, drinks and tobacco are together and therefore it is less visible the part represented by food products.

7.1.5 Rural society

7.1.5.1 Demography

Statistical profile

Table 194 Population at 1st January by sex and age – Females and Males Total

	Romaniafemales	V West females	Romania males	V West males
1990	11,760,564	1,113,028	11,450,831	1,085,476
1991	11,752,489	1,104,905	11,439,785	1,075,239
1992	11,596,882	1,064,351	11,214,510	1,011,264
1993	11,587,514	1,075,010	11,191,019	1,024,026
1994	11,579,217	1,072,234	11,168,810	1,020,291
1995	11,302,858	1,027,915	10,891,403	972,159
1996	11,280,051	1,024,873	10,852,999	968,293
1997	11,248,225	1,021,851	10,805,456	963,568
1998	11,224,197	1,017,834	10,764,613	957,501
1999	11,210,334	1,014,988	10,736,097	952,873
2000	11,195,864	1,011,827	10,711,943	948,369
2001	11,184,547	1,009,563	10,691,908	945,065
2002	11,169,297	1,011,817	10,664,186	946,218
2003	11,145,059	1,009,390	10,627,715	942,128
2004	11,119,417	1,005,445	10,591,835	937,580
2005	11,096,818	1,001,461	10,561,710	933,633

Source: WP 1 TERESA

Table 195 Population at 1st January by sex and age – 0 to 14 years and 65 years and older

	Romania 0-14 years	V West 0-14 years	Romania 65 and older	V West 65 and older
1990	5,508,479	457,588	2,383,435	235,541
1991	5,395,966	450,488	2,447,018	236,820
1992	5,184,952	444,718	2,509,413	235,092
1993	5,029,846	437,115	2,565,223	239,147
1994	4,877,590	425,897	2,630,045	243,187
1995	4,674,732	406,278	2,668,178	244,534
1996	4,532,368	395,457	2,730,117	249,318
1997	4,410,388	385,581	2,769,782	252,004
1998	4,310,304	375,780	2,834,940	255,857
1999	4,231,386	368,172	2,879,688	257,644
2000	4,122,446	358,013	2,926,715	259,169
2001	4,004,491	346,627	2,979,284	261,672
2002	3,856,975	334,200	3,043,261	266,293
2003	3,707,884	320,479	3,089,531	270,110
2004	3,566,217	306,900	3,132,996	273,846
2005	3,436,814	294,546	3,174,979	276,782

Source: WP 1 TERESA

Regional focus

The demographical profile of the Timiș County is rather balanced with a good distribution by age classes accounting near one third in each category. If it is to take into account the potential of the human resources for the entrepreneurial spirit then it has to be mentioned that however, in rural areas the last third, meaning the aged population is mostly in charge of the business. The households' owners are systematically older than 55 years of age which fully justifies the future interventions via the National Programme for Rural Development for the establishment of young farmers.

There are no regional population forecasts but at national level, considering the current trends the forecasts are not very optimistic. The estimations for 2050 are indicating a reduction up to one quarter of the national population. In one hand, the demographic trends are down sloping; on the other hand the labour force is orienting more towards stronger economies in Europe.

In our view the possible reduction is going to affect less the Timiș County which always had a positive inland migration rate and considering its present and potential economical growth, the active population will probably suffer less by the national decreasing in total population.

Regarding the active population combined with the recent developments induced by the pre-accession and the accession to the European Union we observe that less qualified workers (in sectors like constructions) were among the first to migrate. During 2007, for the first time, the non-qualified workers in agriculture were

insufficient. It is also true that less and less manpower is required in agriculture, however, the current trend gives signals that in the near future for the remaining agricultural manual operations labour force has to be "imported". The low income level for this type of work and the growing economic diversification makes the sector less attractive for the indigenous rural active population. However, certain agricultural sectors, such as small private vineyards may suffer from this shortage of manpower.

Related to the household income and the economical development short term trends are proving an important increase. This trend is mainly reflected in consumption and an important part regards the agro-food stuff. As it will be presented in the supply chain analysis, population spends more on food, orienting itself to more elaborated products and increasing the meat quantity purchased. A small and potentially growing market is represented by the organic food and the demand is still not covered by the current supply. This trend could stimulate the farmers, especially in remote rural areas in developing organic agriculture as an alternative to their current semi-subsistence productions. Before such a development proves real possibilities, there are certain cultural changes required. If they occurred to certain extent on the consumer side, there are still expected developments on the production sector. When we address the production we also include or related environment, from training to certification and inspection.

7.1.5.2 Education

Statistical profile

Table 196 Population by education and age group – Total population (2002)

low education level	25-34 y	57.17
	35-49 y	93.46
	50-59 y	99.54
medium education level	25-34 y	268.84
	35-49 y	277.19
	50-59 y	111.70
high education level	25-34 y	27.76
	35-49 y	48.00
	50-59 y	24.22

Source: WP 1 TERESA

Table 197 Number of students by level of education – Total (2004)

	Total (ISCED 1997)	Upper secondary education – level 3 (ISCED 1997)	Tertiary education – levels 5-6 (ISCED 1997)
Romania	4,537,426	1,038,041	685,718
V West (SRE 2002)	422,029	93,010	81,108

Source: WP 1 TERESA

Table 198 Population at 1st January by sex and age having completed at least upper secondary education – Between 20 and 24 years

time	sex	Romania	V West
1998	Total	1,757,377	148,806
	Males	900,293	74,892
	Females	857,084	73,914
1999	Total	1,798,893	150,939
	Males	921,685	76,120
	Females	877,208	74,819
2000	Total	1,793,866	149,108
	Males	919,928	75,377
	Females	873,938	73,731
2001	Total	1,796,073	148,919
	Males	920,748	75,080
	Females	875,325	73,839
2002	Total	1,775,278	149,758
	Males	908,023	75,071
	Females	867,255	74,687
2003	Total	1,726,519	146,424
	Males	882,781	73,508
	Females	843,738	72,916
2004	Total	1,661,343	140,779
	Males	849,979	70,942
	Females	811,364	69,837

Source: WP 1 TERESA

Regional focus

Regarding the education level of the population, by age groups, most part of the people under 50 years of age will have completed at least medium education, 41% of the persons between 25 and 49 years of age have achieved at least a medium education degree. However, the population with high education level represents less than 10% when comparing the same age group (25-34) with the medium education level. Moreover, the same age group has twice as much people when comparing the low education to high education levels. The recent figures (2005) show an increasing number of enrolled students (46,748).

Regarding the number of students, the data for the Region V West indicates that more than one tenth of the total population with tertiary education is located in the region.

The population with at least upper secondary education completed oscillates between 140-150,000 people with no significant differences between males and females. It should be mentioned here that sex discrimination was never an issue even under the former regime, not for education, employment or career development.

No data are available concerning the farmers' education or agricultural training at any level. One of the reasons, also mentioned earlier, is the absence of vocational training structures.

7.1.5.3 Labour market

Statistical profile

Table 199 Employment rates by sex and age at NUTS level 2 (%) – Between 15 and 64 years

time	sex	Romania	V West
1999	Total	63.2	62.6
	Males	69.0	68.4
	Females	57.5	57.1
2000	Total	63.0	61.9
	Males	68.6	68.3
	Females	57.5	55.7
2001	Total	62.4	61.1
	Males	67.8	66.7
	Females	57.1	55.7
2002	Total	57.6	57.5
	Males	63.6	64.7
	Females	51.8	50.5
2003	Total	57.6	57.0
	Males	63.8	64.6
	Females	51.5	49.7
2004	Total	57.7	56.7
	Males	63.4	63.2
	Females	52.1	50.5
2005	Total	57.6	56.5
	Males	63.7	63.7
	Females	51.5	49.5

Source: WP 1 TERESA

Table 200 Employment rates by sex and age at NUTS level 2 (%) – Between 55 and 64 years

time	sex	Romania	V West
1999	Total	49.6	40.4
	Males	56.9	44.5
	Females	43.3	36.8
2000	Total	49.5	39.8
	Males	56.0	46.2
	Females	43.8	34.4
2001	Total	48.2	37.3
	Males	54.3	44.0
	Females	42.9	31.6
2002	Total	37.3	30.0
	Males	42.7	38.0
	Females	32.6	23.1
2003	Total	38.1	32.0
	Males	43.5	38.7
	Females	33.3	26.1
2004	Total	36.9	27.4
	Males	43.1	34.9
	Females	31.4	21.0
2005	Total	39.4	31.8
	Males	46.7	40.4
	Females	33.1	24.5

Source: WP 1 TERESA

Table 201 Employment rates by sex and age at NUTS level 2 (%) – Between 15 and 24 years

time	sex	Romania	V West
1999	Total	33.5	35.2
	Males	36.9	39.6
	Females	30.2	30.9
2000	Total	33.1	33.3
	Males	35.8	36.5
	Females	30.5	30.1
2001	Total	32.6	33.0
	Males	35.2	33.5
	Females	30.0	32.5
2002	Total	28.7	28.3
	Males	31.4	28.3
	Females	26.1	28.3
2003	Total	26.4	25.6
	Males	29.9	29.5
	Females	22.9	21.6

time	sex	Romania	V West
2004	Total	27.9	28.5
	Males	30.7	29.7
	Females	25.1	27.3
2005	Total	24.9	23.6
	Males	28.2	26.1
	Females	21.6	21.0

Source: WP 1 TERESA

Table 202 Long-term unemployment (12 months and more) at NUTS level 2 – Long-term unemployment rate (on total unemployment)

	1999	2000	2001	2002	2003	2004	2005
Romania	44.32	51.47	49.49	53.98	61.87	58.93	56.29
V West	48.44	46.87	44.71	51.51	62.49	57.52	57.90

Source: WP 1 TERESA

Table 203 Monthly labour costs

time	NACE	Romania
1996	All NACE branches except agriculture, fishing, private households with employed persons	149.3
	Industry	161.2
	Services (excluding public administration)	149.9
	Public administration and defence; compulsory social security	119.3
	Education; Health and social work; Other community, social, personal service activities	110.3
1997	All NACE branches except agriculture, fishing, private households with employed persons	147.0
	Industry	155.6
	Services (excluding public administration)	154.2
	Public administration and defence; compulsory social security	125.5
	Education; Health and social work; Other community, social, personal service activities	109.0
1998	All NACE branches except agriculture, fishing, private households with employed persons	187.7
	Industry	192.2
	Services (excluding public administration)	191.7
	Public administration and defence; compulsory social security	230.0
	Education; Health and social work; Other community, social, personal service activities	158.3
1999	All NACE branches except agriculture, fishing, private households with employed persons	176.0
	Industry	177.8
	Services (excluding public administration)	182.0
	Public administration and defence; compulsory social security	206.4
	Education; Health and social work; Other community, social, personal service activities	154.3
2000	All NACE branches except agriculture, fishing, private households with employed persons	213.1
	Industry	215.0
	Services (excluding public administration)	223.8
	Public administration and defence; compulsory social security	207.4
	Education; Health and social work; Other community, social, personal service activities	191.0

time	NACE	Romania
2001	All NACE branches except agriculture, fishing, private households with employed persons	220.1
	Industry	236.9
	Services (excluding public administration)	199.8
	Public administration and defence; compulsory social security	217.6
	Education; Health and social work; Other community, social, personal service activities	210.0
2002	All NACE branches except agriculture, fishing, private households with employed persons	245.6
	Industry	244.5
	Services (excluding public administration)	261.2
	Public administration and defence; compulsory social security	224.2
	Education; Health and social work; Other community, social, personal service activities	229.5
2003	All NACE branches except agriculture, fishing, private households with employed persons	244.2
	Industry	237.9
	Services (excluding public administration)	259.3
	Public administration and defence; compulsory social security	257.8
	Education; Health and social work; Other community, social, personal service activities	233.0
2004	All NACE branches except agriculture, fishing, private households with employed persons	273.4
	Industry	266.7
	Services (excluding public administration)	280.5
	Public administration and defence; compulsory social security	280.8
	Education; Health and social work; Other community, social, personal service activities	278.4
2005	All NACE branches except agriculture, fishing, private households with employed persons	365.1
	Industry	352.7
	Services (excluding public administration)	366.5
	Public administration and defence; compulsory social security	402.9
	Education; Health and social work; Other community, social, personal service activities	383.9

Source: WP 1 TERESA

Table 204 Hourly labour costs – EUR (from 01/01/1999)/ECU (up to 31/12/1998)

time	NACE	EU27	Romania
2000	All NACE branches except agriculture, fishing, private households with employed persons		1.39
	Industry	18.93	1.41
	Services (excluding public administration)	18.00	1.42
	Public administration and defence; compulsory social security		1.27
	Education; Health and social work; Other community, social, personal service activities		1.30
2001	All NACE branches except agriculture, fishing, private households with employed persons		1.52
	Industry	19.29	1.54
	Services (excluding public administration)	18.63	1.57
	Public administration and defence; compulsory social security		1.39
	Education; Health and social work; Other community, social, personal service activities		1.38

time	NACE	EU27	Romania
2002	All NACE branches except agriculture, fishing, private households with employed persons		1.64
	Industry	20.00	1.65
	Services (excluding public administration)	19.25	1.72
	Public administration and defence; compulsory social security		1.47
	Education; Health and social work; Other community, social, personal service activities		1.56
2003	All NACE branches except agriculture, fishing, private households with employed persons		1.60
	Industry	20.06	1.56
	Services (excluding public administration)	18.92	1.67
	Public administration and defence; compulsory social security		1.67
	Education; Health and social work; Other community, social, personal service activities		1.55
2004	All NACE branches except agriculture, fishing, private households with employed persons	14.08	1.78
	Industry	20.48	1.74
	Services (excluding public administration)	19.28	1.80
	Public administration and defence; compulsory social security		1.80
	Education; Health and social work; Other community, social, personal service activities	14.00	1.85
2005	All NACE branches except agriculture, fishing, private households with employed persons		2.38
	Industry	20.95	2.31
	Services (excluding public administration)	19.31	2.37
	Public administration and defence; compulsory social security		2.59
	Education; Health and social work; Other community, social, personal service activities		2.54

Source: WP 1 TERESA

Table 205 Regional employment rate of the age group 15-64 – females

	2001	2002	2003	2004	2005
Romania	57.1	51.8	51.5	52.1	51.5
Vest	55.7	50.5	49.7	50.5	49.5

Source: WP 1 TERESA

Table 206 Regional employment rate of the age group 15-64 – males

	2001	2002	2003	2004	2005
Romania	67.8	63.6	63.8	63.4	63.7
Vest	66.7	64.7	64.6	63.2	63.7

Source: WP 1 TERESA

Regional focus

Although the employment rates have decreased over time (1999-2005) for the entire active population between 15 and 64 years of age, the more important reductions affected the last segment, 55 to 64 years of age and the youngsters (15 to 24 years). The long-term unemployment in the Region V West amounts almost 58% in 2005. However, the official unemployment rates recorded between 2002 and 2005 are indicating a reduction from 3.9% to 2.3%. Important to notice about this latest rate is that from a total of 7,360 persons in Timiș County, 3,650 were women, indicating again a balanced situation. Even if 522 unemployed persons had a university degree, the figure is decreasing from 881 in 2002. These figures are explained by the lack of communication between the labour market and the education market that is still inertial for most sectors.

Regarding the monthly labour costs, the region (Timiș County) is still among the low labour cost regions in Europe. If not a good indicator for the local population, naturally aiming to a level closer to the average European standard, it maintains it interesting for the foreign investments. If between 1996 and 2005 the costs have increased by more than double, they remain still far from the Europe 27 average, which is almost ten times higher. It is worth mentioning that the public administration sector which was among the last ones in 1996 is now the first explained by the incentives introduced to renew the human resources in the integration process. The mentioned sector is followed by the education which comes now in the second place after being the last one in 1996. Still, inside the sector there are strong disparities between different levels of education and inside the same level between different degrees, all this situation making the sector still unattractive for young people.

7.1.5.4 Civil society

Giving the fact that Romania became a member of the European Union only at 01/01/2007 and its Operational Programmes were finalised during the same year except the National Programme for Rural Development which is still negotiated there are no Local Action Groups (LAG) or Communities in Local Agenda 21.

There are currently efforts to consolidate partnerships in creating LAGs and in empowering them in order to become operational under the LEADER initiatives. Still the relationships between institutions did not develop or improve and moreover a number of institutions are still missing or failing to provide appropriate services for rural areas. Many of the "duties" of formal state institutions were supplied by NGOs during the last years. In this respect, we should mention that a network of rural NGOs was very active and recording notable results during the entire transition period.

7.2 Exploring policy intervention

Romania had practically no transition policy for agriculture and rural development. However, a number of instruments were used to support different types of productions, material purchase or to encourage the development of certain products. These instruments were rather punctual interventions with no relation to any kind of strategy and were not used in a continuous manner. Therefore, they will not be mentioned here as their effect was local and aiming to support the income level of the farmers. Both funding and the legislation support were following the same path with certain grows in the election years.

7.2.1 EU policies for agriculture and rural development

The pre-accession instrument SAPARD did produce a change only with the following mention: the level of support and the number of projects or demands to financial support were limited by the number and the expertise of the private consultancy units in the region! To fully explain this situation we have to say that no farmer or entrepreneur was able to fill in alone the application forms and therefore the absorption rates were influenced by the consultants work. With these mentions, the latest available SAPARD Progress report for Romania on 2005 (published December 2006) shows the following situation.

Table 207 Number of SAPARD Projects contracted by measures in 2005

	Measure 1.1	Measure 2.1	Measure 3.1	Measure 3.4
Region V West	17	40	83	43
Romania	231	607	593	478

Source: SAPARD Annual report 2005, Ministry of Agriculture and Rural Development, Bucharest, 2006

Table 208 Contracted value of SAPARD Projects by measures in 2005

	Measure 1.1	Measure 2.1	Measure 3.1	Measure 3.4
Region V West	11,213,704	31,249,701	9,591,197	2,123,688
Romania	144,609,069	477,069,563	56,958,641	27,730,838

* Euro conversion was made at the exchange rate on the date of signing the selection report

Source: SAPARD Annual report 2005, Ministry of Agriculture and Rural Development, Bucharest, 2006

The number of contracted projects is less relevant if the value is not presented; therefore the two tables are going together. The measures mentioned in the tables are: Measure 1.1 – Improvement of processing and marketing of agricultural and fisheries products; Measure 2.1 – Development and improvement of rural infrastructure; Measure 3.1 – Investments in agricultural holdings and Measure 3.4 – Development and diversification of economic activities generating multiple activities and alternative income. As the report refers to the SAPARD implementation in 2005, these four were the only measures open for the respective year.

As mentioned earlier, the National Programme for Rural Development, although at its fourth draft is still not finalised. As between the versions offered for public consultation there were significant changes for certain measures we hold any comments before it becomes final and official. It is worth to mention that most of the measures from the European Agricultural Fund for Rural Development are included, only certain measures are proposed to open only after 2010.

7.2.2 Regionally oriented Community policies

Even if the other Operational Programmes funded by ESF, ERDF and Cohesion Fund were finalised and opened during 2007 it is still too early to give any allocation figures in relation to their effect over the rural areas. A number of Operational Programmes will certainly have a direct or indirect impact over the rural areas in Timiș County. In this respect we can mention the Transport Operational Programme and the future motorway West-East which will improve the accessibility; the Environment Operational Programme transversal to all issues regarding environment and not included in the National Programme for Rural Development; the Regional Operational Programme, which even if conceived at national scale has a certain breakdown by regions and treats roads other than Trans European Networks for Transport (TEN-T), included in Transport Operational Programme, which allows connection to TEN-Ts, development of tourism activities and others; Improvement of Competitiveness Operational Programme, which addresses the development of the entrepreneurial environment.

7.2.3 National and regional policies

At the current setup, there are no regional policies in Romania, all policies being national. There are regional development strategies which are integrating the development priorities in respect to the European Strategic Guidelines and specific regional needs supported by ERDF and the Cohesion Fund.

7.2.4 Effects of Legislative restrictions

The legislative restrictions are valid over the entire national territory with no particularity for the Timiș County. It could be that given the ground water depth certain spots in the County will be affected more strictly by the regulations compared to others, still the outcome is regarding the public safety and therefore it should not be regarded as a limitation.

7.3 Investigating networks – supply chains

Before describing the supply chains we should mention that Romania has been passing a long transitional period and was recognised as having a functional market economy only in 2005-2006 by the European Commission. This results in a certain number of unclear aspects which may arise in the analysis given the fact that most supply chains are still in consolidation and developing to achieve a maturity status.

7.3.1 Supply chain 1 – Pork meat

7.3.1.1 General description

The pork meat supply chain relies on a certain number of producers, as initial actor of the chain, producers that are either large scale producers or small family farms growing mainly or only pigs for the market. There is a steady number of slaughterhouses as stand alone or integrated into complex processing units covering also the next stage of the chain by integrating pork carcasses and delivering meat and other meat products to the market. The next actor is represented by the wholesale and retail sector, by the supermarkets together with small grocery stores followed by the restaurants and the final consumption actors. The production (of live pigs) is covered by one large actor and about 100 other smaller producers. About 20% of the production comes from farms between 10 and 50 ha while the rest of 80% is provided by farms far larger than 50 ha. The farm structure is considered to be typical for the region as pig meat production has a long tradition in the County of Timiș. The average current turnover places around EUR 250,000. Future estimates are that 100,000 ha are to be used in order to assure the growth of 2,000,000 pigs.

7.3.1.2 Agricultural and forestry production actors

Production input

The production costs per unit vary between EUR 1.00 and EUR 1.55. The forage is considered to be highest relevant component of the costs, followed by the land use and energy, with low relevance. As for labour force, it is considered absolutely irrelevant. Especially for the small producers, an increase in the price of the cereals will induce a severe decrease of the production. We shall mention here that for a number of years beginning with the mid nineties small producers were into the pork-cereals cycle, meaning they were growing pigs and saturating the local market they decreased the prices and gave up pigs so continued with cereals next year saturating the other market and then returning to pigs as cereals were cheap. Although not specific to Europe, in the small decapitalised farms the cycle had effect for several years before the farmers' growth into commercial size farms or fall back into semi-subsistence.

The production of piglets is sometimes organised in common, but not through cooperatives but via the company who offers the farmers the piglets to grow together with a share of fodder for a pre-established price on the purchase of adult pigs.

Regarding the labour and the intellectual capital, the initial stage requires basic knowledge and eventually a general secondary education degree.

Production output

In 2006 the region produced 20,000 t of pig meat only the variations from one year to another can go up or down 50%! The recent sales prices were in average EUR 1.25/kg with variations of $\pm 20\%$, which places the profit per unit (kg) between EUR 0.15 and EUR 0.30. The relevance of the imported competitive products has high relevance and the average price amounts the same EUR 1.25/kg. The relevance is achieved when the 20% variation is moving up locally. 40% of the customers are represented by the food processors while the other 60% are retailers. Today, and especially in the case of the Timiș County it makes sense to transport the pork meat to any distance in Europe as well as the same merchandise travels across Europe as raw material. No common marketing is in place, no marketing cooperatives operate in the region, except the company pig-let system mentioned above.

External effects

The pork meat production could have potentially negative impact over the cereals production by inducing monoculture for fodder production. The production itself, the growth of pigs can have medium relevance regarding the pollution of air and water and very low relevance regarding the soil pollution. Obviously there are no positive environmental effects induced by the pig production.

The production although important as sector has low relevance for the employment in the region as it requires low manpower. The involvement of the farmers in community life is regarded as being of medium importance as pig growers were always wealthier than cereals producers and therefore their presence and opinions were listened. Only today the farmers' communities are unorganised and professionally they are little represented and even less present in organised environments to express their opinions.

External factors

Being an "inside" production the pigs can be grown in two cycles a year, all year long. No environmental conditions or hazards can affect the production. The CMO measures are not yet in place but expected to function soon. No predictions can be emitted in their absence. Among the legislation limitations, the water regulations together with food safety and animal welfare are of high relevance and induced

production costs increase. It is estimated that 30-40% of total activities are spent for food safety only.

The production choice of the farmers is attributed with a medium influence to family and neighbours, public bodies and media. The ways of production employed by farmers are originating from the same vectors. The marketing besides the traditional ways learned in the family are also coming from media and the big players in the sector together with the pressure from the actors inside the supply chain.

In terms of sustainability, the supply chain has a major economic dimension, followed by a medium social and environmental dimensions and if we weight the three components, then 75% is economical, 20% social and 5% environmental.

Diversification

No diversification paths are foreseen by the sector specialists. In their opinion the pig growers will remain constant or grow, the only other alternative being to leave the sector.

7.3.1.3 Intermediary production actors

The intermediary production actors are represented by the processing industries and the retailing services. The region counts about ten units of each with a larger scale than for a typical local business accounting about 250 employees.

Production input

The production costs per unit amount EUR 1.50 in average with oscillations of $\pm 10\%$. The only relevant component of the production costs is represented by pork as raw material. Any important change in the price of the pork could induce major decrease of the production.

The share of labour as resource of production is considered important and amounts 8 h per processed ton of product. Therefore the costs per employee in this production are considered much higher than the average labour costs in the region. This also requires medium to high trained labour specialised in this type of activity. We should mention also that specialised workers from the sector easily migrate to other European countries.

Production output

In 2006, 17,000 t of product were produced. For comparison we can add that only 10,000 units were produced back in 2003. The average sale price for the next stage in the supply chain is of EUR 1,500/t in equivalent carcasses. The variations of price are rather small, EUR ± 50 /t. The imported competitive products' relevance is low. The only customers toward whom the product is sold are the retailers. There is low

competition within the market and the product is marketed nationwide. No common marketing activities are organised among same or other actors along the supply chain.

External effects

The soil does not have any relevance at this stage of the supply chain; however the production could have a low negative impact on water pollution. The contribution to the total employment in the region has low relevance but a high contribution to the employment in the sector. This type of production is not discriminating any age or sex categories nor has a particular relevance for the employment of the respective categories in the region.

External factors

The only regulations with high relevance for the production are related to the food safety. Sustainability is regarded by the producers as highly important for the economical component, medium important for the social dimension and of little environmental importance. The economic component will represent 60%, the social dimension 35% while the environment 5%.

7.3.1.4 End consumption actors

The end consumption actors are represented by private households inside and outside the region and the public households. While the tourists are regarded only as of minor relevance in this type of consumption, the consumers outside the region are considered of high importance.

Demand

The average yearly consumption of the product amounts 30 kg per adult. The average purchasing price is EUR 2.05/kg, the price being expressed in equivalent carcasses. The average household income in Timiș amounts EUR 700 monthly. There are no additional costs for purchasing the product being a standard product commonly available. The consumption would severely decrease if the price of the raw material would increase, but if the incomes would increase then consumption would also increase. This last part already occurred during the last years as consumers are purchasing today more pork meat as their incomes were increasing during the last years. There is no special VAT rate as all goods and services are taxed at the same rate of 19% in Romania.

External factors

The regional values and tradition, the position on the market of the product and the media are all seen to have an influence, otherwise not very important in the consumers' choice for the product.

7.3.1.5 Dynamics of the supply chain

Reasons for major shifts in the past

The producers have majorly increased their production (with an estimate of about 30%) since 1993. This development was importantly influenced by the policy changes over the 1993-2006 period and medium affected by the subsidy changes. Parallel intensification and extensification together with changes in the key sales market were the major options that producers took into account.

The intermediate actors in the supply chain, namely the slaughterhouses and the food processors had followed the same major increase since 1993, estimated to 100% in 2006. For both these categories we have to mention that the situation back in 1993 was rather catastrophic and therefore reaching a decent and normal level of production all since is a major increase. The establishment of the private processing activities were the main trigger for this development.

The end consumption actors followed (in fact, triggered) the developments described for the other earlier actors in the supply chain. A strong increase in the demand for the product was recorded beginning with 1993, but if we analyse the recent years, there is an increase of 35% recorded only since 2000 until present. This was possible as the household incomes were increasing strongly with an estimated 80%. The private households outside the region were growing in consumption importance (60%) while the in-region ones are representing little under one third. The major option was represented by the increasing demand for standardised products. The core reason behind this development remains the strong increase of the incomes.

Effects of past shifts

Regarding the producers, there were no important changes in the past related to the labour, only a slight decrease of the physical and economical farm size. A slight increase of the production costs was generated by the forage price increase. The producers (mainly the commercial ones) became aware of the necessity to have their rights represented and a certain number of them are affiliated to the Pork Meat Cartel. The share of labour in the production costs slightly increased, while the personnel costs per employee compared to the average labour costs in the primary sector have strongly increased. The production input increase was followed by a strong production output with a slight increase of the sales prices and of the profit. Under these conditions the competitive imported product followed a slight decrease. The sales increase mainly towards the food processors and the retailers, with basically no change for the wholesalers and end consumers. Also a slight increase of the intensive arable crops was induced by the general increase in the pig growers sector. At the same time a slight increase of the air and water pollution was recorded. The national subsidies (the only ones so far) had a strong response in the return of the produced units.

For the next actor in the supply chain, mainly the processors, the economic size of their business and the number of employees increase from 1993 until present. The increase of the production costs was generated mainly by the strong increase of the costs with the workforce. The share of the labour costs and the personnel costs per employee were increasing strongly. The need for specially trained workers followed the same upward trend. The sales prices for the next stage in the supply chain were growing slightly together with the profit while the imported competitive products were decreasing strongly. This growing situation drives to increasing the sales to food processors and retailers. No notable external effects were induced by the boom in the sector.

Possible reasons for future shifts

The expected economic progress by the horizon 2014 is estimated to follow a minor increase between 2 and 8% at the producers level (pig growers), but a major increase, 5-10% by the 2021. The demand is most likely to follow the same trend and the probability to have these changes occurring is estimated at 100%. The consumption trend based on the income growth will allow reaching the upper ceiling on this market. Under these conditions the extensification remains an important option. No important sustainability changes are foreseen. The knowledge of the farmers and the raw material are regarded as being of high relevance for the production increase.

For the second actor in the supply chain the future developments are expected to produce a minor increase of the profit, 3-5% to the both horizons, 2014 and 2021, with values of EUR 140-160/t while the demand forecast indicates a major increase. The establishment of the processing and retailing activities are the main options in these developments.

The end consumers will continue to stimulate the demand growth for the pork meat and the future prospective is indicating a 20% development supported by a strong increase of the incomes. The number of customers will increase moderately and mainly the number of the private households, both inside and outside the region is most likely to grow.

7.3.2 Supply chain 2 – Cereals/flour

7.3.2.1 General description

The cereals producers in Timiș County account about 200 farms which need about 0.2 ha in order to produce 1 t of wheat. The share of farmers aged of 55 years or more is very high amounting 75%. The number of employees per farm is 4.5 in average, being considered typical for the region's primary sector. Only one fifth of the farms are under 50 ha while the majority are larger, considering more than 6 ESU. This allows moving the average farm size to 400-500 ha. The estimated average yearly turnover reaches EUR 300,000.

7.3.2.2 Agricultural and forestry production actors

Production input

The production costs per unit vary from EUR 100 to EUR 150/t and between EUR 300 and EUR 500 per hectare. The highest relevance in the production costs is given to the fertilisers and the machinery, while a moderate relevance is granted to the land use, energy, pesticides and seeds. Regardless the changes in the prices of the raw material, no changes are expected in the production. Given the recent negative experiences of the farmers the cooperation of any kind is excluded in agriculture generally speaking and in the cereals production particularly. No cooperation or collaboration exists in any stages of the supply chain, from production to the final processing, including the marketing. Ten to twelve hours are required to produce one unit of cereals while still important, the share of the self-employment in the production remains high (40%). This allows the personnel costs to be lower than in other sectors of the primary economical branch (EUR 3,500/year). The required skills for managing the production are based on an average knowledge level; however, secondary and tertiary education are required when it comes to handling pesticides and insecticides and the seed varieties choice.

Production output

The production output varies within large limits even for the recent years on a range between 300,000 and 750,000 t. The most recent sale prices are also moving within a wide range, from EUR 150 to EUR 240 per ton as production as production destination can go from fodder to high quality pastries and pasta. Under these conditions, the estimated profit moves accordingly between EUR 25 and EUR 115 per unit. The imported competitive products are of no relevance at the crop production level. Most of the products are purchased by food processors (75%) followed by the wholesalers (25%). The competition within the market for the intermediate product is rather high as product is oriented to the national market. The farmers are represented by a Producers' Union, only the structure has more a political role than representing the professional interests of the members.

External effects

A medium negative impact of the production is identified to be the intensive arable crops monoculture, with medium negative environmental effects over the pollution of the air and the soil, the loss in biodiversity and less in terms of soil negative impact. No positive environmental effects are identified for this type of production.

External factors

The production has a seasonal character with 4-8 months a year given by the biological characteristics of the winter and spring wheat crop. The quality of the soil is one of the environmental influences over the crops regarded as highly important and this aspect is generally covered by the good natural fertility of the soils in Timiș

County. Over the last fifteen years the droughts had produced high losses of production. Accidentally, the floods and hail also affected areas of the county during the same period of time. The CMOs are still not in place, yet the estimated direct payment subsidy is estimated to be EUR 23-25/t. No regulations have limitative effects on cereals production. The product choice was majorly influenced by the own self-assurance, followed by a certain influence given by the tradition and the regional beliefs and family history and routines, while the big players in the sector only had a minor influence. The same things can be told about the production ways chosen by farmers and the marketing paths followed. The producers are regarding the sustainability dimensions as highly important for the economical side and less important for the social and environmental components.

7.3.2.3 Intermediary production actors

About twenty processors in Timiș County represent the intermediate production actors as processing industry-mills. The average employee number amounts ten to twelve persons making the business size smaller than the typical size in the region but with important average turnovers of EUR 1,500,000.

Production input

The production costs per unit (raw material included) are between EUR 265 and EUR 285/t. The most important components in the structure of the costs are the energy (60%), the workforce (12%), the manipulation (13%), the storage facilities (8%), the amortisements (5%) and the marketing (2%). Any change in the price of the previously mentioned components will not produce any change in the production of the intermediate actors. The share of labour as resource of production is low and the personnel costs per employee have no important differences to the average labour costs in the region (EUR 4,500/year). However the need of specialised workers in the sector is high.

Production output

In the recent years the production of the intermediary product was between 250,000 and 350,000 t and the sales prices were moving between EUR 276.5 and EUR 308/t, generating a profit per unit in the range between EUR 11.5 and EUR 23. The competitive imported products have low relevance for the market and the main customer is represented by the food processors. Under these conditions the competition within the market for the intermediate product remains high for a nationwide market.

External effects

Very low negative environmental effects are produced by the air pollution. Employment in the particular sector has no importance in the regional employment given its limited business size and no special effects, positive or negative regarding

the employment of the extreme age categories, women employment or any other kind of occupational category.

External factors

The regulations regarding the food safety have a high influence over both production processes and their costs, while the regulations of entrepreneurship are of low importance. The sustainability is regarded as very important through its economical component (80%) and moderate to less important for the social (15%) and environmental (5%) dimensions.

7.3.2.4 Intermediary production actors

The bakeries as intermediate production actor are still representing the processing industry outputting bread and pastries. The core focus remains on bread and the sector counts over two hundred operators only in the Timiș County. The number of employees per firm (5-6 persons) is rather smaller than the typical business size in the region, and the annual turnover amounts EUR 140,000. All calculations and estimations further are beginning from the base price of EUR 1.1/kg bread not including the VAT.

Production input

The production costs varies between EUR 0.92 and EUR 1.00. The most important components of the costs are represented by the energy (50%), the workforce (35%) and the sales facilities (15%). No change in the price of these components could influence the production, unless the production costs. The labour as resource of production has a medium weight for a typical consumption of 0.064 h/unit. The average yearly costs with the personnel amounts EUR 3,300 being comparable with the average labour costs in the region. There is a moderate need for special skills regarding the employees.

Production output

The yearly production level oscillates between 41,500,000 and 51,419,375 units and the sales price are moving along a range placed between EUR 0.85 and EUR 1.10/unit. Under these conditions the profit per unit amounts EUR 0.11-0.21. The core customer is represented by the retailers (70%) followed by the end consumers (20%) and the wholesalers (10%). There is still a high competition within the market for the intermediate product which is oriented toward to regional market only, although very often the producers are organising common marketing activities.

External effects

There are little or no external effects at the level of these intermediate actors.

External factors

Regulations on food safety have medium influence over the production and the production costs. The sustainability is regarded by the producers mainly through its economic dimension (65%), the social (35%) and environmental (5%) components being of medium importance.

7.3.2.5 End consumption actors

The end consumption actors are mainly represented by the private households in the region (75%) while the rest is shared between the private households outside the region (15%) and the public households (10%). Therefore the product is mainly consumed in the region, otherwise a standard product.

Demand

The average yearly consumption of bread at the level of an adult is of 65 kg and the purchasing price is situated between EUR 1.13 and EUR 1.40. The average household income amounts EUR 700/month.

External factors

Being a common standard product required in daily consumption the external factors are irrelevant.

7.3.2.6 Dynamics of the supply chain

On the cereals producer level the presence of other gainful activities is limited or absent. The marketing of by-products released inside the production of the existing supply chain has a high relevance affecting 90% of the farmers.

Reasons for major shifts in the past

There are no notable changes since 1993 in the production of cereals only a medium influence produced by the changes in the (national) subsidies.

The second actor along the supply chain, the mills have decreased by 15% compared to the beginning of the analysed period, the central option in this change being represented by the changes of the key sales market. The reduction of consumption was the only reason which induced the downward evolution of the segment.

A decrease by 30% of the production of bakeries is regarded as minor for the overall changes and evolutions during the past years. The core reason is the reduction of the consumers' number and the reduction of the daily consumption as people eat less bread than fifteen years ago.

A minor decrease of one fifth is observed over the time at the level of the end consumption actors. This time the average growth of incomes (60%) generated a reduction of consumption.

Effects of past shifts

The number of hands per farm has slightly decreased over the last fifteen years and no change was recorded in the physical size of the farms only a slight increase of the economical size. The developments of production costs, slightly increasing, are mainly generated by the energy, with a strong increase and a slight increase of the machinery generated costs. The supply products with strong or moderate increase as production input were the machinery, the pesticides and the mineral fertilisers. The labour costs and the share of self-employment have also strongly increased during the past 15 years and the level of specialisation followed the same ascending trend. In terms of production output, the production has slightly declined in the last years while the sales prices and the profit have increased moderately. The sales oriented almost exclusively towards the food processors. No negative environmental effects were recorded and a slight decrease in the sector's employment occurred over the same period. Among the external factors, the relevance of the (national) subsidies per ton of product had slightly increased.

Although the number of employees in the processing units (mills) has slightly increased, the most important change of the past years remains the increase by 40% of the economical size of the units. The production costs followed a strong increase (50%) given the raw material and the storage facilities price developments. The sale price to the next level of the supply chain increased by 40% and the profit followed by 10%. The sales to retailers increased by 10%. The external effects over the past changes are completely irrelevant.

A slight decrease in the economical size of the processing units (20%) was followed by a moderate reduction of the personnel (15%). The growth of the production costs was produced by the increase of the flour as raw material (55%), the energy (20%), the workforce (15%) and the sales facilities (10%). The share of labour in the production costs increase is considered to have followed a strong increase, with 60%. The sales price went up slightly, by 15% while the profit decrease by 5% with the sales oriented to the retailers.

Other products, mainly vegetables are replacing the product traditionally consumed in rather important quantities by the end consumption actors. The option to take into account is the change of the consumption habits as people become aware of the healthy leaving and healthy eating.

Possible reasons for future shifts

Although hard to predict, minor increase of the economic progress is expected by 2014 (5-25%), while the expectations to 2021 could go from 20% to 50% increase of the profit margin per unit. For the entire time horizon the demand is expected to

grow significantly. There is still room for intensification and therefore it comes as first option with a high economical dimension in terms of sustainability and moderate social and environmental components.

A minor decrease of the economic progress could be expected by 2014 (10-20%) and then a stabilisation until 2021 on the background of a slightly growing demand. Establishment of processing activities is regarded as main option to follow.

The same minor decrease is forecasted for the second processor actor also (5-10%) together with a reduction of the demand. The core reason is the rationalisation and the changes in the consumption habits.

The end consumers will change and the demand for bread is most likely to drop by 20% even if the household incomes are still sloping upward (60-70%). However, in terms of number of customers, the public households could double their number while the private households in the region will decrease (as consumer) by 20%.

7.3.3 Analysis of supply chain 3 – Milk

This supply chain can be considered compromised given the fact that no certitude can be achieved regarding consumption of the milk produced in the region. In other terms, the milk from the region is processed together with the milk from outside region and the final product origin cannot be established with certitude. The national and international networks purchasing and processing the milk are operating on different scales than County level.

7.3.3.1 General description

The milk producers in Timiș County are decreasing as number and to a certain extent increasing in economical size. The past ten years have brought developments in which national and international companies and networks are purchasing all available milk on the market and it is still insufficient. The scale of these operations are crossing regional and national borders and therefore it is difficult to estimate how much of this developments are originating in the changes (structural or qualitative) which occurred locally in Timiș. There are still two different types of milk producers, the standard dairy farms with sizes from 20 to 2,000 ha and on the other side the small semi-subsistence farms producing small quantities of milk and still selling them on local market. This second category will have to convert itself into either commercial farms and join the first category or reconsider the product they are issuing on the market and moving towards a processed accepted product. In average, Timiș County accounts around 30,000 heads of milking cows with an average production of 3,500 l/head.

7.3.3.2 Agricultural and forestry production actors

Production input

The estimated production costs per litre of milk are between EUR 0.20 and EUR 0.60. The highest share in the production costs is reserved for the fertilisers (60-80%), followed by the workforce (20%) and the amortisements (20%). The typical production consumption involves 40 l of water and a mixture of fodder as follows: 3 kg of fibre forage, 1 kg of gross fodder (straws and others), 30 kg of silage and 2 kg of concentrated forage. A minor decrease of production can be induced by an increase in the forage price like in the current situation given the drought of 2007. Very rarely the farmers cooperate in the field of production and those situations are mostly encountered when silage is produced. The proportion of self-employed and family labour compared to the wage workers is more or less equal given the number of small farms still producing and commercialising milk. This situation is going to change in the favour of the waged workers given the temporary character of the transitory measures after the accession to the EU. There are no significant differences between the personnel costs in the milk production and other agricultural productions. The level of specialisation required in production is medium and we can consider that the sector has more than 50% actives with secondary, view tertiary (20%) education. The labour consumption when the production has the required level of mechanisation accounts one man for 35 cows during 10 h per day, job for which he'll be earning around EUR 300/month.

Production output

The sale price to the next level in the supply chain varies between EUR 0.25 and EUR 0.40/l. The estimations are that the milk production represents 10% from the regional GVA; however these estimates are coming from the potential production as it is difficult to trace the milk originating from the region. The "imported" competitive product has a medium relevance considering, as mentioned before, that milk is coming to the processors from all their regional collecting points which could be inside or outside region and country. The entire quantity of milk collected goes to the processors. The competition for the product has lowered to an almost balanced situation between different large processors. We should add that back in 2001 no litre of milk produced in Romania satisfied the EU definition of food products and even less the one of milk. The situation progressed very fast with the market insertion of big milk processors from Europe and today the market shares are split between these ones and few Romanian companies which developed during the past five years.

External effects

The production developments, speaking here mostly about the intensification, had produced certain moderate negative effects over the land by inducing more intensive arable crops in production and by exploiting intensively the pastures. The general (pasture and meadows) landscape which can be observed in Timiș does not

reflect entirely this situation as the effects were localised around the large milk producers, which means it is not a generalised phenomena but rather a punctual one. The environmental effects were limited and decreasing constantly as the environment and livelihood protection regulations were enforced during the last years and are specially monitored in present. All developments were fully respecting the restrictions which considerably reduced the negative effects this type of production used to have twenty years ago. The extensive milk production in the Eastern part of the county has a limited importance in protecting the traditions and maintaining the landscape with extensions to the agro-tourism. In terms of employment the milk production has rather decreased during the recent years and it never had any special relevance relating to any labour categories. The Local Action Groups are still in creation and the only form of organisation of the farmers is represented by the Milk Producers Cartel.

External factors

The milk production can be carried out for ten out of twelve months given its biological specificity. No special or normal pre-conditions are required for this type of production regardless the level of intensity. In terms of legislation, the most important regulations influencing the production are those referring to the food safety, followed by animal welfare and restrictions on fertiliser use and water protection. The production choice was rather a heritage in the family and only medium to large companies (dairy farms) choose this type of production foreseeing the market developments. In choosing the ways of production, besides the previously mentioned factors, the big players in the economical sector had a role to play. They attracted and stimulated the development of a certain number of producers within a short time frame with positive returns for both parties. Regarding the marketing choice the processors had played their role sharing a well "regulated" market. They were the first to comply with the entire set of regulations and therefore the only ones remaining on the market. This situation simplified the choice as there was one single category to choose from.

The sustainability as seen from the producers' eyes gives a large share to the economical side (60%), followed by the social dimension (30%), probably still accounting on tradition and family values when talking about milk production and cows and a limited 10% is granted to the environment.

7.3.3.3 Intermediary production actors

The only intermediary production actors are the milk processors as the retailers are not purchasing and reselling the milk but "renting" the commercial area to the processors which are maintaining it. That makes the contact between the processors and the final consumers as direct as possible and eliminates the separate retailing actors. There are isolated situations of small grocery shops where the products are purchased (in supermarkets) and resold to end consumers but this part of the market is rather tiny and with limited significance.

Production input

The production costs are relatively equally shared between the sales facilities, energy, storage facilities and workforce, with a slight accent on the first two. Any production increase could be reflected by a slight increase in the sales price of the processed milk. The share of labour as resource of production is relatively low and the processing industry requires average trained workers.

Production output

The sales price per unit (litre) are of EUR 0.53–0.66 with a profit per unit of 15–20%. The imported competitive product has a medium relevance and the product goes directly to the end consumers, to a certain extent, intermediated by the retailers (as described above). The competition for the product can be rated medium with a scale of product distribution going from trans-regional to national.

External effects

There are practically no external effects which can notably affect the processing actors inside the supply chain.

External factors

Among the external factors the regulations regarding the food safety has a high influence and as it was stated before played an important role in the market consolidation process started only few years ago. The regulations on entrepreneurship have a lower relevance as most market operators have a long experience in functioning on a market economy and the recent ones had a clear fresh start implementing directly all regulations with no transition required. The sustainability is seen as highly important for its economical side, moderately for the social dimension (mostly consumers and not via their employees) and a reduced environmental side as all processes are taking place indoor.

7.3.3.4 End consumption actors

The end consumption actors are composed mainly by private households inside and outside the region and a number of public households. However the first two categories are dominant and the estimates are that the shares are equal among them.

Demand

The unit of product, namely, a litre of milk at the end consumer level has a price between EUR 0.66–0.80, under the conditions in which the households incomes, presently situated around EUR 700 monthly are increasing and expected to develop the same trend for the near future. As happened in the recent past all income increase will be reflected in the product purchase/consumption increase.

External factors

A certain external effect can be attributed to media and its campaigns of healthy living and eating. The situation recorded in the nineties was abnormal and the increase of consumption is not necessarily the effect of education and information but an effect of income increase which allowed the consumers to extend their possibilities including ordinary and standard products in required or larger quantities which were limited before by the lack of financial resources. The sustainability in the eyes of the consumers has different dimensions compared to the producers or the processors, giving an important share to the economical side, but an equally important share for the social and environmental dimensions.

7.3.3.5 Dynamics of the supply chain

The farmers with other gainful activity have a medium relevance. As mentioned in the analysis a number of farmers have diversified their productions instead of increasing the economical size and a certain number of them completely left the sector as the income and the effort was favourable to the other activities, mainly secondary and tertiary sectors. In the Eastern part of the county diversification also lead to agro-touristic activities only the phenomena was not of scale or of high relevance as diversification path.

Reasons for major shifts in the past

Since 1993 the milk production at farm level has followed a major decrease at county level. We have to mention that the large complexes producing milk before 1990 have collapsed and the production was further ensured by the small private family farms. All up to the years 2000 the new specialised dairy farms were absent so production was suffering together with the newly installed processing sector. We have to state as well that the decline in total production was followed parallel by a serious increase in the yield per animal as new genetic was purchased to replace the existing production animals. At the level of small farms the factor declining the production and the major bottleneck in development was represented by the insufficient and fluctuating national subsidies together with the absence of a coherent policy support. Intensification remained the main option for the farmers and new dairy farms were established. The reasons for the increase of the remaining producers were given by the costs increase especially for milking and conditioning the milk. At the same time, the reason for the leaving farmers was the income level more attractive in the secondary and tertiary sector.

Regarding the processing milk industries, the evolution since 1993 had recorded a real boom. The "engine" of this development was a mix of establishing new processing activities together with retailing activities (otherwise not specific to processors).

The consumers, the core market actors, were pushing the demand for milk to a major increase for the last decade. This evolution was supported by a parallel

serious increase in the household incomes. The number of consumers has also positively developed based on the increasing demand from private households, both inside and outside the region. A government decision from 2003 providing compulsory (100% subsidised) milk to pupils in primary public schools also contributed to develop the secured demand. The demand for the standardised product (milk) is most likely to increase even if other type of similar products could develop on parallel market sectors, such as goat and organic milk. These last two categories are rather limited in the present demand but future changes could lead to developments which could stimulate a number of producers to move in. At regional scale (county) the demand for these "specialised" products is not expected to grow spectacularly, yet it could represent an alternative for the farmers willing to remain in milk production.

Effects of past shifts

There was a strong decrease of number of hands per farm as the remaining and the new farms used mechanisation in order to rationalise their economic activity. The average farm size has slightly increased in physical terms and strongly increased in economical size. The production costs had followed with a temperate increase mainly due to the forage. The main ingredients of these costs developments were the fertilisers, the fodder and the water used in production. Although the labour in the production sector has decreased the personnel costs per employee were increasing moderately compared to other primary sector activities. The required knowledge level as shifted up to follow the new processes and technologies employed by farmers. The production output was developing over the period with a minor decline in profit while the GVA contribution of the milk production remained stable. As the market was not saturated in milk the competitive imported products (from other regions or countries) were growing quantitatively. The major shift related to the production was represented by the sales orientation which moved from different small local market segments towards the processors and ended by going entirely in this direction. These changes in production induced a number of limited negative impacts over the environment, mainly regarding the exploitation of the pastures and arable land for intensive crops. But at the same time, with the new regulations there was a reduction of air and water pollution. As already mentioned, the national subsidies over the period were fluctuating and not being part of a consistent transitory policy did not stimulate sufficiently the small and medium farmers.

The processing actors were passing a double speed development for the last ten years with a strong decrease of the number of employees (given the technological progress) and at the same time a strong increase of the economical size. These increase trend is retrieved in the developments of machinery, storage (specialised) facilities, sales facilities and energy costs. The personnel costs and the share of labour costs were increasing moderately, just like the level of specialisation required for the average operating employees. In terms of absolute figures the number of processors was decreasing from 40 to 6, but the economical size (even the average one) cannot be compared. The 40 previously existing processors were

the old processing facilities from before 1990, while the 6 processors after the sector restructuring were for a part newly established and for another part those able to invest in technology and reaching the new (food safety) norms. The sale price of the intermediate product was increasing to reflect the costs development and the profit was following the same trend. The contribution to the GVA is considered to be unchanged, however, we make the same comment as earlier – it is hard to trace the milk from Timiș County and therefore the estimates are based on the production potential (milk produced in farms). There was a slight increase of the marketing activities as processors choose to have a direct form of sales via the supermarkets, sometimes seen for bread and certain meat products also. The processors have little or no negative impacts over the environment as they were authorised to function by the new regulations and they are inspected systematically.

Possible reasons for future shifts

To the horizon 2014 the economic progress of the milk production is expected to follow a minor increase, as well as for the next period (up to 2021) and followed by the same trend in what concerns the demand. Production changes are quite likely to occur and the sense of changes is mainly towards specialised dairy farms. Medium to large farms could consider as future alternatives to develop or incorporate processing facilities in order to gain direct access to end consumers. The intensification process will continue for a number of years as for certain farms the level is still behind the European average, while a number of farmers could also consider moving into organic milk production. For this last category it is hard to have any estimates today, yet the market is demanding moderate amounts and the products are imported from other regions. The future changes will be determined most probably by the need to increase the revenues and by the pressure of alternative activities (mainly outside the primary sector).

A minor increase of the economic progress is expected to be reached by 2014 and the process will slowly continue toward 2021. The demand is expected to remain the main trigger as the income growth can lead to fulfilment of the consumption capacity of end users. The main option for the processors could be the rationalisation in order to secure their place on the market or gain extra-shares by reducing the sales price.

The future demand changes are expected to be positive as (the expected) income increase trend will also stimulate the consumption increase to its normal level. These changes are very likely to occur based on the formulated demand of the private households in and out-region. A medium increase of the demand for the standardised products could be followed by an increase (at a different scale) for the organic products.

7.3.4 Non-agricultural alternatives

There is no data available for the farmers who left the sector in the last ten or fifteen years. There is systematic dropdown for certain areas which comprises also a number of farms included in the analysed supply chains. The highest probability for the farmers which shifted away from agricultural production in the commercial sense is to move or slide back in the semi-subsistence form maintaining a limited area or number of animals and developing other gainful activities. One sector which increased considerably for the analysed period is the service sector. Most services developed in rural areas are commercial retailing of general goods – grocery stores. The reason behind is that such stores did not exist at the beginning of the nineties or the services and the range of merchandise provided were completely unsatisfactory. Given the demand and the wide market to occupy the entrepreneurs developed into this new activity generating larger incomes in a easier way. Of course, this alternative is considered less in present as the market became saturated.

Another development, initially seen as a positive growth was the agro-tourism mixed with agricultural production. The phenomenon is rather limited in Timiș County, but the changes seem to follow the same path. Those farmers insufficiently large and with touristic potential have developed accommodation facilities and started agro-tourism. All positive returns from the new activity determined a number among them to renounce to agricultural activities which became purely collateral as time consumed with tourist services demanded more, in one hand and in the other hand the income realised per time unit was considerably higher.

Most of the rural households which reduced or renounced to the agricultural activities have also left the rural areas in terms of active persons. As infrastructure has improved larger distances could be covered to reach the work place. It is however impossible to say which sectors or activities in urban areas were preferred or taken.

There is a particular situation in the western part of the Timiș County where the implantation of two large industrial companies reduced the unemployment down to zero level. Not only the city (Sannicolau Mare) had these job opportunities but all the villages around. These industrial companies created a kind of pressure in terms of income level and facilities over the immediate rural surroundings and certain undetermined farmers moved in the industry, maintaining the agricultural activities by transfer to someone else in the family or reducing farming to semi-subsistence or subsistence level.

One major option for the farmers still in the sector remains the diversification of economic activities outside the primary sector. There are no estimates about the small commercial farms and semi-subsistence households but the existing statistics are proving that over a five years period the income diversification for farmers in Timiș County moved up by factor five based on non-agricultural incomes. The administration or the producers' cartels did not release any reliable statistics about

the farmers leaving the sector or with a main economic activity outside agriculture. It is understandable under the circumstances in which the National Programme for Rural Development is still negotiated with the European Commission. Such data could undermine certain support measures in the Programme. On the other hand the particular situation valid for the far west of the county (around Sannicolau Mare) and around Timișoara or Lugoj cities, where industry is attracting small farmers and available rural labour is not valid for the southern or eastern part of Timiș where such focal points do not exist until now and the medium term perspectives do not foresee any major industrial implantation. Agriculture seems to generate a loss of hired jobs with a moderate to no increase at all in the wages, while industry remains attractive in terms of time consumption and higher income opportunity.

7.4 Investigating social networks

The social networks just like the supply chains analysed are still in consolidation process. Most of the institutions required are created as structures but in most situations they still miss the functional links to the rural actors. The consolidation mentioned earlier refers both to the institutional capacity to provide the services and to their "insertion" in the rural development. The accession to the European Union accelerated the process of institutional development and capacity building and most of the structures supposed to provide all range of specialised support or administration are in place. Still, as most of them are newly created as administrative requirement their primary focus remains until present the institutional development, mainly internal development.

The **General Directorate for Agriculture** in Timiș County is the direct representation of the Ministry of Agriculture and Rural Development in the territory. As governance exists only at national level, the structure's role is to transpose the directives into practice and to enforce the regulations. Formerly, the institution had all services related to agriculture and food industry including a Rural Development Direction. Today, within the EU integration process the Payment Agencies are two separate bodies – The Payment and Intervention Agency for Agriculture and the Payment Agency for Rural Development and Fishery. Another important service which is still part of the Directorate is the County Office for Agricultural Consultancy. This structure is supposed to provide all technical support to farmers and rural actors, only in the case of Timiș County it fails systematically. The service remains pure administrative and the activities are mainly punctual interventions by training. The role of the Directorate becomes increasingly important as the National Programme for Rural Development will deploy through this structure and its services. The collaboration with the other actors involved in rural development is based only on formal links. The institution is still very much politicised and any change at national level is reflected in local changes affecting the medium and long term potential initiatives and relations with the other rural actors. Their future cooperation will develop as it is required only the sustainability and the positive effects of this collaboration are still in question. The position remains an important

one as all information related to legislation and potential financing together with the subsidies will be distributed via the specialised services.

The **National Authority for Sanitary Veterinary Control and Food Safety** is subordinated to the Prime minister and has offices in all country counties. Its role is central to all activities related to food producing or processing as prior to any activity their authorisation is required. The county office can control at own initiative or inquired and if irregularities are proved the licence can be withdrawn or suspended. We should mention that like in most new Member States the controls and the detail level is stricter than expected or even compared to the old Member States. The collaboration with the other rural actors is the imposed one and unidirectional. No other links are established in support to the rural development.

The **National Authority for Customer Protection** just like the previous one has local offices in each county. By difference to the National Authority for Sanitary Veterinary and Food Safety services in this situation the controls and the operations are less effective. Those actors with problems fear less this agency even if among the working instruments certain are powerful enough to correct situations. There is little or no collaboration between the county office and other structures involved in rural development.

The **Development Agency of Timiș County (ADETIM)** structure rather unique as it developed from a local initiative and not present in the other counties the agency is subordinated directly to the County Council. A certain number of the agency's activities are dealing with rural development, agriculture and food industries. The initial aim is maintained to attracting expertise and support to develop the county's countryside. Important PHARE, PHARE CBC, and INTERREG projects were implemented in the recent past and the current attention focuses on the European Territorial Cooperation with Hungary and Serbia. Certainly other activities than rural development are carried in parallel but they are not competing for resources. The formal cooperation with all other actors is rather good except with the farmers' community. The role of the Agency could remain important as services supposed to be provided by other structures are partially supplied in the present by its employees.

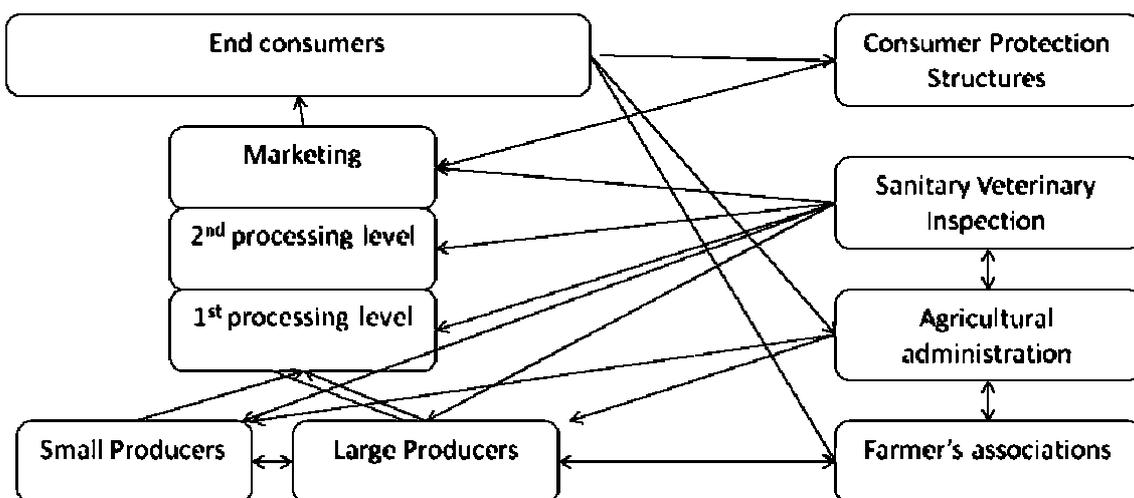
The **Banat's University of Agricultural Sciences and Veterinary Medicine** could have an important role to play in the rural development of the county. Just like ADETIM an important number of its staff was and still is involved in implementing rural development projects financed by the European Commission, the World Bank or other bodies. However we have to say that there is practically no farmer driven research developed, that the consultancy services are still at an early stage in development and that the education and training programmes do not answer the farmers' current needs. Even more, no specially designed programmes exist for rural development outside agriculture, unless for tertiary degrees. The university has good collaboration links with the other actors involved, and again, unfortunately low or no links to the farmers' community.

The **Producers' Unions and Cartels**: Certain producers organised themselves in unions at different levels, local, regional or national and affiliated to them. Not all unions are functioning in the sense they were meant to as during the last decade many leaders used the structure to build themselves a political career. However, the producer structures exist and although with a short history managed to make their voice heard. The collaboration is primarily oriented towards the Agricultural Directorate for obvious reasons and communicating less with the other involved actors. Their role and the level of elaboration of their structures will certainly grow in the near future as they are required as partners in all consultations.

The **National Rural Development Network** is a new actor introduced by the National Programme for Rural Development and it is expected to be created and structured within the following few months. It is hazarded to estimate its collaboration with the other rural actors but it represents a great opportunity for the rural areas to have their interests represented.

A typical involvement of the described actors along a supply chain could look like in the figure below.

Figure 131 Involvement of different actors in a supply chain



8 AUSTRIA: LUNGAU

8.1 Describing the region



The Austrian study area is the region of Lungau, the smallest political district and NUTS 3 area of the *Land Salzburg*. It is a homogenous region within the central mountain range of the Alps and surrounded by mountain ranges. Due to the closed location of the region accessibility to other regions was weakly developed and the region of Lungau was a particular example of a peripheral area within the Austrian mountain context.

Map 64 Location of the study area (district Lungau)



8.1.1 European and national context of the region

As mentioned the political district of Tamsweg, called the region of "Lungau", is the smallest political district of the Land Salzburg, but at the same time was registered as an individual NUTS 3 region. The Lungau is located to the south-east of the Land Salzburg and borders to the Land of Styria with the political district of Murau (in the East), and Carinthia with the political district of Spittal (in the South). The administrative unit of the study area is largely synonymous with the regional identity and the more locally experienced activity range. Street connections to other regions are limited due to the mountain ranges, and a passage through valley is only existent toward the district of Murau in Styria.

The Lungau is characterised by its cultural landscape and large areas of unspoilt nature, which represent a valuable asset and a widely appreciated amenity of the region. The setting and framing by mountain ranges from all directions around the region has a particular aesthetical appeal and adds to the famous landscape of this area. Besides the typical alpine "wilderness" areas and pasture and forest zones contribute to the image the region holds for people from outside. Within the high up small depression areas of the mountains of the Lungau there is a host of natural mountain lakes which add to the specific wealth of the alpine eco-system. The agricultural areas of the small side-valleys show a particularly rich structural diversity and characteristic landscape features, like wooden fences, hedges and pasture huts, including whole sets of pasture huts (comparable to villages) which are to be found all over the alpine pasture area of the region.

Despite a very low population size and a low density in the region, the settlement structures developed in the area seemed to be stable and could secure a sufficient level of identity and autonomous regional development. Moreover, the range of public services provided could be kept almost at the same level up to now. For example the main municipality, Tamsweg is a fully-equipped centre at the intermediate level of the classification of Centres in Austria, respectively Salzburg. It is allocated to the level C of these centres, according to the Provincial Development Programme and should as such provide goods and services of an upper-level of basic standard of daily needs for all the population of the region. Besides the municipality of Tamsweg, the communities of St. Michael, Mauterndorf and partly also Mariapfarr are the other locations for the regional supply with goods and services (Regionales Marketingkonzept Lungau 2004). Due to the general dynamic towards concentration and optimization of costs of public and partly-public services future challenges can be seen less in the extension of the supply, but have to be more concentrated towards the adaptation of existing structures to the changing framework conditions.

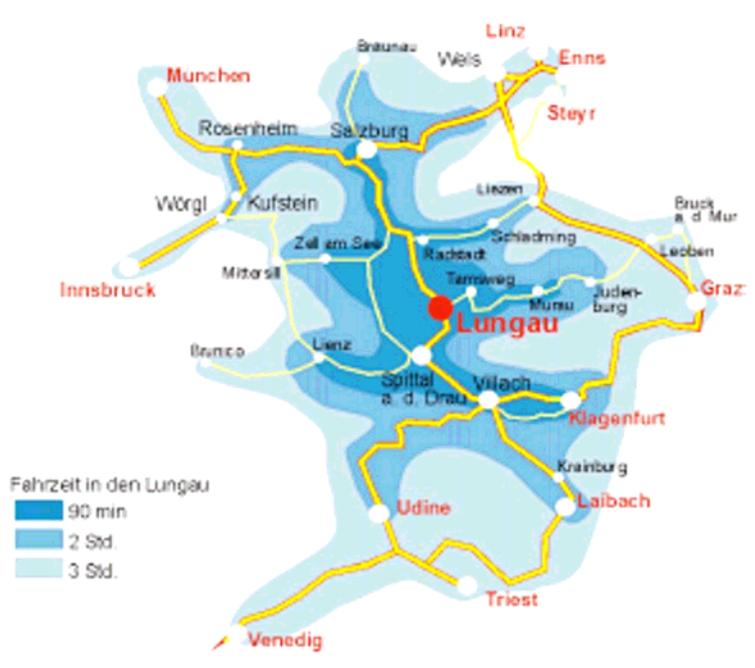
The study area disposes of a series of regional consultancy and cooperation agencies. These are primarily the legal representatives of the different interest groups, like Chamber of Commerce, Chamber of Agriculture, Chamber of Labour on the regional level, and also the municipalities which are collaborating in a region wide association (Regionalverband). In addition the Employment Service runs regional offices, including one in the region of Lungau. All these institutions are addressed by entrepreneurs who are looking for help in their enterprise development. On the other hand, the enterprises have lower expectations of the planning authorities and location development, and the official federal institutions dealing with these issues.

The Lungau was taken as the typical peripheral region within the mountain area of Austria for a long time. When in 1975 the highway across and through the mountains was opened, the accessibility towards the other regions of Austria was considerably improved. The highway links the Lungau to the central agglomeration of the Land Salzburg with the city of Salzburg as well as Germany, and in the other direction to the South of Austria, the province of Carinthia and towards Italy. This

has led to an improvement of the accessibility towards a wide range of regions, including regions and agglomerations outside of Austria, like Munich, Ljubljana and Northern Italy with Udine – Venezia etc. The regional market itself is characterised by a clear and concise market appearance, a limited competitiveness pressure, a close relationship between consumers and entrepreneurs and the small distance between supply and demand.

Adverse features are seen in the poll for highways and road-pricing systems which result in a functional distance of the Lungau to the central economic region of Salzburg. Also the missing train accessibility within the region is seen as a considerable location disadvantage for freight transport and tourism.

Map 65 Location and accessibility of the study area Lungau



Source: Regionales Marketingkonzept Lungau 2004

Note: The map indicates isochrones of travel time (90 minutes, 2 h and 3 h from study area Lungau)

8.1.2 Environment

8.1.2.1 Spatial structures

Statistical profile

The entire Lungau area is located in the Alps at a minimum sea level of more than 1,000 m, with the permanent settlement area only being about 122 km² (12% of the area). According to these alpine conditions Lungau has a very high share of alpine pastures and forests. The table below shows the division of the spatial structures in Lungau:

Table 209 Spatial structures in Lungau, total and % (indicator 1-7)

Spatial structures Lungau	Total	In %
total area in km ²	1,020.0	100.0
artificial surfaces*	12.2	1.2
arable land**	10.1	1.0
permanent crops	0.0	0.0
pastures	58.6	5.7
heterogeneous agricult.areas	59.1	5.8
alpine pastures (SHL296N3)	374.4	36.7
forests	384.3	37.7

Source ESPON data base, * BEV 2007, ** Agrarstruktur 1990
NUTS version 1999

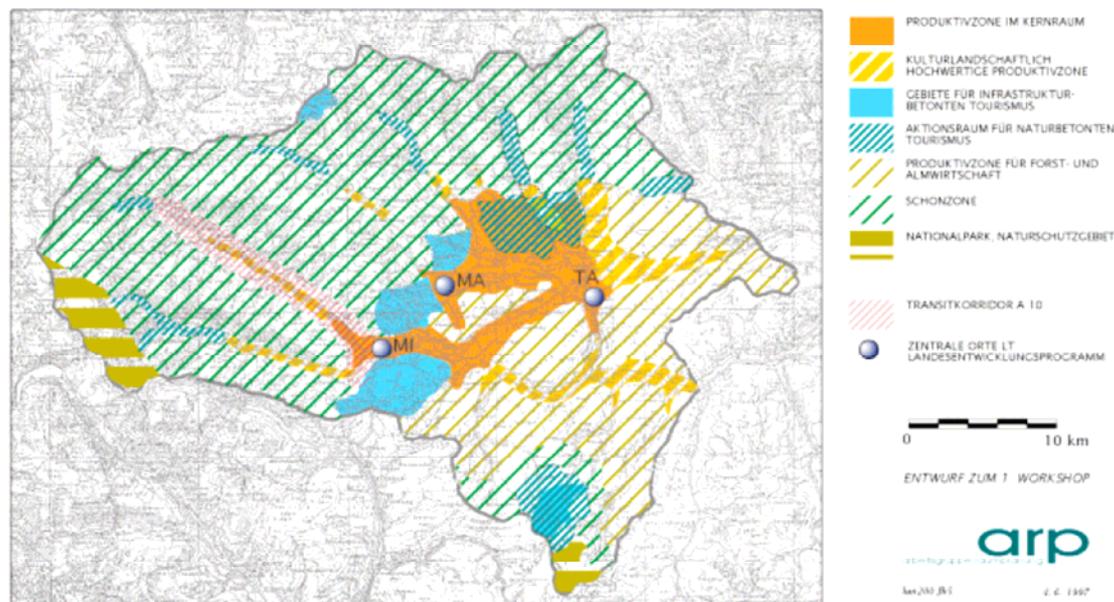
Note: data are based on Corine data and supplemented by following sources
Artificial surfaces: Bundeseich- und Vermessungsamt BEV 2007,
Arable land: Österreichische Agrarstruktur 1999

Regional focus

The Lungau area is a peripheral, inner-alpine basin which is located between the mountain ranges of the Lower Tauern mountain range, including Radstädter and Schladminger Tauern, and Gurktaler Alps with the Nockberge as the core mountain range there. Almost all the study area is higher than 1,000 m above the sea level, with the highest mountains in the South-West (mountain Hafner, 3,076 m) and in the North the mountain called Hochgolling (2,863 m). Within this frame there is the central basin with the main settlement area concentrated along a small line of villages. Starting from this settlement and economic central area of the region, there are a number of side-valleys (all in all seven), of which the valley of the Zederhaus in the West is the longest one (about 28 km). This valley is also the valley with the settlement structures which extend the most upwards towards the mountain ranges.

There is a regional development programme for the study area (from 2000) which is the official document for regional development. This programme has been elaborated and adopted by the Regional Association (Regionalverband) consisting of the 15 Municipaliteis of the region. Its main implication is that the local development plans and local spatial and settlement plans must not contradict to the regional programme. The general aim of the programme is to withhold the out-migration trends and to achieve appropriate living conditions all over the region. The main aim therefore is to keep the population level in the region, an aim which could be reached at least for the last decade. Other important issues of the programme are the balanced development of the municipalities and solidarity between them, including aspects of sustainability, protection of (natural) resources and environmental improvement. It is envisaged that the programme turns to a dynamic development instrument, being in line with the quality of ist landscape and ecology.

Map 66 Regional Development Programme Lungau: functional areas



Source: Regionalverband, Regionalprogramm Lungau 1998

PRODUKTIVZONE IM KERNRAUM: Productive central zone; KULTURLANDSCHAFTLICH HOCHWERTIGE PRODUKTIVZONE: cultural high-value landscape productive zone; GEBIETE FÜR INFRASTRUKTURBETONTEN TOURISMUS: areas for infrastructure-oriented tourism; AKTIONSRaum FÜR NATURBETONTEN TOURISMUS: action zone for nature-oriented tourism; PRODUKTIVZONE FÜR FORST- UND ALMWIRTSCHAFT: productive zone for forestry and transhumance; SCHONZONE: conservation zone; NATIONALPARK, NATURSCHUTZGEBIET: national park, protected area; TRANSITKORRIDOR A 10: transit corridor motorway A10; ZENTRALE ORTE LT LANDESENTWICKLUNGSPROGRAMM: central places according to provincial development program.

The regional programme has proposed a functional structure of the whole area of the district. This is based on the natural conditions and landscape elements and includes different settlement and economic activity zones: There is a core productive area in the centre of the region, an area of more intensive tourism activities relying on specific infrastructure facilities, a productive area which is at the same time highly interesting from the aspect of the cultural landscape, areas of a particularly nature-related tourism, unspoilt nature and landscape zones in the higher up mountains of the surrounding mountain ranges, as well as a zone of nature protection and on the other side a transit corridor for transport passage. Against the backdrop of this functional division of areas all the municipalities have particular development tasks which should contribute to the positive development of the region (Salzburger Raumordnungsbericht 2005).

Regional price level for building and agricultural land

The regional price level for settlement area (land reserved for construction of buildings etc.) in Lungau is in general far below the average price level of other regions in the province of Salzburg. However it is higher than the price level in rural areas of Eastern Austria, reflecting the higher demand and price level in West Austria, and in areas with a considerable tourist demand. In 2005 it was about only the half of the next lowest region Tennengau, which was about EUR 100 per m².

Salzburg city on the other hand had an average price level of about EUR 360 per m² (SIR 2006).

According to the information of the Salzburg Institute for Regional planning (SIR) in 2005 the average price for settlement area in Lungau was about EUR 45 per m². Within the period of 1995 and 2005 it reached twice the EUR 64 per m² mark (in 1996 and 2002) but fell afterwards to the lower levels of EUR 42 and EUR 45 per m². Information for the individual municipalities price level reveals that there are no major differences within the study area, but only a slightly increased price level for the larger municipalities, i.e. centres of the region.

Table 210 Average price level for settlement area in Lungau

Lungau (year)	Average price level per m² in EUR*
1995	59
1996	64
1997	42
1998	46
1999	67
2000	50
2001	60
2002	64
2003	55
2004	45
2005	45

* real prices

Source: Salzburger Institut für Raumordnung und Wohnen (SIR), SIR-Bodenpreis-Information Land Salzburg

Table 211 Average price level for agricultural land in Lungau per m² in EUR

Lungau (2007)	Average price level per m² in EUR*
permanent grassland (with the production potential for arable land)	7
permant pastures (not potential for arable land)	3.5-5
low intensity land (Hutweiden)	1
forest area	1

Source: Interview with Mr. Kaiser, Chamber of Agriculture (06/09/2007)

8.1.2.2 Environmental protection

Statistical profile

In this section you find data of the emissions of carbon dioxide, data of gross inland consumption of primary energy and data of gross consumption of renewable energy on Austrian and European level. More regionalised data show that the share of area under Natura 2000 is below average in Lungau. On the other hand the share of

organic farming in Lungau is comparably high. Data for agricultural intensity is not available and would have to be derived from different observations and measurements.

Table 212 Emissions of carbon dioxide (mio t). Percentage change since base year (indicator 8)

Year	Austria	share	EU25	share
1992	59.4	100.0	3,997.9	100.0
1993	59.9	100.8	3,920.6	98.1
1994	60.2	101.3	3,916.6	98.0
1995	63.1	106.2	3,925.3	98.2
1996	66.6	112.1	4,028.4	100.8
1997	66.5	112.0	3,962.5	99.1
1998	66.2	111.4	3,966.9	99.2
1999	64.6	108.8	3,920.8	98.1
2000	65.5	110.3	3,930.4	98.3
2001	69.3	116.7	4,006.9	100.2
2002	70.1	118.0	3,983.6	99.6
2003	76.2	128.3	4,063.9	101.6

Source: Eurostat

Table 213 Gross inland consumption of primary energy in 1,000 t of equivalent (indicator 9)

Year	Austria	share	EU27	share
1994	25,619	100.0	1,609,910	100.0
1995	26,721	104.3	1,650,394	102.5
1996	28,408	110.9	1,708,202	106.1
1997	28,391	110.8	1,692,667	105.1
1998	28,729	112.1	1,709,975	106.2
1999	29,704	115.9	1,697,640	105.4
2000	28,726	112.1	1,711,983	106.3
2001	30,478	119.0	1,751,859*	108.8
2002	30,414	118.7	1,745,070*	108.4
2003	32,609	127.3	1,787,092*	111.0
2004	32,802	128.0	1,808,034*	112.3
2005	33,980	132.6	1,811,317*	112.5

* provisional data

Source: Eurostat

Table 214 Share of area under Natura 2000 (indicator 11)

Year	Lungau	Salzburg	Austria
2005	1.89%	15.14%	14.70%

Source: Amt der Salzburger Landesregierung

Table 215 Renewable energy. Share of electricity from renewable energy to gross electricity consumption (indicator 10)

Year	Austria	EU27
1995	70.6	13.0
1996	63.8	12.7
1997	67.2	13.1
1998	67.9	13.4
1999	71.9	13.4
2000	72.0	13.8
2001	67.4	14.4
2002	66.0	12.9
2003	53.4	12.9
2004	58.7	13.9
2005	57.9	14.0
<i>2010</i>	<i>78.1</i>	<i>21.0</i>

Source: Eurostat

Table 216 Share of Utilised Agricultural Area under organic farming (indicator 14) and share of organic farms 2005

	Share of UAA under organic farming	Share of organic farms
Lungau	60.6	49.3
Salzburg	44.6	41.1
Austria	15.1	13.5

Source: Invekos

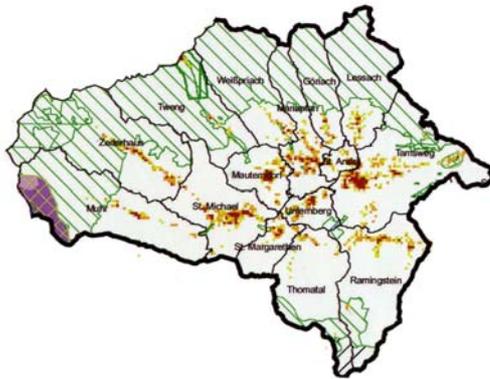
Regional focus

The situation of flora in the central area of the Lungau reflects a great diversity of species and is one of the richest in the Land of Salzburg. There are specific characteristic elements of the landscape of the region. These include bushes and hedge rows, tree lines and local hedges which are alltogether an ideal living space for many types of animals. They are important areas providing the food requirements for these animals and also nesting places. There are also some specific landscape types of national importance and uniqueness, including steppe areas on rocks within the municipality of Muhr and other dry meadow areas, typical for parts of Austrian mountain locations. Because of their peripheral location in the municipalities these areas of low nutrient supply are hardly affected by spatial relevant measures, but much more endangered by land abandonment or afforestation of the area.

Water quality of the lakes and rivers is in general very good (with drinking water quality), but can decrease in cases of strong seasonal use, particularly in the case of bathing in some of the lakes.

The province disposes of a high number of nature protection regulations, which is much higher compared to other regions. Some parts of the municipality of Muhr (the upper-most part of the Mur valley) belongs to the National Park Hohe Tauern since 1991. There are also two nature protection zones, one plant protection area, seven landscape protection areas and a number of (small) protected landscape elements and sites of natural heritage. Moreover all bogs and moorland of the region, the running waters and the alpine wilderness areas (unused land of the mountains), including the glaciers, are protected by the Nature Protection Law (of the Land Salzburg).

Map 67 Protected areas in the study area Lungau



Source: Raumordnungsbericht 2005

Note: the green striped area is protected area.

8.1.2.3 Preconditions for agriculture

Statistical profile

In the following table data on the situation of the classification as Less Favoured Area is summarized for the study area Lungau, the Land Salzburg and the national areas of Austria. One can see that all the region of the study area is included in the mountain type of LFA and this percentage is particularly high for Salzburg as well as the whole country of Austria. A specific focus on mountain farming and the mountain context has therefore been a starting point for case study area selection.

The next table reveals that forest fires, flood events and droughts are of minor importance for the area. Frequency of forest fires and flood events is rather low, from 1904 to 1995 there have been six large scale droughts.

Table 217 Share of Less Favoured Areas (indicator 15-18)

category	Lungau ^{*)}		Salzburg		Austria	
	in 1,000 ha UAA	in% of total UAA	in 1,000 ha UAA	in% of total UAA	in 1,000 ha UAA	in% of total UAA
Areas subject to environmental restrictions (Art. 16)	0.0	0.0	0.0	0.0	0.0	0.0
Mountain areas (Art. 18)	54.2	100.0	284.0	97.3	2,045.0	58.0
Other Less Favoured Areas (Art. 19)	0.0	0.0	7.0	2.4	228.0	6.4
Areas affected by specific handicaps (Art. 20)	0.0	0.0	1.0	0.3	224.0	6.4
sum art.16,18,19,20	54.2	100.0	292.0	94.5	2,497.0	70.9
total UAA	54.2	100.0	309.0	100.0	3,524.0	100.0

*) all 15 municipalities of AT321 are classified completely as mountain area (art. 18)

Source: IEEP (2006), annex, p.36 and p.40.; Statistik Austria 2006, Hovorka 2004

Table 218 Frequency of forest fires, flood events and droughts (indicator 19-21)

	Forest Fires 2000		Flood events 1996-2002		Droughts 1904-1995
	Size of burnt area in km ²	Number of areas >500 km ²	Regional number of flood hazards	Regional flood hazard potential	Number of large scale droughts
Lungau	2	0	2	0	6
Salzburg	17	0	3	0-1	7
Austria	145	2	-	0-2	7

Source: Eurostat

Regional focus

The very low winter temperatures are characteristic for the climate in the area of Lungau, and the region is well known at the national level to regularly have extended spells of the most strong frost days of Austria. These low temperatures concentrate here due to continental influences and situations of inverse weather conditions where cold air flows and remains in the valley and bassins near the soil area. The mean winter temperature is at a sea level of 1,000 m about -6.5 °C, and at 1,250 m about -4.4 °C. But also in summer, average temperatures remain very moderate (at 14.0 °C, respectively 15.5 °C), due to considerable decreases of temperatures during nights. However, the strong daily temperature increase growth of the plants and in spite of the limited period of vegetation the yields are quite considerable. Until June and already from September there might be frosty nights which have a negative effect on agricultural yield.

Precipitation is about 700 mm per year which is lower than in whole Salzburg. Most of the precipitations are during summer time, particularly in August. Average duration of snow covering is about four months. Lungau is one of the sunniest regions with 46% to 50% duration of sunshine (Regionalprogramm 1998).

Natural potential vegetation of Lungau is wood, with the exception of high alpine habitats, moor or lakes. Forest areas in the economically used parts of the wood are mainly pinetree (about 75%) and larch (about 20%), within forests for protection the main type of tree is larch (43% of the area). The upper boundary of forests is about 1,900 to 1,950 above sealevel. Because of influences from the continental climate this boundary is about 250 m higher than in the neighbouring district of Pongau.

In the favoured areas of the basin and broader vallies soil is of good quality. The ground is mostly even or only slightly sloping therefore conditions for agriculture are rather favourable. Given the sea level the permanent grassland and arable land are intensely cultivated in this part of the region. At the margins of the basin and within the smaller vallies the intensity gradually decreases, particularly in steeper areas. Some remote areas which still were cultivated (cut) a few years ago are no in danger of abandoning.

8.1.2.4 Preconditions for rural development

Statistical profile

In this section you find data to accessibility to airports, seaports and motorway. Specifically for Lungau is the low potential of accessibility by air and by rail which are both far below the European average. Data for households with internet access is only available at the provincial level; in Salzburg 45% hat broadband access in 2007.

Table 219 Accessibility to airports, seaports and motorways (indicator 22-24)

	Time to nearest seaport by car (min)	Connectivity to airport by car (min)	2001	Potential accessibility by air EU27= 100	Potential accessibility by rail EU27= 100
			Time to nearest motorway access by car (min)		
Lungau	205.0	76.8	16.8	72	73
Salzburg (Ø)	352.1	61.2	31.0	92	100
Austria (Ø)	308.8	62.4	18.7	99	96

Source: ESPON data base

Table 220 Households with internet access at home, in % (indicator 26)

	2002	2003	2004	2005	2006	2006
EU25			42	48	51	51
Austria	33	37	45	47	52	60
Salzburg						60

Source: Eurostat, Statistik Austria

Regional focus

Road and railway network: There are several connections to major roads in Lungau. There is the north-south connection B99 and the connections towards the eastern part of Austria via Styria (B95, B96). With the highway A10 the link to the central agglomerations is granted.

Table 221 Road density, km in 100 km², 2006 (indicator 25)

Austria	-
Salzburg	0.019483
Lungau	0.015821

Source: Amt der Salzburger Landesregierung

There is no railway connection of the Austrian Federal Railways in Lungau. There is only a private light railway connecting the main town Tamsweg with the neighbouring district Murau (Styria). Public traffic is organised by "Lungau Takt", which coordinates bus connections and bus lines of the different bus enterprises. The regional association Lungau is financially and in content responsible for "Lungau Takt". Moreover, since 1989 the so called "valley bus" looks after easy transportation of summer tourists.

Education: Principally, the provision for compulsory schooling is quite good in Lungau. Higher education is provided through the general high school, through a college of commerce and a school of commerce, all of them located in the main town Tamsweg. There are especially two initiatives for vocational education for additional qualification. They both try to bundle regional economy with public and private educational establishments and to develop adaptation strategies to spread the regional offer over the boundaries of the region. On the one hand there is the Centre of Competence Lungau CCCL, a union of the polytechnic school, the association education and economy and a subinstitute of the pedagogical institute. On the other hand the technical college "Multiaugustinum" extended their offer. Further vocational and educational offers are bundled by the association of educational facilities Lungau (Lungauer Bildungsverbund). Main aim is to coordinate all offers of further education on a regional level.

Practitioners: Basic supply of health care facilities is provided by the hospital in Tamsweg as well as by practioners within the municipalities of Lungau. Table 222 and Table 223 show the distribution of practioners in Austria, Salzburg and the municipalities of Lungau:

Table 222 Inhabitants per practioner (indicator 27)

Practitioners per 1,000 inhabitants 2001		
Lungau	Salzburg	Austria
1.7	2.3	2.2

Source: ÖBIG-Österreichische Ärzteliste 2001

Table 223 Number of practioners in the 15 municipalities of Lungau

Municipalities	No of practioners	No of inhabitants
Göriach	0	371
Lessach	0	575
Mariapfarr	3	2,213
Mauterndorf	7	1,850
Muhr	0	631
Ramingstein	2	1,338
St.Andrä im Lungau	0	738
St.Margarethen im Lungau	0	771
St.Michael im Lungau	6	3,590
Tamsweg	20	5,936
Thomatal	0	341
Tweng	0	310
Unternberg	0	984
Weißpriach	0	335
Zederhaus	0	1,250
Lungau	37	21,283

Source: ÖBIG-Österreichische Ärzteliste 2001

In Austria there are in average 2.2 practioners per 1,000 inhabitants, in the province of Salzburg it is much the same. In general there are remarkable differences in the provision of practioners between cities and rural areas, cities having a much higher number of practioners per inhabitants than rural areas (Machold and Tamme 2005). As a whole the provision with practioners in Lungau is not too bad though it is with 1.7 practioners per 1,000 inhabitants far below the Austrian average. In addition there is an imbalance within the distribution of the region. Over 50% of the regional practioners are located in Tamsweg whereas ten of the fifteen communities have no practioners at all.

Energy supply: Concerning electricity Lungau is more or less self-sufficient. There are the hydroelectric power plants of the Salzburg AG and several private hydroelectric power plants of smaller scale which produce enough electricity for the domestic market and even more. An estimation of Holzrichter et al. 2000 is assuming that until 2010 the yearly consumption of electricity in Lungau will reach 156.7 GWh, while the regional production of electricity is 163.7 GWh (Holzrichter et al. 2000, Lokale Entwicklungsstrategie Lungau 2007). In the last few years several district heating plants have been built in Tamsweg, Mauterndorf, Mariapfarr, Tweng/Obertauern and St. Michael, as well as a large number of private heating systems. The same study on sustainable energy provision in Lungau mentioned before (Holzrichter et al. 2000) assumes that the share of biomass heating systems will increase from 55.1% in 1998 to 77.2% in 2010. Solar energy is primarily used by thermal solar plants. In 2000 there have been 585 thermal solar plants in Lungau.

8.1.3 Rural economy

8.1.3.1 Regional performance

Statistical profile

The regional performance of the rural economy in Lungau is in general below the Austrian average. In 2004 GDP per capita in Lungau was nearly one third below the average GDP per capita in the province of Salzburg and it was also below the European average. Contribution to GDP in sectors haven't changed much since 1995, there is an adjustment to the Austrian average though contribution to GDP in first sector is a little higher in Lungau whereas the third sector is still a little lower than in the Austrian average.

Table 224 GDP per capita in PPS (purchasing power standards) (indicator 28)

	2000	2001	2002	2003	2004
EU27	18,943	19,668	20,353	20,595	21,502
Austria	24,958	25,157	25,544	26,534	27,666
Salzburg	29,009	27,837	28,193	28,999	30,486
Lungau*	19,500	18,900	21,400	21,100	20,800

Source: Eurostat

* source Statistik Austria

Table 225 Contribution to GDP in sectors, in % (indicator 29, 30)

	Lungau			Salzburg			Austria		
	1 st * sector	2 nd sector	3 rd sector	1 st * sector	2 nd sector	3 rd sector	1 st * sector	2 nd sector	3 rd sector
1995	4.8	32.0	63.3	1.6	27.5	70.9	2.7	30.4	66.9
1998	4.0	35.3	60.7	1.4	27.4	71.2	2.3	30.7	67.0
2001	4.0	32.3	63.7	1.4	26.9	71.7	2.1	30.3	67.6
2004	4.0	30.1	66.2	1.3	26.9	71.8	1.9	29.7	68.4

Source: Eurostat

Average household income: The average household income of Lungau can only be estimated, there is no data at NUTS 3 level. The equivalised household income in Salzburg (NUTS 2) it is about EUR 19,400 in 2005 (Statistik Austria). Compared with the other regions of Salzburg Lungau is by far poorer (winter tourism is not so highly developed and intensive like in other regions of Salzburg, and there are only a limited number and different branches of industrial activities present in the study area). Thus the average household income of Lungau would be quite below the average household income of Salzburg.

Table 226 Labour productivity per person employed (indicator 31)

	Lungau	Salzburg	Austria
1995	38,641	45,075	44,352
1996	38,641	46,348	45,532
1997	40,243	46,604	45,890
1998	42,142	48,550	47,126
1999	43,294	48,766	47,997
2000	45,357	50,401	50,116
2001	45,365	51,111	51,277
2002	48,235	51,925	52,384
2003	47,976	52,840	53,658
2004	47,142	55,082	55,534

Source: Statistik Austria, own calculations

Regional focus

The table below show the tax yield of the communities in Lungau of 2003. Within the last ten years it increased by 22% which is even above the average increase of the province of Salzburg with 17.3%. Quota per person of the tax yield of communities come to EUR 886 per inhabitant. This is the lowest value of the province of Salzburg. But the increase of the quota per person between 1993 and 2003 was 18% which was noticeably above the average of the province of Salzburg.

Table 227 Tax yield of communities of Lungau, change 1993-2003

	Tax yield		Change in %	Quota per person		Change in %
	1993	2003		1993	2003	
Lungau	15,468	18,848	21.9	750	886	18.1
Salzburg	466,063	546,830	17.3	966	1,061	9.8

Source: Amt der Salzburger Landesregierung, Wirtschaftskammer Salzburg

Revenue per inhabitant of the municipalities of Lungau is EUR 2,954, which is above the average of the province of Salzburg (EUR 2,609 per inhabitant). The revenue does not cover exactly the expenses of EUR 3,001 per inhabitant.

8.1.3.2 Structure of agriculture

Statistical profile

In this section you find data with regard to the structure of agriculture concerning contribution to gross value added of agriculture and forestry on a national level, production of renewable energy from agriculture and forestry, development of employment in primary sector, data concerning the change in land use and the number of farms with agro tourism on regional level.

The agriculture in Lungau is dominated by permanent grassland which makes up for 95% of the UAA, this is also the case in the province of Salzburg. Forested area has a share of 40.5% of total farm area, in the province of Salzburg it is even more with a share of 47%. The share of arable land is quite moderate but in Lungau it is twice as high as in Salzburg. Employment in primary sector is still very high in Lungau compared to Salzburg or Austria, a share of 10.7% of all employed people (in full time equivalents) work in the primary sector. The share of farms with agro-tourism is almost 25%, which is comparable to the whole province.

Table 228 Contribution to Gross value added¹¹⁷ of NACE A01 (agriculture, hunting and related service activities) and NACE A02 (forestry, logging and related service activities) in Austria, in % (indicator 33.34)

	Contribution of agri- culture (A01) to GVA	Contribution of forestry (A02) to GVA
	in %	
1993	2.40	0.53
1994	2.38	0.56
1995	2.06	0.62
1996	1.87	0.57
1997	1.81	0.61
1998	1.67	0.62
1999	1.59	0.60
2000	1.57	0.53
2001	1.61	0.51
2002	1.51	0.52
2003	1.45	0.50
2004	1.39	0.47
2005	1.15	0.46
2006	1.15	0.51

Source: Statistik Austria
Salzburg and Lungau: no data available

¹¹⁷ GDP is not available for different NACE sections, therefore we choose GVA

Table 229 Production of renewable energy from agriculture and forestry, in TJ (indicator 42)

	Salzburg	Austria
1993	8,214	101,417
1994	6,564	99,048
1995	7,206	106,742
1996	7,670	113,484
1997	7,283	115,638
1998	7,820	110,822
1999	7,366	129,265
2000	7,255	121,012
2001	7,725	134,797
2002	7,786	131,027
2003	8,952	139,098
2004	9,134	139,189

Source: Statistik Austria, Amt der Salzburger Landesregierung

Table 230 Employment in primary sector (full time equivalents), (in 1,000) (indicator 35)

	Lungau		Salzburg		Austria	
	Total	%	Total	%	Total	%
1995	1.0	12.3	11.9	4.7	219.8	6.2
1996	1.0	12.2	11.9	4.6	212.7	6.0
1997	1.0	12.0	11.9	4.6	206.8	5.7
1998	1.0	11.9	11.9	4.6	201.5	5.5
1999	1.0	11.8	11.9	4.5	198.7	5.3
2000	1.0	11.9	11.7	4.3	191.1	5.1
2001	1.0	12.2	11.4	4.2	187.1	4.9
2002	0.9	10.8	11.2	4.2	185.6	4.9
2003	0.9	10.7	11.2	4.1	184.6	4.9
2004	0.9	10.7	11.2	4.1	183.2	4.8

Source: Statistik Austria, own calculations

Table 231 Land use: Share of arable land, permanent grassland and permanent crops of UAA (indicator 38-41)

	Lungau		Salzburg		Austria	
	1999	2003*	1999	2003	1999	2003
Utilised agricultural area UAA in ha	54,207		302,011	271,871	3,389,905	3,258,708
Arable land in ha	2,955		6,869	6,755	1,395,274	1,375,823
Permanent grassland in ha	51,227		294,836	264,734	1,917,393	1,810,388
Permanent crops in ha	8		136	138	70,645	65,839
Forested area in ha	36,857		268,430	263,389	3,260,301	3,202,456
Share of arable land	5.5		2.3	2.5	41.2	42.2
Share of permanent grassland	94.5		97.6	97.4	56.6	55.6
Share of permanent crops	0		0.05	0.05	2.1	2.0
Share of forested area of total farms	40.5		47.1	49.2	49.0	49.6

Source: Agrarstrukturerhebung 1999, 2003

* 2003 no data on NUTS 3 level available

Table 232 Number of farms with agro-tourism (indicator 46)

	Lungau	in % of all farms	Salzburg	in % of all farms
1999	289	23.6	2,596	24.4%

Source: Statistik Austria, Agrarstrukturerhebung 1999

Regional focus

In 1999 there were 1,225 farms in Lungau (Agrarstruktur 1999). 56% of the farms are part time farms with other gainful activity, only about 34% of the farms are full time farms. 9.6% of all farms are legal entities, which are mostly cooperatives that manage alpine pasture common land. 202 farms (16.5%) are farms of pensioners. That represent a risk factor because in many cases succession within a farm is not yet secured.

The area has a very high degree of integration into organic farming systems. The share of organic farms is about 50% of all farms.

The high proportion of alpine pastures (about 75% of the UAA) underscores the relevance of low intensity pasture management as characteristic feature of agriculture and relevant aspect for landscape development. Moreover, the majority of the agricultural land is used as permanent grassland (95% of the UAA). Although alpine pastures are very often managed by cooperatives (which are not classified as mountain farms as they do not constitute private, individual farm units) the management of these pastures is closely linked to mountain farms as these are the partners of the cooperatives.

The proportion of mountain farms is 76%. Together with the alpine pasture cooperatives (legal entities) they manage about 86% of all farms. The rest of farms being not classified as mountain farms mainly do not fulfil the criteria for being integrated in the classification system, disposing too small areas (UAA), being concentrated on forest areas or other issues for excluding them.

Table 233 Classification of mountain farms in Lungau (1999)

	Number of farms	Share of farms in %
Category 1	249	20.1
Category 2	333	26.9
Category 3	305	24.6
Category 4	56	4.5
All mountain farms	943	76.1
Non mountain farms	178	14.4
Legal entities	118	9.5
Total*	1,239	100.0

* slightly different number because of another farm definition
Source: Grüner Bericht Salzburg 2001-2003, Agrarstruktur 1999

Although the table shows the mountain farms divided into four categories in 1999 there is a new, much more sophisticated system of assessing the farm production difficulties in place since 2001 which attributes disadvantages points to mountain farms according to the "mountain farmer registry point system" (Tamme et al. 2002). Although there are changes in the attribution of farms between the former system and the new classification method, in general the distribution of mountain farming difficulties to the four groups has remained similar.

The study area is characterized by medium scale farming. In the Austrian mountain area context many other regions reveal a much smaller farming structure.

Table 234 Farm size structure in Lungau (1999)

Farm size (ha UAA)	Number of farms	Share of farms in %
Under 10 ha	382	30.8
Between 10-50 ha	544	43.9
50 ha and above	313	25.3
Total	1,239	100.0
Average farm size of region 44.3 ha		

Source: Grüner Bericht Salzburg 2001-2003, Agrarstruktur 1999

The predominant farming systems are milk production and livestock grazing. 84% of the farms keep bovine animals, in average they have 7 dairy cows and about 18 bovine animals as a whole. Milk quote per farm is about 30,000 kg. 16% of the farms keep sheep, about 23 sheep per farm. Almost 80% of the farms keep pigs but this is mainly for own usage.

Compared to other regions with comparable conditions there is a relatively important cultivation of potatoes in Lungau. About 468 farms cultivate potatoes which are of a special type and called "Lungauer Eachtling". It is now one of the products of the initiative "Genussregionen Österreich" (delicatessen regions of Austria) organized by the ministry of agriculture, forestry, water management and environment. Because of the altitude (more than 1,000 m above sea level) and the special soil conditions the potatoes are of particular high quality regarding nutrients and taste. Besides potatoes Lungau produces also a considerable part of fodder and bread cereals. But all in all arable land make up only 5.5% of UAA.

The forest area in Lungau comprises 49,700 ha, of which 51% belongs to small forest owners, most (but not all) of them running a farm. The most important owner of forest area is the enterprise of the Österreichischen Bundesforste (ÖBf), the enterprise of the federal state managing state forest. They own about 32% of the forest area in Lungau, other large enterprises own the remaining 16% of the forest area (see section below: supply chain wood).

Table 235 Production area of cereals, sugarbeet, oilseeds and wine in Lungau, Salzburg and Austria 1999, 2003

Production area in ha	Lungau		Salzburg		Austria	
	1999	2003*	1999	2003	1999	2003
Production of cereals	601		1,170	1,721	813,048	805,078
Production of sugarbeet	0		0	0	47,076	41,904
Production of oilseeds	-		34	37	132,040	106,664
Production of wine	0		0	3	51,214	47,572
Production of potatos	115		220	206	23,497	21,310

Source: Agrarstrukturerhebung 1999, 2003

* 2003 no data on NUTS 3 level available

Table 236 Number of livestock in Lungau, Salzburg and Austria 1999, 2003

	Lungau		Salzburg		Austria	
	1999	2003*	1999	2003	1999	2003
Bovine animals (Rinder)	15,553		167,472	170,019	2,151,429	2,038,760
Calves (female)	2,649		16,449	17,293	135,755	138,396
Dairy cows	4,609		70,409	62,768	697,362	580,578
Other cows (milk suckler, ...)	1,456		12,368	16,824	176,500	220,162
Pigs	2,266		18,927	15,793	3,426,145	3,178,994
Sheep	3,682		29,247	26,958	339,971	315,445
Goats	300		4,016	3,987	51,121	52,490
Utility chicks (Mastkücken)	-		5,794	9,460	7,007,760	5,589,736
Laying hens	-		129,170	111,750	6,646,015	6,062,607

Source: Agrarstrukturerhebung 1999, 2003

* 2003 no data on NUTS 3 level available

8.1.3.3 Structure of rural economy

Statistical profile

In the following section you find data describing rural economy. Contribution to gross value added in different sectors is only on a national level, no regional data are available. The division of employment in secondary and tertiary sector show that in Lungau the share of employed persons in secondary sector is a little higher than in the province of Salzburg and similar to the Austrian average while employment in tertiary sector ist still considerably lower compared to Salzburg and Austria. The share of small and medium enterprises of total businesses is extremely high in Austria as well as in Lungau, it reaches nearly the 100% mark.

Table 237 Contribution to Gross value added¹¹⁸ of NACE B15 (manufacture of food products and beverage), NACE B20 (Manufacture of wood and of products of wood and cork, except furniture), NACE B21 (Manufacture of paper and paper products) and NACE H55 (Hotels and restaurants) in Austria, in % (indicator 47-50)

	Contribution of food products and beverages (B15) to GVA	Contribution of wood and wood products (B20) to GVA	Contribution of paper and paper products (B21) to GVA	Contribution of hotels and restaurants (H55) to GVA
	in %			
1993	2.34	0.90	0.67	4.00
1994	2.30	0.90	0.76	3.86
1995	2.36	0.99	0.91	3.51
1996	2.17	1.00	0.79	3.51
1997	2.03	1.00	0.82	3.55
1998	2.03	1.00	0.81	3.51
1999	1.99	1.00	0.90	3.42
2000	1.87	0.99	0.94	3.53
2001	1.82	1.01	0.98	3.48
2002	1.91	0.98	0.91	3.62
2003	1.92	0.97	0.81	3.52
2004	1.83	0.97	0.77	3.24
2005	1.79	0.89	0.74	2.69
2006	1.69	0.91	0.77	2.61

Source: Statistik Austria
Salzburg and Lungau: no data available

Table 238 Employment in secondary sector, (in 1,000) (indicator 51)

	Lungau		Salzburg		Austria	
	Total	%	Total	%	Total	%
1995	2.1	25.9	62.6	24.7	1,023.5	28.7
1996	2.2	26.8	62.7	24.6	1,006.0	28.1
1997	2.4	28.9	63.2	24.5	999.7	27.7
1998	2.4	28.6	63.8	24.4	997.6	27.3
1999	2.3	27.1	63.2	23.8	992.4	26.7
2000	2.2	26.2	62.3	23.1	984.4	26.2
2001	2.1	25.6	60.9	22.6	975.6	25.7
2002	2.1	24.7	60.7	22.4	947.8	25.0
2003	2.2	26.2	61.2	22.6	951.3	25.1
2004	2.1	25.0	61.1	22.5	944.2	24.8

Source: Eurostat, Statistik Austria, own calculations

¹¹⁸ GDP is not available for different NACE sections

Table 239 Employment in tertiary sector, (in 1,000) (indicator 52)

	Lungau		Salzburg		Austria	
	Total	%	Total	%	Total	%
1995	5.0	61.7	178.6	70.6	2,316.9	65.1
1996	4.9	59.8	180.1	70.7	2,356.0	65.9
1997	4.9	59.0	183.1	70.9	2,401.7	66.6
1998	5.0	59.5	185.8	71.1	2,456.7	67.2
1999	5.2	61.2	190.0	71.7	2,528.5	68.0
2000	5.2	61.9	195.3	72.5	2,586.9	68.8
2001	5.2	63.4	197.7	73.2	2,626.3	69.3
2002	5.4	63.5	198.7	73.4	2,651.8	70.1
2003	5.3	63.1	197.9	73.2	2,657.8	70.1
2004	5.4	64.3	199.1	73.3	2,681.1	70.4

Source: Eurostat, Statistik Austria, own calculations

Table 240 Share of small and medium enterprises (SMEs) of total business, in % (indicator 53)

	Lungau	Salzburg	Austria
2001	98.69	97.78	97.64

Source: Statistik Austria, Arbeitsstättenzählung 2001

Regional focus

As a rule regional enterprises are comparably small. In 2001 there were 1,071 enterprises in Lungau, the majority of them (489 businesses) were small enterprises with four employees at the most. 277 enterprises have no employees, 14 enterprises have more than 50 employees. Since 1991 there has been an increase of enterprises of 17% which is below the average of the province of Salzburg with 24%. Corresponding to a questioning of the Lungau enterprises (Regionales Marketingkonzept Lungau 2004) enterprises in Lungau are primarily oriented towards the domestic market. More than half of the enterprises gain three quarter of their turnover within the region, about a quarter of the enterprises are primarily oriented towards outside the region.

Table 241 Development of enterprises and employees in Lungau and Salzburg

	Enterprises		Change in %	Employees		Change in %
	1991	2001		1991	2001	
Lungau	915	1,071	17,0	5,813	6,851	17.9
Salzburg	24,801	30,833	24.3	202,052	244,378	20.9

Source: Wirtschaftskammer Salzburg, www.sbg.wk.or.at

In the past few years the new establishment of enterprises had a downward trend. Between 2002 and 2003 there was a change of -5.4%, between 2003 and 2004 a

change of -9.4%, this negative trend was also noticeable for the province of Salzburg.

Table 242 Development of new establishment of enterprises in Lungau and Salzburg, 2001-2004

	2001	2002	2003	2004	Change in %		
					01/02	02/03	03/04
Lungau	53	56	53	48	5.7	-5.4	-9.4
Salzburg	1,991	2,168	2,318	2,207	8.9	6.9	-4.8

Source: Wirtschaftskammer Salzburg, www.sbg.wk.or.at

The main economic activities of the region concentrate in the areas of production of goods (wood processing, food processing, production of plastics), building industry and tourism. These branches gather most of the employees. Production of goods and building industry dominate in the more central located parts of Lungau, tourism is important for all municipalities but in particular for the more peripheral municipalities.

Tourism: Tourism and in particular winter tourism is an important standing leg of the regional economy. Various offers of alpine skiing are predominant, besides these there are cross-country skiing, off-piste skiing and winter hiking. During summer season most activities concern hiking and (mountain) biking but also sports like riding and rafting. In 2005 Lungau had almost 1.3 mio overnight stays, about three quarter of them during winter season. Between 1995 and 2005 there was a decline of overnight stays of -5.8%. The average duration of stays reduced from 6.4 days in 1994 to 5.2 days in 2005.

Table 243 Overnight stays per year

	1995	2005	Change in %
Lungau	1,377,952	1,297,603	-5.8
Salzburg	22,376,521	22,699,152	1.4

Source: Wirtschaftskammer Salzburg, www.sbg.wk.or.at

Between 2005 and 2006 number of beds in tourism reduced as well by about 3%. The reduction the offer of beds is more noticeable during winter season. There is a high percentage of private beds in Lungau, in particular during summer season.

Table 244 Number of beds in tourism, winter and summer season 2005, 2006

	Lungau		Salzburg	
	total	Private beds in %	total	Private beds in %
Winter 04/05	14,208	40.7	190,145	31.3
Summer 05	10,729	51.9	185,125	32.2
Winter 05/06	13,660	40.3	191,751	31.0
Summer 06	10,525	51.9	185,936	31.8

Source: Amt der Salzburger Landesregierung, Tourismusstatistik

About 27% of the private beds in Salzburg are private rooms and holiday apartments on farms.

8.1.4 Rural society

8.1.4.1 Demography

Statistical profile

Lungau has a population of 21,283 persons, since 1991 the population has increased by 3,2% which is similar to the Austrian average (3,0%). Population density in Lungau is about 21 inhabitants per km². In general Lungau is still a relatively young region compared to whole Austria. With 19,3% the share of people aged 0-14 years is higher, while the share of the people aged over 65 is lower than the Austrian average.

Table 245 Population structure in Lungau, Salzburg and Austria, 2001
(indicator 57-60)

	2001		2001		2001	
	Lungau	%	Salzburg	%	Austria	%
Total population	21,283	100.0	515,327	100.0	8,032,926	100.0
Female population	10,810	50.8	266,312	51.7	4,143,737	51.6
Male population	10,473	49.2	249,015	48.3	3,889,189	48.4
People aged 0-14 y	4,097	19.3	92,170	17.9	1,353,482	16.8
People aged >65	2,954	13.9	69,631	13.5	1,241,679	15.5

Source: ISIS 2001

Regional focus

Population forecasts: Data below show population forecasts for Lungau, analysed for different segments of population. All in all Lungau has to expect a considerable loss of inhabitants in all seven scenarios, calculated by ÖROK and Statistics Austria. In 2031 there will only be 93% of the population of 2001, that is a loss of 1,567 inhabitants. But also the structure of the population will change significantly,

Lungau is getting older at a great pace. The trends of the main scenarios show that the share of inhabitants less than 15 years will decrease in 2031 to only 61% of 2001. On the other hand the share of inhabitants older than 64 years will increase even more to 186% of 2001. The economically active population (15-64 years) will also decrease to 82% of 2001.

Table 246 Population forecasts 2001-2031, Lungau

	Population	in % of 2001
2001 Lungau	21,316	100
2031 main scenario (sc.1)	19,749	93
2031 scenario of getting old (sc.2)	18,833	88
2031 scenario of growth (sc.3)	21,537	101
2031 scenario of fertility (sc. 4)	20,616	97
2031 scenario of life expectancy (sc. 5)	20,149	95
2031 scenario of high migration (sc.6)	20,236	95
2031 scenario of low migration (sc.7)	19,267	90

Source: ÖROK-Prognose 2001-2031, Wien 2004

Table 247 Population <15 years

Scenario	Population	in % of 2001
2001 Lungau	4,070	
2031 main scenario (sc.1)	2,483	61
2031 scenario of getting old (sc.2)	1,902	47
2031 scenario of growth (sc.3)	3,111	76
2031 scenario of fertility (sc. 4)	3,006	74
2031 scenario of life expectancy (sc. 5)	2,489	61
2031 scenario of high migration (sc.6)	2,569	63
2031 scenario of low migration (sc.7)	2,398	59

Source: ÖROK-Prognose 2001-2031, Wien 2004

Table 248 Population 15-64 years

Scenario	Population	in % of 2001
2001 Lungau	14,294	
2031 main scenario (sc.1)	11,762	82
2031 scenario of getting old (sc.2)	11,109	78
2031 scenario of growth (sc.3)	12,515	88
2031 scenario of fertility (sc. 4)	12,110	85
2031 scenario of life expectancy (sc. 5)	11,803	83
2031 scenario of high migration (sc.6)	12,124	85
2031 scenario of low migration (sc.7)	11,407	80

Source: ÖROK-Prognose 2001-2031, Wien 2004

Table 249 Population >65

Scenario	Population	in % of 2001
2001 Lungau	2,952	100
2031 main scenario (sc.1)	5,504	186
2031 scenario of getting old (sc.2)	5,822	197
2031 scenario of growth (sc.3)	5,911	200
2031 scenario of fertility (sc. 4)	5,500	186
2031 scenario of life expectancy (sc. 5)	5,857	198
2031 scenario of high migration (sc.6)	5,543	188
2031 scenario of low migration (sc.7)	5,462	185

Source: ÖROK-Prognose 2001-2031, Wien 2004

8.1.4.2 Education

Statistical profile

Educational attainment in Austria is still rather gender specific. In Lungau as well as in whole Austria females are much more likely to attain (only) primary education (49.1) than males (28.1%), while males tend to attain secondary education (66.7%). This is even more the case in Lungau than in whole Austria, while the proportion between males and females is more balanced in the province of Salzburg. Attainment in tertiary education is about 5%. There is no data for population between 20 and 24 years with at least upper secondary education but it is likely that the share is lower than in Austria and Salzburg.

Table 250 Share of population with primary, secondary and tertiary educational attainment, 2001 (indicator 61-64)

	Lungau		Salzburg		Austria	
	Female %	Male %	Female %	Male %	Female %	Male %
Primary educational attainment	49.1	28.1	51.4	41.6	43.6	27.0
Secondary education attainment	46.2	66.7	42.9	51.8	49.5	64.9
Tertiary educational attainment	4.7	5.2	5.7	6.5	4.5	7.2

Source: ISIS 2001, www.statistik.at

Table 251 Share of population aged 20-24, having completed at least upper secondary education, 2001

	Lungau	Salzburg	Austria
Population 20-24 with at least upper secondary education	-	31.28	34.4

Source: ISIS 2001

Regional focus

According to a questioning with school leavers from high school (Fuchshofer et al. 2001) the labour market in Lungau is not appropriate for them. Half of them point out that there is no offer of highly qualified working places. 72% of the school leavers are ready to leave the region for a (good) job. 21% want to stay in Lungau in any case independent of job prospects. In particular people with higher educational attainment tend to emigrate, 85% of persons with a degree from university left the region, 56% of school leavers from high school.

8.1.4.3 Labour market

Statistical profile

In this section the employment rate of different age groups is analysed. In Lungau a considerably higher percentage of the young people aged 15-24 years are employed than in Salzburg and Austria. Employment of the older people aged 55-64 years is only a little lower than in the Austrian average. In general the share of male workers between 15-64 years is higher than the share of female workers. Long term unemployment is twice as high as in Salzburg.

Table 252 Employment rate of different age groups as a share of active population, 2001 (indicator 67-70)

	Lungau		Salzburg		Austria	
	Female %	Male %	Female %	Male %	Female %	Male %
Employed persons aged 15-64 per active population	41.20	58.48	45.36	54,11	44,23	55,29
Employed persons aged 55-64 per active population*	5.17		6.39		6.87	
Employed persons aged 15-24 per active population	18.29		15.39		12.94	

* not: in the same age group, because this is 100%
Source: ISIS 2001, www.statistik.at

Table 253 Long term unemployed (12+ month) as a share of total active population, 2001 (indicator 71)

	Lungau	Salzburg
Long term unemployed (12+month) as a share of total active population	0.12	0.06

Source: ISIS 2001, www.statistik.at

Regional focus

Unemployment: In Lungau the average unemployment rate is in general higher than in the province of Salzburg and the female unemployment rate is again about

1% higher than the male. Between 1999 and 2004 in Lungau the unemployment rate increased by 0,4% which was much in the same in the province of Salzburg.

Table 254 Average unemployment rate of the years 1998-2000 and 2003-2005

	Unemployment rate Ø 1998/1999/2000			Unemployment rate Ø 2003/2004/2005			Change 1999-2004 in %		
	male	female	total	male	female	total	male	female	total
Lungau	6.9	7.7	7.2	7.2	8.2	7.6	0.4	0.5	0.4
Salzburg	4.6	4.9	4.8	5.5	5.2	5.4	0.8	0.3	0.6

Source: Landesstatistik, Salzburger Raumordnungsbericht 2005

Table 255 Unemployed persons 2001 and 2005

	Unemployed persons 2001			Unemployed persons 2005			Change 2001 -2005 in %		
	male	female	total	male	female	total	male	female	total
Lungau	306	234	540	323	295	618	5.6	25.9	14.4
Salzburg	5,232	4,476	9,708	6,621	5,353	11,969	26.5	19.6	23.3

Source: Landesstatistik, Salzburger Raumordnungsbericht 2005

Commuting: In 2001 there have been 9,124 employed living in Lungau. 54% of these employed persons commute to a working place in another municipality within the region (29% of the employed persons) to a working place outside the region within the province of Salzburg (16% of the employed persons) or outside Salzburg (10% of the employed persons). On the other hand 3,635 persons commute into the different municipalities of Lungau. But there is still a negative balance of -1,361 persons living in Lungau and commuting to a working place outside the region.

Table 256 Job commuting into and out of the region

	Employed persons at residence	Commuters total	Municipalities of Lungau	Salzburg	Another province of Austria	Abroad	Employed persons at working place
Out-commuters to							
Lungau	9,124	4,996	2,629	1,457	660	250	7,763
Salzburg	242,237	119,572	48,223	55,377	10,969	5,003	250,896
In-commuters from							
Lungau	9,124	3,635	2,629	244	762	-	7,763
Salzburg	242,237	128,231	48,223	55,377	24,631	-	250,896

Source: Wirtschaftskammer Salzburg, www.sbg.wk.or.at

8.1.4.4 Civil society

Statistical profile

The LEADER region "Lungau" contains almost the whole region. The municipality Muhr is the only exception, it is a part of the LEADER region "National Park Hohe Tauern". The other 14 municipalities of Lungau belong to the LEADER region "Lungau". There are about 20,628 inhabitants within this LEADER region. In Lungau no communities participate in the Local Agenda 21 programme.

Regional focus

The following institutions are important in regional development:

- Regional association Lungau (Regionalverband Lungau)
- Project manager for equal opportunities, regional association Lungau
- LEADER management
- Regional manager
- Agricultural chamber
- Chamber of commerce
- Chamber for employees
- Service for unemployed persons (Arbeitsmarktservice)
- Association of education facilities Lungau (Bildungsverbund)
- Women's network Lungau
- Cultural association Lungau
- Touristic association "Ferienregion Lungau"

8.2 Exploring policy intervention

There is a long history to agricultural policy support in Austria which dates back to the times many years before the EU-accession in 1995. This long experience with the agricultural support schemes is also relevant for the study area. Already in 1960 the Federal Agricultural Law included a particular support for mountain farming as one of its major priorities. Actually it took until the 1970s that the objective got a real impact in national agricultural policy and respective support measures and/or legislative regulation were established. The most important one was the installation of the mountain farmer support which was included at that time in a more comprehensive Mountain Farmers Support Programme, covering also infrastructure and more general measures to integrate mountain farming into the local economies and to improve living conditions of the most peripheral farmers.

It seems important to recall the origin of the policy measures as the long tradition influences also the acceptance and the implementation level of policies today. When Austria became an EU Member State in 1995, some of the former measures were integrated into the EU system and could serve as a useful basis for developing the "new" programmes. This is relevant for the compensatory measures (particularly in mountain areas and for mountain farmers), the support for regions, mostly

peripheral ones, of the LEADER type, where Austria had some similar approaches existing already since the late 1970s/early 1980s, the agri-environmental schemes, including specific support for organic farmer which was developed in Austria at the beginning of the 1990s, as well as some other (smaller) measures. All of these measures are particularly important in the study area.

As we can see from the statistics of farm support of the recent years rural development programme measures are by far more important than market regulation. A situation which is very different from most other European regions and countries. As the following table show the market regulation support only attains about 1/5 of the total CAP support (including national budget contributions).

8.2.1 EU policies for agriculture and rural development

The allocation of the support amount to the different measures underpins the relevance of the above mentioned measures. Indeed their volume and relevance for the actual farm income has increased over the last years, particularly since 2000. We can see that LFA support achieves about one third, and agri-environmental scheme measures also about one third of overall support. Similar relationships occur when we calculate farm income. In mountain areas therefore farmers could realize a trend of compensation of the income gap which they could not realise before 2000. Of course, the average mountain farm income is still below the Austrian average.

Table 257 Market regulation and rural development measures as a share of Lungau, Salzburg and Austria

		Market regulation and direct income payment Pillar 1 (MR)	Rural development measures Pillar 2 (RD)
2003	Lungau total	1,878,142	8,596,803
	Lungau %	18	82
	Salzburg %	16	84
	Austria %	36	62
2004	Lungau total	2,267,018	8,462,195
	Lungau %	21	79
	Salzburg %	21	79
	Austria %	38	61
2005	Lungau total	2,257,262	8,450,729
	Lungau %	21	79
	Salzburg %	21	79
	Austria %	39	61

Source: Invekos

Table 258 Allocation of agricultural marked regulation and rural development funds, EAGGF

	2003	%	2004	%	2005	%
MR single p. scheme	0	0.0	0	0.0	1,158,834	10.8
MR product premium	164,925	1.6	347,231	3.2	379,443	3.5
MR livestock premium	1,713,216	16.3	1,919,786	17.9	718,983	6.7
RD LFA	3,680,852	35.1	3,668,533	34.2	3,659,347	34.2
RD Agro-environm.	3,941,887	37.5	4,019,414	37.5	4,087,362	38.2
RD Forest	64,409	0.6	158,857	1.5	1,491	0.0
RD Others	934,052	8.9	615,389	5.7	702,528	6.6
Total	10,499,344	100.0	10,729,212	100.0	10,707,990	100.0

Source: Invekos

8.2.2 Regionally oriented Community policies

The regional fund measures are less important in the study area than in other parts of Austria or the EU. Salzburg had only small areas of objective 2 areas including the study area, and in the current period the national support area has been limited to the region of Lungau itself. So the EU support figures are also very moderate. All other EU support like INTERREG programmes are even smaller.

What is more relevant is ESF support but this is more or less of a horizontal type and not regionally specific for the study area. The more important funds are covered by regional measures of the province, but the administration did not dare to calculate and present figures on the extent of these. Any such figure would be very much dependent on the respective definition of "regional" fund schemes.

Table 259 Policy intervention, overview

Subsidies Lungau in EUR mio	Period 1994-1999	Period 2000-2006
Pillar 1	-*	13,6
Pillar 2	-*	58,2
LEADER (pillar 3)	1,4	1,0
Objective 2 (5b)	8,1	18,6
INTERREG	-*	0,5**
ESF	2,8**	3,8**

* no data available

** Estimation

Source: Invekos, experts from the province of Salzburg

8.3 Investigating networks – supply chains

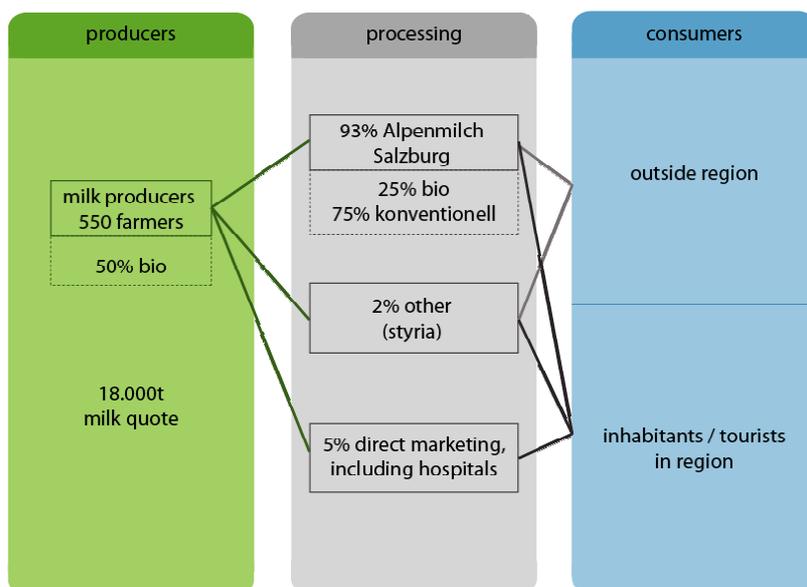
8.3.1 Supply chain 1 – Milk, conventional

8.3.1.1 General description

The region Lungau is a mountainous region with a high percentage of permanent grassland of the utilised agricultural area (UAA). The predominant farming systems are milk production and livestock grazing with a high degree of integration into organic farming. In this section the conventional milk production will be analysed. The unit of measure for milk production is tons.

The figure below gives a schematic overview of the supply chain milk (conventional & organic):

Figure 132 Lungau supply chain: milk



8.3.1.2 Agricultural and intermediary production actors

The estimated area needed for production of 1 ton lies between 0.2 (very extensive production) and 0.7 ha. The very low values include the large extension of the Alpine pasture land in the area which can be used only for a limited period in a year (about 90 to 110 days of pasture period). The estimated number of agricultural units in the region producing milk is around 550 farms in 2007. This number decreased since 1999 when still 668 farmers in Lungau produced milk (Agrarstruktur 1999). In 1999 31% of the farms in Lungau managed less than 10 ha, 44% between 10 and 50 ha, and around 25% more than 50 ha. The average farm size is 44.3 ha.

On average there are 3 persons involved in the farm work, in general farms producing milk are a little larger and employ more persons per farm. However, very few persons are exclusively working in agriculture or on a full-time basis. The calculation of the full time equivalents, the Agricultural Work Units (AWU) indeed show a ratio of about 1.47 AWU per farm in the region, which is very similar to the work involvement of other mountain regions of Austria (Austrian average = 1.42 AWU). The average turnover per farm was estimated by the experts to be in a range of about EUR 50,000 to EUR 60,000.

The production costs for milk per ton show a great variance and differ between EUR 250 per ton and EUR 500 per ton. The average production costs are around EUR 350 per ton. The relevance of the different components of the production costs can be derived from an analysis of the production cost of Austrian farms (Kirner 2004) and supplementary statements by two other milk experts. Correspondingly the costs for the workforce are by far the highest, between 35% and 45%. Costs for purchased forage are around 10%, costs for storage facilities between 5 and 12%, and costs for sales facilities are around 5%. One important component mentioned by the expert from the agricultural chamber is the replacement of the livestock, which makes up about 10% of the costs.

If prices for the most relevant components (concentrated feed and fuel-diesel) increase, the production would still be stable. This change would rather lead to an intensification of production and concentration on larger farms. The appropriate substitutes for concentrated feed, diesel and machinery are local rough fodder, bio-fuel (is cheaper at the moment), and an increase in the use of farming machines and machinery rings.

Farmers share machines with other farmers more and more often because costs of machinery are increasingly growing. There are machinery rings with a long tradition in Austria and also increasingly (smaller) machinery pools with neighbours are established.

The average production output of the milk farms in the region is about 18,000 t per year. Main customer of the milk is the dairy "Alpenmilch Salzburg" the fifth largest dairy in Austria, located in Salzburg city. 93% of the milk from Lungau is delivered to this dairy. The Lungauer dairy in Tamsweg closed already in 1984. Only 5% of the milk is sold by direct marketing, the remaining 2% is delivered to another dairy.

Sales prices per ton of milk are on average EUR 350/t, the maximum reaching EUR 400/t and the minimum going down to EUR 300/t. All in all milk producers always break even. Only recently sales prices increased remarkably which changed future prospects of dairy farms considerably. The estimated contribution to the primary sector GVA in the region is around 35%. The relevance of imported competitive products from the outside market is rather low.

The competition within the market for milk can be estimated as being low to medium, in general there is no competition between the producers because of the milk quota, but there is a competition between the producers concerning leasehold property and buying milk quotas.

The farmers rarely organise marketing activities in common, in Austria there is the possibility of delivery associations (Liefergemeinschaften) but there are none in Lungau.

Negative impacts of production on land (intensive arable crops, intensive pastures, monoculture forests or sealed surfaces) as well as negative environmental effects of production have in general no relevance in Lungau, because of the extensive farming systems and low numbers of livestock (almost all farms get agri-environmental payments (ÖPUL): The regulation sets an upper limit of max 2 LU/ha for inclusion in ÖPUL, and on average a level of 1.4 LU/ha is relevant for the Lungau area. This figure excludes the vast area of Alpine pastures which cannot be included as a full fodder base for livestock use due to its low production potential. Yet there is some concern about the loss of biodiversity as with increasing intensification within some types of (milk) farms the uniformity of the cultural area increases as well and leads to a decrease in biodiversity levels. But the positive environmental effects of the production are in general high including the contribution of agricultural land use to protect cultural heritage and cultural landscape, to enhance biodiversity (through recultivation of alpine pastures), and to provide areas for human recreation.

Local experts think the contribution of the production to the overall employment situation in the region as well as to employment in the primary sector is high because the Lungau district is seen as a particularly strong rural area. The expert from the agricultural chamber in Lungau estimates that there are around 800 working places in the agricultural sector. This number can be put down to the fact that there are a lot of part time farmers in Lungau. There is (comparably) few industry within the region and the choices of non-agricultural jobs are in general limited. A lot of farmers have another gainful activity (ca. 55%), they often work as craftsmen, quite a lot outside the region.

Concerning age, sex and origin of the employees in the production: The share of employees aged 55-64 years is higher compared to the altogether employment in the region as well as the share of female employees (they are often manager of the farms, particularly in case of part time farms). The share of employees aged 15-25 years is lower, the share of employees from other Member States and from Third Countries is not relevant.

The relevance of social relations relating to involvement of farmers in the rural civil society (LAGs, LA 21 groups and other local initiatives) is medium, the importance of family ties for the farmers in the region is high.

Milk production has almost no seasonality. The relevance of quality of soil is high as well as special climate conditions for production, like rainfall (which is favourable in Lungau). The relevance of natural hazards has been medium in Lungau, 2004 there was a big flood event, 2003 it was hotter and dryer than usually.

The estimated share of direct payment subsidies is around 35%. Therefore both the relevance of the single payment scheme for areas from 2005 (decoupled) as well as the direct payments for production up to 2005 is (was) high. In Salzburg there exists also a regional payment (premium) for milk hygiene which is linked to the milk price and fixed at 4 cent/kg. The relevance of the milk quota system is extremely high because it regulates the market. The relevance of export refunds is also high but they have rather an indirect influence. Export refunds are for milk powder and butter (the dairies get the refunds) thus, they take some strain off the milk market in general.

In general personal characteristics are most important when farmers choose the production line, their way of production and their way of marketing. Thus own self-assurance and the willingness for innovation have a major influence in the decision making process. Besides that, family history and routines are also most important in this process. When choosing a certain product, also the natural conditions are of major importance. The agricultural chamber has its highest influence when choosing the way of production, and also the political association (Bauernbund) and a pressure group for milk (Interessensgemeinschaft Milch, association of Austrian grassland and beef farmers) are of major influence. When choosing the product and choosing the ways of marketing the agricultural chamber has also specific influence. Public bodies via civil law of course influence the production decisions, but the details of influence and the extent of it are hardly to be related to the different regulations.

8.3.1.3 End consumption actors

The average consumption of fresh drinking milk is about 76 l, the purchasing price per unit lies between EUR 0.79 and EUR 1.09. Private households inside and outside the region are the most important consumers. Tourists and public households like hospitals are of minor importance.

The average household income can only be estimated. For Salzburg (NUTS 2) it is around EUR 19,400 in 2005. Compared with the other regions of Salzburg Lungau is poorer (winter tourism is not so high developed and intensive like in other regions of Salzburg, and there are only a limited number and different branches of industrial activities present in the study area). Thus the average household income of Lungau would be quite below the average household income of Salzburg.

The consumption is very stable. If the price of the fresh milk changes there would hardly be any change in consumption. An appropriate substitute for fresh milk is UHT (more convenient) or soy milk. The consumption would also not change if the consumers' income increases.

8.3.1.4 Dynamics of the supply chain

The processing of milk into different products (yoghurts, cheese, etc.) is very heavily developing and actors are proud to supply more and more “innovative” products. Production output of the dairy Alpenmilch Salzburg increased considerably in the past, rationalisation took place, processing, wholesaling and retailing activities changed and will probably also further develop in the future. Change of the product types towards more diversified products of organic production was and will be an important factor for marketing activities. Choosing fresh milk instead of other products, the consumers are highly influenced by an organic production system. They are also influenced by regional values and beliefs and by media. Last but not least the price differences between the different milk-labels and production systems have developed over the last decade and are now of major importance.

8.3.1.5 Potential alternative: organic milk

60% of the agricultural area in Lungau is used for organic agricultural production. About 50% of all farms are organic farms. This is far more than the Austrian share of organic farmland on average which achieves with about 10 to 15% one of the highest level in Europe. As milk production and livestock grazing is in general the predominant farming system in Lungau, organic milk production is correspondingly an important factor within the regional milk production system.

The real boom of organic farming in Austria began in the early 1990s when organic farming as an alternative agricultural management system started to become accepted and direct subsidies for organic farmers were established by the national agricultural policy. In the beginning, the number of organic farms grew rapidly, with a first peak being reached in 1994/95 when Austria joined the European Union. In that year an additional number of 5,000 organic farms (total 18,542 organic farms in Austria) shifted to this farm management system. After this large increase further development stabilised on a high level. In 2005 there were a total of 20,092 organic farms in Austria. Particularly the increasing demand of supermarkets for organic products supports the shift towards organic production (Groier 2005). In the Lungau region the increase of organic production was almost similar to the Austrian development although on a much higher relative level.

Comparing conventional and organic milk production there are only gradual differences in the management and market performance between these two. This is due to the fact that agriculture in Lungau is in general comparably extensive (high percentage of Alpine pastures) and most of the non-organic farms refrain from using technological weed control and fertilizers. With respect to the agricultural experts the share of labour as resource of production is about 5% higher compared to conventional milk production while the use (and costs) of concentrated fodder is a little lower. Sales prices per unit are a little higher (about 3-4 Euro/ton) as well as the estimated profit per unit.

93% of the milk from Lungau is delivered to the dairy "Alpenmilch Salzburg". About 25% of the quantity of the milk delivery is organic, of which the share of organic farms is 32%. This relatively low share of milk quantity can be explained that not all the organically grown food is actually marketed as organic food. In terms of logistics the Austrian market structures for organic food have difficulties to collect and process all organic food separately from conventional food (Hinteregger 2006). About 54% of the organic milk in Austria is marketed as organic product (Groier 2005: 99).

Shares of organic products within the total sales of fresh milk in Austrian supermarkets remained stagnant at the level of about 12% (from 2002 to 2005) (Hinteregger 2006). But according to local agricultural experts in Lungau the demand of organic milk increased considerably within the last years. There is the estimate that the share of processed organic milk will increase from 25% to at least 30-35% over the next years. Also the expert from the dairy plant mentioned the fact that organic milk and organic milk products are an important factor for marketing productions in the future since consumers are highly influenced by organic production systems.

8.3.2 Supply chain 2 – Wood

8.3.2.1 General description

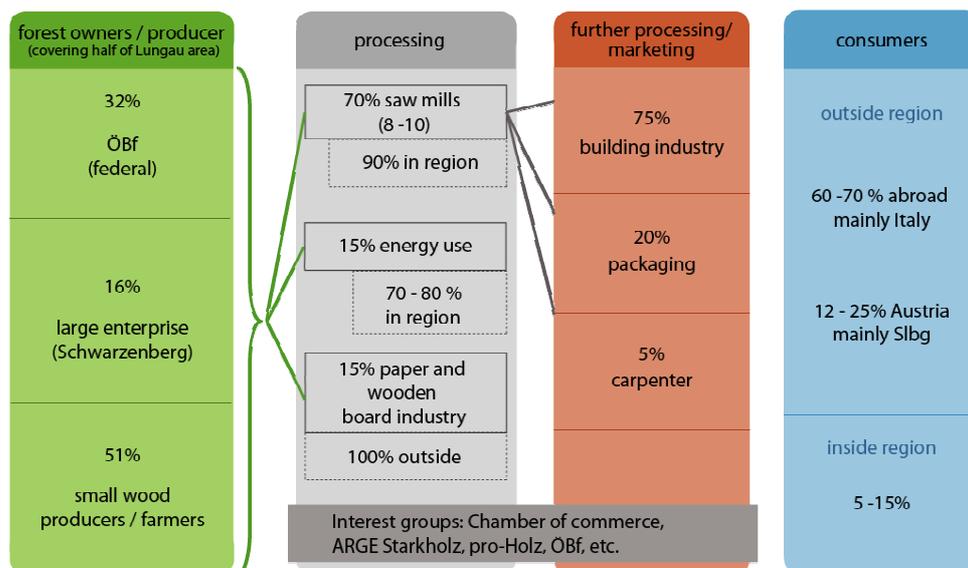
Wood production is an important source of income for the local farmers and regional economy. Estimated contribution to regional gross value added of the primary sector is (like with milk production) about 35%. Half of the whole area in Lungau (49,700 ha) is covered with forests, like in Austria this percentage has been slowly growing since more than twenty years. The figure on the next page illustrates the flows within the supply chain wood.

8.3.2.2 Agricultural and intermediary production actors

There are about 1,000 wood owners in Lungau, most (but not all) of them run a farm. This type of close linkages of forest owners and farmers are characterized by small areas (Kleinwald), altogether they own 51% of the forest area. The average farm size is 24 ha, the average turnover EUR 5,000 – EUR 10,000. The most important owner of forest area is the enterprise of the Österreichische Bundesforste (ÖBf), the enterprise of the Federal State managing the state forests. The portion of forest under the control of this enterprise is particularly high in the province of Salzburg, including the study area of Lungau. They own about 32% of the forest area in Lungau (on average the ÖBf own 10% of the area in Austria). Other (larger) enterprises (mainly the Schwarzenberg estate, with its headquarter located in Murau, Styria) own the remaining 16% of the forest area.

Costs of wood production differ very much according to the size of the enterprises. For owners of small forest areas (Kleinwald) costs for the workforce is the most important categorie (about 50% of the entire costs) while for large forest owners the highest cost share is machinery (about 60%). The average production costs are EUR 40 per efm. If prices for machinery or work force increase there would be a minor decrease in production. There is no substitute but lower exploitation.

Figure 133 Lungau supply chain: wood



Wood production is on average 161,000 vfm per year in Lungau (ÖWI 2002). The export quotas are about 10-15% of the production (but differ considerably between different producers and processing units). The sales prices are on a low level, between EUR 50 – EUR 70 per efm. The estimated profit per unit is up to EUR 30/efm. Farmers sell their products directly to the sawmills mostly in the region, there are only very few trader or retailer.

Production suffered mainly from the windbreak in 2002, which influenced the sales prices very much. Pests are not a very big problem, still there is a certain attack of bark beetles and other pests (e.g. *Ips typographus* bark beetle).

The development in wood production is erratic. Before 2006 there has been a major decrease of production output and low prices (caused by the windbreak in 2002) but since 2006 there is a major increase of production output caused by higher wood prices. Thus, during the whole period the production output increased only slightly while the profit as a whole decreased a little. Higher prices of the last year go back to an increased use of wood for energy production. The construction of biomass heating plants is the primary reason for the increase in wood prices.

Expectations for (medium and long-term) future profit margins in wood production and processing are very encouraging. (In the near future proper market possibilities have still to be established). The prevailing assumption in the wood sector of the

region is that demand and profit margins will increase in a considerable way. On the one hand the branch of wood exploitation for energy production is developing very well, on the other hand wood as the main raw material for different processing activities (glued wood – Leimbinder) is expanding as well as the increasing demand of wood in construction and as a main component of construction material in various types of buildings (passive houses, low energy houses, etc.).

The following distribution of the regional processing of wood indicates the main use of local forest production and primary market channels (see figure below).

- 70% of regional wood production is utilized by sawmills (90% thereof remains in the region)
- 15% of regional wood production is directly made available for energy use (70-80% remains in the region)
- 15% of regional wood production is wood for industries like paper industry or wooden board industry (Plattenindustrie) (100% is exported from the region).

As a whole about 90% of wood produced in Lungau is processed in the region.

The regional sawmills have a capacity of about 180,000 fm which is higher than the regional wood production. Therefore most of the regional wood production sold to sawmills (about 90%) is processed in the region, the remaining 10% is for use in neighbouring regions. Wood for energy use also stays to a high percentage in the region and is often used for private consumption by farmers. All the wood for industries is exported to the respective enterprises of paper industries or wood board industry in neighbouring regions.

There are about 10 sawmills in the region with 200-250 employed persons. This branch expanded particularly in the last years because of very good selling opportunities. Now the current situation seems to be critical for small and medium enterprises because of the increasing competition from newly built sawmills. The typical size of sawmills in the region are enterprises with 15 employees, larger firms employ about 50 persons. The most decisive cost factor for production are prices for raw material (raw wood) – there would be no substitute if there were relevant price changes. If prices for raw wood would increase, most actors assume minor changes, but overall there might probably be a minor decrease in production.

There is a big problem in finding apprentices for sawmills. Tasks and job requirements have changed considerably over last 25-30 years, nowadays it is hardly a “workers” occupation (that’s how it is mostly perceived), but much computer work and regulation and surveyance work is required, with implications for changes in learning for the job. An awareness raising programme on the job contents is therefore in preparation by the association of sawmills cooperating throughout the province of Salzburg.

In Salzburg there is an association of 12 wood processing units "ARGE Starkholz", which cooperate also in marketing aspirations. Two associates are in Lungau, their sales activities are particularly outside Austria, particularly Italy.

Some concluding remarks: There is some social responsibility for forest sector to supply jobs in the regions. Wood production is a major job provider and relevant factor in regional development in spite of the important trend in forest use where a professionalisation took place over recent decades so that the small scale use of farm forests is losing importance also in the mountain areas. Still many farmers are linked to forest jobs and so have an immediate interest in forest development.

Sawing industry and forestry are somehow always seen in opposition to agriculture: there has always been some suspicion against agriculture and vice versa. Against this background the planned information campaign for raising understanding for the relevance and regional importance of wood production (led by the ARGE Starkholz) can be estimated to be a strategical approach of important regional impact. It aims at showing what happens with wood in the various dimensions (environmentally, employment, consumer demand, etc.) which seems to be also relevant for farmers to (re)value their product (wood) more than it has been the case in the last time. There ought to be closer contacts and more reliance on each other through cooperative actions like passing the products from one to the other (Holzübernahme). Particularly with regard to quality application more information on the side of the farmers is needed.

8.3.2.3 End consumption actors

Competition within the market for wood products is very high, marketing activities are European wide. Main market is in Italy (including delivery down to Sicily), Germany and Switzerland. Other markets are Spain or France, but there is always interest to find new market regions. Export quotas differ between 60% to 75%. Only a minor percentage (5% - 12%) is sold in Lungau, the remaining is sold in Austria, especially in Salzburg (12% - 25% of the wood products from sawmills).

All in all further prospects for market seem to be quite good. In 2002 the heavy wind break led to a substantial decrease of wood prices and also production quantities. But since 2006 prices for wood and also production increased again. According to the expert from the agricultural chamber the main reason is the reinforced utilization of wood for energy. Also in other fields the utilization of the raw material wood goes up, particularly for new products (*Leimbinder*) and as building material for houses. 10 years ago about 5% of all houses were built by using wood as main construction material, nowadays about 20% of all houses are built out of wood. This development is rather encouraging because Lungau has enough free capacities for wood production (the growth of wood is still much higher than the actual yearly utilization).

8.3.2.4 Potential alternative: energy wood

Already 15% of the local wood production is directly available for energy use. As already mentioned before the expert from the agricultural chamber pointed out that particularly the increased use of wood for energy purposes is the key factor for a substantial rise in prices for wood and accordingly higher wood production in the past few years. Also in the medium (2014) and long term (2021) future expectations on the economic progress of wood are very good due to an intensified use of wood in the energy sector. Data for the Land Salzburg refers to the fact that energy wood gets more important. From 1999 to 2003 the number of farms with areas for energy wood doubled from 42 farms to 88 farms, the area increased from 84 ha to 112 ha (no data for Lungau available).

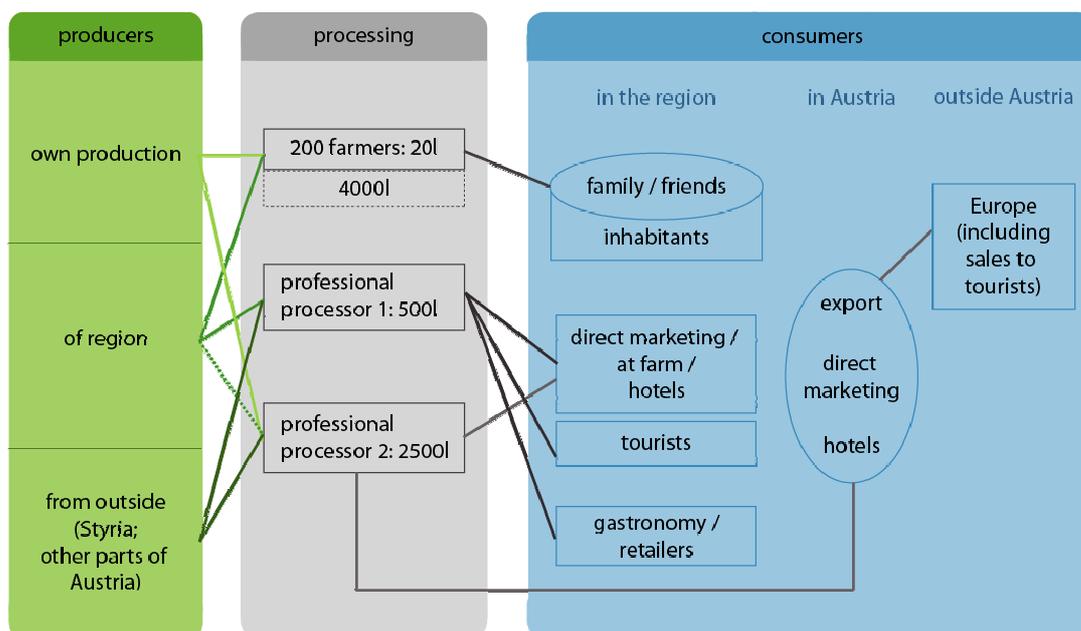
In Lungau several district heating plants have been built in the last few years based on wood: in Tamsweg, Mauterndorf, Mariapfarr, Tweng/Obertauern, St. Michael, Zederhaus and Unternberg. There is as well a large number of private heating systems (pellets) in the region. A study on sustainable energy provision in Lungau assumes that the share of biofuel heating systems of the household supply will increase from 55.1% in 1998 to 77.2% in 2010 (Holzrichter et al. 2000).

8.3.3 Supply chain 3 – Schnaps (peasant’s liquor)

8.3.3.1 General description

Schnaps production has always been a very traditional branch in the agricultural production of the mountain areas of Austria and so in the Lungau area, too. A lot of farmers (around 200) are still busy in distilling on average 20 l of Schnaps every year for their own good. There exist very old rights and specific regulations which allow home made distillery of a limited quantity for each farmer. Mostly these types of Schnaps are from home grown fruits and berries and are of average quality. It is sold (if at all) to or shared with neighbours and friends of the farmers’ family. The figure below shows a schematic overview of the supply chain Schnaps.

Figure 134 Lungau supply chain: Schnaps



8.3.3.2 Agricultural production actors

The two interviewees are the ones in Lungau who own a professionalised Schnaps distillery. They produce various types of Schnaps and also try new products like Schnaps from the regional potatoes (Lungauer Eachtling). In both cases it was once a hobby and then developed to the main branch in both farms. Especially the Moser family got a lot of prizes for high quality Schnaps brands.

The Moser family started in 1996 with Schnaps production and soon expanded. 1999 they bought a new distillery with much higher capacities which was supported by the EU 5b Programme, and rebuilt part of the farm building especially for providing a room for tasting the different products for end consumers.

The Pichler family expanded as well significantly since about twenty years (processing of Schnaps has been extended by about ten times!). Rationalization took place in this periode, including new distillery facilities and sales installations etc., which changed production patterns and output levels dramatically. They have increased their production from three different products to now 25 different products of Schnaps types.

The average turnover of Schnaps production is around EUR 25,000 – EUR 30,000 (Moser family) which is also the official limit for an extra income in agriculture. The other processing enterprise has exceeded this limit by far and is producing about three times that amount of Schnaps (about EUR 90,000 of turnover), being classified as a professional Schaps producer and not a farm any more. Both interviewees stopped (Moser) or reduced (Pichler) their off-farm activities and shifted their labour towards processing and direct marketing. Other farm activities have been decreased but not (yet) ceased (change of production from milk

production to meat production and breeding). In both families it is planned that the son will take over. Until then no major changes are expected also because the limit of their own working capacity is already reached and they do not plan to employ an additional worker from outside the family or expand in other ways.

Due to a rather harsh climate (average height is more than 1,000 m above sea level) a high percentage of the raw products for Schnaps (different fruits, berries and roots) are imported from other regions in Austria. Raw products grown in Lungau are for examples the roots of yellow gentian and rowanberries which are of best quality. Both enterprises attach particular importance to the high quality of the raw products and import only from well known producers. Due to the limited production potential and short vegetation season in the area a series of raw products (fruits not growing in the region, or not reaching the required quality level) have to be "imported" from other regions, mainly from Styria, Lower Austria or other parts of Austria. The Pichler family pursues also an additional strategy to seek to increase self-sufficiency in fruit production by planting every year around 100 new fruit trees. This should increase to provide a more sound basis of own grown fruits for their processing purposes, but also might attract visitors for future activities of catering tourists and visitors from the near-by town of Tamsweg at their farm (Buschenschank¹¹⁹ activity planned). In general, also the landscape changes implied by the additional orchards around their farm should add to an increase in landscape attractiveness.

The production level is (for the Moser enterprise) between 150 and 200 l of 100% alcohol per year. Pichler enterprise reaches about five times that level and a considerable amount of Schnaps production can be calculated. On average the two enterprises reach together a yearly production of about 3,000 bottles of Schnaps (with 40% alcohol). The actual quantity of sold Schnaps differs correspondingly to the alcoholic content. In general Schnaps from the Moser family is rather high proof and very expensive, the prices differs from EUR 25 per litre at minimum, in average a litre costs about EUR 100 per litre and at the most expensive EUR 300 per litre. Schnaps prices from the Pichler family go up to EUR 90 per litre, while in average a litre Schnaps costs about EUR 45.

Main share of the production cost are workforce and the purchase of raw materials (fruits and berries). Another relevant share are investments in machinery. Energy, storage facilities, etc. are of minor importance for Schnaps production.

Marketing strategies of the two farms are quite different though they both concentrate on direct marketing. The Moser family sell their products on the regional market with only minimal export quotas. About 50% of the costumers are end-consumers. The costumers visit the farm, taste and buy Schnaps in Mosers special room for tasting Schnaps ("Verkostungsstüberl") and other self made products from the farm. The regional but also Austrian wide gastronomy (including

¹¹⁹ Austrian locale where agricultural producers can serve their own products profiting from tax advantages compared to regular gastronomy.

the famous gourmet restaurant "Steirereck" in Vienna) make up for another 40% of the customer. 10% of the Schnaps is sold to regional grocers. Selling Moser Schnaps to gastronomy and regional grocers has been developing very well in the past few years while selling to end consumers has been and still is the standing leg of the marketing as regionality makes the difference (see below).

The Pichler family sells 98% of their products directly to the end-consumers, a high percentage via Schnaps tasting in various hotels in Austria and abroad and other marketing activities in different regions (exhibitions, etc.). These activities both take place in the region but also all over Austria and abroad. Usually half of the production is exported, mainly to Germany, Italy but also to the Netherlands, Belgium or Spain, including in one exceptional case also Mexico. Pichler's conclusion concerning marketing is: Schnaps can be bought everywhere, the important distinction is based on the direct and continuing contact to consumers. Therefore Pichler relies exclusively on direct marketing, with a strong emphasis on continuing contacts. Pichler whose marketing activities concentrate on exports (see above) is thinking on further expansion because his son which is now 17 years is very interested in the business. He perceives rather good chances for further selling and demand in Salzburg and in the Vienna region as well.

8.3.4 Non-agricultural alternatives

Lungau has a long history of part-time farmers with other gainful activities (OGA). In 1990 about 64% of the farms have been part-time farms. The number of part-time farms has decreased to 56% by 1999 which reflects a general development visible almost all over Austria. This reduction of the portion of part-time farming is mainly due to methodological changes of the agricultural census between 1995 and 1999. In particular definition and attribution towards part-time farming has been interpreted in the recent census more strictly. Nevertheless there occurred some factual changes which comprise the increase of the number of the legal entities in some parts of the mountain areas (like here in Lungau; the share of legal entities has risen from 2% to almost 10%), the stronger release of small scaled farms in some regions after EU accession, particularly in the periods of farm inheritance and a higher involvement of farm households in diversification of agricultural activities. This last aspect was particularly expressed in the late 1990s, when additional support mechanisms for diversification were in place and new opportunities for on-farm and para-agricultural activities emerged due to a deepened concern for regional development.

The non-agricultural activities indeed have a long tradition in the farm households of many European (but also world-wide) regions. This fact has largely been overlooked until the relationship towards the regional economy was realized as a major driver of rural development in the upcoming discourse on establishing a substantial rural policy in the late 1980s. The term part-time farming hardly reflected this altered perception of the wide-spread non-agricultural activities of farm households and hence was substituted in a great part of relevant research by

the concept of pluriactivity which also provides a more positive notion of the combination of activities across sectors (Dax et al. 1995). Pluriactivity is a feature that is relevant in all the regions, but has a particular relevance in mountain areas, like the study area Lungau. Here a lot of non-agricultural employment opportunities are since long linked in more or less tight way to agriculture (and forest) activities.

A small scaled farm structure, based on the concept of family farms (in German referred to as the type of "Bäuerliche Landwirtschaft" that includes the traditional image of agriculture as a common background of the current management profile of farm households) is (still) predominant. In many cases farm women¹²⁰ work mainly on the farm while men pursue an other gainful activity and work on the farm only during their leisure time. As job opportunities are in general rather restricted in Lungau they concentrate on the main regional employment opportunities: tourism, handicraft, construction and wood industry. In addition to these OGA in employment of other sectors or economic branches, diversification has a role in the region. The main period for setting up new diversification activities seems to be over now (see interviews of supply chain actors), but it remains at a rather high level. Besides tourism which accounts for the majority of these activities, on-farm processing of farm produce (meat, cheese, fruits etc.) and direct marketing activities are the most important ones. There are some farmer markets regularly in 2-3 municipalities of the region, and a series of other small marketing groups and individual farm diversification activities.

Tourism is a particularly important activity for nearly half of the farms in Lungau. Though only part of the farms are registered within the association of farm tourism, about 450 farms offer beds and apartments for tourists (telephone interview DI Kaiser, 24.5.07). The estimated contribution of tourism to regional Gross Value Added (GVA) is about 25%, thus also the importance of farm tourism is rather high. There is even further potential for development and it is increasing, especially during the summer season (tourism-light), but slightly decreasing in the winter season. The main opportunities are seen in the attractiveness of the area for "soft tourism" which includes specific packages for nature oriented tourism (in close relationship to the National Park Hohe Tauern), and the orientation towards particular target groups, like families with children, school groups and older persons seeking tourism resorts off the main highly intensive tourism centres.

Like in other parts of Austria the number of farms is continuously decreasing, the 1,300 farms of 1990 were reduced to 1,225 farms in 1999 (Agricultural census 1990 and 1999). The risk of farm abandonment is even higher if there is a high share of farms of pensioners because in many cases succession within a farm is not secured. In 1999 in Lungau 202 farms (16.5%) were farms of pensioners (1990: 21.7%). When we compare this development to the Austrian average we can realise that farm numbers are more stable in the study area, like in most parts of mountain area of Austria. For the period 1990-1999 (for which the regionalised

¹²⁰ There is a very high percentage of female farm managers (2006: 40%) in Austria and particularly in Salzburg (45%). An ongoing project at the BA für Bergbauernfragen (BF 106/06) tries to clarify the reasons why there are so many female managers in Austria in comparison to the EU average.

data of the agricultural census is available) the farm number decrease in the study area Lungau was -0.7% p.a., whereas for Austria the decrease reached the high level of -2.8% p.a. This reduction in farm numbers was partly due to the effects of Austria's EU-accession in 1995. But we can see that also in the following period the decrease was only very marginally smaller (1999-2005: -2.2% p.a. in Austria). It seems therefore particularly important to conceive the structural effects of agriculture largely linked to the existence and opportunities of non-agricultural activities in the region or the accessibility of employment from the residence place.

If farms are abandoned in most cases the utilized agricultural area is sold or leased to other farms and thus, there are only minor changes in land use. On a whole individual farms are steadily growing, the average farm size of the region was 39.3 ha UAA in 1990, which hold on average 5 dairy cows and 13 bovine animals. In 1999 the average farm size was already 44.3 ha UAA, with 7 dairy cows and about 18 bovine animals on average. This process of farm expansion is still going on and had particular impact on the appearance of agriculture in the area, as well as on the labour availability of farm household members.

Gradual changes in land use are mainly caused by intensification and rationalization. Some remote areas which still were managed (grassland cut at least once a year) a few years ago are now in danger of being abandoned and/or afforested. Like in other parts of Austria, in Lungau the share of forested area is steadily growing from 48,800 ha in 1999 (47.9% of the total area) to 49,700 ha (48.7% of the total area) in 2002 (Österreichische Waldinventur 1986-90 and 2000-02).

Increasingly the changes in the land use (of agricultural and forest land) have also effects on non-agricultural activities. The important trend is the forest use where a professionalisation took place over recent decades so that the small scale use of farm forests is losing importance also in the mountain areas. Still many farmers are linked to forest jobs and so have an immediate interest in forest development.

8.4 Investigating social networks

The district of Tamsweg (Lungau) is a comparably small region with natural borders of high mountains. The "other" Salzburg regions are far off, there is rather a higher accessibility and closer connection to the neighbouring district of Murau (province of Styria) and to bordering areas in the province of Carinthia. 20 years ago the highway "Tauernautobahn" was built which ameliorates the connection to Salzburg and makes business settlements easier. But still from a social point of view inhabitants perceive Lungau as a very specific and peripheral region with its own mechanisms and rules. Interviewees often refer to the "tiny extension" of the region with the consequence that all the relevant actors "know each other" very well although they do not necessarily communicate with each other.

Traditional views about farming and women's occupation are still predominant. The "regional marketing concept of Lungau" (2004) refers to the social system in the region as very solid and steady over the last generations. Changes, innovate processes and concepts are perceived rather critical and there is much lethargy and insistence on the traditional way of doing things. But anyhow, in the last years there have been changes in the involved persons, e.g. within the chamber of agriculture that opens up communication between different institutions and initiatives and makes cooperation easier.

In general, the social system in the Lungau area can be divided between the official part (consisting of all the relevant representatives from the chambers, from the employment service office, the association of educational facilities, the cultural association Lungau, the touristic association and last but not least the regional association) and an unofficial part not having very much common ground with the official representatives. But there are increasingly some very relevant points of contact (see figure below).

Starting with the official institutions, the **regional association** (Regionalverband) of Lungau is the main actor of regional development for the area. Founded in 1995 it is an association established due to the regional development regulation of the province of Salzburg. It consists of representatives of the 15 municipalities of the region. The municipalities are also the most important financial foundations of the association. One year later, in 1996 the regional management association was installed to support programme development in this region. The regional manager was and still is in personal union the manager of the regional association.

With the first **LEADER programme**, the manager of the regional association also became LEADER manager. Central aim at the beginning of the regional association was the conception, coordination and realization of the Regional Programme Lungau which was qualified in 2000 by the province of Salzburg. Its main implication is that the local development plans and local, spatial and settlement plans must not contradict to the regional programme and ensure a balanced development of all municipalities. Other aims were the building up of an administration for EU-programmes and other national development programmes.

In time the regional association got more and more areas of responsibilities, for example organisation and financial support of the regional public transport ("Lungau Takt"), which coordinates bus connections and bus lines of the different bus enterprises. The regional association is member of the **association of educational facilities** and has therefore a right to say in various matters concerning further education.

Moreover, it co-finances and co-organises the **cultural association Lungau** and many other projects like the youth centre in Lungau. There are formal and informal relations and network activities with the touristic association and the regional chambers. As a whole the manager of the regional association plays a major role in all decisions and processes concerning regional development. This central and

dominant role is not always esteemed as being useful for innovative regional development, since a series of other regional actors perceive a lack for support on innovative ideas by the regional manager. In many respects his position and administrative practice is seen as hardly supporting new ideas and initiatives.

Besides the manager of the regional association a **project manager for equality in life chances (gender balance)** was established within the regional association in 2002. Financed by the objective 2 programme the initiative was installed through the initiative of the province of Salzburg (bureau for women's issues and equal opportunities). At the beginning the project manager of equal opportunities had major problems to clarify her message and her responsibilities to the regional representative (males and females).

In the meantime, she has established various projects, in particular with regard to more and better child-care facilities, which is one of the most urgent needs of young mothers in the region. Another main aim is to support women and their ideas as well as bring women into official committees of decision making relevance. Though she does not have a right to vote in the regional association, the project manager of equal opportunities is participating in all decision-making meetings where she gets important information and moreover, is able to constantly support project ideas and initiatives (of women), which might be neglected otherwise.

Apart from that she initiated the **women's network Lungau**, an association where women of various origins (female entrepreneurs, female farmer, etc.) focus on the improvement of equal opportunities for women and lobby for women. The main aim is to back up women with their ideas and to encourage them to stick to them. One example is the initiative for the **biosphere park**, which was genuinely a project of the women's network (see below).

Since 2007 the new **LEADER advisory board** has been established (for the LEADER period 2007-2013). The representatives of all official groups participate in it (representatives from the chambers, from the service of unemployed persons, the association of educational facilities, the cultural association Lungau, the touristic association, bureau for renewable energy). This assembly covers the regional institutions far better (than the former association at the end of the last LEADER period which was only informal acting as the LEADER advisory board) and there are high expectations among the different members that initiatives and project ideas will be encouraged and treated in a more open and constructive way than before.

Besides these formal and informal networks of the official representatives there is another group of persons, mainly farmers who act mostly independently from official circles. Six to eight farmers (hard core) are engaged in a **group of direct marketing**. They are all organic farmers and sell their products (dairy products, spirits, tea, jam, vegetables, etc.) at the weekly farmers' market (mainly in Tamsweg). However, direct marketing is not very well established in Lungau, it even declined in the last few years because of work pressure (for the whole family), tightened rules of hygiene and fear of being financially punished.

Other projects of this group are the organisation of a yearly cultural event "**Herbstsymposion**" with a duration of three days. At the beginning the predominant subjects were agricultural. Agricultural chamber didn't agree with their way to discuss and perform their activities, thus representatives from the agricultural chamber and also other farmer from the region won't come any more. Anyhow, subjects changed in the meantime and cover now increasingly more social questions. This group of farmers takes also part in the slow food movement (with a local organisation group in the region) and the SOL movement (people for solidarity, ecology and lifestyle).

Only recently two projects, initiated by different members of this group, are getting more attention especially from the chamber of agriculture and the chamber of commerce (the two main players of the region).

The project "**biosphere park Lungau**" was initiated by a project of the women's network. A working group came into being with the main aim to pursue the concept of a biosphere park in spite of the lack of acceptance from regional representatives at the beginning of the project. They did good work in informing the relevant actors and got a solid base on the facts and the valuation of opportunities and requirements of the proposal. In the meantime the concept of a biosphere park for Lungau is respected more generally and seen as a chance to extend the potential of the region. The biosphere park has even become a key project of the new LEADER programme of the region. Right now a first draft of the actual area of the biosphere park is being determined by the regional association, the chamber of commerce and the chamber of agriculture. After that, an estimation of the costs will be done, as well as a clarification of the financing of the project. There are still doubts whether the biosphere park is of significant use for the region, in particular from the manager of the regional association who perceives the biosphere park as a potential competitor for the regional association.

The working group biosphere park is no longer part of this process, and even current information about the whole progress is given to them only via informal contacts. The manager of the regional association does not really cooperate with them or makes an effort to coordinate the various interests. That has been a problem since the beginning of the working group.

Main functions of the biosphere parks are (in short): to maintain cultural and natural variety; to establish model regions for sustainable development; biosphere parks should be used as centres of research, monitoring and education with regard to the relationship between environment and human beings; increasing improvement in implementation through exchange of good practice examples.

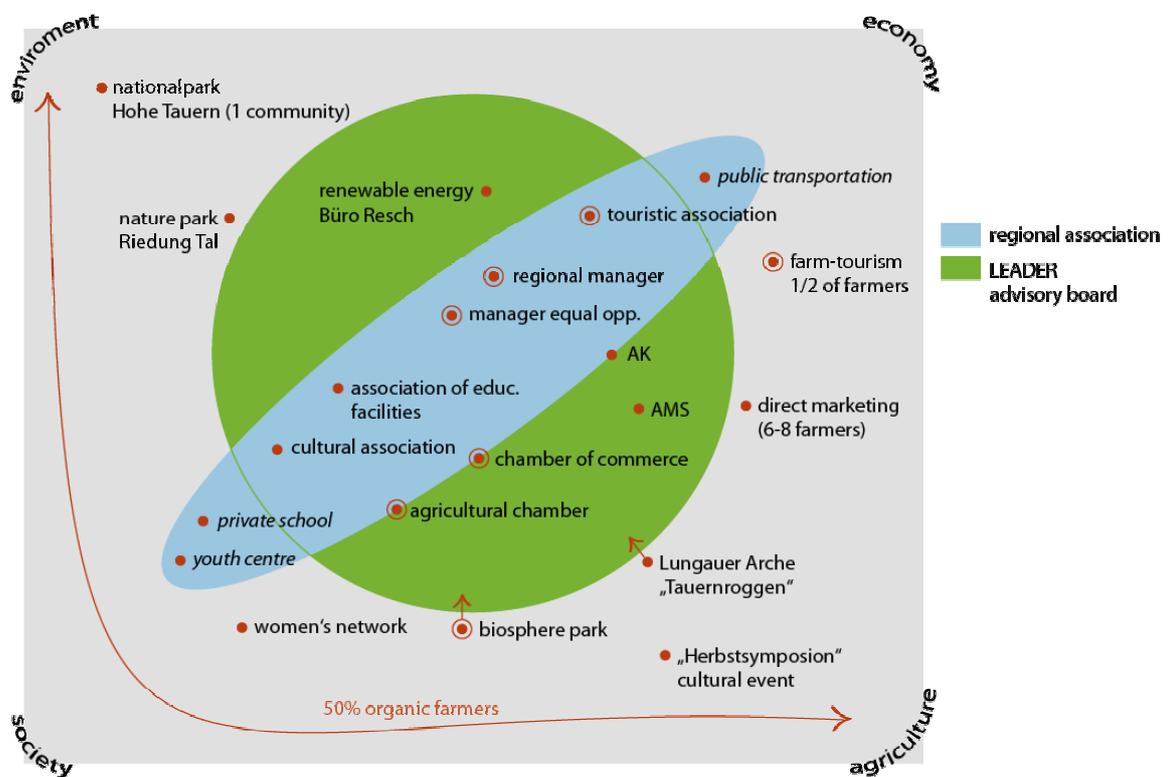
The other project "**Lungauer Arche**" deals with the maintenance, resuscitation and recovery of old brands of cereals, vegetables, fruits and potatoes. Within the framework of the INTERREG 3B project "Regiomarket" particularly one type of cereal, a special rye of the region "Tauernroggen" could be examined in a more thorough way. This project was also not taken seriously at the beginning but with

the interest from outside, partly through the participation in the INTERREG project, acceptance within the region is continuously growing.

Altogether, this group of farmers has a distinct desire for eautonomous activities, and there are close linkages to the women’s network and to the cultural association Lungau. It seems to be a parallel structure to the official representants of the farmers. However, since there has been a personal change in the agricultural chamber, cooperation between these two (rather dissimilar partners) networks is getting better and acceptance of each other is growing slowly.

Below you can find a schematic graph of the relationships of the social actors in Lungau indicating the relevance and linkages of a great number of relevant actors and institutions

Figure 135 Institutional actors



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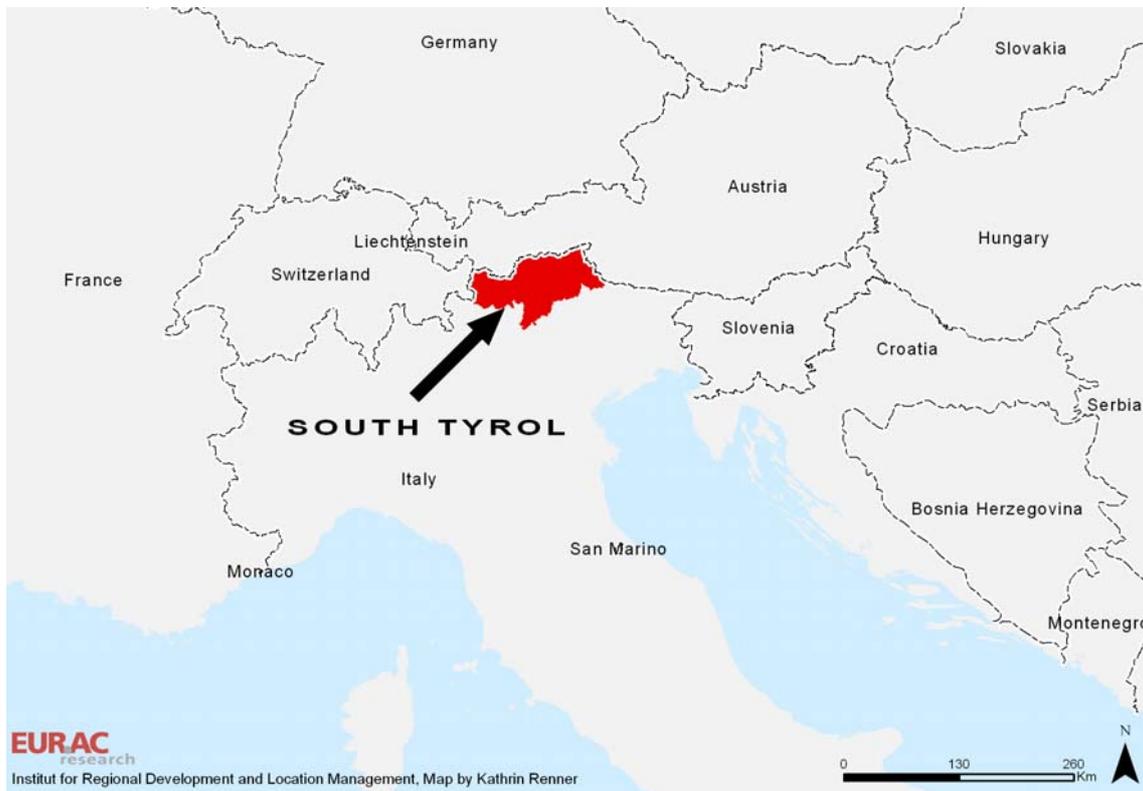
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9 ITALY: BOLZANO-BOZEN (SOUTH TYROL)

9.1 Describing the region

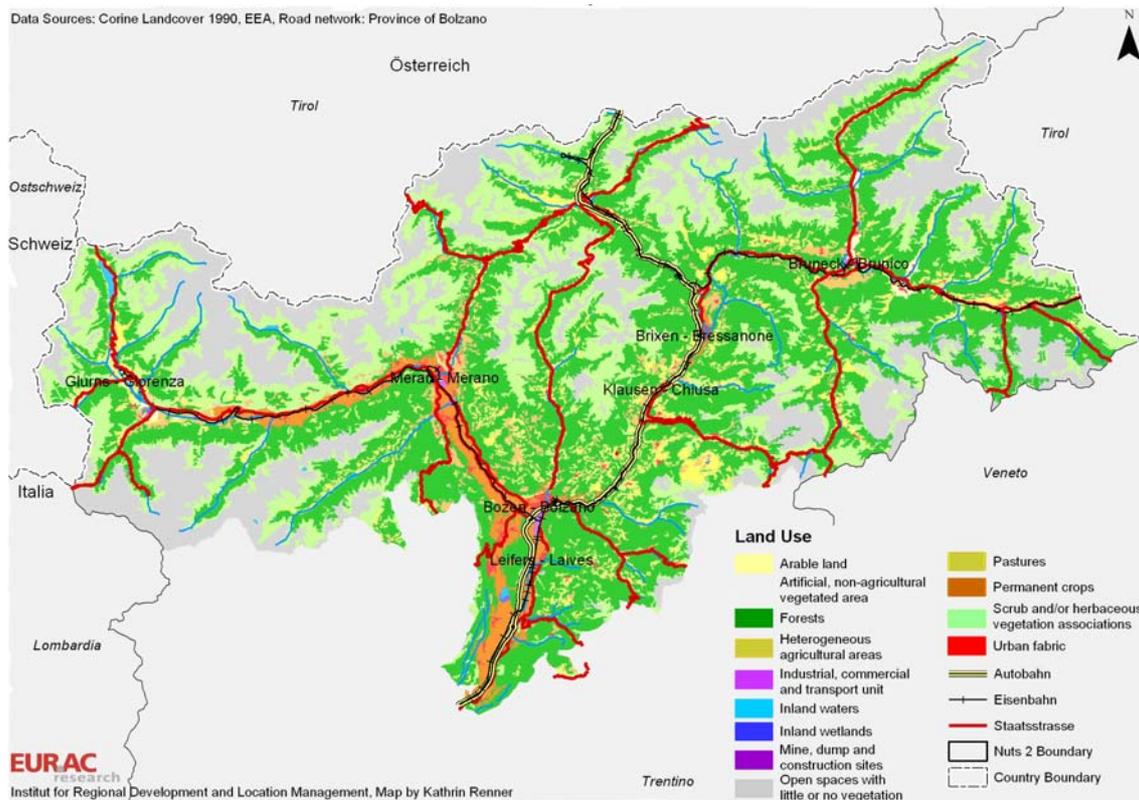
The case study region of the Autonomous Province of Bozen-South Tyrol is located in the north-eastern part of Italy bordering to Austria (Nord- and Osttirol) and Switzerland (Graubünden) (Map 68). The Italian neighbour provinces are Belluno (Veneto region), Autonomous Province of Trento and Sondrio (Lombardia region).

Map 68 South Tyrol's position on the national level



Characteristic for South Tyrol are the vast mountainous areas. The share of territory located above 1,500 m a.s.l. amounts to 64.4% of the whole territory. 93.3% of the territory is situated above 700 m a.s.l.. 43.8% (267,400 ha) of the territory is utilized agricultural area and 47.9% forestry area (Map 69). On the valley floors most economic and settlement activities are concentrated. Here also the best geographical, climatic and logistic conditions can be found. The permanent settlement area amounts only to 9% (Autonome Provinz Bozen-Südtirol, 2007h).

Map 69 Land use in South Tyrol according to Corine landcover 1990



9.1.2 European and national context of the region

The Autonomy Statute as promulgated in 1972 gave the South Tyrolese much, if not all, of what they had always wanted. They did not obtain the break up of the region and the elevation of the Province of Bozen/Bolzano into a Region in its own right. Nor did they obtain an end to the system by which provincial legislation required approval and co-ordination by Rome through executive measures. That would come later in 2001 with a further extension of constitutional reform that more or less amounted to a third autonomy statute. But first of all, the South Tyrolese gained two things psychologically important. One indicated a significant change of attitude by the Italian state to its minorities. In the preamble of the article setting out the limits within which the region and by inference the provinces should exercise their primary legislative powers, i.e. respect for the constitution and the legal principles of the State of Italy, international obligations and national interests, the latter were qualified by the addition of a phrase to the effect that protection of local linguistic minorities was also a national interest. The other was that after fifty years the name of their homeland could officially be called "South Tyrol". Second, if the region remained in being primary legislative power, the competences regarding almost all its most important economic and social factors were transferred to the provinces – agriculture and forestry, tourism and the hotel trade, protection of the countryside, public health and welfare, communications and transport of provincial interest, mines, nursery schools, school buildings and school welfare, public works, employment exchanges, and vocational training. The

provinces also obtained secondary legislative powers in regard to teaching in primary and secondary schools, trade and commerce, apprenticeships, promotion of industrial production, hygiene and healthcare, and sport and leisure. Moreover, the administrative offices relating to these new sectors were also transferred, and it was specifically stated that in those sectors where the region and provinces could legislate, the administrative powers which previously belonged to the state should be exercised by the region and the provinces. Interestingly, in relation to health and hospital care, the province was enabled to make arrangements for South Tyrolese to receive treatment in Austrian clinics and hospitals, and for the recognition of nursing and medical qualifications obtained by South Tyrolese in German-speaking countries.

The Organs of Government in South Tyrol

- (a) **The Parliament.** The election of the South Tyrol Parliament is an integral part of the election of the Parliament of the Region Trentino-South Tyrol. For the election of the regional parliament the region is divided into the two provincial constituencies of Trento and South Tyrol, and the deputies elected in each province automatically become members of the provincial parliament. The number of deputies in the regional parliament is seventy, composed, since 1983, of thirty-five each from Trento and South Tyrol. The deputies are elected by proportional representation through a secret ballot. In order to enjoy their active and passive voting rights voters must be eighteen years of age, and have been resident in the region for an unbroken period of four years. The period of the legislature is five years, with no earlier dissolution. Deputies have to take an oath of loyalty to the Italian Republic and swear to work for the undivided good of the state and the province. The parliament can be dissolved if it acts against the constitution, seriously oversteps its powers, endangers national security, or is unable to fulfil its functions. The four standing Legislative Committees, Committees of Enquiry and any special parliamentary committees must be composed in such a way as to reflect the ethnic composition of the parliament and, where possible, parliamentary parties. Both the Italian and the German language can be used in the parliament.
- (b) **The Government.** As before 1972, the South Tyrolese Government must be composed in such a way as to reflect the ethnic proportions of the parliament. This means that a majority in the parliament is not sufficient to create a government if that majority comes from only one linguistic group, and the obligation, therefore, is to seek a coalition. The government enacts provincial legislation, oversees the administration in those areas of provincial competence, administers the province's patrimony, and supervises the administration of the 116 provincial municipalities as well as the other bodies and organisations. It also makes proposals in regard to the budget.
- (c) **The President** (Landeshauptmann). The president unites in his office the roles of head of the Government and President of the Province. He is the legal and political representative of the province. He is responsible for recording laws and promulgating provincial decrees. He chooses the ministers in charge of the

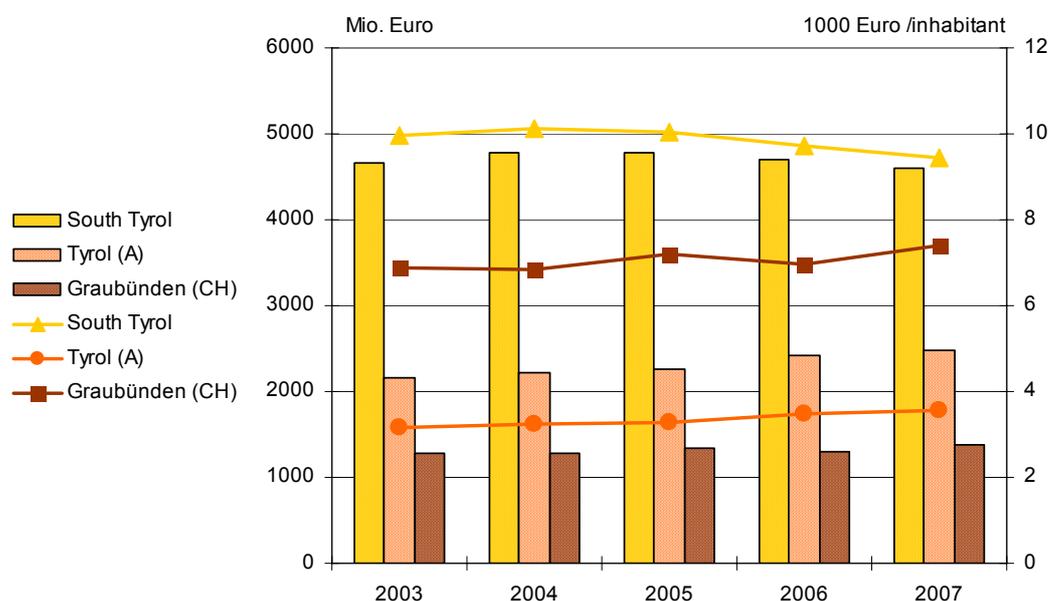
various departments. At present he has two deputy Vice-Presidents, one from each of the two major language groups. Either one, according to his choice, replaces him in his absence. But following constitutional revisions (see below, d (iii)) this will change to accommodate all three language groups (Alcock 2001).

To sum up: The autonomy statute is the basis for the development of South Tyrol. Its most important objectives are:

- The autonomous self-administration of the province
- Equal rights for all three autochthonic language groups Italian, German and Ladin
- The protection of ethnic and cultural peculiarities

The comprehensive autonomous competencies allow an individual governance of territorial development. Within the framework of the Italian legal directives, the province is able to govern its affairs on its own. Especially important is the financial autonomy. This leads to a large backflow of taxes and secures the public budget. The comparably great provincial budget (Figure 136) gives the province wide possibilities for undertaking actions.

Figure 136 Development of the public budget (absolute and in EUR 1,000/inhabitant) in South Tyrol, Tyrol and Graubünden



Source: (Astat 2004b)

In detail the province has primary legislative power for almost all important economic and social factors: agriculture and forestry, tourism and the hotel trade, protection of the countryside, public health and welfare, communications and transport of provincial interest, mines, nursery schools, school buildings and school welfare, public works, employment exchanges and vocational training. Furthermore it owns secondary legislative powers in regard to teaching in primary and secondary

schools, trade and commerce, apprenticeships, promotion of industrial production, hygiene and healthcare and sport and leisure (Alcock 2001).

South Tyrol is located along the southern part of the Brenner axis between Munich and Verona. Nearby bigger centers are the capital of Tyrol Innsbruck and the capital of Trentino Trento. The pre-alpine regions can be reached within more or less two hours in both directions. Connections with the East and West are however rather small, both concerning their functionality and the quality.

Because of its geographic position and its cultural peculiarities South Tyrol is an interface between the Romanic and the Germanic space. The province has manifold interrelations with its neighbors. Despite a vivid exchange the population contained a very strong local identity and a multitude of traditions. Inside the province three different language groups are settled, Italians, Germans and Ladins. This leads to a very diverse cultural picture of the region.

South Tyrol is part of the Euroregion Tyrol, South Tyrol, Trentino and an active partner in Alpine policies on all administrative levels. Against the background of a Europe of the regions South Tyrol shows on small scale how integration of different ethnic and cultural groups can co-exist.

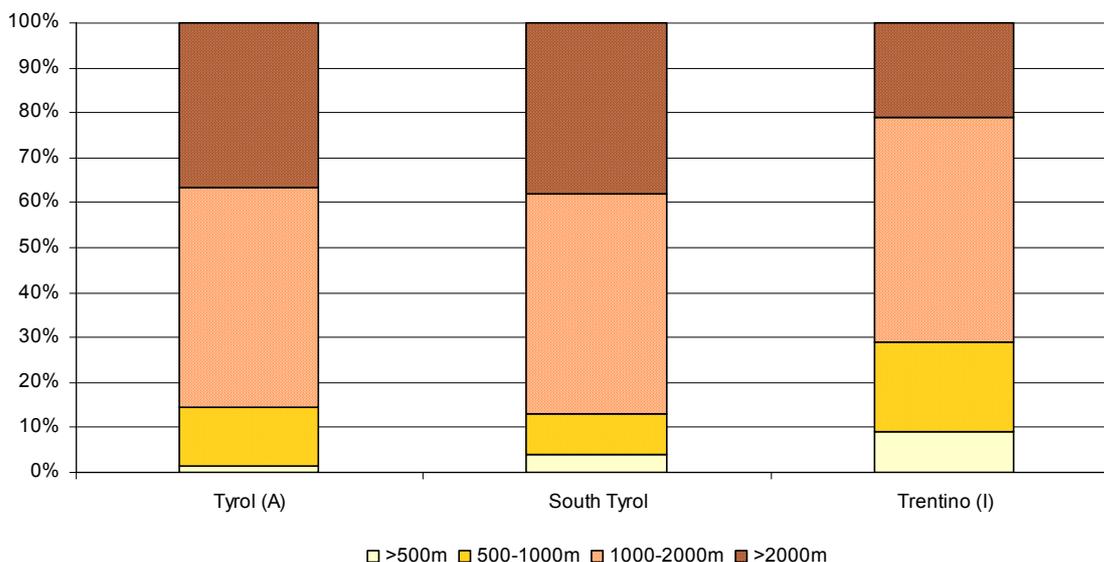
9.1.3 Environment

9.1.3.1 Spatial structures

South Tyrol serves as a biological bridge of European importance. Middle and North European species meet with Mediterranean elements. The province forms furthermore the transition between the Western and the Eastern Alps and is rich of endemic species.

The special geographic and climatic conditions comprising all altitudinal belts (Figure 137) and its southern exposure caused an exceptional multitude of habitats.

Figure 137 Distribution of surface according to altitudinal belts in the Euroregion Tyrol-South Tyrol-Trentino



Source: Wifo 2005

The development of natural diversity has been overlaid by a cultural land use during the last centuries. Hence, an extraordinary and attractive landscape diversity evolved. Agriculture and forestry contribute to a great extent to maintaining and further developing these cultural landscapes. Today this diversity forms the basis for an excellent living and recreational quality in the province.

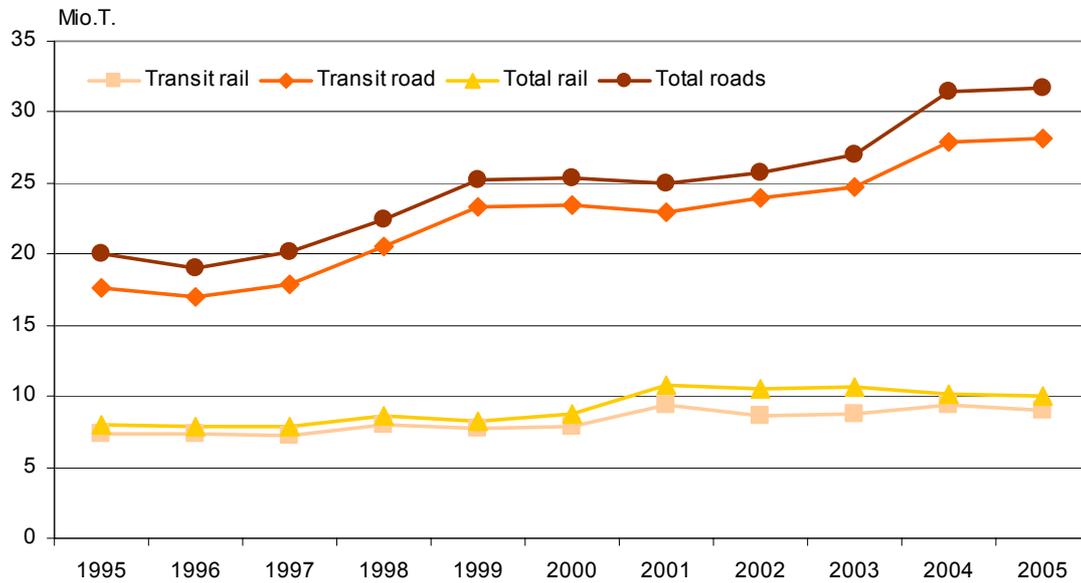
However, land use patterns differ strongly in South Tyrol since the territory is characterised by the co-existence of densely populated cultural landscapes in the valleys and vast natural landscapes in the mountainous areas.

Due to difficult topographical conditions in South Tyrol (steepness, natural risk areas, extreme altitude, etc.) only a very small part of the territory is potentially permanently inhabitable (Map 70). This area comprises a total surface of 612 km² and equals a share of 8.28% of the total territory (Astat 2004). Minimising factor in South Tyrol is therefore the availability of permanently inhabitable surfaces. About 85% of the population live within this area, about 95% of all infrastructures can be found here and about 90% of the added value in South Tyrol is produced on these surfaces (Autonome Provinz Bozen-Südtirol 2007h). These figures illustrate the pressure being put on soil and the heavy competition for surfaces between different land uses, among them also agriculture. Additionally to these conflicts, land consumption and sealing are still rising. Moreover regional planning authorities are having a hard time implementing their objectives.

One of the greatest land use conflicts consists between the different demands of transport on one side and human beings and nature on the other side. Traffic caused by transit, good-transport, commuting, tourism and leisure is heavily polluting the areas along the main valleys. Especially affected is the great axis

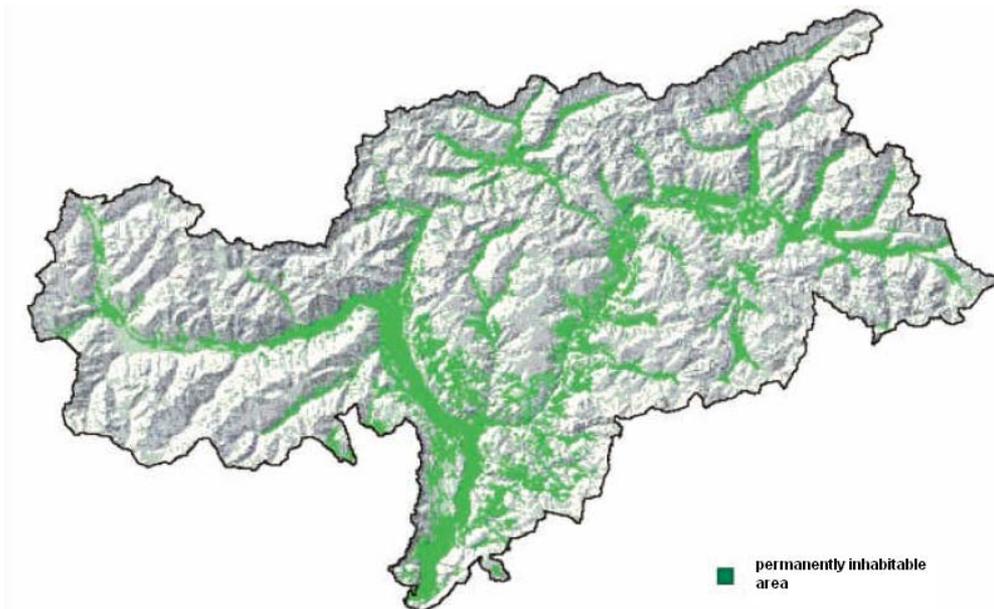
along the Brenner-freeway (Figure 138). Burdens and advantages related to transport development are very unequally distributed.

Figure 138 Development of transit and goods transport along the Brenner Axis



Source: ARE 2006

Map 70 Permanently inhabitable area in South Tyrol in 2002



Source: Astat 2004

A great development gap exists between the central places and main valleys on one side and the periphery on the other. This imbalance is especially evident regarding the distribution of economic activity and productivity.

Furthermore, a high soil immobility especially in the agricultural sector can be observed. As experts told us, for example 1 ha of vineyard in a good location can cost up to EUR 1.5 mio. Hence, apart string land use regulations regarding the preservation of the cultural landscape it is very difficult for a farmer who wants to extend to acquire land. Local people are facing the same problem as the price level for housing and apartments is as high as e.g. in Munich, Milan and other big cities. Due to the favourable site conditions (climate, culture, leisure possibilities...), South Tyrol has become an attractive play for living. In the valleys of the Dolomites the price for 1 m² can reach EUR 12,000.

9.1.3.2 Environmental protection

Environmental protection is an important issue for South Tyrol since its natural environment is very sensible to changes. Environmental protection follows, however, a dynamic and integrative instead of a simply conserving approach. That means, that protection priorities and land use have to be reconciled with regard to altitude and intensity.

But besides the integrative landscape development also classical conservation strategies are being followed. Seven natural parks cover in total a surface of 126,601 ha which equals 17.1% of the total territory in South Tyrol. All together about 287,882 ha (Table 260) are protected by law or afflicted with limitations in 2005 (ASTAT 2006a).

Table 260 Protected areas by category in 2005

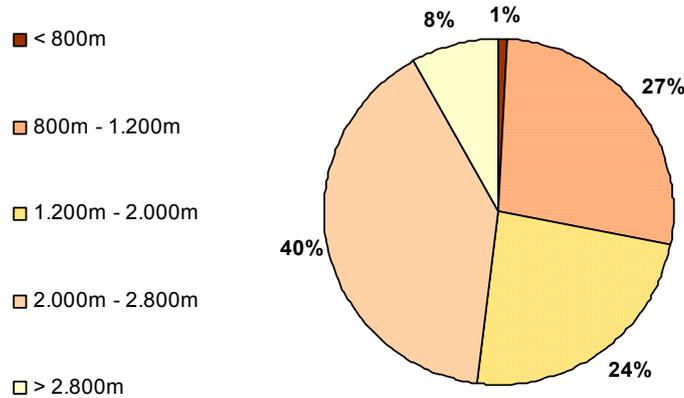
Category	Number	Surface (ha)	% of total territory
Natural monuments	1,053		
Habitats	193	2,740	0.4
Natural parks	7	126,601	17.1
National park "Stilfser Joch"	1	53,447	7.2
Protected landscape	...	105,094	14.2
Total		287,882	38.9

Source: Astat 2006a

The different states of protection do not only perform the task to protect the respective landscape but also to develop the natural and cultural landscapes and to (partly) ensure their use as recreational area for population and tourists (Autonome Provinz Bozen-Südtirol 2002). With natural and national parks a sufficient amount of higher alpine areas, alpine grasslands and coniferous forests is protected, whereas deciduous forests are underrepresented. This might be caused by the fact that the major parts of protected areas are located above forest level. Generally lower altitudinal zones are sparsely represented by protected areas. With regard to Natura 2000 habitats this leads to conflicts with the FFH directive of the EU (Autonome Provinz Bozen-Südtirol 2002).

Most of the protected areas and habitats (48%) are located in the higher alpine zones above 2,000 m (Figure 139). Below 800 m only 1% of all protected areas is situated.

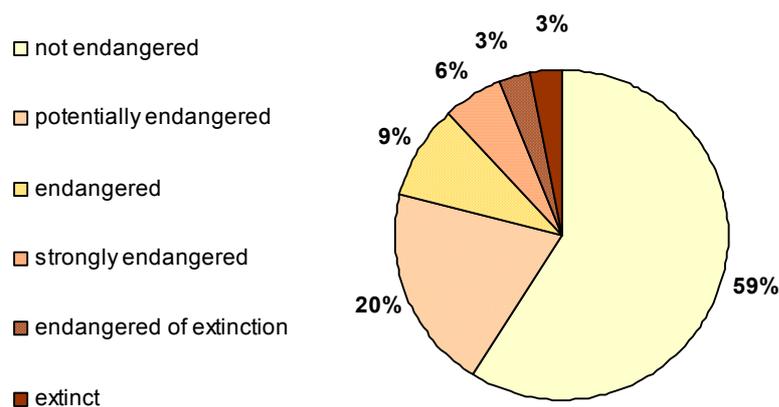
Figure 139 Protected areas according to altitudinal zones in South Tyrol



Source: Autonome Provinz Bozen-Südtirol 2002

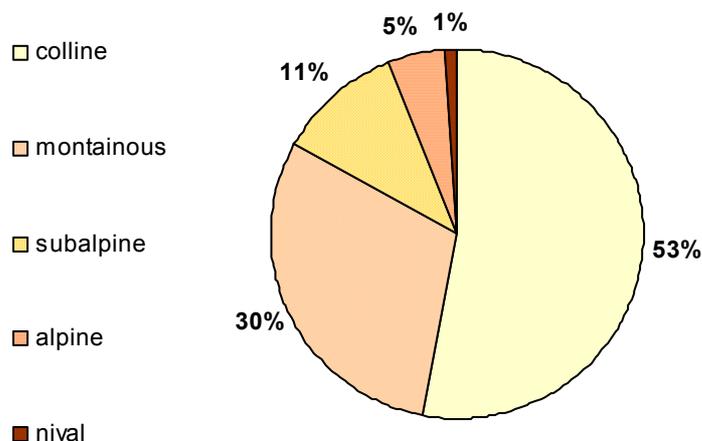
59% of the animal species in South Tyrol are not endangered of extinction, about 20% are potentially endangered (0). However, looking at the distribution of endangered animal species into altitudinal zones the picture becomes more detailed. Most of the endangered animal species belong to the colline zone. Their number decreases with the altitude (Figure 141). Due to the geographic patterns in South Tyrol this also indicates an increase of endangered animal species from the mountainous North to the more even South. The human influence on environment becomes therefore less negative with increasing altitude (Autonome Provinz Bozen-Südtirol 2002).

Figure 140 Endangered animal species in South Tyrol 1994



Source: Astat 2006a

Figure 141 Endangered animal species in South Tyrol 1994 according to altitudinal zones



Source: Autonome Provinz Bozen-Südtirol 1994

Regarding the endangerment of plant species no detailed information is available. Not all plant species have been registered so far (Autonome Provinz Bozen-Südtirol 2002).

In 2001 the Autonomous Province of South Tyrol approved a new map of water bodies which serves today as reference for the administration of all water bodies in the region. This map identifies five different types of water bodies (Autonome Provinz Bozen-Südtirol 2007d):

- 4,859 watercourses with a total length of 9,612 km
- 346 lakes with a total surface of 19.14 km²
- 10,771 springs (the surveying is not yet completed)
- 258 glaciers with a total surface of 108.19 km² in 1997
- underground water bodies/groundwater.

In 2001 the quality of most watercourses has been classified into four categories. Most kilometres of watercourse belonged to category two. About 16.5% of the total kilometres watercourse had first class quality. Most parts of the high quality watercourses are located in areas above 1,000 a.s.l. (EURAC 2002).

The aquatic quality of the South Tyrolean lakes underlines significant differences with regard to the altitudinal level. With decreasing altitude the degree of eutrophication is rising due to climatic conditions, minor water exchange and the anthropogenic influence. The damages in the lower zones depend mainly on the nutrient input increasing the consumption of oxygen. Higher situated lakes are often exposed to acid rain and to contamination with heavy metals. Their degree of contamination, analysed on the basis of fish tissue specimen, is among the highest in Europe (Autonome Provinz Bozen-Südtirol 2007d).

Table 261 Usage of water bodies in South Tyrol in June 2004

Usage	Number of licenses	Type of water body
Overhead irrigation	8,621	groundwater, watercourse
Potable water	1,642	springs, watercourse
Generation of energy	825	watercourse
Irrigation	448	groundwater, watercourse
Frost protection	351	groundwater, watercourse
Industry	350	groundwater
Driving force	262	watercourse
Artificial snow	165	watercourse
Domestic water	133	springs
Industry-agriculture	90	groundwater
Fire water	74	watercourse
Pisciculture	62	watercourse, groundwater
Other	44	springs, watercourse
Watering places	27	watercourse
Peasant baths	9	springs
Mineral water	6	springs
Thermal water	2	springs

Source: Autonome Provinz Bozen-Südtirol 2007d

During the last decades the water bodies in South Tyrol have been subject to most intensive usage and interference by humans (Table 261). The province therefore suffers from a strong loss of natural and near-natural watercourses. The ongoing urbanisation and straightening of rivers caused an important depletion of habitats and a rising risk with regard to flooding. A potential renaturation could only be realised restricting agricultural surfaces. Furthermore the usage of water bodies for the generation of hydro electrical power caused changes in their structure (Autonome Provinz Bozen-Südtirol 2002, Autonome Provinz Bozen-Südtirol 2007d). Considering the fact, that a great number of endangered habitats is situated around water bodies, the importance of a near-nature environment is being underlined.

Table 261 gives an overview of the different types of usage of water bodies. It emphasizes, that the majority of South Tyrolean water licenses is used for overhead irrigation. Due to the climate and the southern exposure overhead irrigation is a vital part of fruit and vegetable growing as well as for viticulture. The estimated overall demand for overhead irrigation in an average growing season mounts up to 170 mio m³. A significantly high number of water licences is being used for the generation of electrical power (Autonome Provinz Bozen-Südtirol 2007d).

The consumption of potable water in South Tyrol is rather high compared to other European countries. The average consumption per inhabitant is 263 l per day (Autonome Provinz Bozen-Südtirol 2007a). However, considering only private households this number is being significantly reduced. Reasons for the high consumption might be the comparably low prices or the large number of tourists visiting the province (EURAC 2002). While the average consumption of potable

water of the local population is 224 l per day and inhabitant, the average consumption per tourist is 416 l per overnight stay (Autonome Provinz Bozen-Südtirol 2007d). The supply of the population with potable water is mainly based on springs. Only the cities of Bolzano and Laives are supplied with water from wells. The quality of potable water in South Tyrol is generally very high, it usually reaches the consumer without further purifying (Autonome Provinz Bozen-Südtirol 2007d).

In 2005 the net generation of electrical power amounts to 3,991 mio kWh. Almost 99% of this energy is being generated by hydropower (Astat 2006a). This emphasises that hydropower is the most important source for electrical energy in South Tyrol, although only 40% of the produced energy is being used within the region. Regarding the usage of other alternative energy South Tyrol is among the leading regions in the EU. The surface of thermophotovoltaic devices in South Tyrol (about 101,000 m² in 2000) is about five times as high as the EU-average. About 15% of the entire energy demand is met by biomass, mainly wood (Südtiroler Landesregierung 2007). The consumption of energy has been rising during the last five years.

Table 262 Consumption of electrical energy with regard to the different consumers in mio kWh

Consumer	2002	2003	2004	2005
Agriculture and forestry	166	143	133	150
Production sector	919	962	985	991
Service sector	962	991	1,044	1,099
Private households	493	488	504	546
Total	2,600	2,584	2,666	2,786

Source: Astat 2006a

Table 262 gives an overview of the increase of energy consumption with regard to the different consumers. The greatest consumer is the service sector. Similar to the water consumption it has to be considered, that tourism and hotel industry, being comprised in service industries, contribute to the high energy consumption of the sector.

9.1.3.3 Preconditions for agriculture

The geographical conditions are very various. South Tyrol is located at the southern "sunny" side of the Alps showing the characteristics of a mountainous region and a mild climate in the valleys (Table 263). Wine and apple cultivation in South Tyrol is strongly characterized by its location on the left and right banks of the Etsch/Adige river and in a lesser extend along the Eisack/Isarco river. The Etsch/Adige valley is a glacially formed, U-shaped valley with a wide floor in the South Tyrolean Unterland. Due to its high sunshine period and low precipitation owed to the high mountains in the north and south it is classified as a dry inneralpine valley. The valley, which received its final geomorphological shape as a result of the erosive activity of the Etsch/Adige river, is bordered on both sides by valley walls that in

certain places rise up very steeply. Because of their steepness and their only occasionally existing terraces, the slopes of the valley walls offer usable agricultural areas only to a limited extent. However, due to good marketing conditions apple production is operated up to 1,000 m a.s.l.. Today, areas in the valley floor have been entirely drained, levelled, and improved. In place of the original river meadows, forests and marshes, currently extended, intensively farmed fruit and vineyard cultivation are found there. The foot of the slopes on the left and right side of the Etsch/Adige valley including the talus cones are used primarily for viticulture. The slopes higher up are dominated by deciduous and mixed deciduous-coniferous woodlands with forestry usage. Plateau areas are occasionally found. They are used for intensive fruit and wine cultivation, and, at higher elevations, primarily for grassland agriculture and forestry (climatic conditions!) (Tappeiner et al. 2003).

Ca. 40% of the total agricultural area is covered by meadows and grassland and about 48% are forestry areas (Astat 2006a). This indicates how the climatic and topographical conditions influence soil utilization as 80% of the territory is situated above 1,200 a.s.l.. As the main-valley is open towards the south, the regional climate is strongly influenced by sub Mediterranean climate conditions of the Lake Garda region. The mean annual temperature ranges in this model region from 8°C to 12.5°C. The average annual precipitation of the last decades reaches from 700 up to 1,000 mm. The precipitation cycle is typically continental with a distinct summer maximum (Tappeiner et al. 2003).

Table 263 Overview of the natural characteristics in South Tyrol

Climatic type	warm temperate, humid, at higher levels alpine mountainous climate
Mean annual precipitation (mm)	515 (Naturns, Vinschgau Valley) – 1,050 (St. Leonhard in Passeiertal)
Geology	mainly crystalline rocks, valley-floor filled with quaternary depositions
Field form	cleared at the valley-floor, moderately, structured on the slopes and slope foot sites, larger pastures at higher levels

Source: Tappeiner et al. 2003

9.1.3.4 Preconditions for rural development

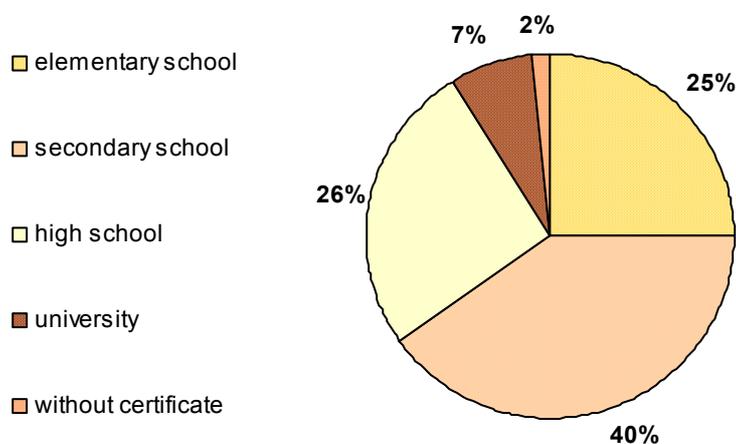
Road and rail network, airport: The Autonomous province of Bozen/Bolzano-South Tyrol must be characterized as being very well integrated in the national and international traffic network. This regards mainly the North-South connection by means of the Brenner highway A22 connecting the region with the northern Italian regions and Austria and further Germany via the Brenner pass. Towards the east (Brixen-Innichen) and the west (Bozen-Reschen) highways exists only in parts. However, the region is well accessible also from these parts. Hence, all municipalities are accessible from the larger urban centers (Bozen, Brixen, Meran) in a reasonable time effort. This is also the result of a relatively well functioning public transport system which has reached a high standard and efficiency. About 20-25% of the private traffic is operated via public transport services (EURAC

2002). Furthermore, the urban centers are highly emphasizing priority to bicycles. For example in Bozen/Bolzano there is a broad initiative for the project "Going by bike to work". Within the ESPON accessibility index South Tyrol ranges between 60-80 (EU25+2=100) (ESPON 2006). Due to topography, certain remoted mountain areas show a connectivity to transport terminals which is around one hour and more while the valleys show a significantly shorter access time (ESPON 2006, see map 13 of the ESPON report). This means that in some parts of the province the provision of powerful transport, communication and information infrastructure remains unsatisfactory. This good accessibility is also origin of environmental problems. In 2005, every day ca. 26,000 vehicles (9.5 mio/year) passed the Brenner corridor (see Figure 138) (MONITRAF 2007). Concerning the connections, the same holds true for the rail network: the north-south network is well integrated with several daily Intercity trains while in the other directions mostly regional trains are directed. The regional airport of Bozen/Bolzano offers flights to six destinations (Rome, Hannover, Munich, Olbia, Zara, Milan). Actually there is a discussion to extend the rollway for larger airplanes and more destinations.

Water and waste supply and disposal systems: All parts of the province are provided with a high quality infrastructure for basic services (water, waste water, disposal systems, energy and partly communication technology). This holds true also for the health infrastructure which figures among the best in Italy. About 1/3 of the waste is collected separately (EURAC 2002).

Education and health infrastructure: 7.2% (2001) of the population have the certificate of an university degree (Astat, 2006b) (Figure 142). Already in 1981 this share was only 2.5%. There are 5,349 students at Austrian universities and another 6,085 students enrolled at Italian universities (2004/2005) (Astat, 2006b). In the semester 2004/2005 there were only 576 students enrolled at the three regional universities Free University of Bozen (founded in October 1997), the Regional High School Ffor Sanitary Professions Bozen and the Philosophical-theological High School of Brixen.

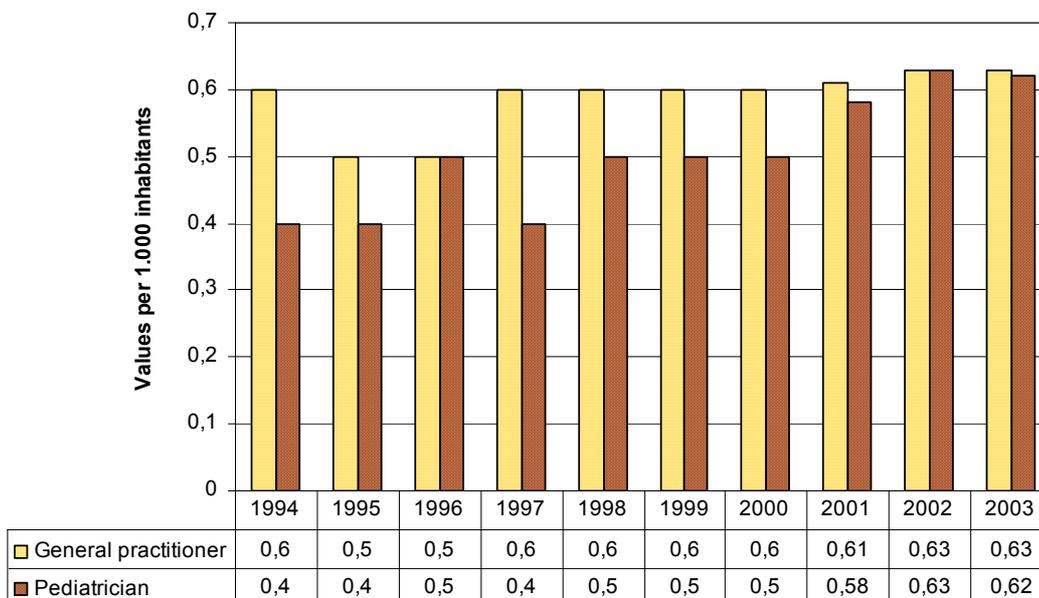
Figure 142 Inhabitants according to their educational skills



Source: ASTAT 2006b

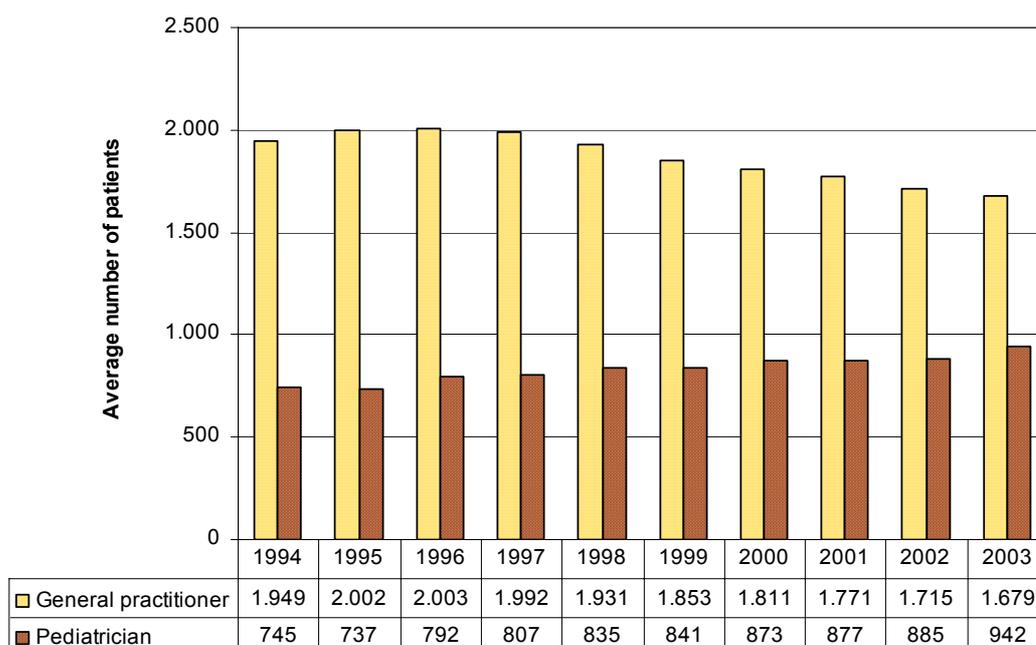
There are two indicators which indicate the condition of the primary health care: the number of general practitioners per 1,000 inhabitants over 14 years and the number of pediatrician per 1,000 inhabitants up to 14 years (Figure 143) (Autonome Provinz Bozen Südtirol 2003b).

Figure 143 General practitioners and pediatricians



Source: Autonome Provinz Bozen Südtirol 2003b

Figure 144 Average charge of patients per general practitioner and paediatrician



Source: Autonome Provinz Bozen Südtirol 2003b

The indicators regarding the average charge of patients per medic inform on the access to primary health care: the striking indicator for the general practitioners slowly reaches the optimal relation of 1 medic per 1,500 inhabitants (Figure 144). The increase of the indicator is due to the fact that with the increase of pediatricians also the choice has increased (Autonome Provinz Bozen Südtirol 2003b).

Energy supply: South Tyrol's most used energy source is the hydrological. In 2004 there were about 770 hydroelectric power plants, producing more than 5,300 GWh yearly. 40% of the hydrological produced energy is used within the region, 60% is exported, which means that the remaining 60% of energy (from fossil fuels) must be imported (Autonome Provinz Bozen-Südtirol 2007d). Due to the increasing use of long-distance heating with biomass (14 plants) and alternative/renewable energy sources the share of fossil fuels has continuously decreased (EURAC 2002).

9.1.4 Rural economy

9.1.4.1 Regional performance

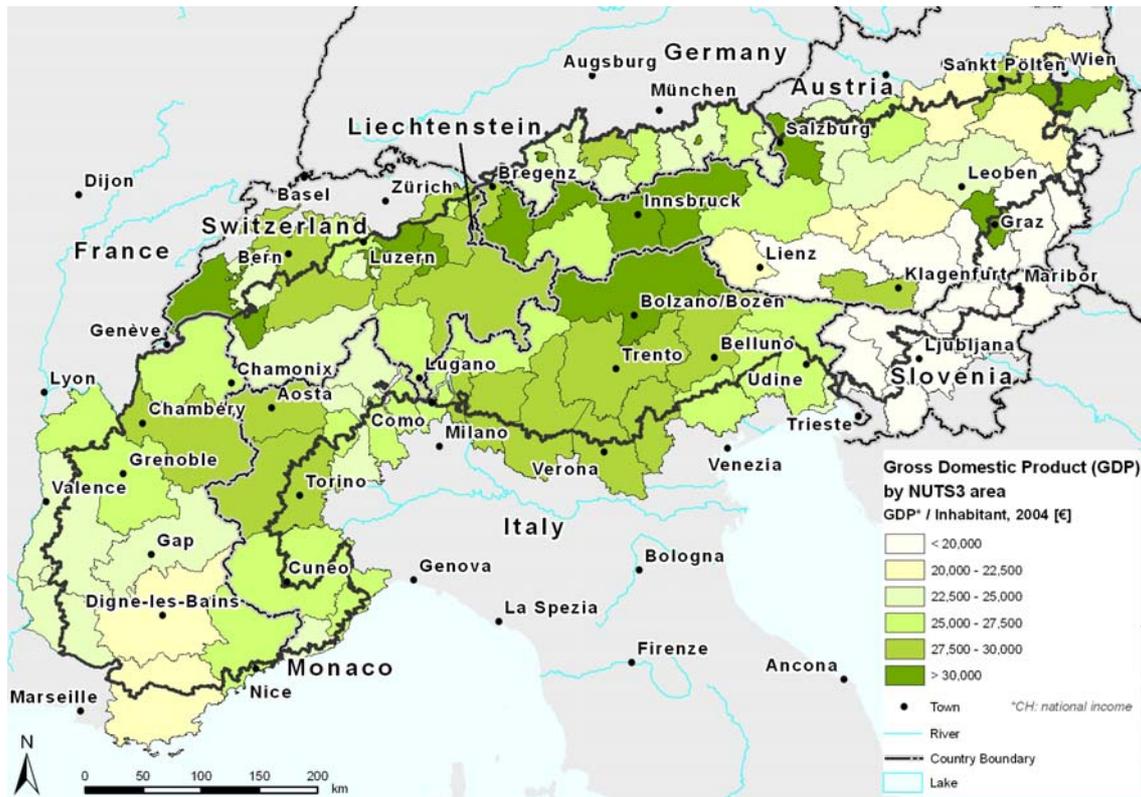
From an economic perspective South Tyrol is very well positioned compared to other European regions (0). With an economic growth of 2.1% in early 2006 it certainly belongs to the most prosperous regions in Europe (Landespresseamt 2006). Regarding GDP per capita (measured in purchasing power parity) the province ranks among the first 25 NUTS-2-regions. This equals 140% of GDP in the year 2003 compared to the European-25 average (Eurostat 2007a).

The development of employment has been rather positive during the last decade. The unemployment rate today is nearly inexistent and amounts to 2.7% in 2004 (Astat 2005).

Social welfare and peace are guaranteed by a stable economic growth and full employment. GDP in market values has been growing in all sectors during the last ten years (Figure 146). Equal to other countries, the service sector is contributing with the highest share to economic development, followed by the production sector.

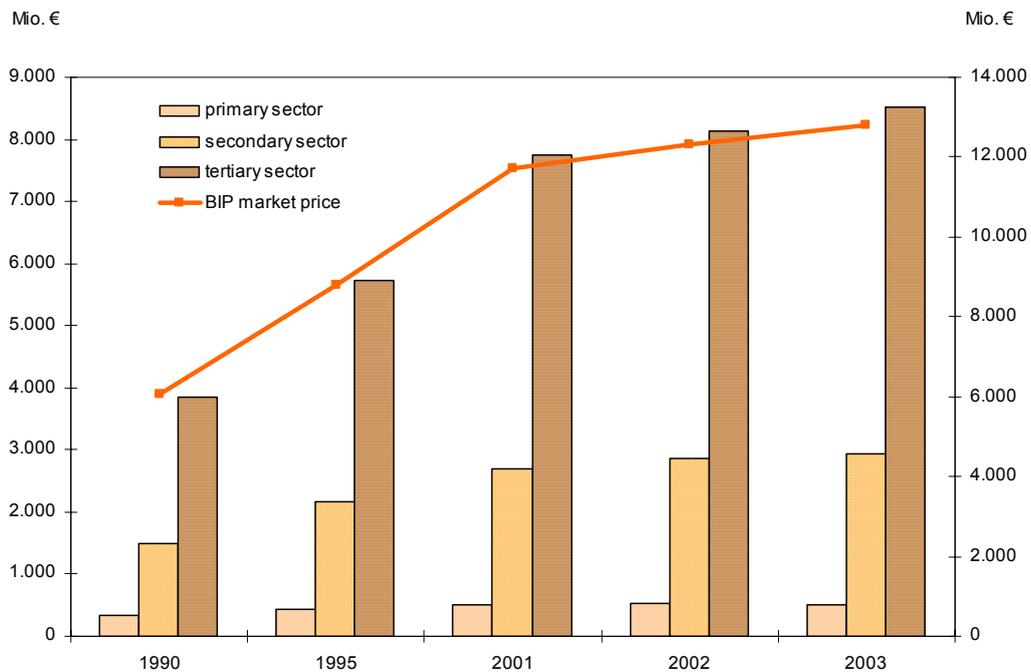
Different branches in production (esp. handicrafts in the wood, building and transport sector) tend to have a low productivity, which is linked to the relatively small size of the enterprises. Hence their positioning on the global market is being complicated.

Figure 145 GDP per capita in the Alpine Bow 2003, NUTS 3 Level



Source: Ruffini et al. 2007

Figure 146 Development of the South Tyrolean GDP regarding the different sectors

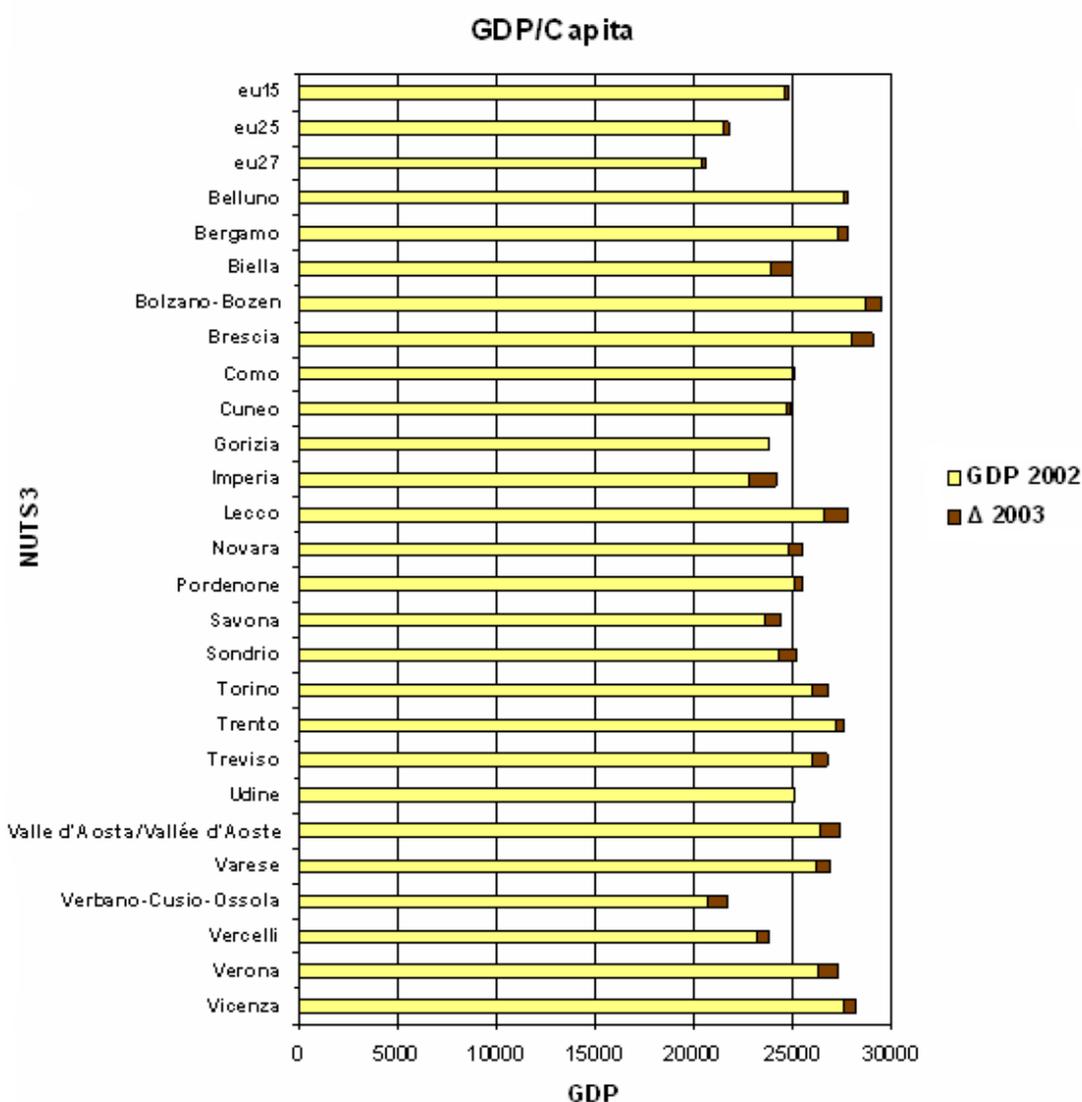


Source: Astat 2005

The potential for cooperation within the South Tyrolean economy is so far not optimally being used. In the industrial sector cooperation has already reached rather professional status and is concentrated mainly on production whereas the handicraft sector is focused on distribution. In both fields, but especially in handicraft there are still potentials for optimisation (Wifo 2001).

Financial System: Considering the GDP across Italy’s Alpine arc, it turns out that the province of Bolzano attains the highest sum per capita. The Gap to the weakest region, Verbano-Cussio-Ossola is about EUR 7,800 per capita and year. Compared to the European Union the difference is varying according to the chosen reference (EU15, EU25 or EU27).

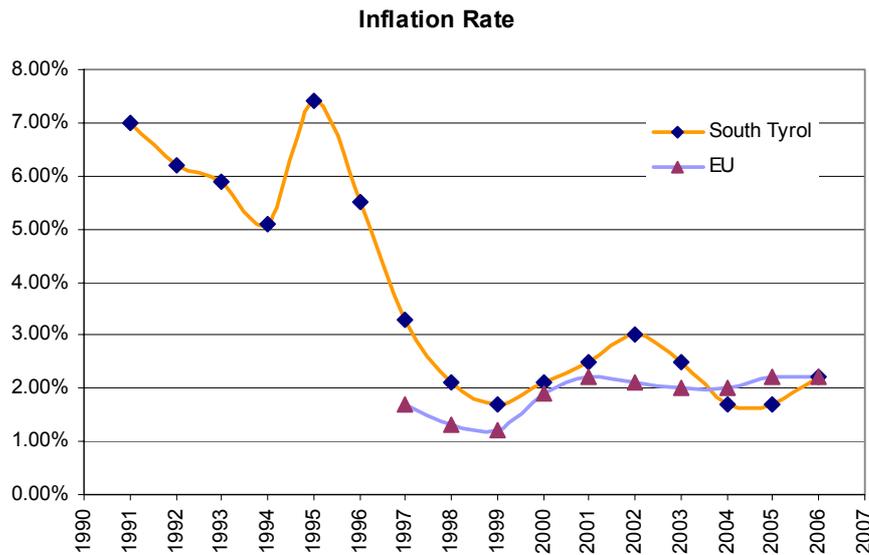
Figure 147 The Development of the GDP in the NUTS3 Regions of Italians Alpine Arc and across Europe between 2002 and 2003



Source: Eurostat 2007b

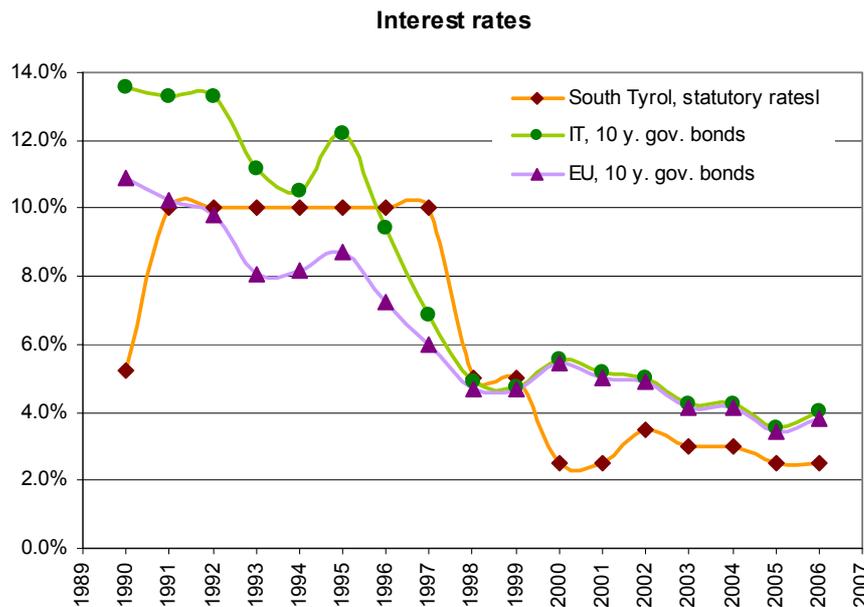
Average interest rates: The Inflation rate on the European level was only documented from 1997. Thus the huge difference between the European level and the level of Italy could not be demonstrated. Anyway the chart in (Figure 148 and 0) documents exactly when the currency policy of Italy was adapted to the criteria of the European Union.

Figure 148 Consumer price index without considering tobacco-products for the households of workers and employees since 1990



Source: Astat 2007g

Figure 149 Interest rates

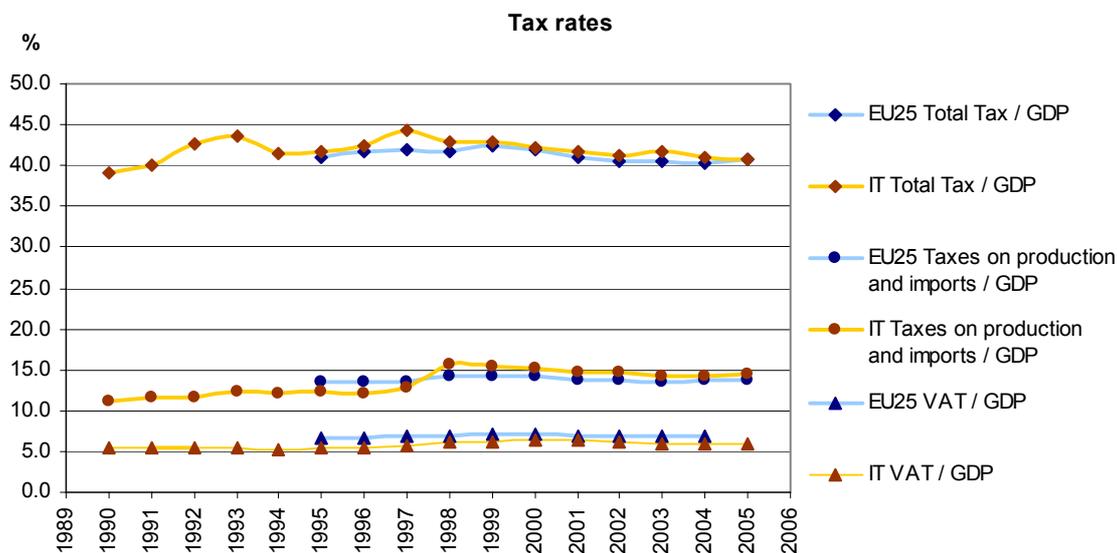


Source: Astat 2007g

According to the civil rights bill in South Tyrol, the statutory interest rates are applied, when a judge decides that the debt has to be increased by the loss of the interest-revenue. For the comparison the interest rates for 10 years governmental bonds for the EU and Italy are add. Although the statutory interest are not adapted to the 10 years governmental bonds, they nevertheless follow the same trend on a lower level.

Average income tax rate for the producers: Although the autonomous status is giving South Tyrol the opportunity to be independent from the national regulation, the financial issue is still part of the national authority. Thus the tax system in South Tyrol is the same as for the rest of Italy. An agreement was signed in 1989 that guaranteed South Tyrol to get back nearly the total sum of the taxes paid to Rome. Based on this financial flow of resources the "model South Tyrol" is functioning (Arbeitsförderungsinstitut 2002).

Figure 150 Various tax rates for Italy and the EU25 in percentage of the GDP



Source: Eurostat 2007c

Percent of businesses taking out loans etc.: As the equity capital-quota is about 23.9% in average, the bonded capital (debts) on the contrary attain averagely 76.1% in South Tyrol (Wifo 2007). As the Equity Capital quota in German is with 18% even lower, South Tyrol is at least located in the midfield among the European countries (IHK 2007). Nevertheless, the lower the quota of equity capital is the more the higher the financial risk is raising. If the debt to equity ratio is considered, it becomes obvious that the sum of foreign-capital is in average more than two times higher than the equity capital of South Tyrols' companies. Beyond in the building and retailing industry the relation is 1:5 and furthermore in the financial industry the foreign capital is even seven times higher than the equity capital.

In some countries particularly in the US or in Belgium or in the Netherlands the average quotas attain 40-50%. Mainly when considering the guidelines of Basel II the probability for the small and medium sized companies to take out a loan is according to the worse equity-quotas declining.

Table 264 Equity capital quota & debt-equity-ratio for South Tyrol's entrepreneurs divided by sectors from 2001

Sectors	Equity-Capital/ Total Capital 2004	Debt-Capital/ Equity Capital 2004
Mining and Gravel	19.47	254.89
Food Industry	40.69	107.22
Textile Industry	16.83	431.77
Timber Industry	31.47	193.47
Paper, Printing and Graphic Industry	38.42	149.11
Chemical Industry	31.82	181.91
Non Metal Industry	45.25	99.01
Machinery and Car Supplying Industry	32.23	199.61
Electronically and Optical precision hardware	30.87	214.80
Other Manufacturing Industry	20.02	435.72
Energy and Water	54.36	76.24
Building Industry	10.45	532.34
Car Industry, Service Centers, Petrol Station	18.88	362.83
Wholesaling Industry	24.56	257.82
Retailing Industry	16.02	563.78
Hotel and Restaurant Industry	15.84	421.69
Transportation and Communication Industry	19.46	352.34
Financial Industry	7.06	867.70
Real Estate Industry	28.62	177.06
Informatics	33.68	156.56
Other service orientated industries	40.90	83.59
Personal Service	34.92	140.81
Not classified	19.90	248.09
The average for South Tyrol	23.94	240.10

Source: Wifo 2007

9.1.4.2 Structure of agriculture

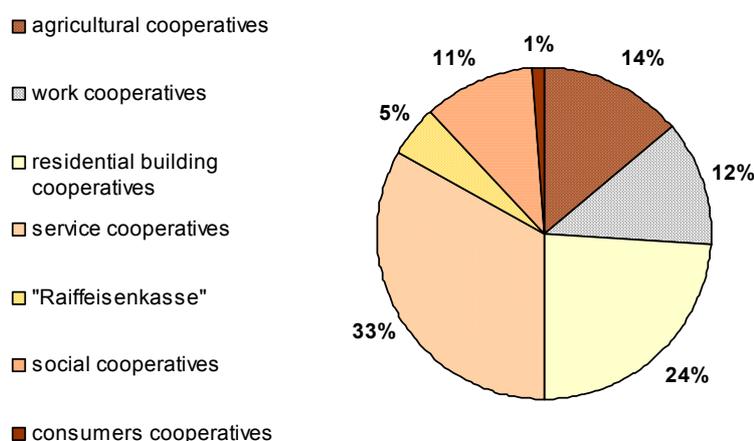
According to the last agricultural census in 2000 there are 113,400 employees of which 94,300 family members of the conductor or relatives and 19,100 non-family workers. The ca. 26,000 conductors are supported by 68,000 family members (3.4 members per farm) (Autonome Provinz Bozen-Südtirol/ESF Dienststelle 2006[0]).

The agricultural cooperatives are a principal element of the regional economic structure (Figure 151). In particular in the fields of fruit, milk and wine. By the 31/12/2006 946 South Tyrolean cooperatives were registered in the cooperative register (Raiffeisenverband 2007). Ca. 150,000 members are registered (Autonome

Provinz Bozen – Südtirol 2007b). Of these 946 cooperatives there are 124 agricultural supply and breeding cooperatives, four farmer cooperatives and one agricultural cooperative of the farmers union which also organises advanced training. In addition there are four approved cooperative unions (Autonome Provinz Bozen – Südtirol 2007b). The relevance of cooperatives in the sector investigated in the case study region is demonstrated by the fact that about 70% of the whole wine production is processed and merchandised within cooperatives (Autonome Provinz Bozen-Südtirol 2006).

It is important to mention that many farmers, especially those possessing small-sized farms, are forced to integrate their income by additional non-agricultural income activities. In some cases the time dedicated for these non-agricultural income sources is far above the time spent for agricultural activities. This is the case in particular in the more mountainous regions where a close relationship between agriculture and rural tourism (agritourism) is typical: 12.4% of all farms offer agritourism. Non-agricultural income activities are found also in the fields of commerce, gastronomy, hotel sector, handy craft sector and public administration (Autonome Provinz Bozen-Südtirol 2007h). This diversification leads on the other side to a high dependency of agriculture form other sectors.

Figure 151 Cooperatives in South Tyrol



Source: Autonome Provinz Bozen – Südtirol 2007b

Besides the cooperatives, producer organisations represent an important agricultural stakeholder. According to art. 11 of EU-Directive 2200/96 in South Tyrol there are three approved producer organizations (Table 265). Ca. 85% of all cooperatives in the areas of fruit and vegetables and ca. 82% of all producers for fruit and vegetables are unified producer organisations. They dispose of ca. 90% of the total South Tyrolean agricultural area (Autonome Provinz Bozen-Südtirol 2006).

Table 265 Producer organisations in South Tyrol

producer organisations (PO)	production category	associated cooperative	producers	area (in ha gross)
VIP	fruit and vegetables	9	1,850	5,000
VOG "Terlan"	fruit and vegetables	21	5,500	11,600
VIP and VOG "Terlan"	fruit and vegetables	30	7,350	16,600
VOG "Leifers"	Processing of fruit	27	7,000	15,870
South Tyrol		35	9,000	18,430
% PO		85.7	81.7	90.1

Source: Autonome Provinz Bozen-Südtirol 2006

Abbreviations: VOG: Association of South Tyrolean Fruit Growers' Co-operatives; VIP: The Cooperative Association of "Val Venosta"

36.1% (2,670 km²) of the overall territory (7,400 km²) is utilised agricultural area (UAA). About 40% of the UAA is covered with meadows or permanent grassland (Table 266). Hence, from a spatial point of view, agriculture related to grassland plays the major role. 9,476 livestock farms hold 144,200 cattle (90% of them are dairy cows).

In total livestock in South Tyrol amounts to about 500,000 heads (Table 267). The intensive fruit plantations on the valley floors only represent 4% of the UAA. There are about 26,500 farms. The farm development turns out to be one of the most stable ones in Europe.

Table 266 Farms and the land utilisation – agricultural census 1990 and 2000

land utilisation	1990			2000		
	farms	area (ha)	area (ha) per farm	farms	area (ha)	area (ha) per farm
arable area	6,683	5,265	0.8	3,471	3,752	1.1
groves	9,920	22,723	2.3	10,053	23,272	2.3
housegardens	14,172	240		10,698	244	
permanent meadows	14,909	77,384	5.2	13,986	73,230	5.2
pastures	7,112	166,739	23.4	6,397	166,490	26.0
agricultural areas	23,598	272,351	11.5	23,268	266,988	11.5
tree breeding	375	109	0.3	12	21	1.8
woods	17,114	291,079	17.0	16,862	292,035	17.3
unused agricultural areas	2,287	12,295	5.4	3,045	14,919	4.9
other areas	23,032	44,530	1.9	23,013	36,069	1.6
total farm areas	26,978	620,363	23.0	26,455	610,033	23.1

Source: Astat 2002a

Table 267 Livestock in South Tyrol according to the agricultural censuses

Livestock	Agricultural census 1970	Agricultural census 1982	Agricultural census 1990	Agricultural census 2000	Estimated data 2006*
Cattle	117,041	139,708	151,143	144,196	144,000
Sheep	25,271	25,796	32,293	39,739	45,000
Goat	6,877	7,930	11,130	15,714	17,300
Horses	4,432	2,593	3,319	4,725	6,100
Pigs	47,419	34,923	25,273	15,794	13,000
Rabbits	16,070	41,910	32,485	27,753	28,000
Poultry	276,626	261,987	188,387	250,863	255,000

Source: Astat 2006

Area, yield and production of cereals: In the last 30 years and in particular in the last decade the number of farms with arable land has decreased significantly. In 2000 only 3,471 farms with arable land were counted (-48.1%). This decrease is mainly owed to the decline of cereals and the conversion of arable land into grassland or fruit plantations (Table 268) (Astat 2002a).

Table 268 Areas cultivated with cereals 1993-2005 (ha)

Year	Cereals total (ha)	Barley (ha)	Rye (ha)	Oat (ha)	Wheat (ha)	Corn (ha)	Silo corn (ha)
1993	2,937	281	224	153	0	114	2,165
1994	2,915	270	210	144	0	101	2,190
1995	2,931	271	216	138	0	106	2,200
1996	2,945	269	225	135	0	101	2,215
1997	2,945	265	228	132	0	100	2,220
1998	2,942	260	226	130	0	96	2,230
1999	2,891	255	200	125	0	91	2,220
2000	2,710	200	160	60	65	No data	2,225
2001	1,323	50	76	31	59	3	1,163
2002	1,320	50	76	31	0	3	1,160
2003	1,319	50	76	30	0	3	1,160
2004	1,308	50	75	30	0	3	1,150
2005	1,303	50	75	25	0	3	1,150

Source: Autonome Provinz Bozen-Südtirol 2007j

Area under sugarbeet, yield and production of sugar: Not relevant, only 3.75 ha (2000).

Area, yield and production of oilseeds: Not relevant, only 4.2 ha (2000).

Area, yield and harvested production of fruit; citrus fruit; vegetables: From the total permanent crop area of 23,272 ha (2000), 18,329 ha was covered with fruit plantations of which 17,966 apple plantations (98%). 4,810 ha vine yards existed (ASTAT 2002a). In 2005, 305,000 hl wine was produced of which 95% were DOC-wines (ASTAT 2006a). 921,314 t of apples were harvested in 2006. 68% of all

apples produced are Golden Delicious, Gala and Red Delicious (Autonome Provinz Bozen-Südtirol 2006). About 10% of all apples in the EU are produced in South Tyrol (Table 269).

Table 269 Comparison between yielded fruit (tons) in the EU and South Tyrol

EU (25)				
year	2005	estimated data 2006		
apples	10,098,000	9,554,000		
pears	2,525,000	2,536,000		
Sum	12,623,000	12,090,000		
SOUTH TYROL				
year	2005	estimated data 2006	harvested data 2006	%
apples	916,400	833,852	921,314	10.5
pears	1,390	1,500	1,521	1.4
Sum	917,790	835,352	922,835	10.5

Source: Autonome Provinz Bozen-Südtirol 2006

The area for vegetable cropping in South Tyrol is about 369 ha (Table 270). Their goods are market by the most important agricultural cooperatives. Only some of these farms are specialized as vegetable growing farms. For all the others, vegetable cropping represents an alternative opportunity for gathering additional income. The main crops are cauliflower, potatoes, beetroots, lettuce and radicchio. (Autonome Provinz Bozen-Südtirol 2006).

Table 270 The cultivated area and the harvested amount of vegetable crops 2006 (based on the data of the most important farm cooperatives)

cultivation	harvest area (ha)	crop yield (dt)
seed potato	156	50,248
cauliflower	111	38,636
red beet	49	26,574
lettuce	10	4,110
radicchio	14	2,165
courgette	3	180
others	26	9,200
Sum	369	131,113

Source: Autonome Provinz Bozen-Südtirol 2006

Area under vines, yield and production of wine and must: Since 2000 the grape areas in South Tyrol have increased by 310 ha. This corresponds to an increase of approximately 1% per year. Currently 5,250 ha are planted with grapes (Table 271). According to the years before, the grape areas have just increased by 10 ha. With estimate of 324,300 hl the wine-yield from the year before was exceeded by 6.5%. Anyway, the yield-level remains below the long-time average. In total 46,300 t of grapes were harvested. Thus the average yield per hectare was about 9 t. Thereof 70% are processed and marketed by the wine-cooperatives.

Aside 4,400 t of grapes were pressed in wine-cellars outside of South Tyrol. The distribution of red and white wine is about 41 and 59%, whereby the white wine tends to increase (Autonome Provinz Bozen-Südtirol 2006).

Table 271 The distribution of the different vineyards in 2006 (ha)

variety	ha	variety	ha
Vernatsch	1,474	Silvaner	75
Ruländer	514	Goldmuskateller	40
Weißburgunder	472	Kerner	38
Chardonnay	466	Riesling	36
Gewürztraminer	402	Grauvernatsch	22
Lagrein	398	Rosenmuskateller	12
Blauburgunder	341	Veltliner	12
Sauvignon	258	Welschriesling	3
Merlot	226	Malvasier	1
Cabernet	191	Others	79
Müller Thurgau	190	Sum	5,250

Source: Autonome Provinz Bozen-Südtirol 2006

Animals for slaughter: The number and average prices for slaughtered animals can be taken from Table 272.

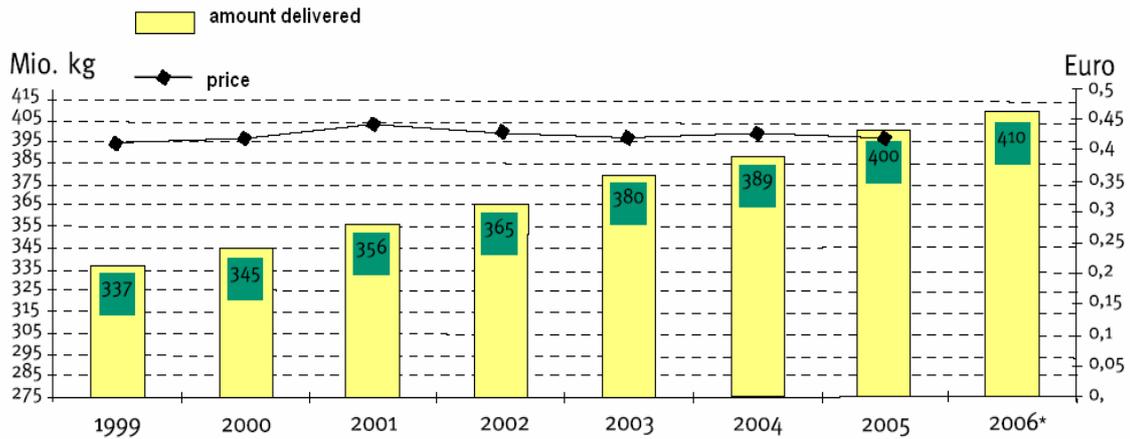
Table 272 Number and average prices for slaughtered animals 2005 and 2006

	2005		2006	
	number	Ø price/ animal (EUR)	number	Ø price/ animal (EUR)
cattle	10,221	589.00	11,741	609.28
calves	26,368	316.00	26,139	337.52
small animals	1,919	60.00	4,569	70.65
horses	233	545.00	108	589.23
Sum	38,741		42,557	

Source: Autonome Provinz Bozen-Südtirol 2006

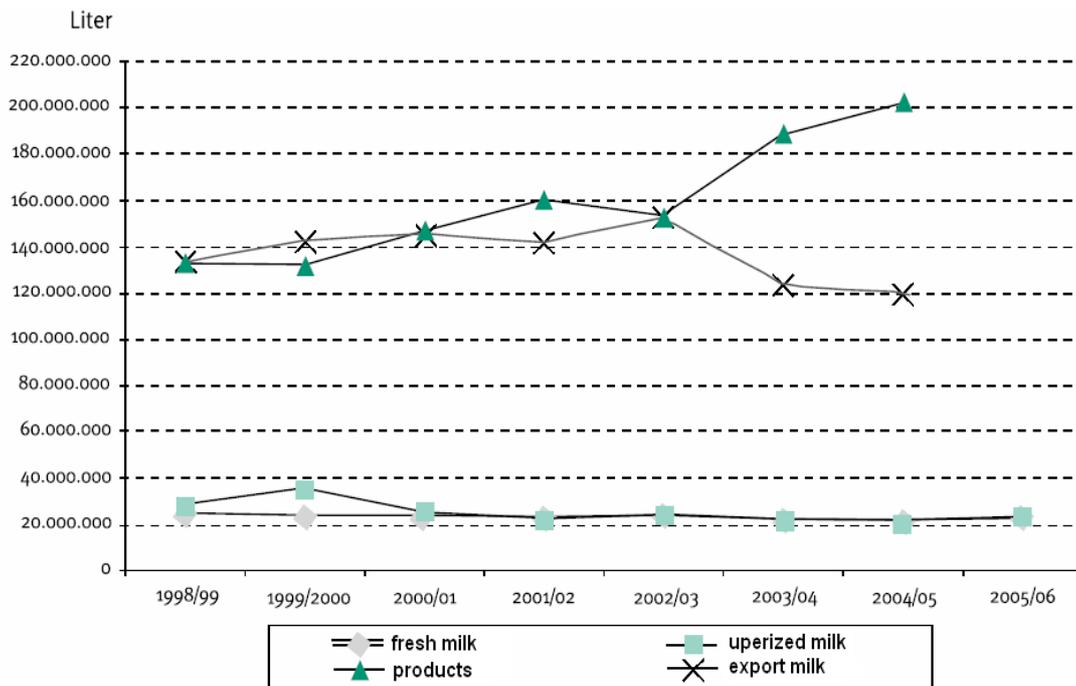
The production and processing of milk and milk products: In 2006 about 412 mio kg milk were produced across South Tyrol. Thereof ca. 410 mio kg were supplied to dairy-holdings (Figure 152). Mainly the processing of yoghurt and mascarpone as well as of curd and cottage cheese could attain an increase of production and turn over by 3.8% and 7.5%. The sales of fresh cream on the opposite has declined by 11.5%. Beside, a slight decrease of 1.1% for the sales of fresh-milk had to be accepted (Figure 153). Regarding the organic milk-market, the sales of fresh organic-milk had to face a reduction of 5.6%. In contrast the demand for organic yoghurt has risen by 18.4% (Autonome Provinz Bozen-Südtirol 2006).

Figure 152 The annual milk delivery 1999-2006: Development and sale price



* 2006: the milk price was not already fixed
 Source: Autonome Provinz Bozen-Südtirol 2006

Figure 153 The development of milk processing between 1998-2006

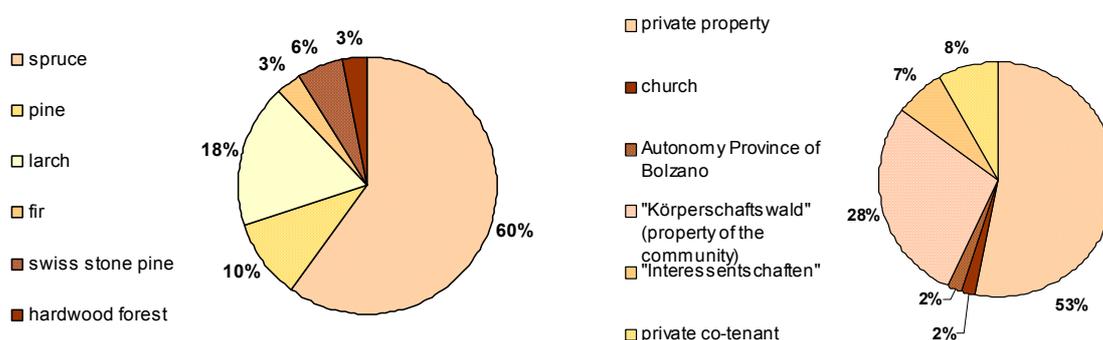


Source: Autonome Provinz Bozen-Südtirol 2006

Production of milk from dairy herds and delivery of milk to dairies: The 5,900 South Tyrolean dairy farms produced 388.5 mio kg milk in 2006 (turnover EUR 330 mio). Two dairies (Milkon/Bozen and Brimi/Brixen) process 303 mio kg or 78% of the total milk produced. The dairies produce 22 mio kg fresh milk, 24 mio kg UHT-milk and 90 mio kg yoghurt. One third of all products is sold within the province, 64% in the rest of Italy and only 3% get exported (Autonome Provinz Bozen-Südtirol 2007c).

Forestry: South Tyrol is a mountain region. At least 40% of the total area are situated above 2,000 m a.s.l. According to the forestry law aiming to protect soils and estates of every kind, 90% of the territory underlay a limited forestry hydro geological use. The forestry area covers 322,833 ha (44%) of the South Tyrolean territory. The distribution of the tree types demonstrates the high share of spruce and other coniferous wood (Figure 154). More than half of the forestry area belongs to private persons. In 2006 existed 21,258 proprietaries. The provincial forests cover only 2% of all forestry areas.

Figure 154 The distribution of tree types and forest proprietaries



Source: Autonome Provinz Bozen-Südtirol 2006

Digression: Contributions and financial support for the agricultural sector not appearing in the statistics

Besides the broad official financial support and contributions, the agricultural sector benefits from facilitations regarding in particular housing and taxes. These facilitations are not registered in the official statistics but they play a relevant role for the understanding of the outstanding role and in compared to other regions stability of the sector. For example the farmers do not pay any tax for buildings. They generally pay less taxes and the farmers' families benefit from higher financial contributions regarding money for the family, lesser charges for health assurances, retirement pension, low fuel prices, provincial contributions for hail assurances, free subscription for the school bus etc. This is an expression for the importance and rootedness of the farmers within the regional society but also an expression of the close relationship between the agricultural sector and the politicians.

9.1.4.3 Structure of rural economy

Among European regions South Tyrol has one of the lowest unemployment rate. This phenomenon is already lasting over two decades. Conditions of living across the areas of South Tyrol are more or less balanced (Pasquali et al. 2002). Neither the urban centres enlarged meaningful nor the peripheral communities depopulated. Due to the coverage of the areas with technical infrastructure and the establishment of decentralised job-opportunities for gathering additional incomes, the migration of the regional population only diminished to a minimum. Thus South Tyrol is a very stable and balanced region, where full employment, economic

growth and international competitiveness are guaranteed. The wide spectrum of different economical branches enables a seasonal independent and stable economy, what has an enormous influence on the development of the province. Anyhow the public authority still remains the biggest entrepreneur in the province.

With 7.8% (2005) the agricultural sector attains the lowest rate of employment (0). Small and medium sized enterprises, mainly the handicraft branch and trading industry, benefit from this continues economical growth. Beside, also commerce profits from this effect and are thus able to guarantee a functioning retailing system all over the province. In total the secondary sector covers 24.2% of all employees. Thereof 9% are engaged in the construction branch. The remaining 15.2% are employed in the producing business, whereby 14.5% are working in commerce. Among the service sector, tourism is the dominant branch. Beside the wonderful countryside and traditional structure, tourism benefits from the comparatively high quota of equity capital in the hotel and gastronomy branch. As anywhere else in the European Union, the service sector is dominating and engages 68% of all employees of South Tyrol.

Typical for South Tyrol is the highly developed cooperative system. These networks and syndicates compose the stable framework of South Tyrol's economic power. Mainly in the agricultural area efficient structures have been applied for linking the production closely to the processing and marketing steps of agricultural goods. Compared to the number of farms and the utilized agricultural area among the Alpine regions and even on the European level, the agrarian-sector in South Tyrol remains to be quite stable. In total 56,267 enterprises are listed in the database of the commercial register (Wifo 2007. Compared to the 215,110 persons employed, every 4th employee is an entrepreneur (Astat, 2006c).

Table 273 Employees per economic branch 2005

Economic fields	Men		Woman		Total	
	Number	%	Number	%	Number	%
Agriculture	11,900	9.2	5,500	5.9	17,400	7.8
Production and Industry	46,000	35.3	8,100	8.7	54,100	24.2
Construction sector	18,400	14.1	1,700	1.9	20,100	9.0
others	27,600	21.2	6,400	6.8	34,000	15.2
Service	72,400	55.6	79,500	85.5	151,900	68.0
Trade	18,600	14.3	13,700	14.8	32,400	14.5
Accommodation enterprises and guesthouses	9,100	7.0	14,000	15.1	23,100	10.4
Communications and information transmission	7,000	5.4	2,100	2.2	9,100	4.1
Finance, insurance, property dealing;	4,700	3.6	4,100	4.4	8,800	4.0
Informatics, research, service for concerns,	8,400	6.4	6,800	7.3	15,200	6.8
Public administration	8,600	6.6	7,300	7.8	15,900	7.1
Health, school and social departments	10,600	8.1	25,400	27.,3	36,000	16.1
Other public and social services	5,400	4.1	6,100	6.5	11,500	5.1
Total	130,300	100.0	93,100	100.0	223,300	100.0

Source: Astat 2006c

Food procession industry: The processing industry represents with EUR 342.2 mio (2003) ca. 20% of the gross domestic product within the producing business (EUR 2,868,438 mio). According the total GDP (EUR 12,330,054 mio) the processing industry attains only 2.8%. (Astat, 2006c)

Machinery production: Mechanical engineering, fabrication of DV devices, electro-techniques, fine mechanics, optic and vehicle construction gained 2003 a GDP of EUR 381.4 mio (3.1% of the total GDP) (Astat, 2006c).

Paper and wood production: The paper, publishing and printing industry attained 2003 an economical value of 121.8 mio, what relates to 1% of the total GDP (Wifo 2007, online database). Thereby 12 enterprises are engaged in the paper-production industry (Wifo 2007, online database). On the contrary 1,442 enterprises are dealing with the processing of timber and timber products (furniture). 372 further companies and consulting-agencies are working in the forest and wood industry.

Seeds, feeds and fertilizer production: The chemical and pharmaceutical industry gained in 2003 with EUR 65.7 mio less than 1% of the total GDP (Astat, 2006c).

Wholesale, trade and retail of food and wood products: The business of Trade and the reparation of automobiles and consumer goods achieved EUR 1,681 bn in 2003 (13.6% of the total GDP) (Astat, 2006).

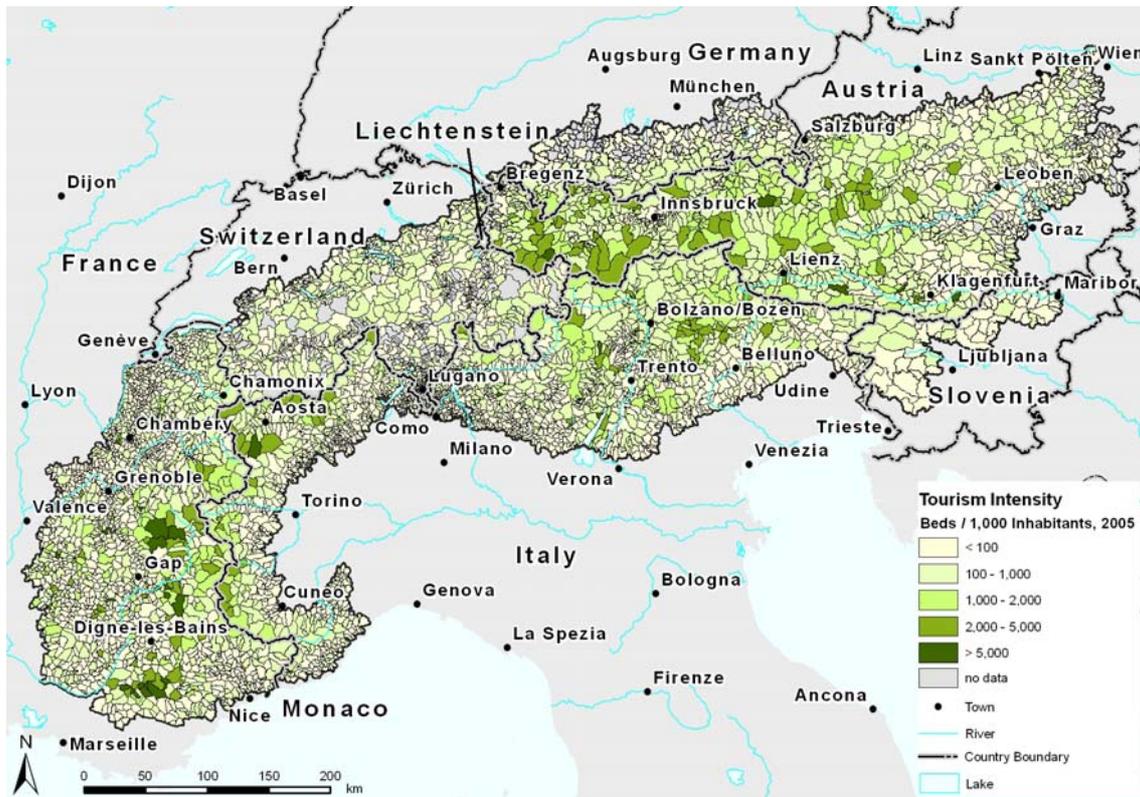
Tourism: Within the Alps, South Tyrol takes a leading position in the touristic sector (0). Nearly one third of all overnight stays within the Italian part of the Alps is recorded in South Tyrol. In some municipalities more than 1 mio overnights can be registered (Table 274). Tourism in South Tyrol plays a central role within the regional economy. As an decentralized income source, tourism influences the development and vitality of rural areas significant. Mainly agritourism enables additional income for the farmers and hence stabilizes the agricultural sector. In 2006 2,916 farms offered "agriturismo" (ISTAT 2007b). This is 17.4% of the whole offer. After Tuscany no region registers more *agriturismi* than South Tyrol. In 2005 10.4% of all employees were engaged in the accommodation and guesthouse branch (Astat, 2006). The gross value added of that branch was in 2003 about EUR 1,243 bn, which comes up to 10% of the total GDP (Astat, 2006).

Table 274 Overnight stays and beds of the most important touristic centers

Municipality	Overnight stays	Beds
Kastelruth/Castelrotto	1,025,000	10,000
Meran/Merano	1,015,000	11,000
Selva/Wolkenstein	985,000	9,000
Schenna	855,000	5,550
Badia/Abtei	840,000	9,600
Corvara	805,000	7,300

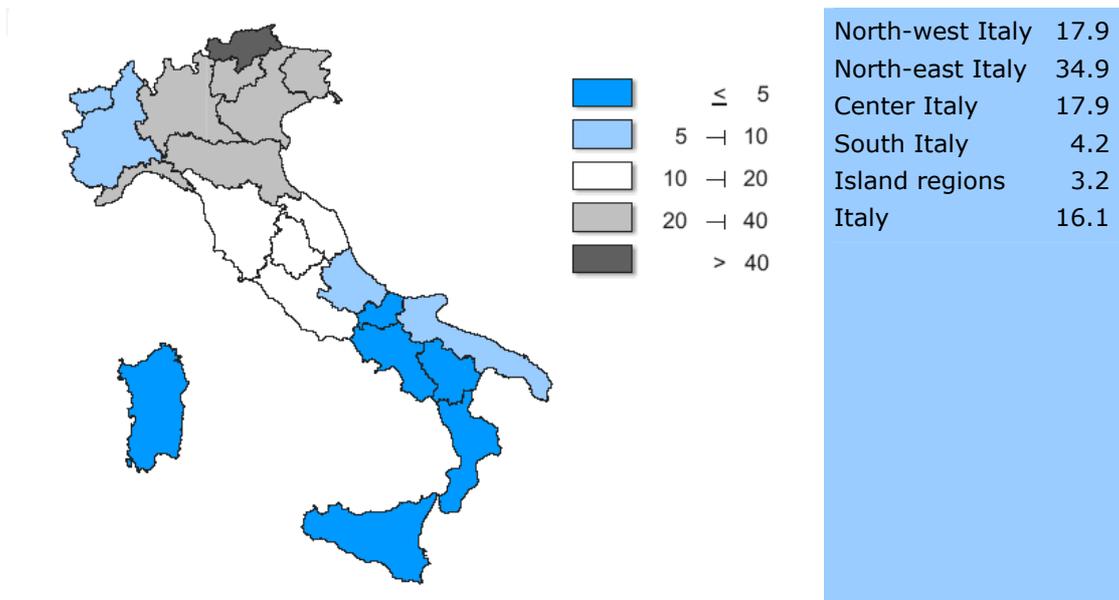
Source: TCI, 2002

Map 71 Tourism intensity in the Alps



Source: Ruffini et al. 2007

Map 72 Index of tourism attractiveness (a) per country of origin – tourism season (b) 2004/2005



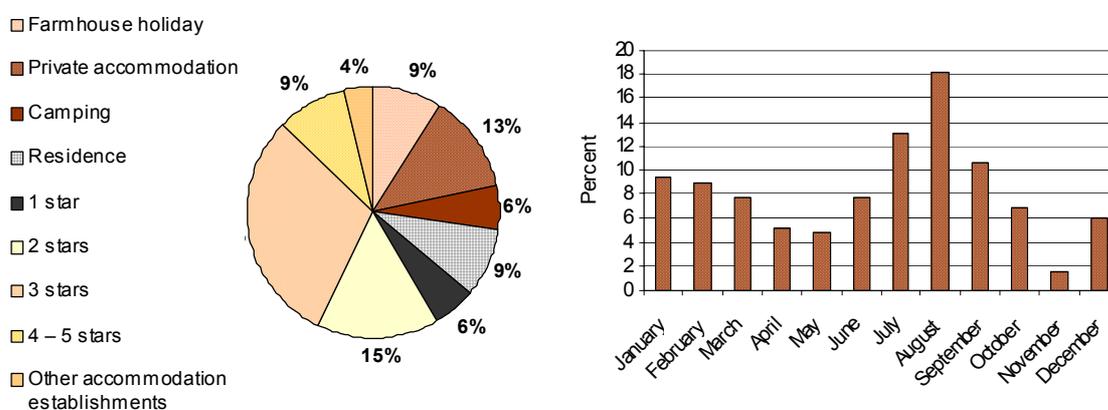
a) Number of overnight stay per 1,000 inhabitants (resident in the country of origin)

b) Tourism year (1.11-31.10)

Source: Astat, 2006

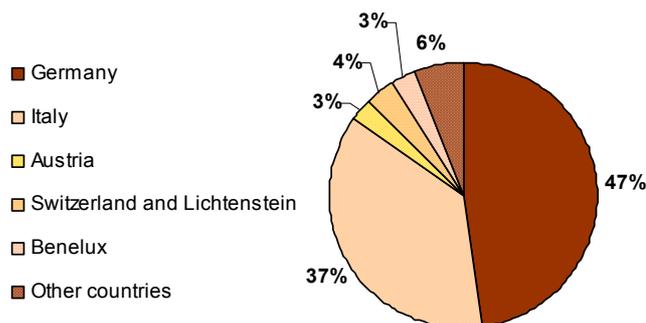
In the tourism season of 2005/06 216,210 guest-beds were offered in 10,241 accommodation enterprises. Across the last 15 years the capacity of accommodation enterprises remained stable. Since the season 1990/91, in which 227,600 guest beds were registered, the accommodation-capacity had to face slight decrease until the season 1996/97. Afterwards the level was kept constant and has started to rise again since the last five years. In the season 2005/06 more than 5 mio arrivals were recorded. Thus compared to the year before 3.2% more arrivals were attained and the number of overnight stays could also be risen by 1% to 26.3 mio. In 2006/2007 the number of overnights spent passed for the first time the 27 mio limit (ASTAT 2007h).

Figure 155 The accommodations according to type and seasonal distribution of tourism 2005/06



Source: Astat 2007f

Figure 156 Provenience of the tourists 2005/06



Source: Astat 2007f

Agro-Tourism records an steady increase. The season of 2007 was so far the most successful. 128,000 arrivals and 840,000 overnight stays were registered in the agro-tourism field, that are 10% more arrivals compared to the year before (SBB 2007). Out of the 26,589 agricultural holdings, 2,057 enterprises (7.7%) offer agro-tourism (Astat, 2002). For these enterprises agro-tourism enables an important additional income opportunity for continuing their agricultural activities.

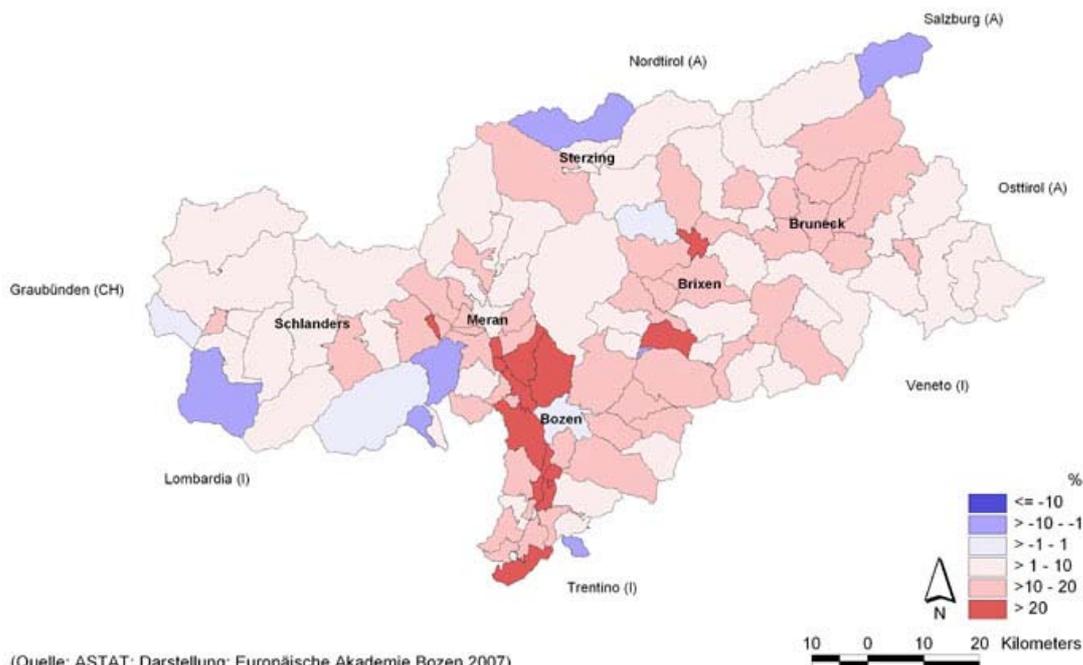
The success of the agro-tourism segment is driven by South Tyrol's trademark "Roter Hahn".

9.1.5 Rural society

9.1.5.1 Demography

The Autonomous Province of South Tyrol counts a total resident population of 481,095 inhabitants in 2005, whereof 50.6% are female and 49.4% are male (Astat 2006a). During the last decade the overall population in South Tyrol has been growing with a significant focus on the municipalities around the capital Bolzano and other central places. Only municipalities in the peripheral parts of the outer valleys encountered a population decrease (Map 73).

Map 73 Population development in the South Tyrolean municipalities from 1991 until 2004



Source: Autonome Provinz Bozen-Südtirol 2007h

Due to difficult topographic conditions in the province the permanently inhabitable area is rather small (about 8% of the overall territory). Considering this area the real population density in South Tyrol in 2005 is very high with 779 inhabitants/km² compared to other rural regions in Europe (Autonome Provinz Bozen-Südtirol 2007h). This is however a characteristic of mountainous regions (Table 275). Ignoring this condition the population density would amount only to 64 inhabitants/km² (Astat 2004a)

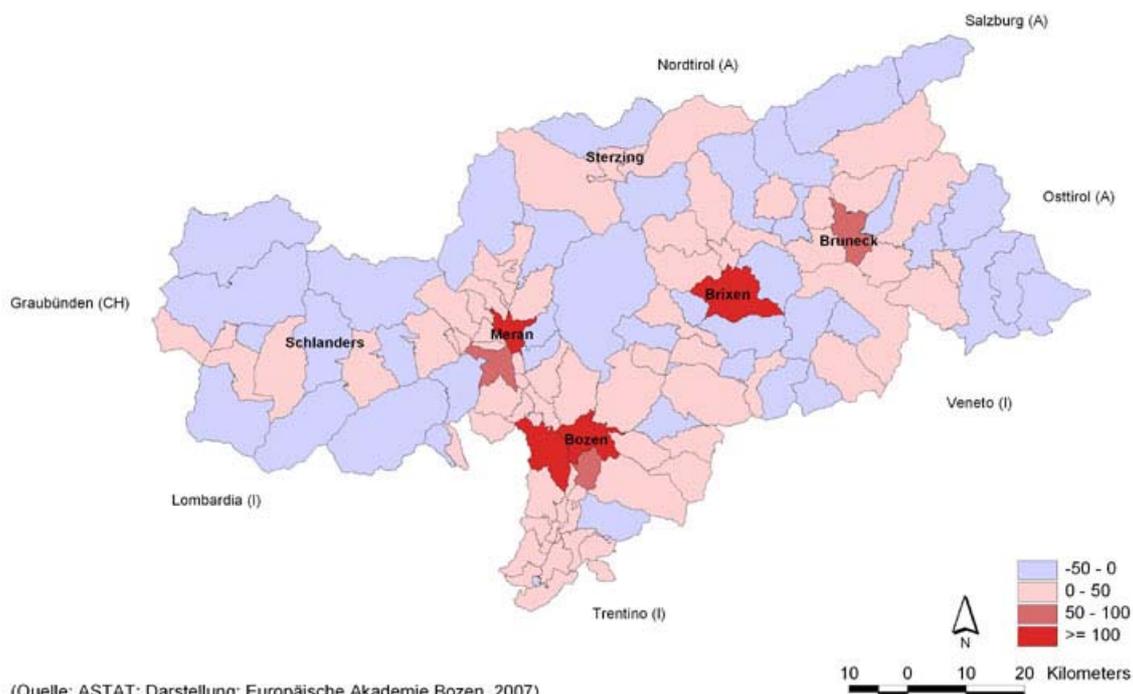
Table 275 Population density in the permanently inhabitable area of different alpine regions

Region	Inhabitants (2005)	Surface [km ²]	Population density [EW/km ²]	Permanently inhabitable area [km ²]	Real population density
Tyrol (AT)	692,281	12,648	54.7	1,542	449.0
Vorarlberg (AT)	363,237	2,601	139.7	6,210	583.0
South Tyrol	477,067	7,400	64.5	612	779.5
Switzerland – area of the Alpine Convention	1,827,754	11,072	165.1	3,475	525.8

Source: Alpine Convention 2007

South Tyrol still shows a vital rural area. Solely very peripheral municipalities had a negative migration balance between 1995 and 2000. The central places and their surroundings were profiting from a positive migration balance (Map 74). In 2006 however already 43 of the 116 municipalities in South Tyrol (37.1%) are facing a negative migration balance. So far the remote (mainly mountainous) areas are affected.

Map 74 Average migration balance in South Tyrol 1995-2000

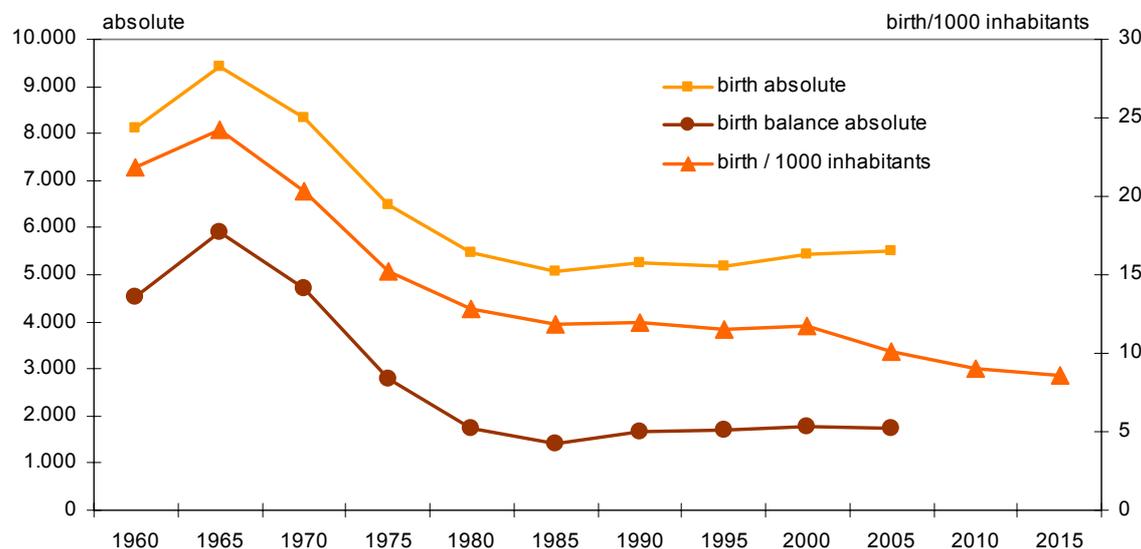


Source: Astat 2007b

The natural development of the population in South Tyrol is currently positive. The overall population growth is however up to two thirds influenced by immigration (Astat 2007a). Even South Tyrol has to figure on a stagnating or even decreasing natural development in the coming decades (Figure 157). The fertility rate amounts to 1.57 average children per woman, a value slightly higher than the EU25 with 1.3 (Astat 2007c). Therefore immigration is going to play an even greater role for

population development in the future (Figure 157). Table 276 shows a population forecast until 2015. Though it has to be considered, that both, the overall population and the birthrate in 2006 are not matching the forecast.

Figure 157 Development of births in South Tyrol



Source: Astat 2003a, 2003b, 2005

Table 276 Population forecast until 2015, until 2050 and population in 2006 in South Tyrol

	2005	2006	2010	2015	2020	2030	2040	2050
Birthrate/ 1,000 inhabitants	10.1	11.1	9.0	8.6				
Mortality rate/ 1,000 inhabitants	7.8	7.6	8.8	9.9				
Population Astat	476,794	487,673	483,465	485,945				
Population Istat	475,486	477,648	485,299	492,142	497,133	505,195	504,773	490,520

Source: Astat 2003b (Population forecast until 2015), Istat 2007 (until 2050), Astat 2007a (population in 2006 in South Tyrol)

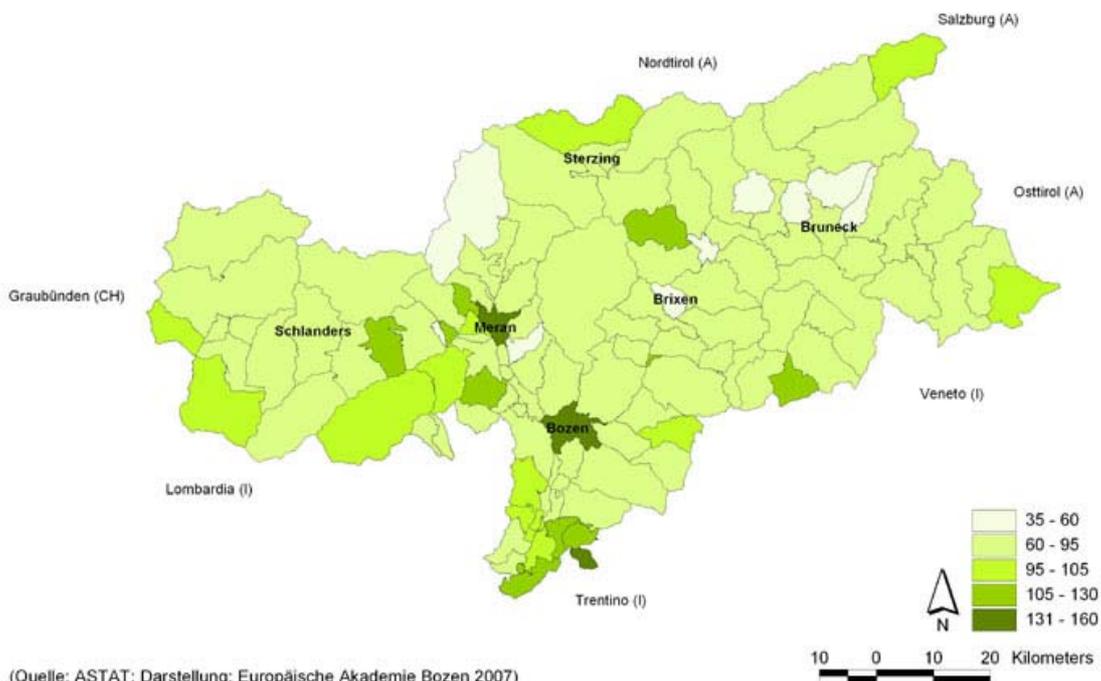
Concerning the age structure the situation in South Tyrol in 2004 is quite balanced. Especially compared to other alpine regions in Italy the population in South Tyrol is very young (Zanolla et al. 2007). Only the central places feature an older population (Map 75). A slight emphasis can be noted at the age group 20-39 years (Table 277).

Table 277 Population by age groups 2005 in %

	> 20	20-39	40-59	> 60
Population	22.4	28.6	26.9	22.1

Source: Astat 2006a

Map 75 Old-Age-Index of the South Tyrolean municipalities

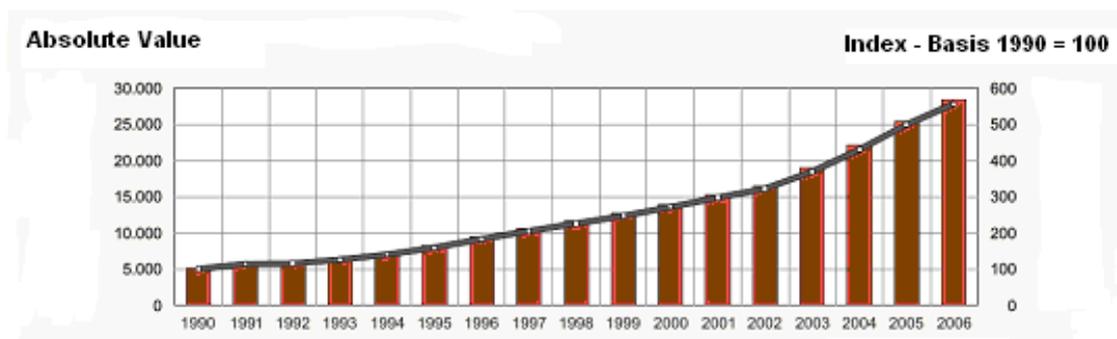


(Quelle: ASTAT; Darstellung: Europäische Akademie Bozen 2007)

Source: Zanolla et al. 2007

The share of foreign people in South Tyrol has been constantly increasing during the last years (Figure 158). On the 31/12/2006 in total 28,394 foreigners had their residence in South Tyrol. This number equals a share of 5.8% of the total population. Compared to 2005 the share of foreigners has increased by 11.5%. 26.3% of the foreign population has immigrated from EU25 countries, whereas 73.7% of the foreigners are coming from other countries (Astat 2007d).

Figure 158 Foreign residents in South Tyrol 1990-2006

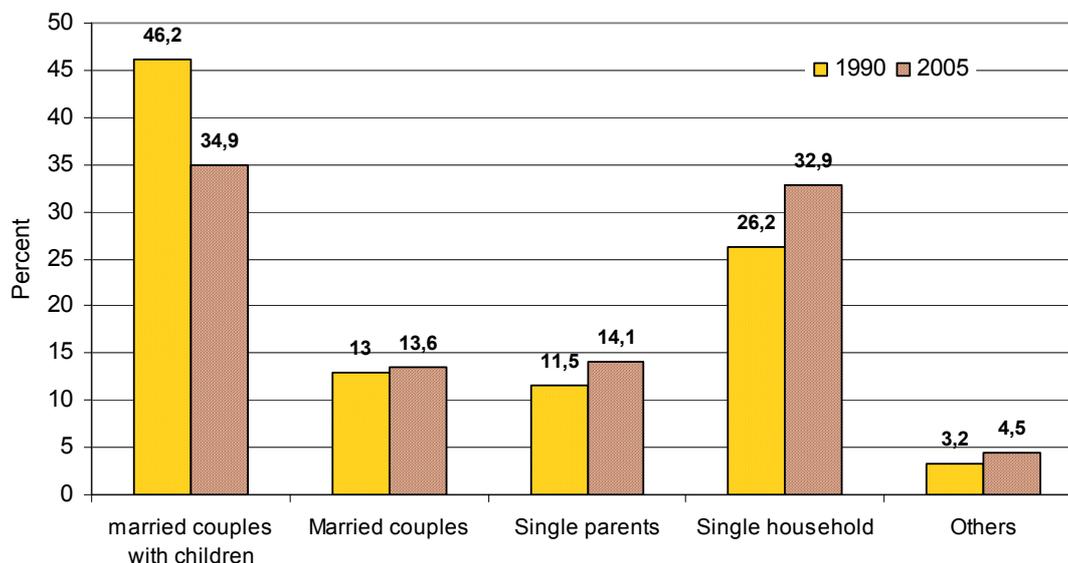


Source: Astat 2007d

The predominant household type in South Tyrol in 2006 is still the traditional family with children. During the last decade however the share of single households and single parents is increasing (Figure 159). Together with the individualisation of lifestyles this leads to an overall increase of households together with a decreasing number of members in each household. The average household today is only

composed by 2.5 members. Single households in South Tyrol are predominated by older people living alone after their children moved out or after their partners' death. 76.5% of the single parents are women (Astat 2007c).

Figure 159 Households by type in 1990 and 2005

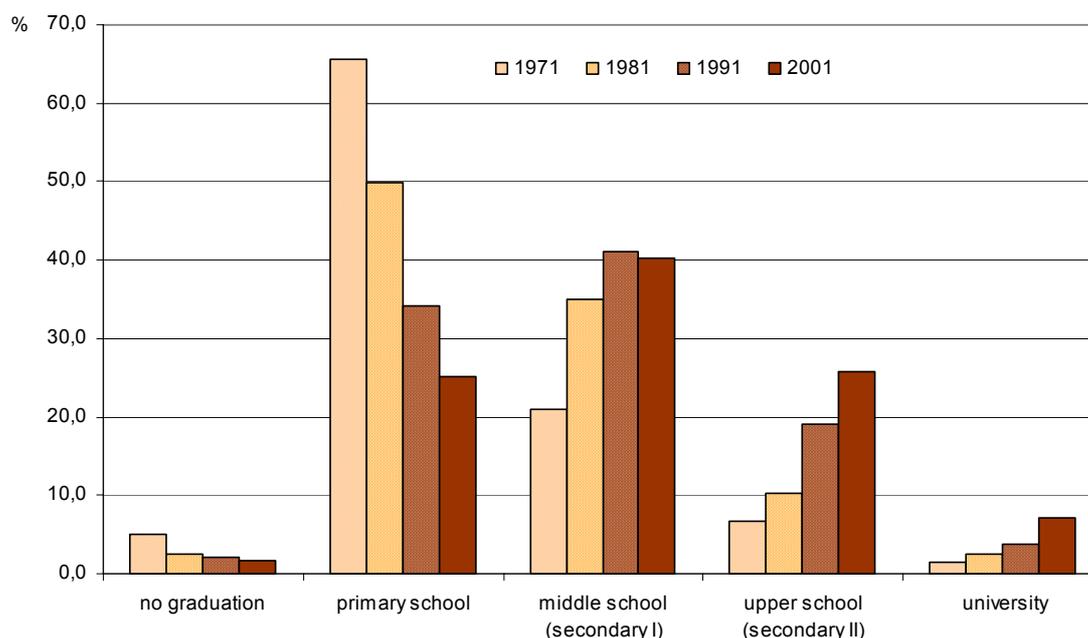


Source: Astat 2007c

9.1.5.2 Education

The degree of education of the overall population (aged 15 years and older) in South Tyrol is constantly rising from 1971 until 2001 (Astat 2006a, figures based upon the census of 2001). Both sectors secondary and tertiary education show an increase. Figure 160 shows that the share of people holding a secondary education has more than doubled (from 27.8% to 66%). The share of those holding a tertiary education in 2001 is almost five times higher than in 1971 (from 1.5% to 7.2%). The share of women with primary education is slightly higher than the male one, whereas in tertiary education it is almost balanced (Table 278). A notable difference exists between urban and rural municipalities. In contrast to urban environments the population share with no or primary education is significantly higher. With regard to tertiary education also urban municipalities are favoured. Another turning point is evident with regard to age. People aged older than 50 tend to have a lower degree of education than the younger ones in 2001. People holding a tertiary education are mainly between 25 and 49 years old (Astat 2006a).

Figure 160 Resident population according to the degree of education in %



Source: Astat 2006a

Table 278 Resident population according to the degree of education, gender and type of municipality 2001

	no graduation	primary school	middle school (secondary I)	upper school (secondary II)	university	total
male	16,192	49,544	85,924	45,422	14,009	211,091
female	16,136	62,703	73,680	53,200	13,616	219,335
urban municipality	10,826	35,979	53,892	48,275	16,410	165,382
rural municipality	21,502	76,268	105,712	50,347	11,215	265,044

Source: Astat 2006a

The share of young people achieving education from kindergartens, schools up to tertiary education (aged 3 to 25) has risen from 63% in 1991 to 75% in 2001. Especially kindergartens and universities recorded an increase (Astat 2003c).

The number of students at universities has doubled from 1991 until 2001. Regarding gender the proportion of university students is rather even in 2001 with 50.7% male and 49.3% female students (Astat 2006b). Most academics in South Tyrol were holding a medical degree in 2001, followed by economics, engineering and sports. The share of academics in agricultural sciences is with 2% rather low, most of them are male (Astat 2006b).

The majority of farmers (ca. 48%) is holding a primary education in 2000 (Astat 2002a). However, they mainly represent the age group 45 to 75 years and older. It can be observed that with sinking age of the farmer the number of farmers with

secondary education and with specialised agricultural training is increasing (Table 279).

Table 279 Farmers according to their educational degree and age groups 2000

age groups	university degree with agricultural focus	other university degrees	secondary school with agricultural focus	other secondary education	middle school	primary school	no education	Total
under 20					11	2		13
20-29	4	8	71	71	627	60		841
30-39	20	73	278	303	3,493	465	6	4,638
40-49	37	123	182	512	3,431	1,586	25	5,896
50-59	22	135	118	350	1,607	3,792	71	6,095
60-69	9	62	80	188	764	3,960	129	5,192
70-75	4	24	19	46	198	1,548	88	1,927
over 75	4	29	16	60	182	1,192	90	1,573
total	100	454	764	1,530	10,313	12,605	409	26,175

Source: Astat 2002a

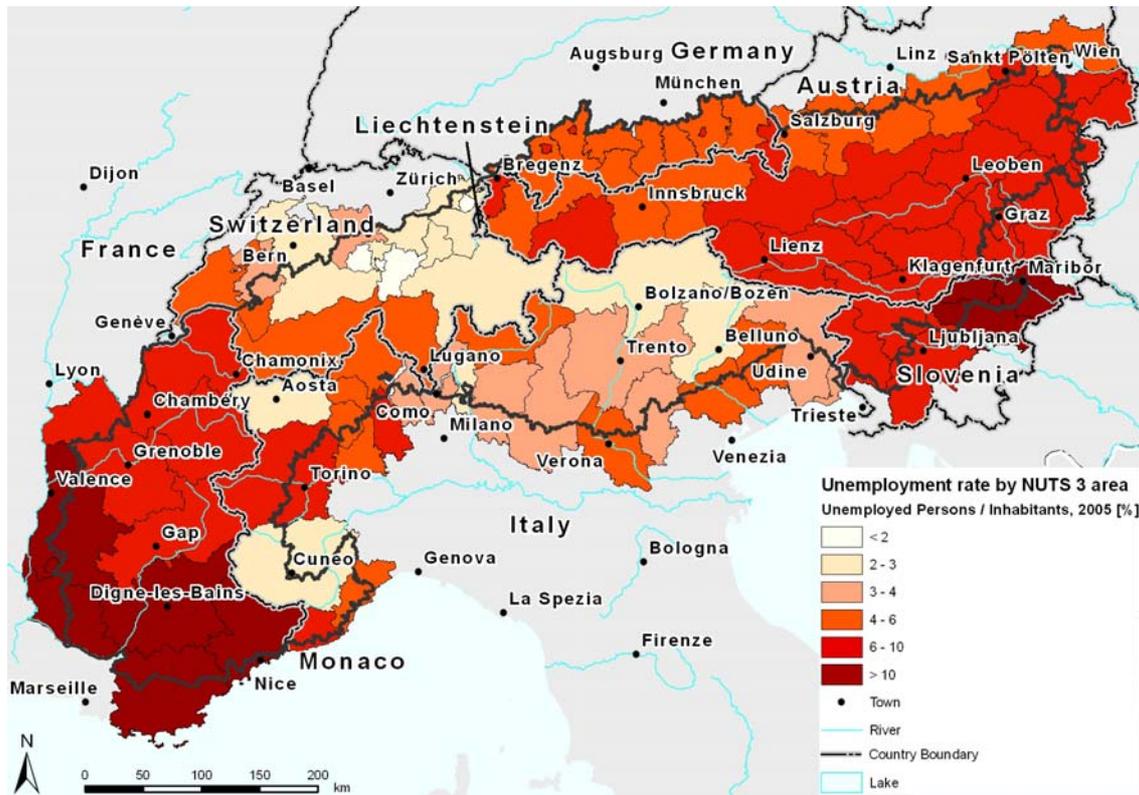
A special feature of the South Tyrolean educational system is the importance of vocational education. In a dual system of school attendance and practical training in businesses vocational education is provided in the following fields: handicrafts and industry, commerce and services, tourism and food processing, agriculture and health. The last two sectors are the least frequented with only 110 students in the academic year 2005/06 (Astat, 2006a).

With regard to continuing education courses in the agricultural sector in South Tyrol are the most frequented. During the academic year 2005/06 about 4,614 persons (ca. 23%) have been attending a course in agriculture. Although in comparison to computer sciences, the service and commerce sector and industry and handicraft comparably few courses have been offered (Astat, 2006a).

9.1.5.3 Labour market

Labour market development in South Tyrol has been very dynamic and positive during the last decades. The unemployment rate has decreased and is settling down at a very low level. With 2.6% unemployed workforce in 2006 full employment is prevailing (Astat 2007e). South Tyrol therefore takes a leading role in an alpine wide comparison (Map 76).

Map 76 Unemployment rate in the Alpine space NUTS 3 Level in 2005

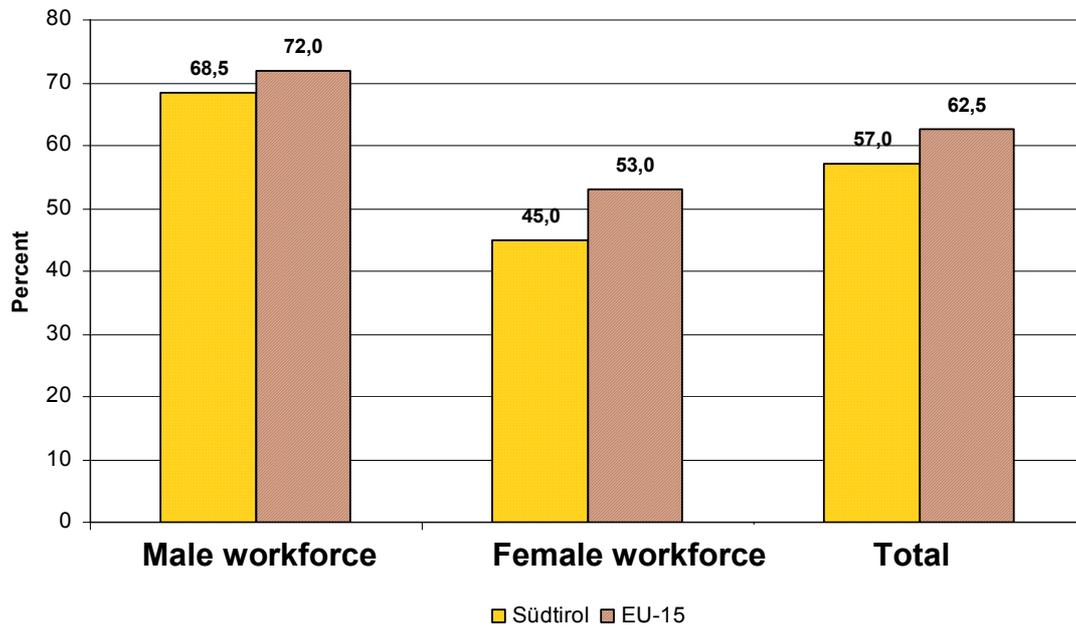


Source: Ruffini et al. 2007

The labour force participation rate is with 57.0% rather high. Significant differences exist however regarding gender. Whereas in 2006 68.5% of the male workforce have been employed only 45.0% of the female workforce were holding down a job.

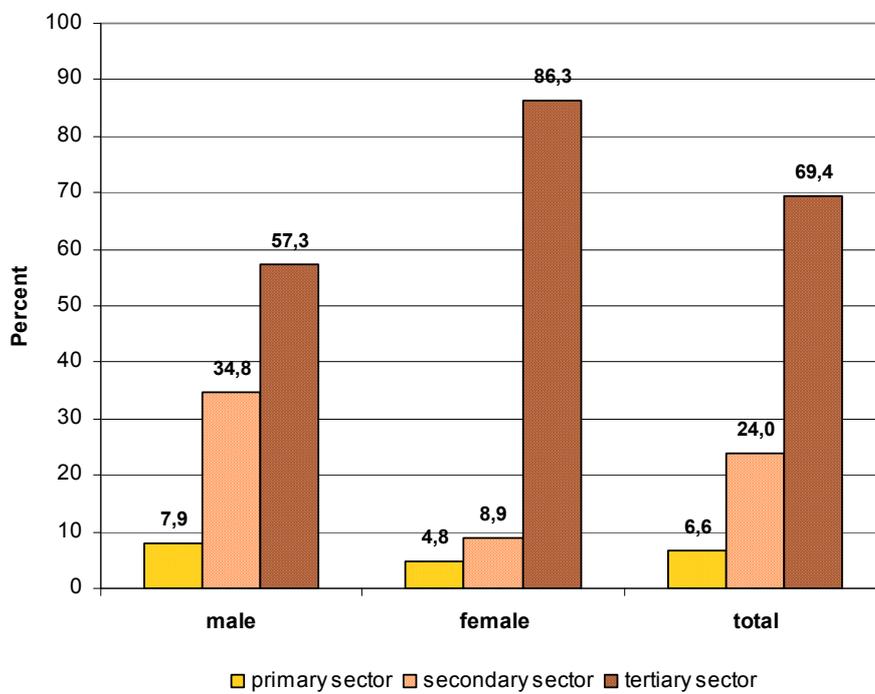
Compared to the EU15 the shares are lower in South Tyrol (Figure 161). This applies also to the unemployment rate, where male unemployment equals only 1.9% but female unemployment ranges at 3.6% (Astat 2007e). Depending on seasonal employment both in tourism and agriculture the unemployment rate differs significantly between summer and winter (Autonome Provinz Bozen-Südtirol 2007). The youth unemployment amounts to 7.2% in 2006 (Astat 2007e).

Figure 161 Labour force participation rate according to gender – comparison between South Tyrol and the EU15



Source: Wifo 2007

Figure 162 Employees according to gender and economic sector



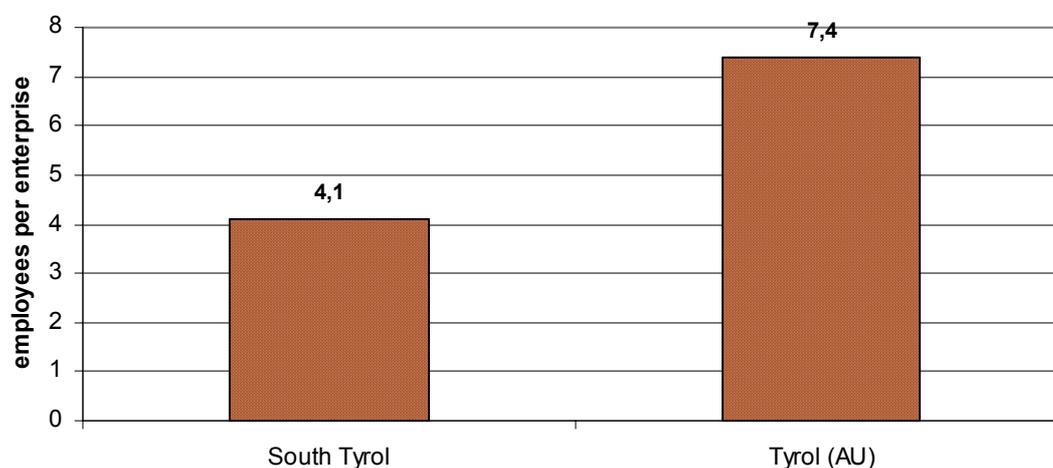
Source: Astat 2007e

Concerning the overall ratio it has to be considered, that the comparatively high share of employees working in the secondary sector is caused by a large number of small handicraft enterprises in South Tyrol (Autonome Provinz Bozen-Südtirol 2007). Depending on the extensive administrative competencies, which South Tyrol has due to its autonomy, the public sector is one of the main tertiary sector employers in the region. The share of public employees of the total active population amounts to 17.2% in 2005 (Astat 2006a).

Regarding the territorial dispersion of workplaces South Tyrol is centrally organised. The largest number of workplaces is situated in the main valleys and in central places of higher rank. In the city of Bolzano a total of 22.8% of all work places can be found (Astat 2005x). This number relies however on the provincial administration being located in the capital. 18 out of the 116 municipalities have encountered a decrease of workplaces during the 1990s. These municipalities are either located in peripheral parts of the province or are characterised as touristic hotspots (Astat 2005x).

The entrepreneurial structure in South Tyrol is governed by rather small units. Compared to Tyrol (Austria) the average South Tyrolean enterprise employs only half as many people (Figure 163). This reduces the number of qualified workplaces (for academics etc.) being offered, especially outside the central places. In that way an unbalance concerning the dispersion of qualified workplaces in the territory is caused.

Figure 163 Business size in Tyrol and South Tyrol – employees per enterprise



Source: Wifo 2004

9.1.5.4 Civil society

In South Tyrol over 1,100 associations and clubs exist. The range is very broad and encompasses a large number of associations with social, political and cultural background as well as associations with voluntary activities. Below listed the most important ones which are members in the umbrella association of all social

associations of South Tyrol. Information based on the available online information of the Autonome Provinz Bozen Südtirol (Südtiroler Bürgernetz 2007).

Associations with social background, health and society (member associations of the umbrella association of all social associations of South Tyrol):

- Working groups for: seniors and old people, handicapped people, children, cancer care, Multiple Sklerose, Aids, integrated adult evening classes, South Tyrolean children village (Südtiroler Kinderdorf)...;
- General associations of the South Tyrolean cooperatives, cooperatives for social solidarity, social cooperatives, social integration, European consumer center, cooperative for the provincial employees;
- Alpine Clubs (Alpenvereine), life saving clubs, mountain rescue services, auxiliary fire brigade, help center for Africa, initiative for homosexuals, youth clubs, clubs for single parents....

9.2 Exploring policy intervention

9.2.1 EU policies for agriculture and rural development and regionally oriented Community policies

Implemented 1994-1999: Objectives 3, 4, 5a and 5b, LEADER, INTERREG, Konver, KMU, employment and ADAPT.

Implemented 2000-2006: Objectives 2, 3, Rural development plan, LEADER, INTERREG und Equal.

Funds from EAGFL, EFRE and ESF were implemented. Not relevant: FIAF and the European Cohesion fund.

Structurals Funds Objective 2

Only mountain areas with 60 municipalities and a population of 83,000 inhabitants concerned. Also interventions for "phasing out" areas were foreseen in the period 2000-2005. The Autonomous Province received for the period 2000-2006 about EUR 50 mio (plus ca. 15 mio for the "phasing out" areas). 50% was paid by the EU from the EFRE and ESF fund. Between 1994-1999 the EU approved ca. 85 Mrd. Lire (EUR 44 mio) (Autonome Provinz Bozen-Südtirol 2007g) (42% EFRE, 12% ESF, 46% EAGGF). The share of the EU was 30% (Autonome Provinz Bozen-Südtirol 2007g) (Table 280).

Table 280 Financial information about the object 5b (1994-1999), object 2 and "phasing out areas" (2000-2006) in South Tyrol: the EU Contribution

1994-1999			2000-2006	
Objective 5b: facilitating the development and structural adjustment of rural areas.			Objective 2: Revitalising areas facing structural difficulties	
Lire Mrd.	EUR mio	Fund	EUR mio	Fund
85	44	42% ERDF 12% ESF 46% EAGGF	34	ESF ERDF

Table 281 Objective 2 and "phasing out areas" (2000-2006) in South Tyrol: the state Contribution

EU Contribution EUR mio	State Contribution EUR mio	Region Contribution EUR mio	Total Public aid EUR mio
34 (50%)	24 (35%)	10 (15%)	68

Source: Südtiroler Landesregierung 2004

ESF Objective 3

For the period 2000-2006 about EUR 200 mio assigned to the Province by the EU of which 45% was paid by the EU via the ESF Fond (Autonome Provinz Bozen 2000). For the period 1994-1999 concerning objective 3 South Tyrol received EUR 25 mio, concerning objective 4 ca. EUR 8 mio (Amt für europäische Integration 2007) (Table 282).

Table 282 Financial information about the objectives 3 and 4 (1994-1999) and the object 3 (2000-2006) in South Tyrol: the EU Contribution

1994-1999			2000-2006	
Objective 3: combating long-term unemployment and facilitating the integration into working life of young people and of persons exposed to exclusion from the labour market, promotion of equal employment opportunities for men and women.			Object 3: Development of human resources	
Objective 4: facilitating the adaptation of workers to industrial changes and to changes in production systems				
Lire Mrd.	EUR mio	Fund	EUR mio	Fund
49 (Object 3)	25	ESF	92	ESF
14.58 (Object 4)	8	ESF		

Table 283 Objective 3 (2000-2006) in South Tyrol: the state Contribution

EU Contribution EUR mio	State Contribution EUR mio	Region Contribution EUR mio	Total Public aid EUR mio
92 (45%)	90 (44%)	22 (11%)	204

Table 284 Objective 3 and 4 (1994-1999) in South Tyrol: the state Contribution

EU Contribution EUR mio	State Contribution EUR mio	Region Contribution EUR mio	Total Public aid EUR mio
25 (45%)	24 (44%)	6 (11%)	55
7.5 (45%)	4.8 (28%)	1.2 (7%)	13.5

Sustainable development in rural areas (EG Nr. 1257/1999)

The rural development plan 2000-2006 has foreseen EUR 406.97 mio for measures regarding sustainable development in rural areas. 76% (EUR 309.88 mio) are public funds. The rest is paid by private persons. 29% are EU funds (EUR 119 mio) from the EAGFL fund (Südtiroler Landesregierung 2004). Between 1994-1999 the Province was assigned by the EU EUR 167 mio (EAGFL fund) (Autonome Provinz Bozen-Südtirol 2007g) (Table 285).

Table 285 Financial information about the object 5a (1994-1999) and the development of the rural area (2000-2006) in South Tyrol: the EU contribution

1994-1999			2000-2006	
Objective 5a speeding up the adjustment of agricultural structures in the framework of the reform of the common agricultural policy and promoting the modernisation and structural adjustment of the fisheries sector.			Development of the rural area (second pillar)	
Lire Mrd.	EUR mio	Fund	EUR mio	Fund
323	167	EAGGF Guidance Section	119	EAGGF Guarantee Section

Table 286 Development of the rural area (2000-2006) in South Tyrol: the State Contribution

EU Contribution EUR mio	State Contribution EUR mio	Region Contribution EUR mio	Total Public aid EUR mio
119 (45%)	127 (48%)	21 (8%)	267

European Territorial Cooperation

INTERREG III A Italy – Austria: More than EUR 65 mio of public fund were assigned to the regions participating in the period 2000-2006. The Autonomous Province received about 22% (EUR 14 mio). 50% was covered by EU funds (EFRE) (Südtiroler Landesregierung 2004). Between 1994-1999 EU funding was EUR 2.6 mio (80% EFRE, 11% ESF, 8% EAGGF) (Autonome Provinz Bozen-Südtirol 2007g).

Table 287 Financial information about the INTERREG A II (1994-1999) and INTERREG A III (2000-2006) Austria/Italy in South Tyrol: the EU contribution

1994-1999			2000-2006	
INTERREG II A			INTERREG III A	
Lire Mrd.	EUR mio	Fund	EUR mio	Fund
5	2.6	80% ERDF 8% EAGGF 11% ESF	7	ERDF

Table 288 INTERREG A III (2000-2006) Austria/Italy in South Tyrol: the State Contribution

EU Contribution EUR mio	State Contribution EUR mio	Region Contribution EUR mio	Total Public aid EUR mio
7	5	2	14

INTERREG III A Italy – Switzerland: 2000-2006: EUR 5.22 mio (50% EFRE fund (Südtiroler Landesregierung 2004). 1994-1999 EUR 4 mio (78% EFRE, 22% EAGFL) Fond Autonome Provinz Bozen-Südtirol 2007g).

Table 289 INTERREG II A (1994-1999) and INTERREG III A (2000-2006) Switzerland/Italy in South Tyrol: the EU contribution

1994-1999			2000-2006	
INTERREG II A			INTERREG III A	
Lire Mrd.	EUR mio	Fund	EUR mio	Fund
8	4	78% ERDF 22% EAGGF	2.6	ERDF

Table 290 INTERREG A III (2000-2006) Switzerland/Italy in South Tyrol: the State Contribution

EU Contribution EUR mio	State Contribution EUR mio	Region Contribution EUR mio	Total Public aid EUR mio
2.6	1.8	0.8	5.2

INTERREG III B Alpine Space: In total in the period 2000-2006 the fund amounted to EUR 119,445,600. EUR 49,245,600 were assigned to Italy of which 50% were covered by the EU and 50% by the State (Südtiroler Landesregierung 2004). No detailed data available for South Tyrol. Between 1994-1999 South Tyrol did not participate at the INTERREG II B program.

INTERREG III B CADSES: In total between 2000-2006 this program covered EUR 233 mio (55% funds, 45% national funds) (Südtiroler Landesregierung 2004). We have no information how much received South Tyrol.

INTERREG III C: For 2000-2006 INTERREG III C amounted to EUR 292,500,000 (Südtiroler Landesregierung 2004). We have no information how much South Tyrol received. No INTERREG III C for 1994-1999.

LEADER+

5 action groups in South Tyrol for (2000-2006): EUR 15.5 mio (public funds; 50% covered by the EU via EAGFL fond) (Südtiroler Landesregierung 2004). 1994-1999: EU EUR 5.7 mio Autonome Provinz Bozen-Südtirol (2007g).

Table 291 LEADER II (1994-1999) and LEADER +(2000-2006) in South Tyrol: the EU contribution

1994-1999			2000-2006	
LEADER			LEADER +	
Lire Mrd.	EUR mio	Fund	EUR mio	Fund
11	5.7	EAGGF, ESF,ERDF;	7.75	EAGGF Guidance Section

Table 292 LEADER+ (2000-2006) in South Tyrol: the State contribution

EU Contribution EUR mio	State Contribution EUR mio	Region Contribution EUR mio	Total Public aid EUR mio
7.75	5.5	2.3	15.5

LEADER II = State 43%, Private persons 32%.

Table 293 LEADER II (1994-1999) in South Tyrol: the State EU contribution

EU Contribution EUR mio	State Contribution EUR mio	Total Public aid EUR mio
5.7	10.3	16.0

EQUAL

Table 294 ADAPT and Employment (1994-1999) and EQUAL (2000-2006) in South Tyrol: the EU contribution

1994-1999			2000-2006	
Adapt: Adaptation of the workforce to industrial change			EQUAL	
Employment horizont, employment now, employment youthstart				
Lire Mrd.	EUR mio	Fund	EUR mio	Fund
6,105 (ADAPT)	3,153		4	ESF
8,073	4,169			

Table 295 LEADER + (2000-2006) in South Tyrol: the State EU contribution

EU Contribution EUR mio	State Contribution EUR mio	Total Public aid EUR mio
4	4	8

Additional community initiatives 1994-1999

- KONVER (Rüstungs- und Standortkonversion): EU funding EUR 1.65 mio.
- KMU (Anpassung kleiner und mittlerer Unternehmen an den Binnenmarkt): EU funding EUR 0.46 mio (Autonome Provinz Bozen-Südtirol 2007g).

9.2.2 National and regional policies

Financial support from the South Tyrolean government

With various Federal State Legislations or provincial laws ("Landesgesetze") the South Tyrolean government supports the fruit and wine sector. Below listed the relevant support schemes with title and number of the law as well as the amount of contributes granted (all information for 2006 according to: Agrar- und Forstbericht 2006, Autonome Provinz Bozen-Südtirol, 2006):

- Contributes for the renewal of vine constructions ("Beiträge für die Erneuerung von Rebanlagen", provincial law 11/01/1974, Nr. 1: EUR 1,152,879),
- Contributions for hail assurances ("Beiträge für Hagelversicherung", provincial law 14/12/1998, Nr. 11 Art. 4, comma k, EUR 2,000,000 and EUR 10,600,000 from the assurances as compensations for bad weather damages),
- Support for quality and structural improvements in agricultural production ("Förderung der Qualitäts- und Strukturenverbesserung in der pflanzlichen Produktion", provincial law 14/12/1998, Nr. 11, Art. 4 comma m: EUR 503,276),
- Monitoring activities concerning the EU-directive of the operational program ("Kontrolltätigkeiten zur EG- Verordnung des Operationellen Programmes", 50% of the apporved expenditures EUR 20,824,533; total approved expenditures: EUR 41,649,066.72),
- Contributions for monitoring activities in organic farming ("Zuschüsse für die Kontrolltätigkeit im ökologischen Landbau", EUR 40,884.80),
- Rotation fund for business development ("Rotationsfonds zur Wirtschaftsförderung", provincial law 15/04/1991, Nr. 9) credits of EUR 9,120,000 for a period between 5-9.

Besides these explicit support schemes for the fruit and wine sector, several other support activities and contributions exist. These are supports concerning the farmers' properties ("Förderung des bäuerlichen Eigentums"), supports for construction acitivities ("Förderung des Bautätigkeit in der Landwirtschaft"),

promotions for purchasing agricultural machines ("Begünstigungen beim Ankauf von landwirtschaftlichen Maschinen"), the support schemes of the EU-structural funds ("Förderung über die EU-Strukturfonds in der Landwirtschaft") and supports in case of emergency and bad weather damages as well as support of consulting activities ("Förderung bei Notfällen und Unwetterschäden sowie Unterstützung des Beratungswesens"). For other sectors (milk, pasture, forestry) further special contributions and supports exist.

9.2.3 Effects of Legislative restrictions

The following information is based on Autonome Provinz Bozen-Südtirol (2007i).

Effects of Legislative restrictions

Federal state legislation of the autonomous province of South Tyrol

XXIV: Landscape protection and und environmental protection

D Airpollution

- a) Federal state legislation of the 04/06/1973, Nr. 12 1) – Measurements against the contamination of the air outside and in closed buildings and rooms, which are used for work 1973
- b) Decree from the 17/01/1977, Nr. 1 1) –
- c) Decree from the 26/02/1996, Nr. 11 1) –
- d) Federal state legislation of the 16/03/2000, No. 8 1) – determination for air purification 2000
- e) Decree from 31/03/2003, Nr. 7 1) –

F Water –pollution and und Sewage disposal (Wasserverschmutzung und Abwasserbeseitigung)

- a) Decree of the provincial governor: 29/01/1980, Nr. 3 1) – Regulations to the federal state legislation from the 06/09/1973, No. 63 2): Regulations for conserving the bodies of water against pollution and for arranging sewage disposal.
- b) Federal state legislation of the 18/06/2002, No. 8 1) – Regulation according the bodies of water 2002
- c) Decree from the 20/03/2006, No. 12 1) –
- d) Decree from the 24/07/2006, No. 35 1) –

A Soil-pollution and waste disposal (Bodenverschmutzung und Abfallbeseitigung)

- a) Federal state legislation of the 19/01/1973, No. 6 1) – Implementation of a federal state board for conserving the natural balance 1973
- b) Federal state legislation of the 14/12/1974, No. 38 1) – Measurements for establishing services, facilities and areas for collecting, transporting and for disposing solid and sludgy waste 1974

- c) Decree from the 28/06/1977, No. 30 1) –
- d) Decree from the 14/07/1999, No. 39 1) –
- e) Decree from the 16/12/1999, No. 69 1) –
- f) Decree from the 15/12/2000, No. 50 1) –
- g) Decree from the 07/04/2003, No. 9 1) –
- h) Decree from the 26/09/2005, No. 45 1) –
- i) Federal state legislation of the 26/05/2006, No. 4 1) – Waste management and soil conservation 2006
- j) Decree from the 08/01/2007, No. 5 1) –
- k) Decree from the 11/06/2007, No. 35 1) –

E Protection of the Flora and Fauna

- a) Federal state legislation of the 28/06/1972, No. 13 1) – Regulations for conserving the Alpine flora 1972
- b) Decree from the 14/02/1973, No. 9 1) –
- c) Federal state legislation of the 13/08/1973, No. 27 1) – Regulation for conserving the fauna 1973
- d) Decree from the 17/07/1979, No. 63/Ho 1) –
- e) Federal state legislation of the 19/06/1991, No. 18 1) – Regulation for collecting mushrooms for conserving the plant ecosystem 1991
- f) Decree from the 21/07/1992, Nr. 30 1) –
- g) Decree from the 20/07/1994, Nr. 30 1) –

H Fauna Protection

- a) Federal state legislation from the 15/05/2000, No. 9 1) – Measurements for protecting animals and for avoiding the straying of animals 2000
- b) Decree from the 11/07/2005, No. 31 1) –

B Landscape protection

- a) Decree from the 21/04/1960, No. 24 1) – Decree of the regulation of the article 5 of the federal state law from the 24/07/1957, No. 8 2), regulation for establishing landscape plans 1960
- b) Decree from the 15/09/1960, Nr. 48 1) – Decree for the federal state law from the 24/07/1957, Nr. 8 2) 1960
- c) Decree from the 16/09/1964, Nr. 64 1) – decree for the article 12 of the federal state law from the 24/07/1957, Nr. 8 2): Landscape protection 1964
- d) Federal state legislation from the 25/07/1970, No. 16 1) – Landscape protection 1970
- e) Federal state legislation from the 21/06/1971, No. 8 1) – Administrative penalty when violating landscape protection law 1971
- f) Decree from the 12/02/1975, Nr. 5 1) –

- g) Federal state legislation from the 11/06/1975, No. 29 1) – Regulation for protecting standing bodies of water 1975
- h) Federal state legislation of the vom 12/08/1977, Nr. 33 1) – Regulations regarding the mining of minerals and fossils. 1977
- i) Decree from the 13/11/1978, Nr. 23 1) –
- j) Federal state legislation from the 12/03/1981, No. 7 1) – Regulation and measurements for the development and conservation of Natural Parks 1981
- k) Federal state legislation from the 08/05/1990, No. 10 1) – Regulations regarding the car-traffic in areas, which are protected for hydrological reasons 1990
- l) Decree from the 21/07/1992, No. 29 1) –
- m) Federal state legislation from the 03/11/1993, No. 19 1) – Foundation of the consortium for the administration of the Stilfserjoch National park 1993
- n) Decree from the 06/11/1998, No. 33 1) –

G Environmental Impact Assessment

- a) Decree from the 26/03/1999, No. 15 1) – Regulation for conducting environmental impact assessment 1999
- b) Decree from the 07/08/2002, No. 27 1) –
- c) Federal state legislation from the 05/04/2007, No. 2 1) – environmental assessment for plans and projects 2007

Landesgesetz 4/1997 "Maßnahmen des Landes Südtirol zur Förderung der Wirtschaft"

Landesgesetz 14/2006 "Forschung und Innovation"

II Employment

A Employment market

- d) Federal State Legislation 25/10/1989, Nr. 9 1) – Modifications of Federal State Legislation 21/08/1978, Nr. 46: "Measures for invalids" as well as Modifications of Federal State Legislation 19/08/1988, Nr. 37, 22/11/1988, Nr. 51 1989
- e) Federal State Legislation 17/08/1987, Nr. 24 1) – Measures for employment support 1987
- f) FEDERAL STATE LEGISLATION 11/05/1988, Nr. 17 1) – approval of support for firms for mobility 1988
- g) Decree 06/12/1988, Nr. 36 1) regulation for Federal State Legislation 11. Mai 1988, Nr. 17; approval of support for firms for mobility 1988
- h) FEDERAL STATE LEGISLATION 12/11/1992, Nr. 39 1) – measures for the employment market 1992
- i) FEDERAL STATE LEGISLATION 08/01/1993, Nr. 1, 1) – measures for the cooperatives 1993

- j) DECREE 05/10/1993, Nr. 36 1) – regulation for article 32 of Federal State Legislation 12/11/1992, Nr. 39 contributions for employees associations 1993

D Technical security at the working place

- a) FEDERAL STATE LEGISLATION 27/10/1988, Nr. 41 1) – Modification of the working places 1988 1
- b) DECREE 24/08/1990, Nr. 19 1) – regulations for article 23, 24 and 27 Federal State Legislation 27/10/1988, Nr. 41, "Rearrangement of working places" 2) 1990
- e) FEDERAL STATE LEGISLATION 02/07/1993, Nr. 13 1) – measures for safety at work 1993
- g) DECREE 25/11/1994, Nr. 56 1) – regulations for article 2 of Federal State Legislation 02/07/1993, Nr. 13 "measures for safety at work" 1994

X Public welfare

D Family, women and youth

- i) FEDERAL STATE LEGISLATION 10/08/1989, Nr. 4 1) – measures for equal opportunities between men and women 1989.

E Measures regarding handicapped people

- g) DECREE 04/09/1990, Nr. 24 1) – regulations for article 10 comma 10 Federal State Legislation 30/06/1983, Nr. 20, Relocation of offices 1990
- i) FEDERAL STATE LEGISLATION 08/04/1998, Nr. 3 1) – measures regarding supervision, social integration and human rights of handicapped people 1998

G Measures for invalids

- d) FEDERAL STATE LEGISLATION 25/10/1989, Nr. 9 1) – Modifications of Federal State Legislation 21/08/1978, Nr. 46: "measures for invalids" as well as for Federal State Legislation 19/08/1988, Nr. 37, and 22/11/1988, Nr. 51 1989
Take into account food safety and quality, animal welfare, hygiene standards, quality labelling, regulations on organic production, tax conditions for businesses, tax conditions for agriculture etc..

XXV Agriculture

D Agricultural experiments and plant preservation

- a) FEDERAL STATE LEGISLATION 03/11/1975, Nr. 53 1) – Agricultural and forestry experiments and plant preservation 1975
- b) FEDERAL STATE LEGISLATION 23/03/1981, Nr. 8 1) – Preservation of agricultural species and bees as well as supervision of fruit cultivations 1981
- c) DECREE 17/03/1983, Nr. 1, 1) – Regulation for article 6 of Federal State Legislation 23/03/1981, Nr. 8, supervision of fruit cultivations 1983

- d) DECREE 28/05/1985 1) – Health and qualitative standards for the marketing of plants on the basis of article 6 Federal State Legislation 23/03/1981, Nr. 8 1985
- e) FEDERAL STATE LEGISLATION 04/12/1986, Nr. 31 1) – Installation of a register for gardeners 1986
- f) DECREE 14/07/2005, Nr. 32 1) – Introduction of seeding rights for vineyards and register for table wines 2005

E Husbandry breeding

- a) FEDERAL STATE LEGISLATION 31/03/1988, Nr. 13 1) – Adaptation of Federal State Legislation concerning agriculture and forestry 1988
- b) FEDERAL STATE LEGISLATION 29/06/1989, Nr. 1 1) – regulations for the preservation of bees 1989
- c) FEDERAL STATE LEGISLATION 27/04/1995, Nr. 9 1) – Introduction of a register for livestock and urgent measures in agriculture 1995
- d) DECREE 23/06/1995, Nr. 29 1) – Regulation for Federal State Legislation 29/06/1989, Nr. 1, Norms for the preservation of bees 1995
- e) FEDERAL STATE LEGISLATION 05/11/2001, Nr. 11 1) – Measures against animal diseases 2001
- a) FEDERAL STATE LEGISLATION 24/10/1978, Nr. 55 1) – regulations for slaughterhouses 1978
- b) FEDERAL STATE LEGISLATION 30/03/1988, Nr. 12 1) – battle against falsification of wine 1988
- c) FEDERAL STATE LEGISLATION 14/12/1999, Nr. 10 1) – Urgent measures in agriculture 1999
- d) FEDERAL STATE LEGISLATION 22/01/2001, Nr. 1 1) – Denomination of OGM free products 2001
- e) DECREE 04/07/2001, Nr. 38 1) – regulation concerning the labeling of OGM free products 2001
- f) FEDERAL STATE LEGISLATION 20/01/2003, Nr. 3 1) – Regulations for organic farming 2003
- g) DECREE 07/04/2003, Nr. 10 1) – Cultivation, harvesting, processing packaging and marketing of agricultural products 2003
- h) DECREE 12. Mai 2003, Nr. 18 1) – Controlling of foodstuff 2003
- i) FEDERAL STATE LEGISLATION 16/11/2006, Nr. 13 1) – OGMs in agriculture 2006
- j) DECREE 09/03/2007, Nr. 22 1) – Register of the province for farms 2007

9.3 Investigating networks – supply chains

The three investigated supply chains wine, apple and speck represent the most important and well known quality products of South Tyrol. This is proved by an investigation of the economic research institute of the chamber of commerce among the tourists visiting the region. 61% named the speck, 38% wine and 31% apple as the typical products of the region.

9.3.1 Supply chain 1 – Wine

9.3.1.1 The producer's stage

The contribution the regional GVA is relatively low (<1% on the total GVA, 2-4% of the relative sectoral agricultural and industrial GVA). About 2,000 workers (1,500 wine producers, 500 wine processors) are working in the whole supply chain. The 4,800 wine producing farms account for ca. 20% of all agricultural farms (5,000 ha = <1% of the utilised agricultural area). The average of produced wine is about 46.3 mio t. The quantity was continuously decreasing in the last years due to a stronger focus on quality wines and as a result of the DOC-regulation. Consequently there was a shift from the cultivation of the Vernatsch grapes (the basis for a light mass wine) to other wine types like Merlot, Cabernet, Lagrein. A large part of the wine growing area is located in less favoured areas (foothills and steep slopes). Consequently, wine cultivation is mostly characterised by unfavourable site conditions. The average size of ca. 1 ha per farm is very small. Most of the farms are part-time farms (ca. 70%). According to the experts full-time farming is possible with at least 3-4 ha area. There is a strong soil immobility. The high soil prices (up to EUR 1.5 mio per ha in good location) and EU and provincial restrictions limit the extension of areas. The development of land use changes in certain locations in the last years often registered a switch between apple and wine cultivation.

77% of the produced wines are high quality DOC-wines. The share of red and white wine is 60%/40%. Concerning the quality, South Tyrolean wines are listed under the best wines in Italy (featuring now the fifth best wine growing region in Italy). However, there is a close relationship between the good image of South Tyrol as touristic destination and the perception of the regional wines. 75-80% of the produced wine is delivered to cooperatives. The share of self producing and marketing farms is low but increasing.

9.3.1.2 The processing and marketing stage

The wine processing chain is represented by three different associations of which the association of the wine cooperatives turns out to be the most important one (75% of the production). Hence, the cooperative system plays a crucial role within the wine sector of the region. The share of South Tyrolean wine on the overall

Italian production is about 0.7% (and 0.2% of the European one). Future prospects see a further increase of organic wine (up to 10% of the production in the next 10 years). The quantity of high quality wine will still increase as this orientation and marketing strategy turned out to be the right way.

50% of the wine is sold within the region. 65% of the regional sold wine is distributed in the 5,600 hotels, restaurants and bars of the region. This is very relevant for tourism and future consumption of South Tyrolean wine outside the region. Among tourists wine is listed as the second most recognised typical product of the region.

9.3.1.3 The consumer's stage

There is a large range of the prices per bottle. The average lies between EUR 8 to EUR 10/bottle. Most of the wine is sold as wine in bottles: 50% is sold as 7/10 bottle wine, 34% as litre wines. The rest is sold as open wine. The price of the wine produced in South Tyrol is about EUR 1-2 above the Italian average of the wine with the same quality.

50% of the wine is sold in the region itself. 19% gets exported to other Italian regions and 17% is sold in Germany.

9.3.2 Supply chain 2 – Apples

The apple in South-Tyrol is the most important agricultural product. About 8,000 farmers are cultivating 18,000 ha and harvest nearly 1 mio t of apples. That comes up to the total production in Germany and hence every 7th apple consumed in Europe was produced in South Tyrol.

9.3.2.1 The producer's stage

Dependent on the apple species and the planted trees per hectare 50–70 t can be produced. For each kilogram supplied to the apple cooperatives the sales price, also dependent from the species, varies from EUR 274 to EUR 631/t. If considering an intermediate consumption of 29.7% an added value between 40.7 and 47.5% of the total agricultural gross value added is attained.

According to the public discussion concerning the impact of fertilizer, pesticides and fungicides on health the production-strategy has changed from conventional production to the integrated production, which is more restricted by regulations applying these hazardous materials. On contrast the organic production did not succeed yet. Only on 1 to 2% of the apple-producing area this production strategy was applied. The risk of crop-failure, the lack of biological pesticides and the only slight price-difference to the IP produced apples are the main reasons.

As long as the most farms are averagely not larger than 2 ha, most of them are managed part time. Interestingly this status of small structured farms did not change much in the past. The main reason for this high soil immobility seems to be the traditional relatedness of the owners to family property and the enormous prices (EUR 90/m² or EUR 900,000/ha) even paid for agricultural land.

Future changes in the land use may occur around urban centers, when apple plantations immediately compete against settlement areas. Beside the substitution of apple plantations and vineyards are from a physiological and economical point of view less important. Such a land use change is only possible under particular soil conditions and does not necessarily lead to a higher income.

9.3.2.2 The processing and marketing stage

As typical for Alpine regions the processing and marketing of agricultural products is also in South Tyrol organised in cooperatives. Regarding the production output three main agrarian products can be identified, for which marketing plays a proper part: milk, wine and apples. Due to the common marketing strategy and the co-ownership of the farmers, which are members in the cooperative, the product-quality can be guaranteed and cost-advantages due to rationalisation and fusions with other cooperatives can be attained. Although the apple producers only receive less direct subsidies they profit from higher sales prices paid by their cooperatives. As the cooperatives gain European, national and regional subsidies and as cooperatives have to pass the profit to their members, the farmers are benefiting pretty well.

In South Tyrol there are 29 cooperatives processing and marketing nearly 92% of the total apple production in the province. Thereof 90-92% is dessert-apples. The remaining industrial apples (7 to 10% of the total yield) are processed to apple juice or fruit-juice concentrate. The cooperatives themselves are again organised in two further marketing cooperatives VOG (consortium of apple cooperatives) and VIP (consortium of fruit and vegetable cooperatives of Vinschgau). They are responsible for creating labels, for the product placement and for pushing the image of apples produced in South Tyrol.

9.3.2.3 The consumer's stage

Accordingly the South Tyrolean apple is the number one export-good in the province and gains EUR 297.8 mio. Nevertheless the value added of processing and marketing South Tyrolean's apple only gained 5-8% in the secondary sector. Thereby the main export destinations are the other regions and provinces of Italy (48.5%), Germany (27.4%), Portugal (4.9%) and Great Britain (4.0%). The remaining rest (15.2%) is distributed mainly within Europe. Averagely 18-25 kg apples are consumed.

9.3.3 Supply chain 3 – South Tyrolean Speck

South Tyrolean's Speck is the most famous trademark (ggA geographical protected trademark) in the province. As it is promoted by Reinhold Messner¹²¹ the South Tyrolean Speck attains international publicity. Its image is strongly related with the mountainous Alpine nature, with natural production and health and also with enjoyment, tradition and cosiness.

9.3.3.1 Producer's stage

Currently 5.5 mio of hams (à 4.5 kg Speck) are produced. Therefore an amount of 2.75 mio pigs are necessary. As there is not any intensive pig breeding tradition in South Tyrol, it would not be possible to guarantee this enormous demand. Only for producing the typical "Bauernspeck" pigs grown up in South Tyrol are processed. However, these 25,000 pigs would not even suffice to guarantee the production for one week.

9.3.3.2 The processing stage

Although South Tyrolean's Speck is only a niche product, its production requires an import of pork amounting to EUR 108.2 mio. There are 35 holdings engaged in this sector employing 935 people and producing 21.3 mio kg of Speck. They obtain a market value of about EUR 250 mio. Due to the high import of pork and the effort for energy and other materials, the gained added value is only about EUR 43 mio. According to the food-sector in the province of Bolzano South Tyrol the speck production accounts for 17% of the added value and for 19% of the people employed.

9.3.3.3 Marketing and Consumer's stage

The sale is mainly distributed to Italy (62%), Germany (15%), Austria (13%) and South Tyrol (7%). The rest is exported worldwide. The smaller the holdings are the more likely they merchandise their products on the South Tyrolean and Italian market. Only the few big enterprises, attaining a market share of 60%, have an international sales-network and export their goods abroad. Compared to the consumption of 2.5 kg ham per capita and year in Italy, the Speck consumption with 0.25 kg is much lower. However, if the consumption is only related to the autonomous province Bolzano South Tyrol, the consumption per capita and year reaches 2.9 kg. But thereby the sales share for tourists is also included.

¹²¹ Reinhold Messner: He was and still is one of the most famous mountain climber and adventurer world-wide. It was him, who was the fist human being, attaining all the tops of mountains higher than 8,000 m. He was the first one, who reached the top of Mt. Everest without any oxygen. After his climbing career he crossed some desserts and walked to the North-Pole. Besides he was a politician for the "European Greens" and is now managing his mountain museums in South Tyrol.

9.3.4 Non-agricultural alternatives

South Tyrol's good economic framework enables good employment possibilities. Persons active in the agricultural sector have various opportunities. Despite these pull-effects (very low rate of disoccupation in the last ten year between 2 and 3%, and a large variety of good non-agricultural income possibilities (e.g. tourism and industry, Figure 164) the share of people employed in agriculture (ca. 10%) is still one of the highest among Europe, although the income level in agriculture is compared to other sectors really low (Table 295).

The various income possibilities offer farm manager the opportunity to work part time. This is the reason for the high share of part-time farming (ca. 70%). Beside others this characteristic type of management is very common within the South Tyrolean fruit and wine sector. According to statistical information, the family members (farm manager, wife or husband, other family-members) are employed in one of the following activities:

- industry (27.7%),
- commerce (24.9%) and
- other private service branches (22.0%);
- 14.2% work in other farms or
- in the public administration (11.1%) (Autonome Provinz Bozen-Südtirol/ESF Dienststelle, 2006[0]).

In future new fields of employment could be discovered concerning:

- preservation of the environment (maintainance of roads, green areas),
- alternative energies,
- the farm as place for formation,
- telework,
- consulting activities,
- activities concerning aquisition and administration of goods and instruments for other farms,
- activities regarding wellness (Autonome Provinz Bozen-Südtirol/ESF Dienststelle, 2006[0]).

The push-factors on the opposite are relatively low. They are mainly restricted to financial support as agricultural gains the highest rate of subsidies. The sector directly (agri-environmental and compensatory allowance payments plus special contributions from the province) and indirectly (reduced taxes & social insurance contributions, less expensive prices for many goods as e.g. fuel) benefits from many financial contributions. Accordingly the agricultural income possibilities, mainly in the fruit and wine sector, are quite good.

Due to the precious resources of environment and landscape, the touristic destinations of South Tyrol are in great demand. Agritourism is here a widely distributed touristic segment. After Tuscany (17%), South Tyrol's share in Agritourism is the second largest within Italy. This activity represents an important

income source for agriculture. According to the agreed financial support by the regional government, a continuously increase is assumed. The income opportunities from tourism represents a main pillar to support rural areas and to conserve the typical landscape and its cultural heritage.

The regional government introduced several measures to support the competitiveness of rural areas. The focus is put on the income of farmers and of the rural population. For that purpose the diversification of the economic activities in rural areas¹²² was aspired. The most important ones were the creation of decentralized industrial zones. Independantly of peoples location, a wide range of income possibilities should be available. Therefore, nearly every farm is connected to the public road network, to guarantee accessibility. Besides, high investments are still made to build up modern infrastructures (irrigation, modernisation of the farms itself, etc...).

Figure 164 Schematic overview of the non-agricultural supplement income alternatives

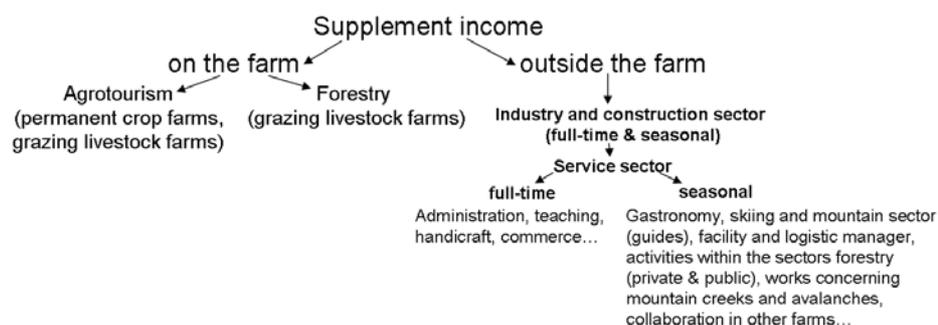


Table 296 Income and employees per branche (2004)

Branche	Income from dependent personal services (EUR mio)	Employees (thd.)	Gainfully employed person (thd.)	Income in EUR/emplo yee
Agriculture & forestry	63.2	4	16.4	15,800.00
Industry total (excl. construction)	1,076.6	32.1	37.5	33,538.94
Industry	1,489.1	46.4	58.9	32,092.67
Mining	11.7	0.3	0.3	39,000.00
Processing industry	999.6	30.3	35.6	32,990.10
Energy and water supply	65.3	1.5	1.6	43,533.33
Construction	412.5	14.3	21.4	28,846.15
Services	4,275.4	125.5	171.1	34,066.93

¹²² The reasons are the special legal rights based on South Tyrolean Autonomy Status and the deep relatedness and identification of society with the rural areas and traditional farming.

Branche	Income from dependent personal services (EUR mio)	Employees (thd.)	Gainfully employed person (thd.)	Income in EUR/employee
Commerce, machine maintenance; gastronomy, traffic & news transmission	1,567.3	45.8	76.4	34,220.52
Commerce, machine maintenance	633.3	20.8	35	30,447.12
gastronomy	606.9	17.5	32	34,680.00
traffic & news transmission	327.1	7.5	9.4	43,613.33
Credit & assurance sector; property & immobility sector, leasing, provision of services for firms	638.5	15.7	25.4	40,668.79
Credit & assurance sector	330.3	5.7	6.3	57,947.37
property & immobility sector, leasing, provision of services for firms	308.2	10	19.1	30,820.00
Public administration, defense, social assurance; education & training; health sector, veterinary- and social institutions; provision of other public and personal services; private hh	2,069.6	64	69.3	32,337.50
Public administration, defense, social assurance	658.6	16.8	16.8	39,202.38
education & training	575	17.2	18	33,430.23
health sector, veterinary- and social institutions	640.6	15.6	17.1	41,064.10
provision of other public and personal services	144.5	5.7	8.7	25,350.88
private households	50.9	8.7	8.7	5,850.57

Source: Eurostat 2007b

9.4 Investigating social networks

9.4.1 Actors along the supply chains

Producers: Farmers: 17,100 farms with 27,300 employees (Wifo 2005),

workers in the manufacturing sector (13,242 firms with 35,555 employees, 11% of the total GDP (Wifo 2005b)),

Food industry: 2,100 firms and 28,000 employees (wifo 2005)

commerce in total: 12,203 selling points with 35,339 employees (Wifo 2006b);

Wholesalers: 2,744 firms,

Retailers: 7,050 selling points with 737,372 m² selling area (Wifo 2006), ca. 25% sell food stuff, retailers without fix selling points: 977 firms

Consumers: South Tyrol: income per capite: EUR 1,552 (= 22% above Italian average!) (Wifo 2006), EUR 1,600 spent per month (included those of the tourists)

9.4.2 Political (legislative) bodies

Legislative bodies on regional level:

The Organs of Government in South Tyrol.

- (a) The Parliament. The election of the South Tyrol Parliament is an integral part of the election of the Parliament of the Region Trentino-South Tyrol. For the election of the Regional Parliament the Region is divided into the two provincial constituencies of Trento and South Tyrol, and the deputies elected in each province automatically become members of the Provincial Parliament. The number of deputies in the Regional Parliament is seventy, composed, since 1983, of thirty-five each from Trento and South Tyrol.
The deputies are elected by proportional representation through a secret ballot. In order to enjoy their active and passive voting rights voters must be eighteen years of age, and have been resident in the Region for an unbroken period of four years. The period of the legislature is five years, with no earlier dissolution. Deputies have to take an oath of loyalty to the Italian Republic and swear to work for the undivided good of the state and the province. The Parliament can be dissolved if it acts against the Constitution, seriously oversteps its powers, endangers national security, or is unable to fulfil its functions. The four standing Legislative Committees, Committees of Enquiry and any special parliamentary committees must be composed in such a way as to reflect the ethnic composition of the parliament and, where possible, parliamentary parties. Both the Italian and the German language can be used in the Parliament.
- (b) The Government. As before 1972, the South Tyrolean Government must be composed in such a way as to reflect the ethnic proportions of the Parliament. This means that a majority in the parliament is not sufficient to create a government if that majority comes from only one linguistic group, and the obligation, therefore, is to seek a coalition. The Government enacts provincial legislation, oversees the administration in those areas of provincial competence, administers the province's patrimony, and supervises the administration of the 116 provincial municipalities as well as the other bodies and organisations. It also makes proposals in regard to the budget.
- (c) The President (Landeshauptmann) The President unites in his office the roles of head of the Government and President of the Province. He is the legal and political representative of the Province. He is responsible for recording laws and promulgating provincial decrees. He chooses the ministers in charge of the various departments. At present he has two deputy Vice-Presidents, one from each of the two major language groups. Either one, according to his choice, replaces him in his absence. But following constitutional revisions (see below, d (iii)) this will change to accommodate all three language groups (Alcock 2001).
- (d) Autonomous Region of Trentino South Tyrol

Further institutions on regional level but without executive relevance:

- Group of counties (Bezirksgemeinschaften)

Legislative bodies on national level:

- Ministero delle politiche agricole alimentari e forestali (MIPAF)
- Abgeordnetenversammlung (parlament), Senat und Verfassungsgerichtshof von Italien
- Senat
- Consulta Stato-Regioni/Province Autonome dell'Arco Alpino

Further stakeholders on national level:

- Confagricoltura (representation of the agricultural world. It is the most important organisation of the employer of agricultural work in Italy)
- Agenzia per le erogazioni in agricoltura: Agenzia incaricata di funzioni di coordinamento e pagamento relativamente ai finanziamenti dell'Unione europea
- Agecontrol: Agenzia incaricata dei controlli di conformità alle norme di commercializzazione applicabili nel settore degli ortofrutticoli freschi
- Buonitalia
- Società per la valorizzazione dell'agroalimentare italiano, creata dal Ministero delle Politiche Agricole, dall'Istituto Nazionale per il Commercio Estero, dall'Ismea e da Unioncamere
- Comitato Nazionale per la Sicurezza Alimentare
- Consiglio per la Ricerca e la Sperimentazione in Agricoltura (includes 23 Istituti sperimentali (IRSA) del Ministero delle Politiche Agricole e Forestali)
- Corpo Forestale dello Stato
- MIPAF – Ufficio Centrale di Ecologia Agraria (UCEA)
- Organo Tecnico del MIPAF impegnato nel Sistema Agrometeorologico Nazionale.
- ISTAT: National Institute of Statistics
- UNCEM: UNCEM, the National Union of Mountain Municipalities, Communities and Authorities.
- Associazione dei consumatori (Association for consumer protection)

9.4.3 Administrative actors

(Mostly based on information available online by the Autonome Provinz Bozen-Südtirol: Südtiroler Bürgernetz 2007k)

Administrative officials national and/or regional level & Municipal administrative officials, e.g. land use planning authorities:

- Abteilung für Land-, forst- und hauswirtschaftliche Berufsbildung
 - Dienststelle Bergbauernberatung

- Fachschulen für Land- und Hauswirtschaft Dietenheim
 - Fachschule für Hauswirtschaft Frankenberg
 - Fachschule für Land- und Forstwirtschaft Fürstenburg
 - Fachschule für Hauswirtschaft Griesfeld
 - Fachschule für Hauswirtschaft Haslach
 - Fachschule für Hauswirtschaft Kortsch
 - Fachschule für Obst-, Wein- und Gartenbau Laimburg
 - Fachschule für Land- und Hauswirtschaft Salern
- Abteilung für Landwirtschaft
- Amt für Viehzucht
 - Amt für Obst- und Weinbau
 - Amt für bäuerliches Eigentum
 - Amt für ländliches Bauwesen
 - Amt für Landmaschinen
 - Amt für EU-Strukturfonds in der Landwirtschaft
 - Amt für Landwirtschaftsdienste
 - Bezirksamt für Landwirtschaft Bruneck
 - Bezirksamt für Landwirtschaft Brixen
 - Bezirksamt für Landwirtschaft Schlanders
 - Bezirksamt für Landwirtschaft Meran
 - Landestierärztlicher Dienst
- Abteilung Forstwirtschaft (Alprämiën)
- Abteilung für Raumordnung,
- Abteilung Natur und Landschaft (Vergabe Landschaftspflegeprämien)
- Amt für Tourismusmarketing und Alpinwesen
- Ausbildung und Forschung
- Oberschule für Landwirtschaft in Auer: fünfjährige Fachoberschule. Das Ausbildungsspektrum umfasst neben den allgemeinbildenden Fächern alle Gebiete der Landwirtschaft.
- Freie Universität Bozen, Fakultät für Wirtschaft, Bachelor Obstbau, Bachelor Berglandwirtschaft;
- European Academy of Bolzano, Institute for regional Development and Location Management
- Laimburg – Research Centre for Agriculture and Forestry
- Laimburg and Technical school for fruit, wine and horticulture
- Bergbauernberatung: auf die 5 Fachbereiche Betriebswirtschaft, Bauwesen/Landtechnik, Futterbau, Sonderkulturen und Viehwirtschaft aufgebaut. Ist dies mit der oberen ident

9.4.4 NGOs

Chamber of commerce, SME representatives national and/or regional level, Other NGOs for farmers, Agricultural chamber regional level

- Südtiroler Beratungsring für Obst- und Weinbau
- Maschinen- und Beratungsring Pustertal
- Südtiroler Bauernbund
- Raiffeisenverband Südtirol
- Agrios – Workgroup for Integrated Fruit Production in South Tyrol
- Hagelschutzkonsortium (Consortium for hail protection)
- Landeskonsortium für den Schutz der landwirtschaftlichen Kulturen vor Witterungsunbilden
- Sennereiverband
- Milkon – Mila
- Brimi – Milchhof Brixen
- Milchhof Meran
- Milchhof Algund
- Milchhof Sterzing
- Südtiroler Fleckviehzuchtverband
- Südtiroler Braunviehzuchtverband
- Obstbaumuseum Lana
- VOG – Verband der Südtiroler Obstgenossenschaften
- VIP
- Handels- und Wirtschaftskammer Bozen
- Südtiroler Marketing Gesellschaft (SMG)
- Bioland Südtirol
- Consortium for promoting Südtiroler Speck: Quality, brand protection and promotional initiatives: these are the objectives of the Consortium, regulated by precise directives found in the laws of the EU (Reg. 2081/92), the State (Law 526/99) and the Autonomous Province of Bolzano.
- Verband der Kellereigenossenschaften (association of the wine cooperatives) [16 members, ca. 70% of the production],
- Freie Weinbauern Südtirol/FWS (lobby of the self marketing wineries) [79 members, 5% of the production] and
- Weingüter Südtirols/DSW (wineries of South Tyrol) [ca. 40, ca. 25% of the production]
- Bonifizierungskonsortium
- Bund Alternativer Anbauer
- LegaCoopBund.coop: Bund der Genossenschaften Südtirols
- Bonifizierungskonsortium
- Bund Alternativer Anbauer (BAA)

Tourism NGOs

- 87 touristic clubs
- Alpenverein Südtirol
- CAI Club Alpino Italiano

Environmental NGOs

- Dachverband für Natur- und Umweltschutz in Südtirol/CIPRA Südtirol
- Plattform Pro Pustertal
- Südtiroler Forstverein
- WWF Bozen
- Ökoinstitut Südtirol

Other NGOs and clubs

- Absolventen berglandwirtschaftlicher Schulen A-BLS
- Berufskollegium der Dipl. Agrartechniker Südtirols

NGOs for households, consumers' protection organisations

- Verbraucherzentrale Südtirol

LEADER Local Action Groups and/or similar groups

- LEADER network South Tyrol (LEADER-Netzwerk Südtirol): In the period 2000-2006 5 areas took part within the initiative LEADER+: Tauferer-Ahrntal, Sarntal, Ulten-Deutschnonsberg, Vinschgau (phase out), Wipptal

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10 HUNGARY: BÁCS-KISKUN

10.1 Describing the region

10.1.1 European and national context of the region

Bács-Kiskun is one of the 19 counties of Hungary in NUTS 3 level. These counties have a thousand years history. First counties were centres of royal territorial power and church administration in Hungary, but since century XIII, counties started to be administered by the assembly of local nobles, who consisted a relatively high, 10% of the population. In later centuries a high stratum of nobles lived in the same conditions as peasants but had participated at county assemblies and possessed voting right. (These poor nobles from centuries XVIII-XIX have become opponents of any progress because of their fear of losing their privileges in the society.) Nevertheless, counties in Hungary had an important role in some historical periods against central power.

Map 77 Bács-Kiskun, Hungary, EU25

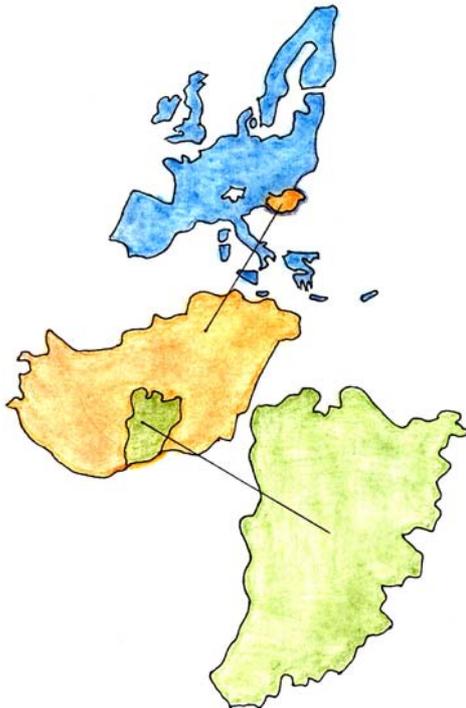


Figure 165 Arms of Bács-Kiskun



Even in Communism, where both party and government administrations had strong county organs, thus having obtained some autonomy in decisions, several counties could successfully resist against either reformatory and anti-reformatory drives of the central government. Due to their weight against central power, several communist and post-communist governments intended to eliminate this territorial

unit; the current effort is referring to EU, saying that NUTS 2 is everywhere the relevant political unit, but up to the date all these attempts have failed. However, the change of institutional structure of public administration needs a qualified majority in the Parliament, which the current government does not have. Bács-Kiskun belongs to region Southern Great Plain (NUTS 2), but NUTS 2 in Hungary is just a statistical unit.

Figure 166 A typical landscape in Bács-Kiskun



In last local elections of 2006, a great part of local governments (NUTS 5) and, with one or two exceptions, all the county assemblies (NUTS 3) has become led by the opposition. The government has decided to change the system of distribution of EU and national funds available for local and regional development. This way the decision power was taken from the county assemblies and given to special committees organised in sub-regions (NUTS 4) and regions (NUTS 2). These committees are the advising institutions of the (newly formed) Ministry of Local Governments and Regional Development, and always are run by government majority, thanks to pro-government mayors, former mayors and other local specialists.

This is a legal way of organising public expenditures, because Constitution secures the exclusive right for the government how to execute the government decisions and how to allocate the resources. The operation of local and county institutions (which would need a qualified majority in Parliament to change it) are not modified. At the same time the principle of subsidiarity of the European Union is also not sought (by the government) to be hurt, because the shift of development decisions from NUTS 3 to NUTS 4 are offset by involving NUTS 4. However, sub-regions (NUTS 4) are also only statistical units in Hungary.

10.1.2 Environment

10.1.2.1 Spatial structures

Statistical profile

Bács-Kiskun is the biggest one among the 19 counties of Hungary with 8,420 km², which is about 9% of the territory of Hungary. According to the data above, the share of agriculture is above the Hungarian average, especially the share of arable crops is high (above 50%). Except some of the big cities (Kecskemét, Baja, Kiskunfélegyháza, Kiskunhalas) and their surroundings, the land is used for agricultural purposes (flat area) and some part of it is covered by sand which indicates big differences both in soil quality and prices.

Table 297 Statistical profile data for spatial structures

01	Total area	8,420 km ²
02	Share of artificial surfaces	3.69%
03	Share of arable crops	51.81%
04	Share of permanent crops	5.90%
05	Share of pastures	10.12%
06	Share of heterogeneous agricultural areas	7.42%
07	Share of forests and semi-natural areas	13.82%

Source: Statistical profile

Regional focus

Bács-Kiskun is situated in the centre of Hungary – South from the conurbation of Budapest to the frontier of Serbia and between the two great rivers: Danube and Tisza. It forms part of the Hungarian Great Plain. Its population is more than half a million. It is a flat area; the difference between the highest (174 m) and lowest (94 m) points is just 80 m.

65% of the area predominantly and 35% is significantly rural by OECD criteria. As to the land use, 47% of the area is used as arable land. Grassland has only a 15% share and extensive animals which have been traditional in this county, already have no significant weight. This county provides very different conditions for farming. In sub-region Baja, for instance there are opportunities for the most efficient farming of arable crops on excellent quality of lands, while in sub-region of Kiskunmajsa, there are very poor lands but largely used for vineyards and orchards.

In the areas of worse land quality, the collectivisation was not so rigorous, and the use of land was remained in the hands of the members of 'special co-operatives', which were institutionalised as a transitional form before full collectivisation. However, this transitional form has survived till the end of the Communism. Thanks to this form, which provided individual use of lands, the agricultural income was

higher in the poor lands, than that from most kolkhozes in the best lands during the Communist period.

The price of agricultural land is measured by Golden Crown (GC) value in Hungary. If we analyse Bács-Kiskun, the highest differences can be seen between the GC values from 15 (sand) to 40 (high quality soil in the southern part of the County), which results big differences in prices as well. For a lower quality land it is about EUR 1,000/ha, while for a high quality land it is up to EUR 4,000/ha. Prices of machinery and buildings has not shown any regional differences in Hungary.

10.1.2.2 Environmental protection

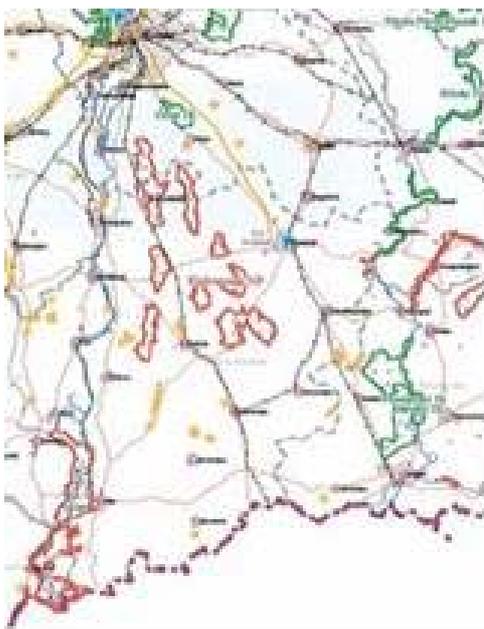
Table 298 Statistical profile data for environmental protection

08	Percentage change since base year according to Kyoto protocol/EU Council decision 2002/358 (in CO ₂ equivalents base year=100) [2003]	60.5%
09	Gross consumption of energy [2003]	18,055,000 toe
10	Gross consumption of renewable energy [2003]	3.6%
11	Share of area under NATURA 2000 [2005]	15%
14	Share of Utilised Agricultural Area under organic farming [2005]	3%

Source: Statistical profile

In Bács-Kiskun there is a national park which has 9 larger territorial areas in the North-West. Furthermore, there are 15 nature conservation areas, mainly in the Southern parts of the county.

Map 78 Protected areas in Bács-Kiskun



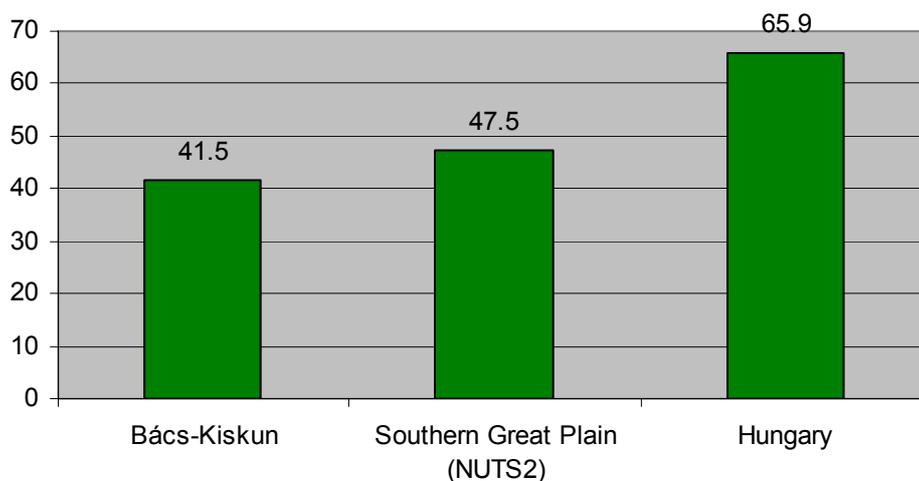
Agri-environmental measures are very popular in this county too, however many farms complain that can not access to any program; and several farms gave up the try and fail game. Government organisations explain that no sufficient resources are available.

In Bács-Kiskun, in broad areas have low yields, and an expansion would cost too much. The animal density is rather low, and the critical situation of animal husbandry hardly will let expand the livestock. Currently, a declining trend takes place not only in this county but in whole Hungary.

Organic farming is quite extended. The list of organic farms is rather large in Bács-Kiskun. There are both individual and company farms and some farmers established own shops in the region. In last census 2000, the density of organic farms in Bács-Kiskun was already double than in Hungary and in Southern Great Plain.

Organic farms in Hungary are usually larger than conventional farms, and in this is the case here too. However, organic farms in Bács-Kiskun have only a little more than 40 ha in average, which is lower than in the region Southern Great Plain (NUTS 2) and much lower than in Hungary (Figure 167).

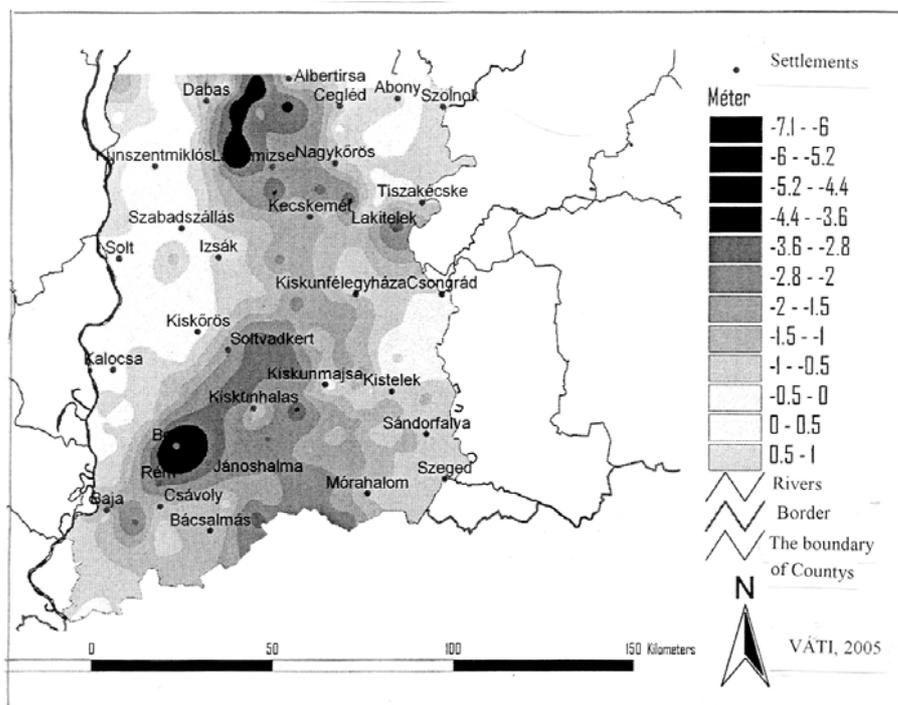
Figure 167 Land size of organic farms (ha)



Source: Census 2000

A critical area of Bács-Kiskun is Homokhátság ('Sandback'), which especially would not afford a high intensity of farming. 'Sandback' extends more than two third of the county and extends to two neighbouring counties. The 'Sandback' is covered by shifting sands, which was stabilised since century XVIII. Large national programs achieved that two main products were extended here: vineyard and locust tree (for wood and honey). In the global warming, the water level of soils in 'Sandback' is sinking. The lack of water is critical, because natural water does not flow to the area, only stratum water from Danube to Tisza. The ground water is sinking every year.

Map 79 The sinking of the ground-water in the Sandback 1970-2003



From an economic point of view the problem has become more serious in recent years, because of the critical position of the mass vine producing on the one hand, and some challenges from the common organisation of the honey market. It follows that these agricultural systems, which have helped to ease environmental threats for the long run, may lose the stabilising role. This way a new program should be elaborated which would not horizontally offer certain products everywhere, e.g. vineyards where a certain water supply and capital as well, available and where not, plantations of locust-trees, but to provide support more specific systems suitable by each micro-areas.

10.1.2.3 Preconditions for agriculture

Table 299 Statistical profile data for agriculture

15	Share of Art. 16 Less Favoured Areas of total area	11.14%
16	Share of Art. 18 Less Favoured Areas	-
17	Share of Art. 19 Less Favoured Areas	45%
18	Share of Art. 20 Less Favoured Areas	55%
19	Flood Events [1996-2002]	0.241
20	Dry spell (change or dry spell combination with drought)	6
21	Forest fires hazards	39

Source: Statistical profile

As part of the Hungarian Great Plain, the area is a great geological massive from the Cretaceous in the depth of 1,500-3,000 m, the Tisia, the geological relative of the Spanish Meseta. In the Pliocene, when the Carpathians was plicated, this area was a sea (Pannon sea), as the Adriatic Sea. After that it was banked up. In the Pleistocene the glacial period was iceless, but very dry. A plain was covered by loess.

The edge of the massive sinks slowly moves by the side of a geological break-line. The Danube banks continually moves to this plain. The middle of this territory remained stable, but the wind covered it by sand from the Danubian alluvial deposit. So was the two geographical unit were formed: the Solter plain and the Sandback.

The Solter Plain was originally the marshy valley of the Danube. It was dried out in the twentieth century, and the area was converted sodic ('szik') soil, with very bad productivity. (The popular name of this channel is "Átokcsatorna", Damned Channel.) This area has very poor lands.

There is another situation from the Southern parts of Baja, where soil (loess) is very good.

The Sandback is covered by shifting sands. From the 18th century is was stabilized by locust tree and grape. Here is now the greatest vineyard-area of Hungary.

The valley of Tisza is situated a few metres lower than the Danube, therefore the stratum water flows in this direction under the Sandback. This is the only water flow in this area.

All over the geological massive there are a lot of thermal waters, but their exploitation has not begun yet. The current surface does not differ much from the original Biocoenosis (life place). It is similar to the steppe of Asia, with outflowness salt lakes. They are ecologically unique in Europe and therefore protected. The nature Reserve is 631 km² (7.3% of total area; this rate is 8.8% about total Hungary).

The temperature is warm, but changeable. Annual average is 10 C°, but -30 C° is also possible. The number of windy days (more than 10 m/sec) is 90-140 annually. Rain is rare and changeable, for instance, in 1990: 470 mm, 1995: 700 mm, 2000: 280 mm and 2003: 460 mm. The global warming is considered to have effects, as 250 mm is estimated. The area is classified as half desert by climate.

10.1.2.4 Preconditions for rural development

Table 300 Statistical profile data for rural development

22	Accessibility to airports [EU27=100]	89%
23	Accessibility to seaports	527 min by car
24	Travel time to railway stations [EU27=100]	63%
25	Travel time to nearest motoway	3.6 min
26	Share of households with broadband internet access [2006]	32%

Source: Statistical profile

Bács-Kiskun has good condition for transporting. The plain area makes easy road and rail construction. Water-roads is in Danube and Tisza provides cheap transport, however mainly neglected. The railway network is dense. This way, the accessibility of the towns and villages is very good.

There are two main railway lines (Budapest-Kunszentmiklós-Kiskőrös-Kiskunhalas-Kelebia-Subotica, Serbia, and Budapest-Cegléd-Kecskemét-Kiskunfélegyháza-Szeged), to which four local railways are connected:

- Kunszentmiklós-Solt-Dunapataj
- Budapest-Lajosmizse-Kecskemét
- Kecskemét-Kiskőrös-Kalocsa
- Kiskunfélegyháza-Kiskunhalas-Bácsalmás-Baja

However, the use of railways was rare in several routes in Hungary, including this county, the government closed several railways and decided to close further ones. The government more emphasizes the roads and mainly motorways.

The length of the roads in the Bács-Kiskun is 2,225 km (26 km/km², the national rate is 33).

Through the county leads the M5 Motorway (a part of the European Network, signed E 60) in the direction Budapest-Kecskemét-Kiskunfélegyháza-Szeged.

Other main roads:

- No. 5: Budapest-Kecskemét-Kiskunfélegyháza
- No. 6: Budapest-Solt-Kalocsa-Baja, near the Danube
- No. 52: Solt-Kecskemét
- No. 53: Solt-Kiskunhalas
- No. 54: Szeged-Baja
- No. 57: Budapest-Kunszentmiklós-Kiskőrös

Bridges crossing Danube and Tisza represent crucial vertices for developing road infrastructure. Some years ago a new bridge between Szekszárd and Kalocsa was built, and now another one built at Dunaújváros; both over the Danube, as a part of the planned M8 transversal Motorway.

The number of schools has increased very much after the Transition, more rapidly in this county than the national average. Grammar schools for instance grew from 16 in 1990 to 35 in 2001, and specialised secondary schools from 24 to 42. The closing of primary schools has stopped at the same time, and in several villages the closed schools were re-opened.

However, the aging of population has continued, and the central government is pressing local governments to close unefficient schools. Providing insufficient resources in headage to local governments, they can not maintain schools with low number of children. They have the option to co-operate with neighbouring villages in sharing classes or simply to close depopulating schools.

The healthcare system is also under change. The government introduced a rigorous system to control the payments of security surcharges at the one hand, and closed many capacities of healthcare on the other. The new system, however, is not clear yet, and the new act is under second reading, due to the refusal of the first version by the President.

10.1.3 Rural economy

10.1.3.1 Regional performance

Table 301 Statistical profile data for regional performance

28	GDP per capita in PPS [2004]	9,493.6
29	Contribution to GDP in secondary sector [2004]	27.7%
30	Contribution to GDP in tertiary sector [2004]	61.8%
31	Labour productivity per person employed [EU25=100; 2005]	71.4%
32	Average household income per year [2004]	EUR 3,659.9 p.c.
	average income tax rate for the producers	10%
	average interest rates (deposits) [2005]	5.76
	percent of businesses taking out loans etc. [2005]	9.98

Source: Statistical profile

During the Communist period, Bács-Kiskun had a stronger position among the 19 counties, but since Transition, its rank is declining.

Table 302 The GDP per capita in Bács-Kiskun (HUF 1,000/person, 2003 prices in HUF)

1975	1983	1994	2000	2003
1,008	1,200	960	1,027	1,126

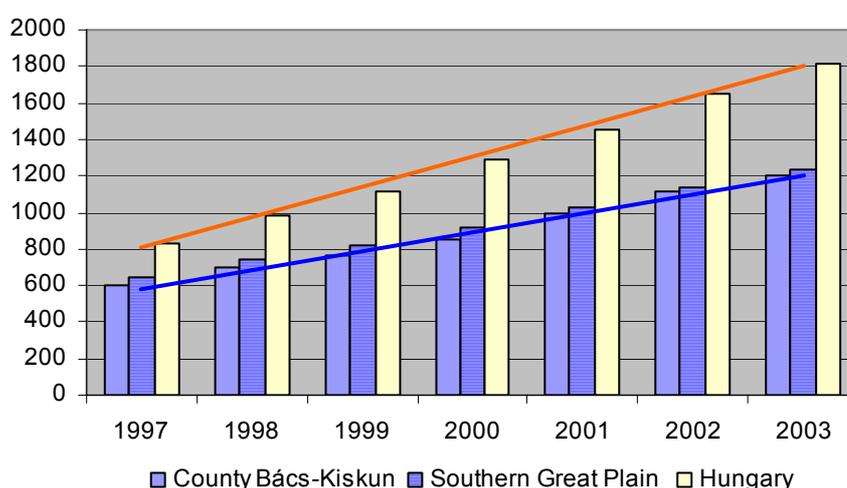
In 2003, the county had 68% of the national average of GDP per capita, which is considerably less than before the Transition. The total recession was 24% (1989-93) – which corresponds to the recession of World War II.

The annual growth of GDP p.c. since 1994 to 2003:

Bács-Kiskun	1.3%
Budapest	6.9%
Hungary	3.0%

In recent years Bács-Kiskun has continued the lagging-behind trend. Figure 169 shows the values and trends of per capita GDP of Hungary and of Bács-Kiskun, where this county has a lower position than its NUTS 2 region average. Nevertheless, the county is losing ground from the national level.

Figure 168 GDP per capita (HUF 1,000)



The value added in Bács-Kiskun, 2003 (mio HUF¹²³):

Total	537,956
Agriculture	55,322
Industry	133,509
Construction	32,600
Service	316,525

The above official statistics however, do not show correctly the role of agriculture, because there is a huge tax exemption of smallholders, which is given on a personal base and the personal exemptions can be aggregated in the family. Differences from actual pattern can be indicated by labour, which is higher in agriculture than in service, for example. This anticipates that agriculture has a higher share in income and as well as in value added.

¹²³ HUF 1 mio: approximately EUR 3,400

The value of the gross industrial product was HUF 423,500 mio (2003). The sales of this branch were only HUF 324,00 mio, indicating a recession. Value added is only 30%. Labour productivity is only HUF 779,000 per worker, which is only 57% of the national average! Thus the industry in the county is out-of-date.

The value of the construction is HUF 43,500 mio, 115% of the last year – the investors were optimist. The rate of the value added is 75%, better than the traditional 50% in this branch.

The value added rate is probably 80% in the service. In agriculture there lack of data. Nevertheless, the rate is certainly high.

10.1.3.2 Structure of agriculture

Statistical profile

Table 303 Statistical profile data for agriculture

Contribution to GDP of Agriculture, forestry, logging hunting, fishing and related service activities [2004]	8.0%
35 Employment in primary sector (full-time equivalents) [2005]	8,033
36 Average physical farm size [2000]	6.31 ha/farm
37 Average economic farm sizes [2000]	2.3 ESU/farm
38 Share of arable crops of Utilised Agricultural Area [2003]	82.4%
39 Share of permanent pastures of Utilised Agricultural Area	12.3%
40 Share of permanent crops of Utilised Agricultural Area	4.7%
41 Share of forested area	17.0%
43 Share of farmers with other gainful activity [2005]	5.1%
44 Share of irrigated agricultural land [2001]	2.4%2.2-HU
45 Importance of (semi-)subsistence farming as share farms	<1 European Size Unit
46 Number of farms with agro tourism [2000]	60 farms

Source: Statistical profile

Regional focus

In Hungary, there are two main forms of farming: individual farms with more than half of the area, and corporate farms. Left-wing governments are supporting corporate farms and right wing governments do the same with individual farms. Individual farms are more oriented towards other than market functions of agriculture, while company farms are more focusing on the market function. Political developments, e.g. parliamentary elections therefore make a significant impact on the state of multifunctional agriculture.

Table 304 Agricultural production

Area, yield and production of cereals	216,549 ha	1,254,159 t	5.8 t/ha
Area under sugarbeet, yield and production of sugar	1,940 ha	104,103 t	54 t/ha
Area, yield and production of oilseeds	56,237 ha	118,834 t	2.11 t/ha
Area, yield and harvested production of fruit	170,161 t		
vegetables	9,485 t		
Area under vines, yield and production of wine and must	165,622 ha	7 hls/ha	1,155,943 hls
Meat in general	76 t		
Numbers and slaughtering of adult bovine animals and calves			18,373 heads
pigs			614,468 heads
sheep and goats			135,337 heads
Number of utility chicks of table strains hatched, gross internal production of poultry meat	40 t		
Laying hens, numbers and usable production of eggs (total eggs)	1,484 heads	289 mio pieces	
Dairy herds and yield	24,000 heads	6,260 lt/head	
Production of milk from dairy herds and delivery of milk to dairies	135 mio l	107 mio l	
forestry statistics	170,100 ha area	658,689 m ³ felling	

Source: Statistical profile

In the statistical census and surveys, all plots are considered as individual farms whose operators have at least some part-time activity¹²⁴, thus in 2000 there were nearly 1 mio, and in 2003, about 770,000 individual farms. So, there is a sharp declining trend. However, the number of registered farms is not changing so much: since 2003, about 200,000 individual farms are registered. It would be more relevant to compare registered individual farms to other Member States, but at moment no statistics are available for them.

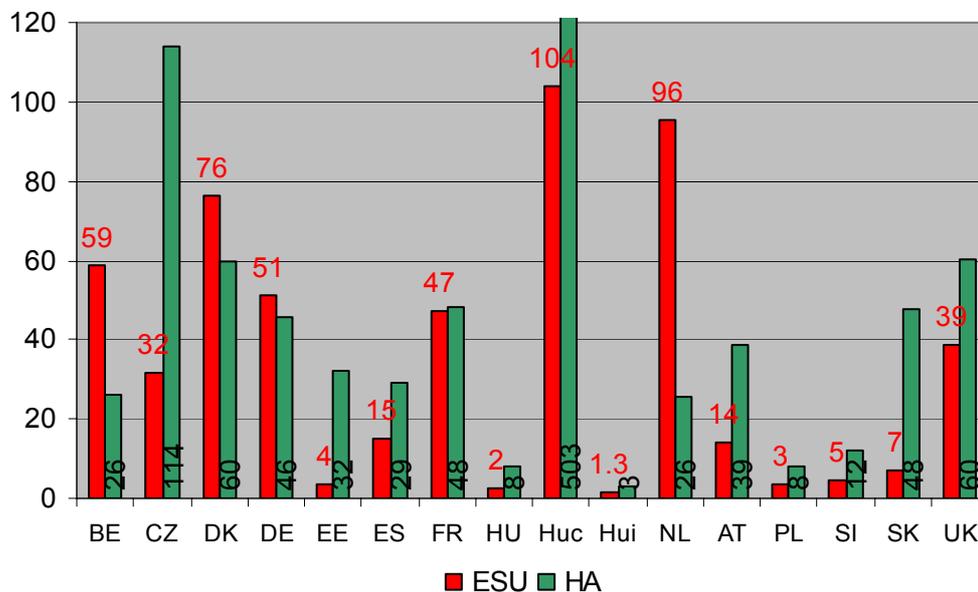
At the other end, there are about 10,000 corporate farms where both post-collective and newly founded farms are included. They have an increasing trend in number but their area is slightly diminishing.

Due to the current state of Hungary, only physical persons might own lands with a 300 ha ceiling. Therefore corporate farms are leasing lands. They have in average more than 500 ha and pay rents, which is a similar amount as interests paid to banks. It can remarkably be seen in Figure 169 that these huge units are associated with relatively low European Size Units, which is not much exceeding the

¹²⁴ The minimum sizes of a Hungarian farm by the Hungarian Central Statistical Office: any of at least 1,500 m² area of productive land, or 500 m² orchard or vineyard or one large animal (e.g. cattle, pig, sheep, goat, horse), or 50 heads of chicken or other poultry, 25 heads of other animals like rabbits, pigeons, or 5 bee families.

average sized Dutch farms (with 20 ha). This comparison also reflects the poor capital availability of the Hungarian corporate farms, but from other point of view, it represents a lower intensity of production.

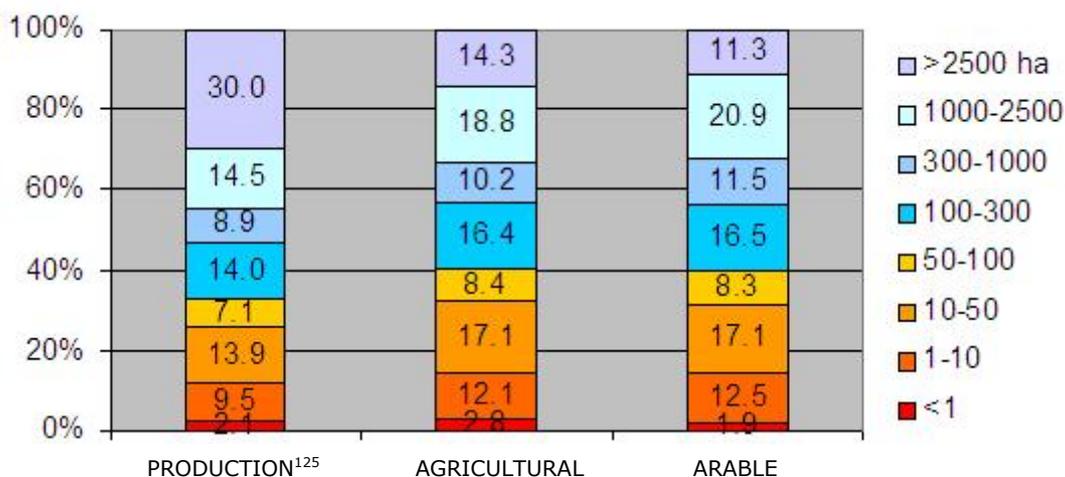
Figure 169 Average farm sizes in selected EU countries 2003



Huc – corporate farms Hui – individual farms in Hungary

Land distribution indicates the dualist land structure of Hungary. The third of total farmlands belong to farms larger than 1,000 ha. In many parts of Hungary, including some parts of Bács-Kiskun, landscape is dominated by large parcels.

Figure 170 Distribution of total farm area by land size groups of farms 2003 (in %)

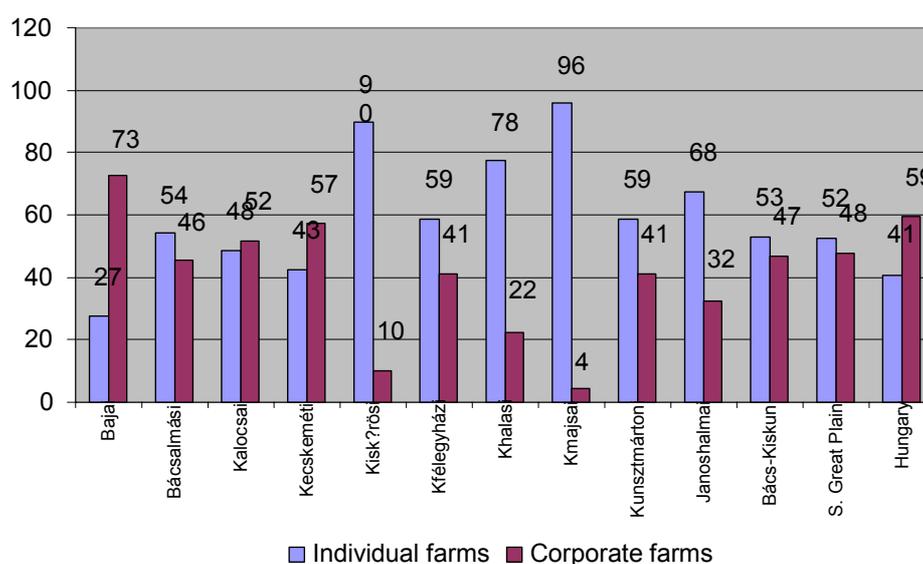


¹²⁵ Production land includes agricultural and forest areas (furthermore, fishponds and reeds).

Land distribution by corporate and individual farms is quite different by sub-regions of Bács-Kiskun. Where land quality is better, more lands are used by corporations, like Baja, Kalocsa and Kecskemet sub-regions. Where lands have lower quality, and where special co-operatives operated before the Transition, individual farms are dominating the landscape (Kiskunmajsa, Kiskörös and Kiskunhalas). The two different situation can be compared by comparing Baja and Kiskunmajsa. In Baja sub-region the highest quality lands in the county can be found, and corporations use most lands. However, individual farms are also large, even if they are shown to be fragmented by taxation considerations; nevertheless, such smaller pieces are often farmed together in a single unit.

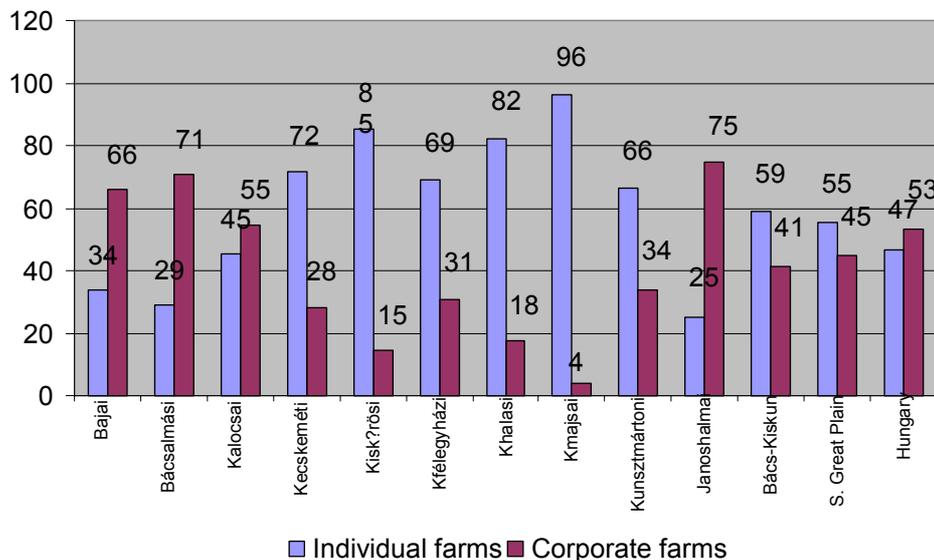
At the other end is Kiskunmajsa, where corporations are almost missing. There are low quality lands, which are used as orchards and vineyard thus having improved the intensity. However, storing and processing capacities, especially in case of vineyards were mostly lost in Transition; they were privatised outside agriculture and transformed to other sectors for a better profitability. The distribution of utilised agricultural area by subregions (NUTS 4) of Bács-Kiskun is presented by Figure 171.

Figure 171 Distribution of UAA in 2000 (in %)



The distribution of animal units is presented by Figure 172. It is similar to the distribution of UAA. It merits attention that since 2000, corporations gain ground; while most husbandry sectors have got a critical position after the Accession.

Figure 172 Distribution of animal units in 2000 (in %)



10.1.3.3 Structure of rural economy

Table 305 Statistical profile data for rural economy

47	Contribution to GDP of NACE B15 – Manufacture of food products and beverages [2003]	10.1%
48	Contribution to GDP of NACE B20 – Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	0.1%
49	Contribution to GDP of NACE B21 – Manufacture of paper and paper products	-
50	Contribution to GDP of NACE H55 – Hotels and restaurants [2000]	9.7%
51	Employment in secondary sector (full-time equivalents) [2004]	68.6
52	Employment in tertiary sector (full-time equivalents) [2004]	113.0
53	Share of SMEs of total businesses [2005]	95%
54	Number of beds in tourism [2005]	9,569
55	Overnight stays per year [2005]	111
56	Expenditure on R&D as share of GDP [2005]	3.3%

Source: Statistical profile

As Bács-Kiskun has nearly a three times higher share in GDP by agriculture than the national average, food industry also has a significant role. Industry and construction have about the same share (29%) as Hungary has, while tertiary sectors have by 5% lower rate here, which is 61.9%.

In 1960s the communist economic policy launched some industrial programs involving several hundred settlements, subordinated to Budapest's trusts (which were state owned monopolies; one trust dominated the corresponding sector of the industry). In Bács-Kiskun, the most important industries were engineering, textile and food-industry. There were not established machinery, fertiliser and paper

industries. However, in the shadow of trusts some independent enterprises operated in Kecskemét and Baja. Such a company producing high quality underwear in Baja, survived until 2005, when it has become bankrupt not standing competition with Chinese mass products.

Industrialisation policy also affected agricultural structures. The usual communist structure was kolkhozes on two third of the lands, on 10% 'house spots' of kolkhozes (0.5-1 ha in average) and small individual farms, and on the rest of the area farms and forestries. However in Bács-Kiskun, on the worst soils it was not obligatory to organise kolkhozes, but some intermediate form, 'special co-operatives', where the majority of lands were let in the private use of the members. The private use of lands in this county resulted in achieving the highest profit on farming – on the lowest quality soils!

Thus, in this county, not 10 but 22% of total agricultural lands were in private use, and provided 50-60% of agricultural output. This attitude provided this county a relatively high income. Agriculture certainly affected the whole economy in Bács-Kiskun as considerably higher salaries were paid to employees than national average, before Transition. Some 'entrepreneurial attitude' was typical here mainly in agriculture, but in other sectors too. However, these 'business skills' obtained in the virtual market of the Communism, actually was not effective in Transition, when the frequency of business crimes expanded (such crimes expire in 3-5 years in Hungary, thus criminals of Transition now can be respected entrepreneurs).

Apart of special co-operatives, where private activity was instituted in Bács-Kiskun, elsewhere in Hungary, the economic strategy of families during Communism also involved all possible part-time working chances after the official job in industry or in kolkhoz. Agriculture was a popular and efficient field to execute these activities. Nevertheless, this intention was strong in other counties too, but chances were more limited than in Bács-Kiskun.

The proportion of the part time activities was in the 1980s very large in Hungary. The total part time amount of agricultural work achieved 1.5 mio annual work units; a third of the total national work time, altogether in all sectors. At the same time, 0.8-1 mio people worked in full time in agriculture. Thus, Hungarians performed one of the longest working days in Europe.

The expansion of the private sector started from 1980, and the number of entrepreneurs duplicated by now in Bács-Kiskun; however a great part of them is titular entrepreneurship only. The change of regime stopped most industrial programs, dissolved many kolkhozes, and even special cooperatives. The workers in corporative farms have diminished to half from 104 to 58,000 in Bács-Kiskun.

Table 306 Employment

	1980	1990	2001
Total	571,448	546,898	546,515
Employee	269,753	239,243	191,550
Unemployed	-	6,246	23,311
Inactive	113,412	137,829	180,703
Dependent	188,283	163,580	150,953

Number of enterprises in Bács-Kiskun:

Total	15,464	from which
Agriculture	1,024	
Industry	2,297	
Construction	1,282	
Commerce	4,332	
Tourism	691	
Transport	649	

The number of guests (2003) in Bács-Kiskun: in hotels 75,700, in pensions 32,900, in touring hostels 6,400, and in camping 35,600. It is not a big business and mainly concentrating on medical tourism in Kiskunmajsa. However, in tourism are some possibilities for developing.

The retail sector has 9,289 units (from which 4,523 are family shops) with 12,416 employees. The tourism has 2,792 units (from which 1,594 family businesses), with 2,472 employees. The transport has 2,027 entrepreneurs.

The Transition gave many state-owned enterprises in Hungary to foreign investors. In food industry, for instance, two third of shares were in hands of foreign investors in peak year 2000. However, in 2004, this share decreased to half. The following figures show the composition in 2003.

Table 307 Capital of enterprises in 2003 (mio HUF)

	Number	Capital	From this foreign
Bács-Kiskun	651	73,400	61,400
Hungary	25,754	9,936,200	8,589,100
Budapest	13,518	4,899,900	4,023,100

The proportion of Bács-Kiskun is 7.4% from the total and 7.1% from those with foreign capital. Both are higher than the proportion of population (5.4%)

There is a speed concentration of enterprises in Bács-Kiskun. The number of enterprises decreased by 20%, but the volume of the capital grew by 50% (in fixed prices):

Table 308 Business development in Bács-Kiskun

	2000	2003
Number of enterprises	826	651
Capital (mio HUF)	38,044	73,353
Foreign capital	35,461	61,463

Table 309 Foreign capital by sectors in the enterprises with foreign interest (2003, mio HUF)

	Total capital	Foreign capital	Capital per enterprise
Total	73,353	61,463	113
Agriculture	5,120	3,125	84
Industry	57,195	43,230	299
Commerce, tourism	4,900	3,790	27

Only in industry there is large foreign involvement.

The number of the individual enterprises is 25,000. The capital is unknown. The annual income is HUF 3,000 mio, the performed (registered) loss is HUF 4,440 mio. The average income is HUF 120,000 per enterprise. In Hungary there are almost 1 mio entrepreneurs, and this fact shows the Achilles' heel of the national economy unsolved since 15 years.

Investment in 2003 (mio HUF)

Total	91,800
Common enterprises	58,500
Individual enterprises	500
Public organisations	19,000
Non-profit organisations	800
Others	13,000

The proportion of the investment is 15% of the annual GDP. The rate of the private entrepreneurs is 16%.

The investment's proportions according to the branches

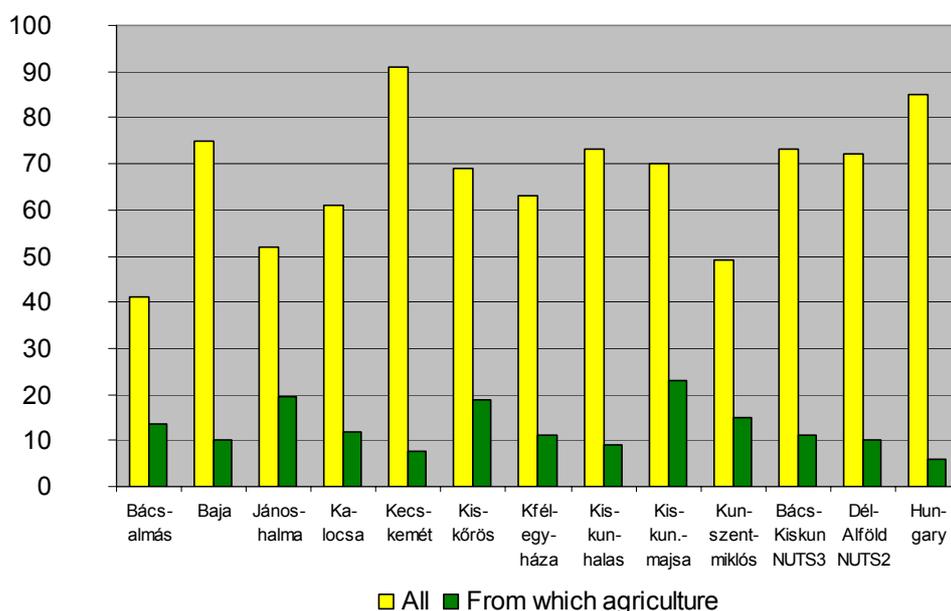
Agriculture	11.8%
Industry	33.7%
Transport	19.0%
Education	5.9%
Others	29.6%

As mentioned before, due to the bad soils in several sub-regions of the Bács-Kiskun, the collectivisation was not completed; collective farms let members maintain most of their lands in private farming. During Communism more

developed entrepreneurial attitude emerged than in other counties of Hungary. In spite of a lot of forced entrepreneurships, the relative number can indicate the entrepreneurial behaviour.

The advantage of the county in entrepreneurial attitude won the trick before Transition, by now has diminished, and only the capital Kecskemét area exceeds the national average among sub-regions (NUTS 4) in the relative number of entrepreneurships. However, Southern Great Plain (NUTS 2) where Bács-Kiskun belongs, has the relative number of entrepreneurs slightly lower than the county and still there are two sub-regions where this indicator is higher (Figure 173).

Figure 173 Number of entrepreneurships per 1,000 inhabitants



However, the relative number of agricultural entrepreneurs is much higher than in Hungary and higher than in Southern Great Plain (NUTS 2). It seems that in agriculture the traditional advance of the county and sub-regions has prevailed.

Thanks to the entrepreneurial attitude of operators, agriculture performed relatively high income and placed the county on the 6-7th rank among 19 counties in per capita and the 3rd in per hectare agricultural net income, while in average soil quality Bács-Kiskun is only in 10-11th position. However, farmers were not able to keep the achieved position: after transition agricultural income has fell and the rank of counties in a great part rearranged. Now Bács-Kiskun in per capita income is in the 15th and in per hectare income in the 17th place. The agricultural operators in the county hardly could keep in pace with other counties, due to the new challenges.

10.1.4 Rural society

10.1.4.1 Demography

Table 310 Statistical profile data for demography

57	Female population [2006]	282,405
58	Male population [2006]	255,457
59	People aged 0-14y [2006]	15.6%
60	People aged >=65y [2006]	21.8%

Source: Statistical profile

The decreasing population of Hungary is more accentuated in Bács-Kiskun. The Hungarian population started to fall from top 10.7 mio (1980) to current 10.1 mio where Bács-Kiskun had the peak in 1970 (595,000) and then started to decrease to 541,000 (2001 census). The country had an agricultural profile, thus exodus from agriculture also contributed in the declining population. However, the natural reproduction was always fewer than the Hungarian average. Furthermore, the county has an aging population.

Map 80 Population density by municipalities

POPULATION DENSITY BY MUNICIPALITIES, head/km²

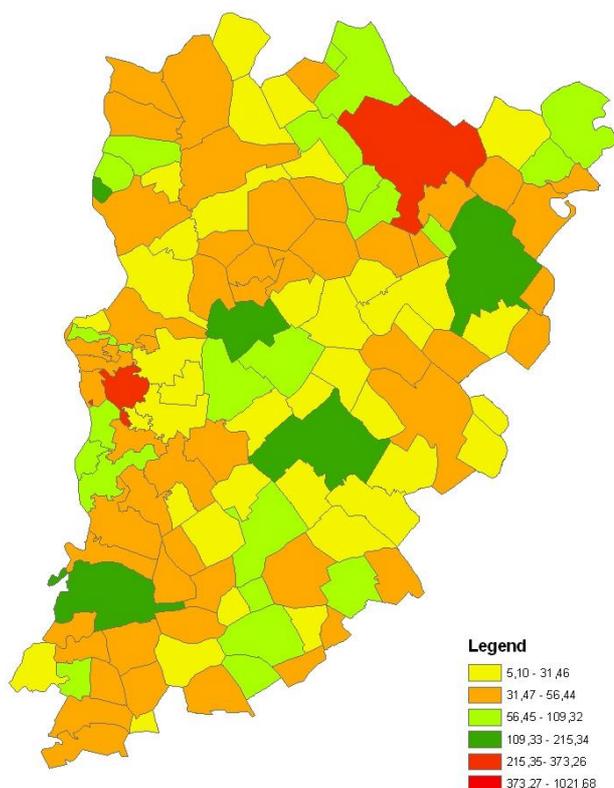
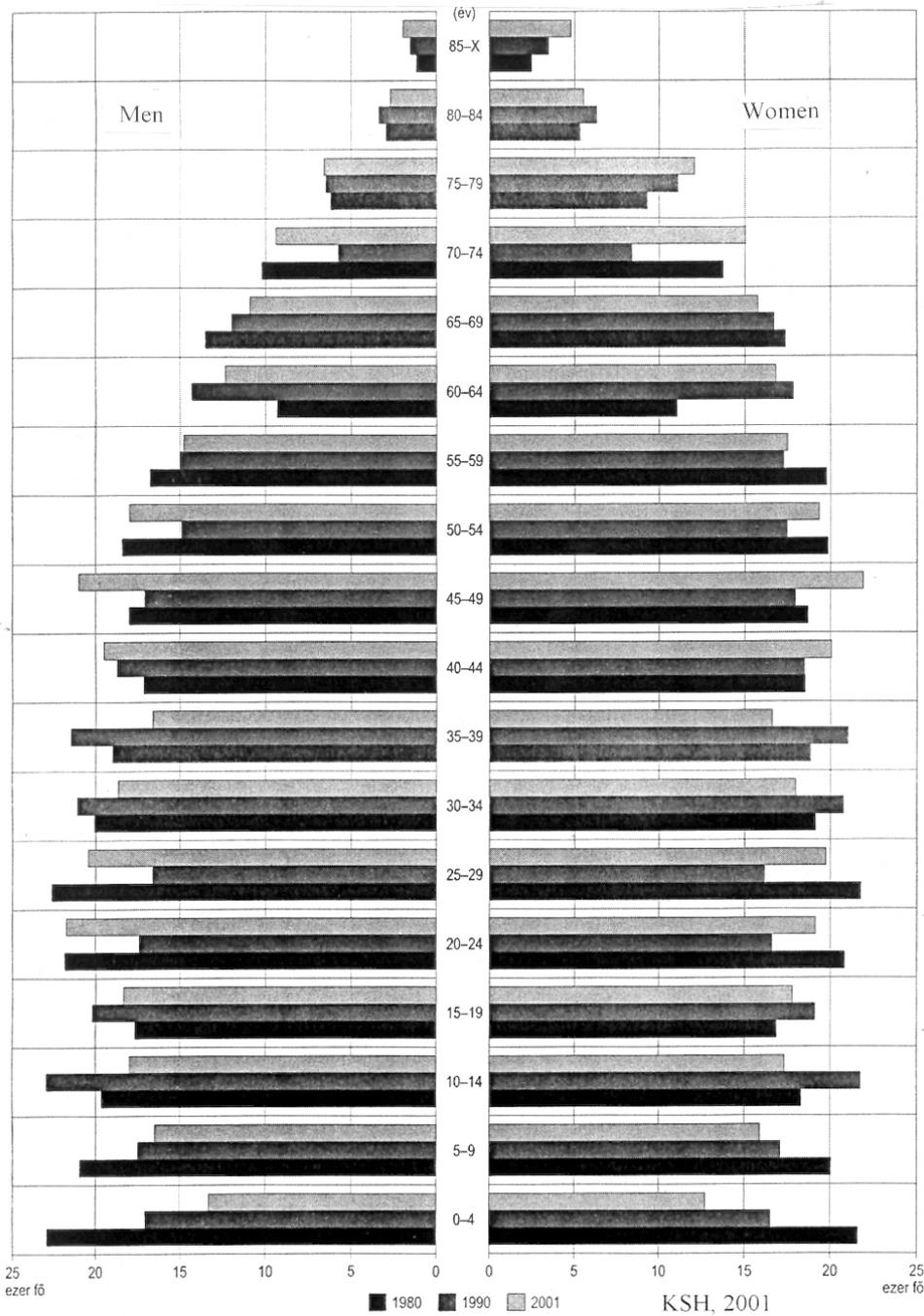


Figure 174 The tree of the age-groups in Bács-Kiskun



The proportion of the most important age-groups (2001):

Children (0-14)	17.1%
Active ages (15-64)	62.1%
Senior (65-)	20.8%

The demographic data of the last decade:

Live birth	66,220 persons (11‰ per year)
Death	89,796 persons (16‰ per year)
Migrations loss	23,195 persons (5‰ per year, but diminishing)

The high proportion of seniors and deaths is particular strong in the small villages. Particular strong is the migration from south. It's a migrations gain in Kecskemét and Kunszentmiklós, which are actually acting as the conurbanisation of Budapest.

Table 311 The families in Bács-Kiskun according to the children (2001)

	Whole family	Fragment family
Total	129,432	26,458
With children		
0	52,433	-
1	35,222	16,698
2	31,786	6,147
3	7,913	1,284
4 or more	2,078	329

This is approximately the average of Hungary.

Table 312 Characterizing change of the violent death in Bács-Kiskun

	1980	1990	2000	Rate for 100,000 in 2003
Suicide	381	280	261	49
Mortal road accident	130	192	76	15

Both rates are traditionally very high in Hungary. Recently, a significant fall took place likewise other regions of Hungary. Nevertheless, it is not yet secure if it is a durable change.

However the index of crime cases grew by 20%:

1990	16,198
2003	19,832

10.1.4.2 Education

Distribution of the population by education (2001):

Less than 8 classes	23.1%
Primary school (8 class)	29.6%
Secondary school	24.5%
College/university	8.5%

An 8.5% of population knows foreign language(s). The rate of education is better than in Hungary, with the exception of Budapest. This has a connection with the characterizing consciousness of citizenship.

The standard of the education in secondary school strongly grew in the last decade, better, than the national average, but by the start was low.

Table 313 Secondary schools in Bács-Kiskun

	1990	2001
Grammar schools	16	35
Their students	5,974	8,903
Specialized secondary schools	24	42
Their students	6,469	12,092

The higher education has 5 institutions in the county, with 9,044 students. That is lower than the national average.

10.1.4.3 Labour market

Statistical profile

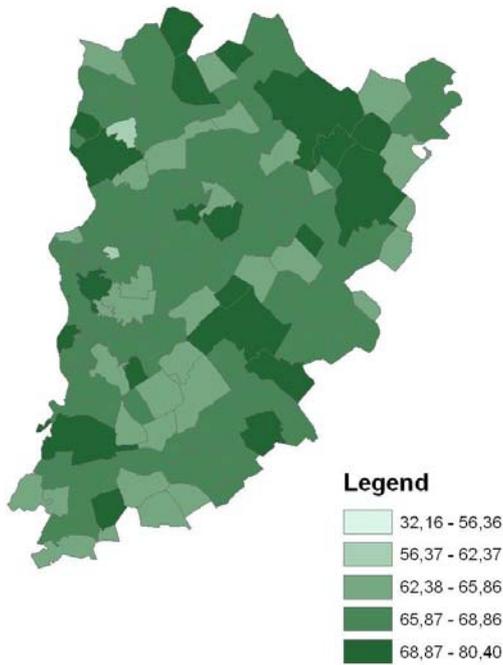
Table 314 Statistical profile data for labour market

67	Employment rate females aged 15-64 as a share of the total active population [2005]	47.4%
68	Employment rate males aged 15-64 as a share of the total active population [2005]	60.4%
69	Employment rate of workers aged 55-64y. as a share of the active population in the same age group [2005]	28.4%
70	Employment rate of workers aged 15-25y. as a share of the active population in the same age group [2005]	20.1%
71	Long term unemployed (12 months+) as a share of the total active population [2005]	45.9%
72	average personnel cost per employee in primary sector/a	EUR 812.41/ month
73	average personnel cost per employee in secondary and tertiary sector/a	EUR 955.21/ months

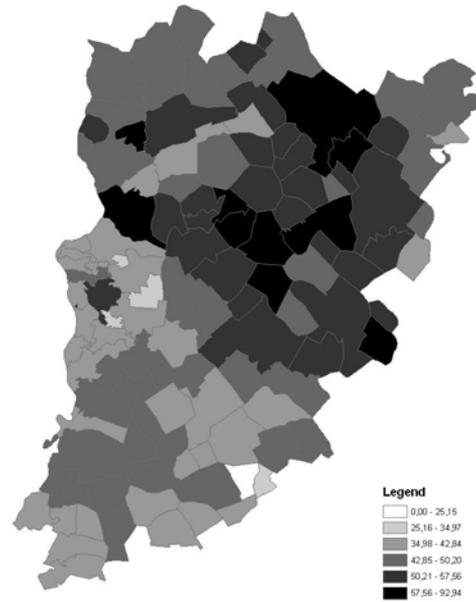
Source: Statistical profile

The Hungarian statistics accounted for unemployment only since 1989. Now the rate of unemployment of Bács-Kiskun is 6.5%, but it is calculated with a statistical trick. Using the number of persons belong to active age-groups (15-64) and considering the number of employed and self-employed persons, the real rate of unemployment would be more than 20%. The rate of employees is 56%, worse than the national average.

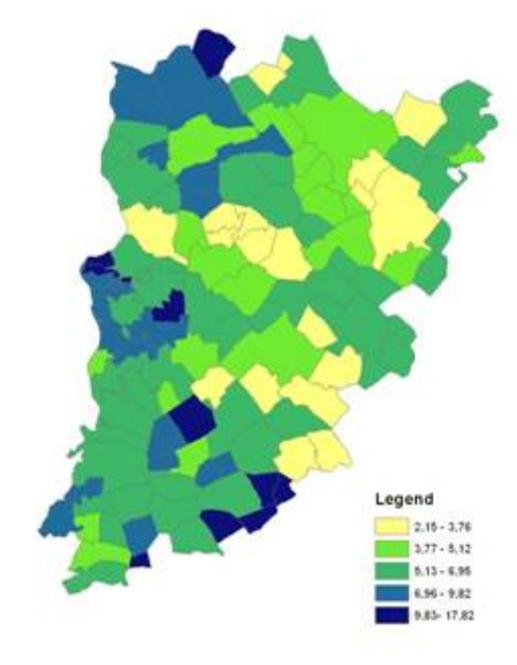
Map 81 Share of active population (in %)



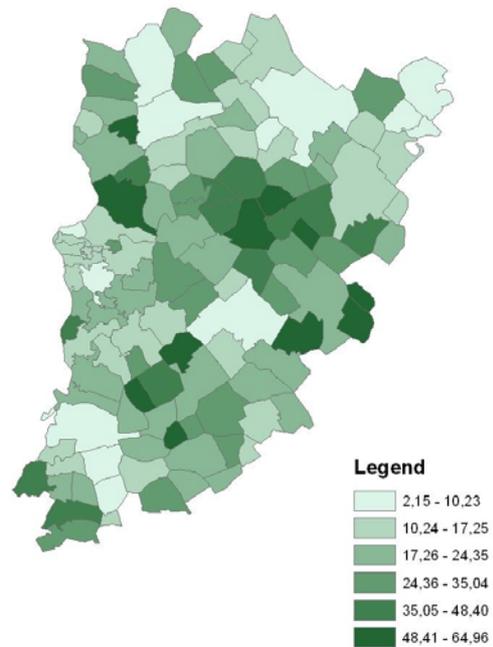
Map 82 Employed share of active population (in %)



Map 83 Unemployed share of active population (in %)



Map 84 Share of agricultural employment (in %)



The number of the pensioners is 138,000, which represent more than a quarter of the population.

As for employment by branches, more people work in industry (20%) than in the service sector (5%). In agriculture (2003) the 30% of the active age-group work as follows:

Full-time job	18,031
Part-time job, <90 days	51,392
Part-time job, >90 days	28,353
Total employed	107,776

The number of the private agricultural entrepreneurs is 36,000, duplicated in the last decade. Post-kolkhoz corporations employ 2,500 people, 5% of the number before Transition. Employees of other agricultural corporations are 150,000, decreasing 20% in the last decade, because of cessation of workplaces. The share of commuters is increasing.

Table 315 Relation between residence and place of work

	1980	2001
at the same place lives and works	222,794	151,608
commuting	46,795	39,942

In smaller settlements was the decrease of workplaces more intensive, therefore grew the rate of commuters (from 17.4 to 21%). Employment in enterprises by business size in Bács-Kiskun is as follows (2001):

Total	44,515
0	28,613
1-9	13,708
10-19	913
20-49	774
50-249	454
more than 250	53

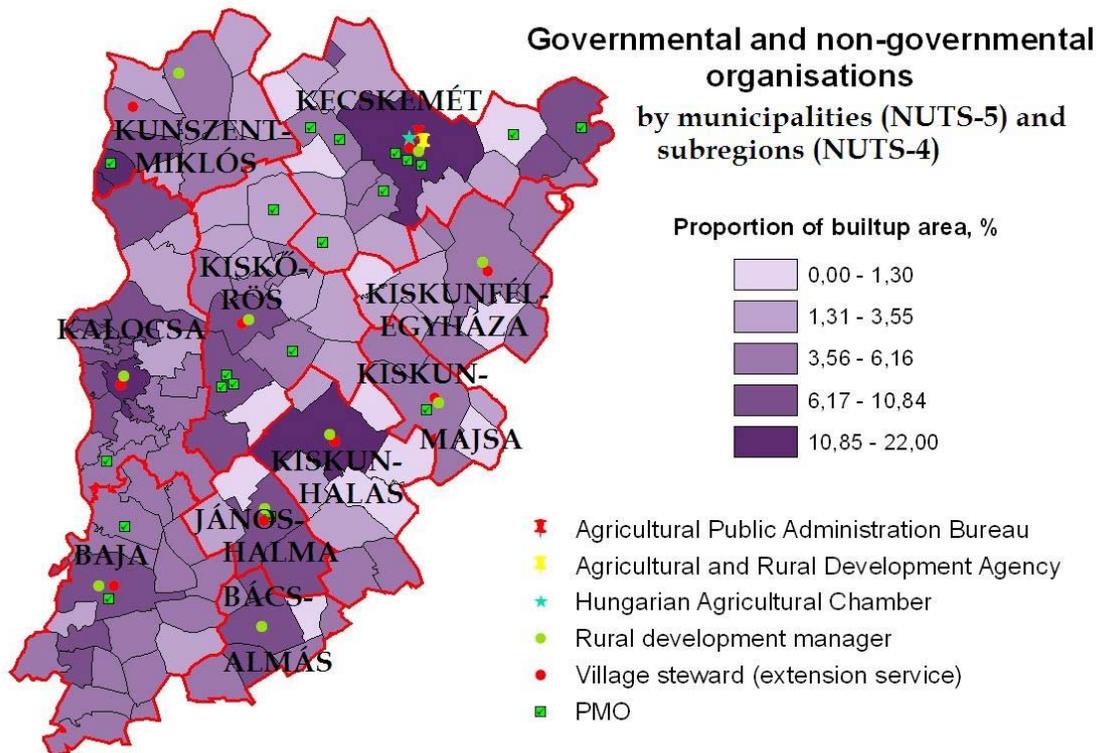
The rate of the enterprises in employment is 82% in this county, very high, but 80-90% is only forced enterprise. That's showed by the structure of enterprises by legal forms (2001):

Total	40,476 (functioning), from which
Ltd	6,701
Cooperative	368
Joint stock company	7,334
Individual entrepreneurship	25,012

10.1.4.4 Civil society

At moment there are 6 local action groups are registered in Bács-Kiskun by the government for the current programming period. Three of them involve settlements from the county, and the other three settlements from other counties too. A group has 12 to 34 settlements with 39 to 77,000 inhabitants.

Map 85 Governmental and non-governmental organisations



10.2 Exploring policy intervention

10.2.1 EU policies for agriculture and rural development and regionally oriented Community policies

As to the contribution of the various European funds, the following structure is estimated:

ERDF	28%
ESF	9%
EAGGF	8%

Source: National Development Agency and Ministry of Local Government and Regional Development

Hungary has joined the European Union in 2004. In the new member countries, a special scheme was introduced: SAPS (Single Area Payment Scheme). In this scheme, the majority of payments were given as direct area payments, which was not linked to production. In year 2004 the total amount of SAPS payment was EUR 305.81 mio for Hungary (about EUR 70/ha), which was 25% of the old Member States' (EU15) average with the possibility of maximum 30% of complementary national direct payment (CNDP or top-up), which was linked to production. The amount of SAPS payments was increased by 5 percentile a year till 2007 and 10 percentile from 2008. Because of the lack of financial sources in the national budget, this increasing amount of SAPS payment became the most important support source of producers. In case of some products, the production itself is loss-making and only the area payment helps to maintain that.

In 2009, Hungary has decided to implement SPS (Single Payment Scheme), which is used in the old Member States. Market supports (intervention schemes, export refunds, etc.) are the same as in any other Member States.

In the first three years after Accession (2004-2006), which still belong to the previous programming period, the conditions of the rural development were established by two documents: ARDOP (Agriculture and Rural Development Operational Programme) and NRDP (National Rural Development Plan).

According to the Hungarian Agricultural and Rural Development Agency, the country received EUR 3,447 mio between 2004 and 2006. Almost 88% of these funds originated from the European Agricultural Guidance and Guarantee Fund Guarantee Section, and an additional 11.6% were received from EAGGF and were used for Pillar 2 measures. Only EUR 21 mio were spent on SAPARD. Concerning the use of these subsidies in case of both Pillars, the majority of funds (90%) were used as direct payments.

In case of SAPARD altogether 2,750 applications were supported out of 8,834 with about 257 mio support and EUR 543 mio project value. The average support per applications was about EUR 100,000 (for food industry over EUR 200,000). 68% of the total support was for measure "Investments in agricultural holdings" (from that 62% was for "Purchase of machines" sub-measure) and "Processing and marketing of agricultural and fishery products". Mainly because of the requirement of self-contribution, the SAPARD was in favour of big companies with sufficient capital. The most active Counties were from the most active regions alongside with the highest support rate (Northern and Southern Great Plain, including Bács-Kiskun). The reasons are simple: favourable characteristics for agricultural production and the traditionally more important role of agriculture.

ARDOP identified three main priorities that were associated with 8 measures (and the technical assistance promoting their implementation) and 28 sub-measures. The priorities in order were the "Establishment of competitive basic material production in agriculture", "Modernization of food processing" and "Development of rural areas". Public spending available for ARDOP's implementation was

EUR 422,836,085. It is easy to recognise the dominance of Priority 1., mainly “New machinery, power machines, technical-technological equipment” and “Construction investments in plant production and horticulture” sub-measures. The reason of the first case is simple, because the applicants could receive the support very soon (after sending the invoice, they are eligible for the payments).

In Hungary, a total of EUR 754,140,000 will be available for support, from which almost 80%¹²⁶, EUR 602,300,000 will be financed from Community funds. During the three-year period of the program, six measures were opened for applications (“Early retirement” measure was not announced) and they were grouped into four priorities¹²⁷. Farmers showed the highest interest in the “Agri-environment” measure, partly attributable to the intensive communication campaign, the previous experience gained during the National Agri-environmental Program and the high rate of support. The amount (EUR 271,050,987) they were applying for had become more than 300% of total amount of support proposed for 2004. Because of it this measure was not opened in the next two years. Later on it become clear that under the given circumstances, the allocated money could not be spent and Hungary made successful amendments with reallocation requests.

For the new programming period (2007-2014) a new document was elaborated, the New Hungary Rural Development Programme. An overview below summarises the measures of the rural development measures.

The New Hungary Rural Development Programme’s measures for axes I and II are implemented everywhere in the country, but axes III and IV only in areas where most developed settlements are excluded.

I. The New Hungary Rural Development Programme intends to allocate 45 to 55% of the available budget to the first ‘axis’, measures for competitiveness. (However, in the first version of the programme, its share was only 40%.) It is much higher than the required 10% of the EU Regulation.

A quarter of the payments would cover five rural development measures for improvement of human capitals:

1. Vocational training and information activities. This measure was already introduced during the previous period (2004-2006). This has a high priority, because 80% of operators (mainly individual farms) have not sufficient education. The Plan targets 100 operators who can be beneficiaries of this measure. Support covers 90% (for Sinti and Romanies 100%) of eligible costs). The following activities are supported:

¹²⁶ The reason is the reallocation into SAPARD.

¹²⁷ A, Safeguarding and improving the conditions of the environment; B, Supporting the conversion of the production structure towards better matching to the ecological and market conditions; C, Increasing the economic viability, financial conditions and market position of producers; D, Maintaining and improving agricultural activities hereby providing additional income and job opportunities for farmers active on areas with weaker production site conditions

- a) To develop demonstration farms to display modern technologies and appropriate methods in farming and to publish information publications for farmers. Demonstration farms organise shows at certain date where they keep farm open for participants.
 - b) Vocational training courses in agriculture, forestry and food industry. Applicants must monitor the needs in their region, and organise the relevant courses.
2. Support of 'young' farmers (under age 40) to establish viable farms; in order to improve age-structure of Hungarian farmers (the share of older than 50 years old farmers and farm workers increased from 49% in 2000 to 57% in 2003) and to maintain farm employment. The implementation of this measure started in 1998 and till now, almost 1,000 young farmers were supported. Support in the current Plan would be one time capital allowance or/and interest subsidy, altogether not more than EUR 55,000, but each of them has a limit of EUR 40,000. The share of financing is 100%.
 3. Early retirement of farmers already was projected in the period of 2004-2006, but till now never was been implemented, in spite of the agreement the government made with the demonstrators in March 2005. The Plan intends to support farmers of 56 to 62 years with at least 3 ha land for sell their farm and stop the production. The goal is to support change of farming generation and increase farm sizes and efficiency. In spite of SWOT analyses shows the great problem of aging farm population, the Plan gives 'medium' priority for this measure.
 4. Guidance and extension services for agriculture and forestry would provide flat-rate support by activities. When individual farms were emerging in early 1990s, a network for extension service was created, and specialists called 'falugazdász' with involvement money from local governments. Later the staff was reduced and charged by administrative issues, thus recently they say that not more than 30% of their time can be used for extension activities. Now, EU requires Member States to establish a Farm Advisory System where accredited experts will perform the activities. The Plan also relies on research institutes and agricultural faculties.
 5. Farm and forestry management advising and substitution has only low priority in the Plan, however, SWOT complains much about these problems in the field of individual farms for which this measure is designed. Payments are also made by activities.

Most money in the competitiveness axis (40%) would be given for five physical asset restructuring and development measures. All these measures meet the highest priorities.

1. Modernisation aids support for various branches of agriculture and forestry. In this program, tractors, machineries, building and storehouses can be invested with a 50 or in some specific cases 60% support.

2. Economic value of forests, according to the Plan and Regulation would be increased by implementing new machineries and informatics (GPS, PCs and softwares). Support can be given for these purchases.
3. Adding value to agricultural and forestry products is broadly supported. This way, new products, processing and involvement of forest products are subsidised, where new technologies, adjustment to various market channels can be realised.
4. Co-operation of in development of new products, methods and technologies is supported in agriculture and forestry.
5. Production infrastructure of agriculture and forestry can be developed by supports.

Quality of products is also a supported area, where the three measures have 25% from the budget of the competitiveness 'axis':

1. Support of agricultural producers in adjustment to the high EU standards has a high priority in the Hungarian Plan.
2. Participation of producers in food quality systems is supported by high priority.
3. Producer groups are supported in their information and promotion activities. This measure has a medium priority.

The Hungarian Plan has chosen two from the measures available only for the new Member States (old member have already implemented before these measures):

1. Restructuring of semi-subsistence farms are supported. The aim is that the supported farms could be transformed to a viable unit. The Ministry estimates 20,000 farms able to develop to that level. Relatively large semi-subsistence farms can be selected (from 2 European Size Units, while the average of individual farms is less than half). In the SWOT analysis, the great number of small farms is a significant element, but priority of this measure is only medium.
2. Creation and maintenance of producer groups is supported with a high priority.

II. The second 'axis', measures improving environment and countryside, which would be supported by at least 25% of the budget, according the EU Regulation, the New Hungary Rural Development Programme would provide 30 to 37% of the resources (in the first version still 45% was indicated).

Five measures for the goal of sustainable utilisation of agricultural lands, 85% of the sources of this 'axis' would be allocated:

1. Without support for farms in areas with natural handicaps, agricultural activity would be ceased. Lands should be farmed under strict rules, committed by the farmers at least for five years, and they receive payments on the area of lands.
2. 'NATURA 2000' payments are given to areas (arable and pasture lands) designated to nature protection, in an EU ecological network. It covers more

than 20% of the country. Land use is restricted and specific area payment is given.

3. Agri-environmental payments is given to farms, which commit for five years to use restricted chemicals and follow specific rules in production (organic farming included). This is a very popular scheme (area payment), but much more farms would like to take it, than available. In previous budget period, this rural development measure was compulsory to introduce. In Hungary, more than a quarter of agricultural land is targeted by this measure in 2006.
4. Support to adjust to animal welfare requirements.
5. Support to non-productive investments, necessary to start agri-environmental and environmental programs.

15% of resources of this axis would be given in Hungary for measures supporting sustainable use of forest areas:

1. Afforestation of agricultural lands
2. Establishment of agroforestry systems (where wood production is combined to extensive agricultural production).
3. Afforestation of non-agricultural lands.
4. Natura 2000 payments
5. Forest-environment schemes (commitments for forests on specific restrictions)
6. Restoring forestry potential after calamities and biotical damages and prevention actions.

III. The third axis consists of measures improving quality of life in countryside and diversification of rural economy. EU requires at least 10% from resources to these measures, and Hungary would provide just this minimum (however, the second version indicates 10 to 14%). The set of following measures at the same time intend to improve the rural economy and partly thought that and directly quality of rural life.

Three measures serve the first specific goal to improve economic potential of countryside which is scheduled to use the half of the available resources:

1. Diversification into non-agricultural activities. Farms are encouraged to invest to start new non-farm activities. 45 (in less favoured settlements 55) % of investment is paid by the measure (landsite, building renovation or construction, machinery, installation, technical services, marketing costs, etc.).
2. Creation of micro-enterprises provides support of 45 or 55% for investments in processing of agricultural products or by-products (food, handicrafts, textiles, infusion of herbs, cosmetics, colours and toys) and in selling. Collection, processing and marketing of herbs is also supported.
3. Encouragement of tourism activities is targeted to the following projects: guesthouse for accommodation of max. 10 guests, especially in buildings of high value to be renovated; improving valuable hunting, fishing, winery or

touristic houses for accomodating max. 20 guests; modernisation of existing village tourism houses, upgrading comfort; setting up and developing village and agro-tourism services (recreation programs, wine tours, guest tables, traditional houses, demonstration farms to tourists, horse-riding etc.); infrastructure for rural tourism (touristic sights, resort places, indication of tourist routes, parking places and etc.); implementing information and communication technologies for marketing rural tourism and network building. The rate of the support is also 45 or 55% of investments.

Another three measures serve the sustainable utilisation of cultural and natural values where 35% of expenditures of this 'axis' would be allocated:

1. Basic services for rural economy and population – this is in the EU Regulation, but will not be implemented in Hungary.
2. Village renewal and development would be supported by 75% of the eligible costs. The following investments will be subsidised: construction of new buildings, renovation of existing houses and change of function. Installations, machineries and technologies.
3. Conservation and upgrading of rural heritage provides 75 (in less favoured settlements 85) % of costs. The following measures will be implemented: (1) renovation of existing houses for multifunctional purposes, (2) renovation of historical and other important buildings, in order to get a solid villagescape, (3) presentation of cultural and natural inheritance (forts, castles, wind and watermills, buildings of traditional animals, sheppards, winery, fishery, forestry and hunting) and village museums, (4) setting up or develop local markets, covered and uncovered selling places.

Support of local human capacities would be achieved by the following two measures, where 15% of resources of the 'axis' would be spent:

1. Training and information for rural actors
2. Skills-adquisition for local development strategy

IV. The fourth 'axis' is targeted to local initiatives ('LEADER-programs') where the EU Regulation requires to allocate at least 5% of the resources, and the Hungarian Plan indicates that rate (the second version even 5 to 6%). This contains several measures as 'axis' 3, but on local level. 85% of the money would be allocated to measuers to reinforce of local economic potencial and sustainable utilisation of cultural and natural resources, and 15% to local human capacities.

As for the **regional distribution** of CAP funds granted for Hungary, Bács-Kiskun has a relatively strong position. It received slightly more than 8% of European subsidies to Hungary in case of Pillar 1 measures. Concerning Pillar 2 measures, the situation is even better, as the share of the county of total support received by Hungary reached 12% in the period between 2004 and 2006. The use of the subsidies shows a similar pattern compared to the country average. Almost 100%

of pillar 1 funds were used for direct payments. In case of Pillar 2 funds, this share is 90%, while the rest of the fund was invested in developing institutions.

10.2.2 National and regional policies

There were no significant national/regional expenditures. In case of Bács-Kiskun the most important investments were the development of general infrastructure like roads, electricity, etc.

10.2.3 Effects of Legislative restrictions

According to our investigations and the interviews the rules land use management has the most significant influence affecting even the production. The maximum owned and hired agricultural area is given by the Act on Arable Land, which is 300 ha in both cases.¹²⁸ However it is not so strict rule because it is possible to buy or hire land in the name of any relatives. But majority of agricultural area is not used by the owner, so the rental system is overwhelming. After the accession subsidies became higher which resulted higher rental fees also. In some cases this can be a real barrier of scale efficiency. On the other hand it means that most of the money comes from subsidies is going out of agriculture.

The other unfavourable process is the changing ratio between crop and animal production. During the transition (1990s) it was 50-50%, but now the share of crop production is almost reached 70%. As it was indicated in the previous chapters, only 3% of it is organic production.

Regulations of air pollution has no effect on agriculture yet, however it is easy to realise the negative effects of climate change. Hungary, including County Bács-Kiskun, has suffered from drought in spring and frost in summer in year 2007.

Agriculture has a special taxation aspect also without any regional differences. Majority of the agricultural units are individuals (primary producers, entrepreneurs) but most of them has no connection with the market, they are producing mainly for own consumption. If they are at least registered producers, then there are some revenue categories with different taxation rules. For example if the revenue is under HUF 600,000/year (about EUR 2,400) they no need to pay any tax. Another revenue category is to HUF 4 mio (about EUR 16,000), under that amount they need to provide a simplified tax declaration. Over HUF 4 mio they still have some options such as detailed cost statement, use of 40% flat rate, etc.

The main problem of any comparative analysis regarding the type of producers (namely individual and private farms) is the different cost settlement since the

¹²⁸ The Act on Arable Land prohibits legal entities from purchasing agricultural land, which complicates life for real estate developers and investors. Several structures have been developed to circumvent this prohibition, but none is free of all legal and business risks.

large corporate organisations almost solely worked with paid labour force and held lands on lease.

10.3 Investigating networks – supply chains

10.3.1 Supply chain 1 – Maize

10.3.1.1 General description

The role of maize in Bács-Kiskun is similar to other regions of Hungary. The county provides 8% of the national area harvested, and as yields are a little higher than national average, constitutes 8.4% of the national production.

Maize in Hungary is utilised for animal feeding, mainly for pigs, and about 20-25% of the production is exported. In this county, nearly half of the individual farms produce maize, and they have a decreasing trend. The maize producing share of corporate farms is more than 50%, and it has an increasing trend.

In the processing level, drying and storing functions are made. These functions can be effectuated by the producer itself, or specialised organisations, like producer's coop (e.g. Szent-Iváni Gazdák Szövetkezete in Alsoszentiván), limited liability companies (e.g. Szárító és Szolgáltató Kft in Miske, Városföldi Magtár Kft in Városföld.). These capacities can be utilised for other grains as wheat, barley etc.

These companies also produce compound fodders, in which maize is a significant component. The producers of compound fodders are also wholesalers, buying maize and other ingredients from farms, store the product and sell to animal farms. However, large scale pig farms and other animal plants usually have own feed plants providing compound fodders.

Actually, the current prices provide sufficient return for the producers, due to relatively high prices. Current prices indeed are connected to bad weather and low yields in 2007; but due to increasing demand of bio-energy sector and of Chinese and Indian animal producers, Hungarian maize producers expect maintaining and later increasing maize prices, and do not consider any substitution. In theory, sweet corn can appear as an alternative product. It provides higher income, but in the Bács-Kiskun, mainly corporate farms have it in their product mix.

10.3.1.2 Agricultural and forestry production actors

Production input

Maize producers are to a great majority (80%) self employed. Not much additional hired labour is needed for maize production, but their annual personal cost is higher

in the county (EUR 8,500). 35% of farmers have secondary education and 15% are graduated at universities.

Irrigation is not used in Bács-Kiskun. However, high technology is applied; modern tractors and harvestors are implemented. Smaller producers without machinery-stock obtain services of cultivating companies, which can be specialised companies, or, in most of the cases, other farms with excess capacities, invested deliberately for providing such services.

The most important cost item of production is energy (19%), which is followed by land rent (17%), seeds (14%), pesticides (14%) and fertilisers (11%). Hired labour takes only 8%.

Production output

Maize sector provides 12% of GVA in Bács-Kiskun.

In 2007. maize prices fluctuated between EUR 95 and EUR 150 with an increasing trend. The average producer price was EUR 100 in 2007. Producers expect higher demand from emerging bio-energy sector and from new importers in World market, thus, current prices are expected to maintain in middle term, which would have a further increase in the long run.

Prices are lower than in world market; thus producers do not feel competition from imported maize; actually it is negligible in Hungary. As livestock has a decreasing trend, the declined domestic demand is offset by increasing exports.

The current prices provide an equilibrium in cost and revenue of the products; however, profit estimations range between EUR +5 and EUR -5. Break is provided by subsidy (SAPS).

Output is used as fodder in own pig or poultry farm or in others, mainly processed in a compound mixing plant. Maize is also used for other livestock, e.g. dairy farms. Wholesalers are often intermediate in this process. Farms sell maize not more than in a 50 km distance. Farmers organise marketing alone in most of the cases.

External effects

Farms do not target very high yields. A moderate use of fertilisers and pesticides is more typical. It follows that negative impacts by intensive cultivation is less extended in the county; thus, negative environmental effects are less relevant. However, promotion of pests, fertilisers by international companies may have a serious impact in future.

Agri-environmental supports may have a significant effect on nature-friendly production; however the capacity of payments is low to the high demand.

Maize sector has a high contribution to GVA (12%), but a low impact on the labour market, as the total employment is not more than 8,000 workers in Bács-Kiskun. The maize sector has relevant contribution on male employment as in elsewhere in Hungary, but lower relevance on young (15-25) and female employment as well as from third countries.

External factors

Among environmental preconditions on the maize production, the highest impact is made by rain and sunny days. They have even higher effect than the quality of soil, which has great differences in Bács-Kiskun.

Among natural hazards, drought has the highest risk, even higher than flood events, hail, erosion and pests.

In CMO measures, SAPS, AES and LFA have the highest impact, while SAPARD have had a low influence on maize in the county. Among sectoral CMO measures, intervention is the most important, while export refunds have only a little impact in Bács-Kiskun.

The most significant influence of legislation comes from the rules of land leasing. The relatively short leasing period and little protection of tenants have negative effects. Still have a medium impact of water and fertiliser use and turning agricultural lands to construction regulations. Food safety, protection of wild animals and social protection legislations have low influence on Maize sector in Bács-Kiskun.

Farmers of this county are criticising most the high water prices for irrigation (this is why it is not used) and the limitation of nitrogen fertiliser use. Both are contributing in low yields, which is still higher than the national average.

The major influence in choosing maize to produce was by own self-assurance. Some effect was made by family traditions and influence of NGOs, and other effects like agricultural chamber, neighbours, local beliefs, etc were of minor importance.

The ways of production and of marketing also were chosen by the own self-assurance, and other options have had much less or no significance.

The economic dimension of maize is valued better than most other alternative product and receive a score 8 in a scale of 9. Social dimension in this scale is low, 3, while environmental dimension is in the middle, 5. The weight of these dimensions are valued as follows: economic dimension – 100%, social dimension – 20% and environmental dimension – 50%.

Diversification

Maize has a 60% valuation of farmers to other gainful activities in other supply chains. Considering alternative strategies, other cereals are the most popular (60%), while pigs and poultry (20%), other agricultural products (8%), compound fodders (2%) and last closing the farm and letting land and buildings (10%). There is no intention to keep buildings and utilise for other purpose as storing. Once farming given up, it is more secure income from letting (or sale) than to risk the remained capital.

10.3.1.3 Intermediary production actors

Maize processing produces cleaned and dried maize. There are about 80 processing plants in Bács-Kiskun. The average number of workers is 8 per plant. 40% has typical size, 35% lower and 25% larger.

Production input

The price of cleaned and dried maize was between EUR 105 and EUR 160/t, and the average was EUR 132. This price have to cover the drying cost (and the cost or purchase price of the maize).

The most important drying cost is energy, amounting to 60%, while machinery (20%), workforce (10%), storage facilities (8%) and sales facilities (2%).

The most important energy component in Bács-Kiskun is gas, but its price elasticity is estimated only to 0.04, thus, no change in output of dried and cleaned maize is assumed for a price increase of gas. At the same time no substitute energy is considered.

Maize drying is not a labour intensive activity, and always made by hired labour. The personnel cost and the education level of these workers are similar in the county like in other activities.

Production output

The output of cleaned and dried maize in Bács-Kiskun modifies in a high interval annually (150-400,000 t), due to the changeable yield of row maize, and the humidity of the harvesting period. In average, 250,000 t can be assumed. Processors always break even; from the sales price EUR 7 profit is made in average, on an interval between EUR 5 and EUR 10. Likewise unprocessed maize, here also no import competition takes place, as prices are below the offered import prices.

Dried and cleaned maize is supplied to food processors (including compound fodder producers) in 34%, and wholesalers in 65%. End consumers' role is negligible in the chain.

Dried and cleaned maize is transported only regionally, not more than in a distance of 100 km. This actors rarely, if at all organise commonly any marketing activity with other actors.

Processors are commissioned by the maize producing farmers; thus, the product is owned by the farmers. The payment depends on the water content (usually 12-15%) of the seeds.

External effects

External effects have low or no relevancy. As already mentioned, the low labour demand, maize drying and cleaning provides low contribution the county's employment. However, young employees have similar contribution as other activities in the county, in case of other employee cohorts have lower or no contribution.

External factors

Legislation has low or no impact on the drying/cleaning activity. A little influence can be assumed by food safety, entrepreneurship regulation and social protection.

In sustainability, the economic dimension is very high (scored 9 in a scale of 9), the social dimension is middle (scored 5) and the environmental dimension is low (scored 3). The environmental dimension is valued by the energy use. The overall valuation of these dimensions: economic – 100%, social – 70% and environmental – 40%.

10.3.1.4 End consumption actors

End consumption actors are the pig producers. The name of the product consumed by the actor is maize fodder.

Demand

The demand of pig producers of Bács-Kiskun is about 200,000 t maize fodder. Its purchasing price has varied EUR 100 to EUR 170/t, on average EUR 135/t. The price elasticity of maize fodder is -0.12; minor decrease of demand can be estimated on response of price increase. If the income of pig producers increase, they would buy more maize fodder; the income elasticity of pig producers is 1.15 on purchase of maize fodder.

External factors

External factors have minor or no influences on pig producers with regards to maize fodder. Only organic production system would have a medium impact. However, even conventional maize fodder has become much more expensive in 2007; thus organic maize price has jumped to so high level, that extensive pig producers who

wanted to transform to organic production had to give up such plans. (It follows that organic maize is supplied to organic dairies and to export.)

10.3.1.5 Dynamics of the supply chain

Reasons for major shifts in the past

Since early 1990s, the maize production has doubled. In this expansion, policy changes were decisive. In mid 1990s, cereals were not supported, but even without that, they have belonged to the best products from economic points of view. In late 1990s, on the way of preparation to CMO, area payments were introduced. At Accession, the area payment has expanded in 2004. The other significant CMO measure is the intervention system. However, in the first two years, not farmers benefitted from the intervention, because producer price of maize was lower than the intervention level. The majority of farms, especially individual farms used to sell the maize at harvesting, thus to ease their cash flow problems. As most farms had no possibility to wait until CMO payments arrive.

2007 was a better year from this point of view, because survived farms have learned from the experiences, and also financial products are available to pass the period between harvest and payment, and the bad year of production increased the producer prices.

Thus the production has doubled, which achieved by rationalisation of technology and employment. Machinery also was renewed by a lot of producers. Intensification played only a medium effect.

Monoculture maize producing, however not typical; producers usually have crop rotation, thus decreasing pesticide and fertiliser use.

Effects of past shifts

The business size of maize production has increased; slightly increases the labourforce and the area of the farms, which strongly increased the economic size of farms. Labourforce contributed by 25%, area by 30% and the economic size by 45% to the higher production.

The production cost per unit has increased by 40%.

The highest contribution to the share of cost took place at land use (100%), energy (80%), pesticides (70%), and fertilisers (60%). Machinery and irrigation water price increased by 50%, labour 'only' 40%, storages facilities (30%) and purchase forage (25%).

The use of mineral fertilisers has increased most, by 40%. Other inputs, as pesticides and water by 10%, and energy by 5%. At the same time, fodder fell by 50%, which means a lower regional (domestic) demand also for maize.

At the same time common marketing partially has not increased.

The share of labour cost has decreased by 20%. The proportion of self-employed farmers increased by 10% to the wageworkers. Actually both decreased in physical number, but wageworkers more. As mentioned above, personnel costs have increased by 40%.

Prices and supports covered the increasing costs, and a slight increase of profit took place by 5%. The area of fallows decreased by 10% in the past period.

In the return of one unit of maize subsidy was estimated as 50% as the last years of the period.

Possible reasons for future shifts

A major increase is expected in the profit margin of maize till 2014, which would make an increase of 10-30%; in average 20%. Later, till 2021 a minor change would be continued, 0-5%; in average 2%. A major increase is forecasted for the demand for maize; which is estimated by 15% in average (10-20%). The probability of that estimation is quite likely.

Some options, which provided expansion in production in past, in future would have less impact, as rationalisation and intensification. No high effect is forecasted, but in medium relevance, Extensification and establishing processing activities and producing standardised products would produce the effect.

Alternative products would have less attractive benefits than maize. Economic dimension of wheat and other grains is scored only 6 in the scale of 9, and the social dimension 3. However, environmental dimension is scored higher, by 7. It follows that maize have quite stable position in keeping it in the current area. Another argument also emphasize the role of the maize: expanding winter crops would require higher machinery and machinery capacities in farms, which hardly have excess investments for that. Compared to other summer plants (e.g. summer wheat, oats etc.) maize is considered the best in Bács-Kiskun in the current maize areas.

10.3.2 Supply chain 2 – Pork products

10.3.2.1 General description

The pork chain is a special one among the analysed supply chains because the agricultural and forestry production actors in this case is the end consumption actor of another chain at the same time, namely the maize chain. In this case maize is produced only for animal breeding and not for human purposes.

The pork sector in Bács-Kiskun has actors on live pig producers, on slaughterhouses, on meat processing, on wholesaling and on retailing. There are about 20,000 live pig producers, but the great majority are subsistence and semi-subsistence farms. Actually, there are only 80 big commercial farms, but also they have great differences.

In live pig level, half of the producers are below 2 European Size Units, 35% belong to the category 2-6 ESU, and 15% are 6 ESU or larger. There is a high dichotomy among the producers with a range of 5 to thousands of pigs.

10.3.2.2 Agricultural and intermediary production actors

There are one big, 4-5 medium and 20-30 small companies in the slaughtering and meat processing sections. Some slaughterhouses: Borota Hús Rt. (joint stock company) and the following ones make only slaughtering: Beck-Hús Kft. (limited company) Csávoly, Hungary Meat Kft. Kiskunfélegyháza, Kunság Kft. Kalocsa.

Meat processing is made in the county by Borota Hús Rt., Aero-Meat Kft. Kiskunfélegyháza, César Kft. Izsák (also has slaughterhouse), Hartahús Kaszt Kft. Harta (also has wholesaling), Escuit Kft. Helvécia, Kalocsahús Kft, Kalocsa, Mihús Kft. Baja (also has wholesaling), Pedusc Kft. Kiskunfélegyháza (also has processing and storing), Zvertyel-Hús Kisszállás (also has wholesaling and retailing).

In most cases market actors are trying to concentrate on a small part of the intermediary chain stage. As it can be seen from the previous paragraphs, it can be either slaughtering (with no animal breeding) or processing (without even slaughtering). Big companies (or middle sized ones on national level compared to for example the worldwide known Pick) like Borota Hús Rt. is really unique from this aspect because this is the only company in the county, which has activity in all sections of the pork chain starting from fodder production to wholesaling.

The largest companies on County level are the following: Borota Hús Rt., META Kft. Felsőszentiván, Hemix-Takker Kft. Kiskunhalas, Agro-Land Kft. Kecskemét, Alföld Kft. Sükösd, Aranykalász Szövetkezet (coop) Bácsbokod, Agráripari Zrt. Bácsalmás, Búzakalász Szövetkezet (coop) Mélykút, Fülöp-Major Kft. Fülöpjakab.

Production input

The production cost is estimated by EUR 1, from minimum EUR 0.9 to 1.2. The highest cost item is purchased fodder at 52%. Personnel cost is estimated by 14%. Energy and medicines have 12% each, machinery 8% and storage facilities 2%.

In average, 1 kg pork requires 3-4 kg special compound fodder, and 0.05 m³. Price elasticity of the fodder and medicines are very low. Any price increase would not be followed by reducing the required quantities. By the way, most of the bigger producers are buying forage on the market and have not own production.

Machineries are of the producer; there are no commonly used machines. It is strictly forbidden by animal sanitary reasons.

In labour, the share of self employed farmers are high to hired workers in average: 75% is estimated. However, larger producers have wageworker staff. The personnel cost is about EUR 7,000 annually for a full time employee. This corresponds to the average level of that level. There is no special knowledge for that 60% of the workers have basic training, 30% secondary and 10% tertiary education.

Production output

About 20 thousand t live weight is produced annually in Bács-Kiskun in an interval of 180 to 210 t. The price of pigs in average is about EUR 1.05, from minimum 0.95 to maximum 1.3.

The producers partly break even in the county. The estimated profit is in average EUR 0.05, in an interval of EUR -0.05 to EUR 0.1.

Pigs have a 10% share in the GVA of Bács-Kiskun.

There is a high competition of imported live pigs, as their price is only at EUR 0.9.

Live pig output is sold to food processors, in a quite large, up to 200 km distance.

In this sector, common marketing activities rarely occur.

External effects

Some negative environmental effects occur in pig farms, but in a limited way: water pollution, loss of biodiversity and promotion of pests.

Employment of 55-64 age group corresponds to the average of the county, while other cohorts have low or very low contribution. Family ties for farmers have a medium relevance.

External factors

There is very little seasonality; actually all the 12 months have to make the job.

The influence of climate conditions mainly comes from the foddors: good weather provides low prices and bad weather does high prices.

In the past, pig illness caused some loss but of low importance.

As to subsidies, national support for medicines was given which was valued as a medium effect. Similar effect is estimated for the support for manure handling. Export refund is valued for low effects.

Till the end of April 2007, producers were entitled to receive national support. That was EUR 8/pig. But later the pig sector is not eligible for national supports.

Legislation on environmental protection has a high effect on pig farms. Animal welfare regulation is valued only on a medium level.

As to non-market influences on decision making, the major influence was the own self-assurance in choosing pig sector. Some influence was taken from family history and routines, and little influence by regional values and beliefs.

In choosing the way of production, the same self-assurance was the most important. Some influence was taken from the family traditions, and minor influence from not only regional values and beliefs but from neighbouring farmers and from agricultural chamber.

In marketing also self assurance is decisive. The same family history and routines also has some impact, and minor influence is taken from neighbouring farmers, agricultural chamber and media. The way of producing is limited by the given technology.

Economic dimension is the most decisive factor of sustainability as the highest score was given on the 9 grade scale. Environmental dimension is on the second with 8 scores, but social dimension was scored only by 3.

Given 100 to the economic dimension, the environmental one also received 100, and social dimension 50.

10.3.2.3 End consumption actors

After processing, wholesaling and retailing, 200 t pork has to be provided to local household and 15 t to tourists in Bács-Kiskun. Outside the region 3,800 t pork is provided.

Demand

The average consumption is 22 kg per person per year in Bács-Kiskun, which is below the national level. Before Transition it was higher than 30 kg, but after a serious fall at the beginning of 1990s a slow increase has stopped some years ago.

The average retail price of pork is EUR 2.,00 with an interval of 1.70 to 2.30.

The price elasticities of raw materials are very low on pork consumption: 0.48 for maize and 1.10 for slaughter pig. This can be explained by the strong position of

large retail companies, which try to restrict the intention of pig farms and processors to increase slaughter pig and carcass prices in order to maintain the demand of pork, as consumer price of pork has a high elasticity.

This strategy on the short run indeed results in to maintain or increase the pork demand of consumers, but on the longer run domestic providers may go to bankruptcy. Of course, the large retail companies may think that domestic producers easily can be substituted by imports.

External factors

The unique market position of pork has an average influence in choosing this product by the consumers. Other external factors, like organic production system, media or consumer organizations have minor influence.

From a consumer viewpoint, both economic and social dimensions have 6 scores on a 9 grade scale, and environmental dimension is scored by 4.

In the difference between the top and bottom of the scale, the following two of the three dimensions indicate between best and worst most important: economic versus environmental dimensions.

Give 100 to economic dimension, social dimension would receive 40, and environmental dimension 50.

10.3.2.4 Dynamics of the supply chain

Reasons for major shifts in the past

Since 1993, the pork consumption has fallen by 15%. In this period, the income increased by 20% in Bács-Kiskun. However, price changes alone do not explain the fall of consumption. Certainly some other effects, as healthy food considerations also contributed.

Both households and tourists inside the region increased by 5%, but households outside the region has been dropped by 5%.

Poultry was an alternative option for consumers (it merits attention that demand for poultry increased significantly), and ranked to the first place. Beef consumption is ranked as second, and its consumption decreased significantly (now can be around 3.5 kg per person annually). Third: sausages, fourth: standardised product, fifth: organic products, and sixth: directly marketed products. It follows that poultry (practically, chicken) and much less beef merit attention to consider.

In the changes three effects can be analysed: a medium effect from the decrease of incomes and increasing competition, and a minor effect from the increasing incomes.

Effects of past shifts

In the pig chain occurred significant changes in the past, namely, the labour productivity increased as labour force diminished, in pig farms by 20%, and in processing by 5%, and economic sizes increased, in pig farms by 30% and in processing by 10%.

Both in pig farms and in processing, production costs increased slightly. In both sections of the pig chain, energy has become more expensive, by 50%. Labour cost increased in pig farms by 30%, and in processing only by 15%. The purchased forage price increased in pig farms by 25%; the live pig price increased only by 5% in processing. Machinery prices also increased, in pig farms by 20%, and in processing by 15%.

The producer price of pig farms increased by 20%, but the processors report no price increase. In line with these developments, pig farms' profit increased by 20%, and the at processors profit decreased by 10%.

However, import competition increased for both actors. Imported competitive live pigs increased by 35%, and also there was a strong increase of imported carcass.

Among external effects on past changes, both actors had significant environmental pollution elements. As to employment issues, both actors had no changes or minor decrease.

Pig farms also report a strong decrease of the subsidies in share of return.

Possible reasons for future shifts

Experts consider that household incomes would probably increase by 10% in the period 2007–2021. A similar increase of demand for pork is also assumed (10%). A change in number of households in Bács-Kiskun is not probable, while outside the region it is, and a 5% decrease is estimated. The number of tourists would increase by 3%.

10.3.3 Supply chain 3 – Sunflower oil

10.3.3.1 General description

Before the Transition, a state owned trust monopolised the vegetable oil production. After that, it was sold in a single unit to an international investor. Since that a private monopoly continued the processing. However, there are about 80 processing companies, but the monopoly has 90-95% market share in Hungary.

The big processing company, Bunge has no plants in Bács-Kiskun.

As to sunflower, it belongs to favorite products of farms, and in many places would be difficult to increase its area.

10.3.3.2 Agricultural and forestry production actors

Sunflower seeds are produced by 30,000 farms in Bács-Kiskun. There is a high dichotomy in farm sizes: individual farms have 5 ha in average and 3 ESU in average; while agricultural corporations have 500 ha and more than 60 ESU. 70% of sunflower producers have less than 5 ha, 25% have 5-50 ha and 5% more than 50 ha. As to economic sizes, 50% of producers are lower than 2 ESU, 40% are 2-6 ESU and 10% are bigger than 6 ESU.

Production input

The average production cost is about EUR 240. No farm can produce it on less than EUR 180, but possibly no more than EUR 280.

In the structure of costs, the element of land rent is the largest: 23%. Energy has 17% share and both fertilizers and seeds have 13% each. Pesticides have 12% and labour cost only 7%.

Price elasticities of pesticides, fertilizers and seeds are very low, which means that not input prices but input needs is determining their use.

Common property of machineries is very rare, but farmers often use the services of companies.

The self employed farmers are much more numerous than paid workers. However, hired labour is better paid in sunflower production than in other agricultural activities. The annual payment would be EUR 8,500 on full time equivalent.

Half of the labour has basic training, 35% secondary education and 15% tertiary education.

Production output

The output of annual production in Bács-Kiskun, is 100,000 t, in an interval from 90,000 to 125,000 t.

The average producer price of sunflower is EUR 220, which varies from EUR 180 to 270. In 2007, the production was loss-making in the county, profit varied from EUR 0 to -10, in average EUR -2.

Without subsidies sales prices are less than the production costs. Producers can do break even only with subsidies (mainly SAPS).

Sunflower has an 8% share in GVA of the county. Import competition is not relevant as prices are lower than in other Member States.

Sunflowers are sold to processors in 30% and to wholesalers in 70%, which actors export the product. Producers sell in a maximum 100 km distance.

With other farmers rarely, but with wholesalers often make common marketing activities.

External effects

Intensive arable crops provide a risk for producers in the form of increasing number of pests. Some negative environmental effects can cause problems, as loss of fertility due to lowfertiliser doses, promotion of pests or uncovered fields in winter.

Some positive environmental effects take place even with relevance, as contribution of agricultural land use to protect cultural heritage and cultural landscape, also appealing to tourists, contribution to biodiversity, and contribution to human recreation.

Sunflower provide job for 6,000 persons in Bács-Kiskun, which is a rather low contribution to employment. Male employees contribute to production as other sectors in the county, while female and young employees are less represented.

External factors

The production period of the sunflower lasts for 7 months.

The highest impact on the production is made by rain and sunny days. They have even higher effect than the quality of soil, which has great differences in Bács-Kiskun.

Among natural hazards, drought has the highest risk, even higher than flood events, hail, erosion and pests.

In CMO measures, SAPS, AES and LFA have the highest impact, while SAPARD have had a low influence on sunflower in the county. Among sectoral CMO measures, intervention is the most important, while export refunds have only a little impact in Bács-Kiskun.

The most significant influence of legislation comes from the rules of land leasing. The relatively short leasing period and little protection of tenants have negative effects. Still have a medium impact of water and fertiliser use and turning agricultural lands to construction regulations. Food safety, protection of wild animals and social protection legislations have low influence on sunflower production in Bács-Kiskun.

Farmers of this county are criticising most the high water prices for irrigation (this is why it is not used) and the too low limitation of N-use. Both are contributing in low yields, which is still higher than the national average.

The major influence in choosing sunflower to produce was by own self-assurance. Some effect was made by family traditions and influence of NGOs, and other effects like agricultural chamber, neighbours, local beliefs, etc were minor.

The way of production and of marketing also were chosen by the own self-assurance, and other options have had much less or no significance.

The economic dimension of sunflower is valued better than most other alternative product and receive a score 7 in a scale of 9. Social dimension in this scale is middle, 5, and the environmental dimension is the same, 5. The weight of these dimensions are valued as follows: economic dimension – 100%, social dimension – 70% and environmental dimension – 40%.

10.3.3.3 Intermediary production actors

In Bács-Kiskun sunflowers are processed only by cold extruding. There are two medium sized processors, NT Kft. Kiskunfélegyháza and Robiol Kft. Szabadszállás. The third was a small company, Kele és Társa Kft. Kecskemét, but gave up sunflower processing in 2007, due to high raw material prices. These companies also produce refined sunflower oil, but increased prices did not allow them to continue that processing. Cold extruded sunflower oil is used for cooking and salads. It has higher consumer price, thus more expensive raw materials also can be processed for a while.

The average turnover was EUR 400,000. The small company employed 2, the largest 10 workers.

The production cost of cold extruded oil is EUR 1.1; from EUR 1 to 1.3. The highest cost item is the purchase of sunflower seeds, 60%. Energy has 15%, machinery 9% and labour cost 8%. Still 6% to storage facilities and 2% to sale (retail) had to calculate.

The share of labour is low as resource of production. The personnel costs less in oil processing, compared to the average labour costs in the region.

From 1 t sunflower seed about 300 l of cold extruded sunflower oil can be produced. Because of the high (doubled) input prices, during 2007, processors has suspended their production.

The last sales prices per litre to the next stage of the supply chain was EUR 1.2 (from 1.1 to 1.3). The profit per litre was EUR 0.1. When costs achieved the level of sales price, processors suspended that activity.

The contribution of the product to the GVA of the county was estimated to 4%.

Demand

The product was sold to wholesalers by 70% and to consumers by 30%. It was sold in a maximum 200 km. Competition was not too sharp. No marketing activity was made.

External factors

The contribution of the production was low in employment. However, young employees had a similar contribution as other activities in the county.

In legislation, HACCP and organic-control fee had a medium level influence on the production; food safety, entrepreneurship and employment regulations had a low impact.

Economic dimension of the sustainability is scored by 7 on a 9 grade scale; social dimension 4, and environmental dimension 3. Given 100% to economic dimension, social would be valued by 40%, and environmental dimension by 50%.

10.3.3.4 End consumption actors

According to the national statistics and interviews with some experts the consumption of cold extruded sunflower oil is only about 3-5% of the total oil consumption. It means approximately an average of 0.5 l per person. Some part of the production goes abroad (mainly to Italy) and another significant part is bought by (bio)restaurants. The main factor of low consumption is the higher price (because of the method of extraction more oil remains in the seeds, therefore the oil production is less than in case of refined sunflower oil). The price is still the most important for consumers, however the cold extruded oil is more healthy.

The average price is EUR 1.4 per litre, however it is not possible to buy the product everywhere. Because of low relatively consumption, supermarkets are not dealing with this product. The influence of media in parallel with increasing income can lead to higher consumption. Another significant (present but mainly future) factor is the increasing demand for organic products and cold extruded sunflower oil can be easily produced in organic way, it depends only on the raw material.

10.3.3.5 Dynamics of the supply chain

Reasons for major shifts in the past

In suspending production, the most important pressure was the increase of raw material (sunflower seed) by 30%. The role of declined revenues was 20%, too

high investment needs 20%, increased competition 10%, shortage of sunflowers 10%, increased labour cost 5% and increased interest for credits 5%.

Effects of past shifts

In the developments of the production, there was no change in the number of employees, but the economic size increased by 20%. The production cost increased by 50%; and in this the price of sunflower seeds by 55%, workforce, energy and machinery by 5% each.

At the same time output price increased only by 10%. The sales increased to end consumers by 70% and to retailers by 30%.

Possible reasons for future shifts

No change is expected on the profit margin in the next 7 years.

Options for the future with high preferences are establishing retailing activities by own shop with restaurant; organic production or organic fruits. Less preferred options are to change the key sales market to organic production and to change in the supply chain position. Options with low preference are to rationalise technology and to establish processing activities of organic products.

10.3.4 Alternative supply chain – Sweet corn

10.3.4.1 General description

Sweet corn as an alternative product is mostly the consequence of the obligatory crop rotation. However it seems to be similar to maize but some of its characteristics are totally different: it is for human purposes, it has higher yields (because of the higher water content) and almost no export orientation as raw material, and the whole supply chain refers to these differences. As an alternative product, the role of sweet corn in Bács-Kiskun is less than maize's one, it is about 10% of it.

In general, most of the producers are (big) corporate farms which results in concentrated supply. Because of the high water content of the raw material the transport is more limited. The main and most important characteristics of the production is the contracting, almost 100% of the production is covered by contracts because of the relatively short time limit between the harvest and processing (the sweet corn can not be stored for long time). It means higher production risk compared to maize.

In the processing level, there are two major options:

1. process the sweet corn to frozen corn and market it;
2. process it in a cannery and sell as a tinned food.

The prices of basic crop products (wheat, maize) were high in year 2007 and it resulted satisfactory income for agricultural producers. For this year we expect lower, but also high prices which can make sweet corn production less favourable, although generally corporative farms have this product in their product mix.

10.3.4.2 Agricultural and forestry production actors

Production input

Sweet corn producers are mainly corporate farms, which results different averages compared to the other analysed main products:

- small number of farms, only about 600
- the average persons per production unit is above 10 and almost 100% is paid workers
- high average farm size (about 60 ha).

Because of the production structure most of the producers have educated management.

The technological background of the production is satisfactory, the yields are about 12 t per hectare. Because of the high water content of the raw material the reasonable transport distance is 50 km. On the other hand the harvested product can not be stored for long time, so almost the entire production is covered by contracts and the whole process is organised by the processors

The most important cost item of production is side by side land use and seeds (25-25%), which covers half of the total production cost. These items are followed by pesticides (16%), fertilisers (14%), machinery and workforce (9-9%). Energy came last with 6%.

Production output

Sweet corn sector provides about 3% of GVA in Bács-Kiskun with the average production of 150,000 t.

Sales prices fluctuated between EUR 70 and EUR 120 with an increasing trend. The average producer price was EUR 95. These numbers are significantly less than maize prices, but we should take into account the 50% higher yields of sweet corn. The threat of imported competitive products is not relevant because of the economically low transport distance.

Under the current prices revenues and costs are in balance, the average profit per ton is only EUR 5. However the production seems profitable in every year because of the area payments (SAPS and top-up).

The main characteristics of the supply chain is the distribution of the sweet corn to the next stage, because 100% goes to food processors (cold storage or cannery).

External effects

As in case of maize moderate use of fertilisers and pesticides is the typical way of production. Intensive cultivation is less extended in the county; thus, its negative environmental effects are less relevant. However, promotion of pests, namely maize beetle, still have perceptible impact as the use of GMO technology is prohibited in Hungary under the law. The affect of climate change also seems more and more important, as for example year 2007 suffered both from drought and frost.

Sweet corn sector has itself small to GVA (3%), so it is not surprising that it has very low impact on the labour market with about 3,000 workers in the whole County. Most of the employees are aged between 25 and 55.

External factors

Among environmental preconditions, the climate conditions have the highest impact on the production, namely rain and sunny days. They have even higher effect than the quality of soil, which has great differences in Bács-Kiskun.

Among natural hazards, drought has the highest risk, even higher than flood events, hail, erosion and pests.

In CMO measures, SAPS (in line with the production-linked CNDP), AES and LFA have the highest impact, while SAPARD have had a low influence. Among sectoral CMO measures, there was no intervention and export refunds for sweet corn.

The most significant influence of legislation comes from the rules of land leasing, which has even higher relevance for sweet corn production as the paid rental is about 25% of the total production cost. The relatively short leasing period and little protection of tenants have negative effects. Still have a medium impact of water and fertiliser use and turning agricultural soils to building land regulations. Food safety, protection of wild animals and social protection legislations have generally low influence in Bács-Kiskun, the production is not affected by them.

Farmers of this county are criticising mostly the high water prices for irrigation (this is why it is not used) and the limitation of nitrogen fertiliser use. Both are contributing in low yields, which is still higher than the national average. However it should be highlighted that production risk of sweet corn is higher than of maize.

The major influence in choosing sweet corn to produce was contracts, however the final production decision is made by own self-assurance. Some effect was made by family traditions and influence of NGOs, and other effects like agricultural chamber, neighbours, local beliefs, etc were minor.

The way of production is dominantly determined by the own self-assurance, and other options – except family history and routines – have had much less or no significance.

In case of marketing the family background or self-assurance play less important role, that is driven by buying up contracts and no needed real marketing activity.

The economic dimension of sweet corn received a high value (score 8 and 7), which reflects the overall problems of Hungarian agriculture. Social dimension in this scale is much lower (only 4), but would have been higher if we consider good performance. It is more or less the same with the environmental dimension. The weight of these dimensions are valued as follows: if the economic dimension measured by 100%, then social dimension has 40% and environmental dimension has 50%.

Diversification

The overall relevance of sweet corn is low, only 15% to other gainful activities in other supply chains. Considering alternative strategies, other agri-products (mainly cereals) were the most popular (70%), while for example pigs and poultry received only 10%. The possible way of diversification seems income from outside the agriculture, namely letting land and buildings (10%). In case of sweet corn it means only letting land because after harvesting the raw material should be transported to the processor as soon as possible, so there is no for example storage capacity of the producers.

10.4 Investigating social networks

The following governmental and non-governmental organisations are operating in Bács-Kiskun:

The Agricultural Public Administration Bureau is resides in Kecskemét, the capital of the county. This is the territorial branch of the Ministry of Agriculture. It supervises the network of 'village stewards' which provides extension service, but also has some administrative functions, especially in tendering and in management of the policy measures.

Paying agency is the Agricultural and Rural Development Agency with its territorial organisations. This governmental organisation is in headquarters (in Budapest) supervised by the Ministry of Agriculture and Rural Development, but in the counties, work independently from the Agricultural Public Administration Bureau.

For long, policies were connected to territorial development. This connection was not deliberately established but it targeted some environmental goal or the utilisation of some touristic potential, which was for instance the development of the hot spring in Kiskunmajsa. However, it was not a planned action as part of a

development plan for a larger area, just favourable coincidence of developments in the context of strong lobby power. After the decision was made, of course it was explained by the mutual benefits of agriculture, the utilisation of alternative energies and the development of the local tourism.

Before Transition, territorial development was mainly connected to the establishment of industrial programs. After the ruin of Communism, this system it needed to find a new intention. So has been formed the developing system according to the European practice: the principle of additive support with competition of the local (self) governments of settlements.

The sources were provided by different Ministries. So there were 15-20 kinds of measures, uncoordinated.

A typical fact from 1991 to 1998, for the whole Hungary: the developing support was fixed territorially as HUF 123,000 per person in average, while the GDP growth HUF 250,000. Bács-Kiskun's position was worse: 44,000 per capita supports and 56,000 growth of GDP. However the total support could be far more in some territorial units, perhaps ten times of GDP growth, but the territorial statistics could not follow that.

The Accession to EU-Membership resulted in the declaration of the programming system, what could make possible a complex territorial development. However, this did not created yet visible effects. The base document of the support of EU is the National Developing Plan is being made for 2007-2013, contains the principle of programming too, as a part of the support. Possibilities could be primarily in the system of countryside development (rural development). Unfortunately, the central government does not consider it very important.

The main actors of Hungarian territorial development are generally – by the laws – the local governments (about 3,200 settlements and 19 counties + Budapest). Supports by competition are used for development of local infrastructure, and no for local economy. There are still supports for development of enterprise, for instance for generating new work places. A company can usually receive HUF 1.5-2 mio (about EUR 6-8,000) support for one workplace, while a multinational company receives from government HUF 20-30 mio (about EUR 80-120,000).

The economic policy of the government prefers the international capital and the corporate farms, with an eye on the competitiveness. They provide 85% of exports, and only 15% of employment. SMEs are dispreferred, and the family farms, too. There is a national policy to provide life-annuity for lands; in order to collect and give to farming on a large scale, and since 2007 probably to joint-stock companies. International capital and large agricultural estates are hardly having interest on local economy and employment.

The central government gives up very slowly its omnipotence about decisions. As a European claim, are organised the (NUTS 2) regions since 2004, but the effective

decisions depend on representatives of ministries. The representatives of local governments and local economy are in minority in decision boards. There are not prepared complex plans for regions. Some attempts were made for regional planning in 2001, but they failed, due to lack of governmental decision.

Since 1997 the settlements started to organize common managements in the sub-regions (NUTS 4). However the government does not intend to rely upon local plans which could be co-ordinated. At moment, rural development an especially multifunctional agriculture has not yet too much importance.

The territorial assistance exists since Transition, with 0.1-0.15% of GDP. Since 1998, there is a found for rural development, since 2001 the SAPARD as a European assistance. Since 2004 we had an National Developing Plan with EU-assistance, and now is beginning the Second National Developing Plan (2007-2013). The rural development is a part of them.

However in this package the part for rural development is planned to be small. In the framework of agricultural-rural development the rural and environmental development, the diversification of local economy and the local co-operation (LEADER) represent together only 25-30%, the obligatory minimum according to EU, and it is concentrated to the competitiveness of the agriculture (commodity function).

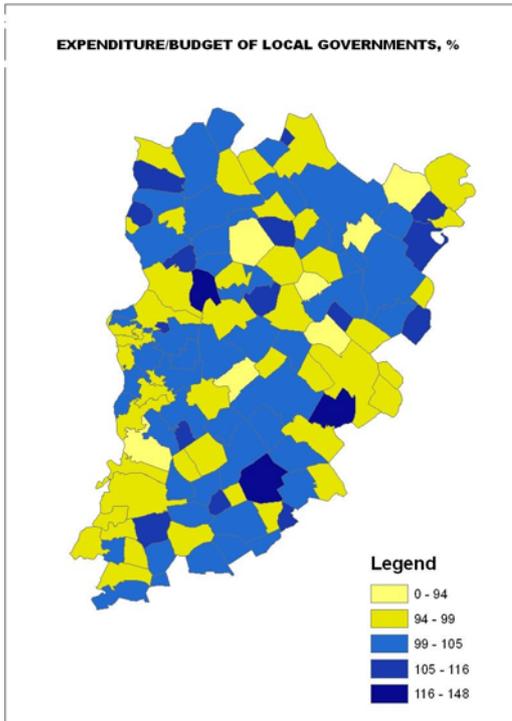
About Bács-Kiskun, there are two great central projects in the National Plan: electrification of homesteads and irrigation of Sandback.

Bács-Kiskun was always a special territory, where actors always have struggled for some autonomy. Now there are more smallholders than the national average. However a grave problem is the lack of capital, and the small inclination to cooperate, and without that it would not be possible for smallholders to gain markets. The idea of co-operation was abused before Transition. There are slowly emerging new co-operations, e.g. organic agriculture in Fülöpjakab and a non profit organisation in Lászlófalva. They are initiated by local governments, those which have possibilities to acquire financial assistance for these projects.

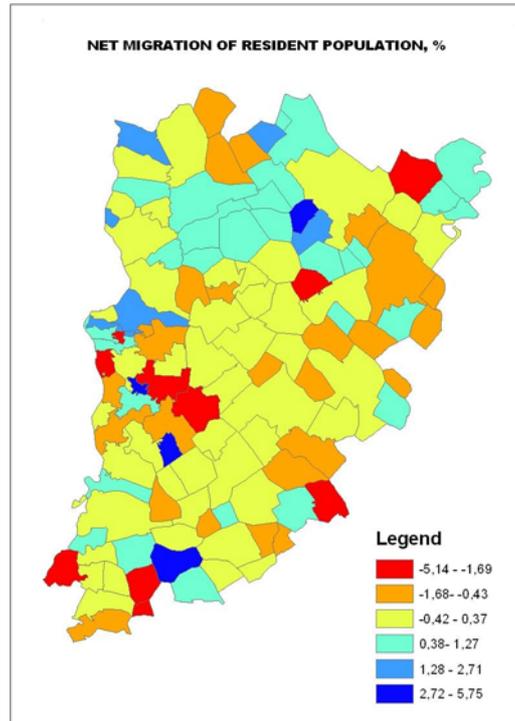
As to the Sandback, from a special disadvantage could be created a real advantage. The arable land is very poor, not suitable for cereals – but these cereals have in EU grave selling problems. However those land could be used for extensive organic and labour-intensive production, where which market would be more secure and would improve the local employment, too.

It is a general problem that the local economy, the main possibility of prosperity, is not organised; all planning stops before retailing. The "grey economy", which is estimated 25 to 30% of GDP in Hungary, and certainly higher in Bács-Kiskun, also makes the local economy instable. Nowadays, when taxation is expanding, certainly will increase "grey economy", thus prospects of local economies are deteriorating.

Map 86 Expenditure/budget of local governments (in %)



Map 87 Net migration of resident population (in %)



11 IRELAND: SOUTH WEST (CORK AND KERRY)

11.1 Describing the region

11.1.1 European and national context of the region

The South West of Ireland is a region with diverse social, cultural, economic, physical and policy-development issues. With an area of 12,161 km², the region comprises of two counties – County Cork and County Kerry. The region's approximately 620,000 (CSO, 2002) inhabitants live across a range of diverse areas – ranging from modern urban settings to small rural towns, isolated farms in mountain areas, islands and peripheral, small villages.

The dominant use of land is pastures. Pastures account for more than half (55.2%) of all land use. By comparison, arable land forests and heterogenous areas represent a relatively small area of land at 6.1%, 4.4% and 3.7% respectively.

Map 88 Location of Cork & Kerry in South West Ireland



Source: www.tipp.ie

The region has a highly developed, modern, high-technology-based economy, supported by a high-quality environment. People of the region enjoy attractive

landscapes and a deep cultural heritage. The past decade has witnessed sustained investment in new roads, sanitary services, telecommunications and related infrastructures. Government-led investment programmes continue to prioritise investment in supporting health and educational facilities. The South-West region contributes EUR 22,298 bn (2002 values) towards the Irish GDP. The harbour area to the immediate east of Cork city is home to a large number of pharmaceutical and medical companies (Cork County Council, 2007). The Department of Local Government oversees the operation of the local government system and implements policy in relation to local government structures, functions, human resources and financing. Local government in Ireland consists of a number of local and regional authorities at county and city and at regional level.

Cork

There are over 100 towns and villages in county Cork. These are listed below in alphabetical order (Cork County Council, 2007).

Table 316 Towns and Villages of County Cork

Adrigole	Bantry	Crookhaven	Innishannon
Aghabullogue	Barleycove	Crossbarry	Inchigeela
Aghada	Blarney	Doneraile	Kanturk
Allihies	Buttevant	Douglas	Kealkill
Ballinadee	Carrigaline	Drimoleaue	Killavullen
Ballinascarthy	Carraig na bFhear	Drinagh	Kilbrittain
Ballincollig	Carrigtwohil	Dromahane	Kilcrohane
Ballineen	Castletownbere	Dunmanway	Killeagh
Ballinhassig	Castletownroche	Durrus	Kilmeen
Ballinlough	Castletownshend	Enniskeane	Kilmichael
Ballinspittle	Castlemartyr	Fermoy	Kinsale
Ballycotton	Charleville	Fountainstown	Knocknagree
Ballydehob	Clonakilty	Glenbrook	Ladysbridge
Ballydesmond	Cloyne	Glanmire	Leap
Ballygarvan	Cloyne	Glengarriff	Mitchelstown
Ballylickey	Cobh	Glandore	Mizen
Ballyvourney	Coolea	Glenville	Head
Baltimore	Cork	Glounthaune	Monkstown
Bandon	Courtmacsherry	Goleen	Ringaskiddy
Banteer	Crookhaven	Gougane Barra	Rockchapel
Macroom	Newcestown	Saleen	Rosscarbery
Mahon	Newmarket	Schull	Rostellan
Mallow	Newtownshandrum	Shanagarry	Rylane
Midleton	Oysterhaven	Skibbereen	Tower
Millstreet	Passage West	Timoleague	UnionHall
Whitegate	Whitechurch	Youghal	

Source: Cork County Council, 2007

40% of Cork's population is under 25, the population is growing by 2.5% per annum, the workforce is growing by 5% per annum, 60% of third-level students are studying engineering, science or business, Cork has the highest number of computer science graduates per 100,000 in OECD, Cork has the lowest percentage of over 65s in Europe (11%).

Kerry

With an area of 1,815 sq. miles (x 1.6 for km²) Kerry is the fifth largest of Ireland's thirty-two Counties. The County contains some of Ireland's most attractive scenery, a combination of high mountain, low rolling hills, lakes, rivers, bog land, rugged coastline and off-shore islands. The country's highest mountains are to be found in Kerry. It has ten of the country's twelve peaks in excess of 3,000 ft. including Ireland's highest, Carrantuohill (3,414 ft.). The rugged hills and mountains are generally found in the south and west of the County, with the central area and northern part comprising relatively fertile pasture land (Kerry County Council, 2007)

There are over 50 towns and villages in County Kerry. They are listed in Table 317 below.

Table 317 Towns and Villages of County Kerry

Abbeydorney	Dunquin	Lispole
Annascaul	Castlemaine	Feothanach
Ardfert	Castleisland	Finuge
Ballyferriter	Causeway	Fenit
Ballybunion	Cordal	Gneeveguilla
Ballyduff	Currans	Kenmare
Ballinskelligs	Currow	Kilflynn
Ballyheigue	Derrynane	Kilgarvan
Brosna	Dingle	Killarney
Ballymacelligott	Duagh	Killorglin
Ballylongford	Farranfore	Kilmoyley
Castlecove	Milltown	Knightstown
Castlegregory	Listowel	Knocknagoshel
Cahersiveen	Lisselton	Ventry
Caherdaniel	Lixnaw	Waterville
Rathmore	Moyvane	Sneem
Scartaglen	Portmagee	Tralee

Source: Kerry County Council, 2007

Tourism is now the largest industry with over 1.7 mio visitors per year. There is a rich literary tradition, particularly as the northern part and a number of new authors/poets/playwrights has emerged from this area in recent years. The manufacturing industry is a significant contributor to economic development and employment creation. The manufacturing industry accounts for about 17% of the

workforce with small enterprises becoming an increasingly important source of valuable employment.

Forestry is a significant and growing industry with in excess of 25,000 ha currently planted. Fishing and aquaculture are very important, growing industries also. Tralee is the largest town in Kerry. The town's population, including suburbs, was 22, 744 at the 2006 census making it the 7th largest town in Ireland (excluding the 5 cities) (Kerry County Council, 2007).

There are about 35 farmers markets in Cork and Kerry and these are listed in the table below.

Table 318 Farmers/Country Food Markets in Cork and Kerry

Cork	Kerry
Douglas Market	Dingle Market (Dingle County Kerry)
English Market	Tralee Market county Kerry
Coal Quay	Kenmare Market County Kerry
Bantry Market	Miltown Organic Market County Kerry
Blackwater Valley	Sneem Market County Kerry
Inchigeelagh Market	Caherdaniel Market County Kerry
Midleton Farmers Market	Caherciveen Market County Kerry
Skibbereen Market	Castlemaine Market County Kerry
Castletownbere Market	Listowel Food Fair County Kerry
Dunmanway Market	Killarney Country Market County Kerry
Clonakilty Market	CYMS Hall County Kerry
Ballydehob Market	Mitchelstown Market (Cork)
Macroom Market	Schull Market (Cork)
Cobh Market	The Clock Gate Farmer's Market(Cork)
Fermoy Market	Mahon Point Market (Cork)
Duhallos Farmers Market	Kinsale Market (Cork)
Blackwater Valley Farmers Market	Ballincollig Country Market (Cork)
	Bandon Market(Cork)

11.1.2 Environment

11.1.2.1 Spatial structures

The coastal mountains vary greatly in geological structure. In the south, the mountains are composed of old red sandstone with limestone river valleys between. In Kerry and Cork, glaciation has accenuated this topography. Where the valleys of west Kerry and Cork have been flooded by the rising sea deep rias with mountainous peninsulas have been formed. Rivers flow eastwards or westwards along these valleys. At the points where they breach the ridges, the rivers turn suddenly south. This is a characteristic feature of this region of Ireland (wesleyjohnston, 2007).

Table 319 Land Use Form

Land use form	Total Area (total area (Km ²))	As percentage of total
The total area in km ² of the South West of Ireland	12,306.8	100
Artificial surface		0.9
Arable land	756.7	6.1
Permanent Crops	0	0
Pastures	6,793.1	55.2
Heterogenous areas	459.4	3.7
Forests	536.4	4.4

Source: Wesleyjohnston 2007

11.1.2.2 Environmental protection

Statistical profile

Energy Consumption: The Percentage change in CO₂ emissions between 1992 (33.11 mio t) and 2003 (44.45 mio t) was approximately a 33% increase in emissions. In 1994 the gross consumption of energy was 7,799,000 t. By 2005, the gross consumption of energy was 12,346,000 t.

Regional View

Protected areas (National Parks) include Killarney National Park Kerry, Doneraile Wildlife (Cork), Fota Arboretum and Gardens (Cork), Inlacullin (Cork). Ireland's objective is to conserve habitats and species by designating conservation areas. This is required under European law and national laws. The Department of the Environment, Heritage and Local Government is responsible for the designation of conservation sites in Ireland. The Department works with farmers, other landowners and users and national and local authorities in trying to achieve the best balance between farming and land-use on the one hand, and requirements for conserving nature in the selected areas on the other. (NPWS, 2007). Natural heritage areas in the South West are listed in the table below.

Figure 175 Natural Heritage Areas

Natural heritage Areas in the South West	
Cork	Kerry
Hungry Hill Bog	Anna More Bog
Dereenatra Bog	Knockroe Bog
Trafask Bog	Slaheny River Bog
Conigar Bog	Bunnarruddee Bog
Pulleen Harbour Bog	Sillahertane Bog
Leahill Bog	Doughill Bog
Boggeragh Mountains	Knockatarriv/Knockariddera Bog
Mount Eagle Bogs	Mount Eagle Bogs

Source: NPWS, 2007

Special conservation areas in the South West are listed in the table below.

Figure 176 Special Conservation Areas

Special Conservation Area	
Cork	Kerry
Ballymacoda-Clonpriest and Pilmore	Caha Mountains
Glengarriff Harbour and Woodland	Akeragh
Clonakilty Bay	Ballinskelligs Bay And Inny Estuary
Caha Mountains	CastlemaineHarbour Old Domestic Building
Lough Hyne Natural Reserve and Mountains	Dromore Wood
Roaring Water Bay and Islands	Kilgarvan Ice House
Sheep's Head	Killarney National Park
St. Gobnet's Wood	Macgillicuddy's Reeks And Caragh River Catchment
The Gearagh	Valencia Harbour/Portmagee Channel
Three Castle Head To Mizen Head	Kerry Head Shoal
Killarney National Park Macgillicuddy's Reeks And Caragh River Catchment	Lough Yganavan & Lough Nambrackdarrig
Barley Cove To Ballyrisode Point	Banna and Barrow Harbour
Cleanderry Wood	Mucksna Wood
Great Island Channel	Cloonee And Inchiquin Loughs Uragh Wood
Kilkeran Lake And Castlefreke Dunes	Sheheree (Ardagh) BogTralee Bay & Magharees Pensinula
Myross Wood	Mount Brandon
Courtmacsherry Estuary	Mullaghanish Bog
Castletownshend	Kenmare River
Derryclogher (Knockboy) Bog	Basket Islands,Blackwater River (Kerry)
Glanmore Bog	Slieve Mish Mountains,Drongawn Lough
Mullaghanish Bog	Glanmore Bog
Ballyhoura Mountains	Old Domestic Bldg Curraglass Wood
Carrigeenamronety Hill	Askive Wood
Kenmare River	Ballyseedy Wood
Lower River Shannon	Old Domestic Building
Blackwater River (Cork/Waterford)	Maulagowna Bog
Bandon River	Lower River Shannon
Farranamanagh Lough	Magharee Islands
Dunbeacon Shingle	Glanlough Woods
Reen Point Shingle	Moanveanlagh Bog

Source: NPWS, 2007

Special protection areas in the South West are listed in the table below.

Table 320 Special Protection Areas

Special Protection Areas	
Cork	Kerry
Old Head of Kinsale	Puffin Island
Ballycotton Bay	Skelligs
Ballymacoda Bay	Basket Islands
Blackwater Estuary	Lough Gill
Cork Harbour	Tralee Bay
The Bull And The Cow Rocks	Castlemaine Harbour
Blackwater Callows	Killarney National Park
Kilcolman Bog	River Shannon And River Fergus Estuaries
The Gearagh	Akeragh Banna And Barrow Harbour
Sovereign Islands	Eirk Bog
	Magharee Islands

Source: NPWS, 2007

11.1.2.3 Preconditions for agriculture

Statistical profile

Natural hazards and disasters in the South West region have been relatively few. There has been no burnt out area of any significance. There was just 1 regional flood between 1996 and 2002 and there were 5 large scale droughts over a 90 year period (1904-1995).

Figure 177 Natural Hazards and Disasters

Burnt out area	(0 km ²)
Number of forest fire areas that are greater than 500 km ²	0
Size of burnt out area in km ²	0
Population density for flood events 1999	2
Degree of vulnerability for fold events in 1999-2000	3
Regional Number of flood hazards (1996-2002)	1
Regional Flood risk colour code	31
Number of large scale droughts (1904-1995)	5

Source: NPWS, 2007

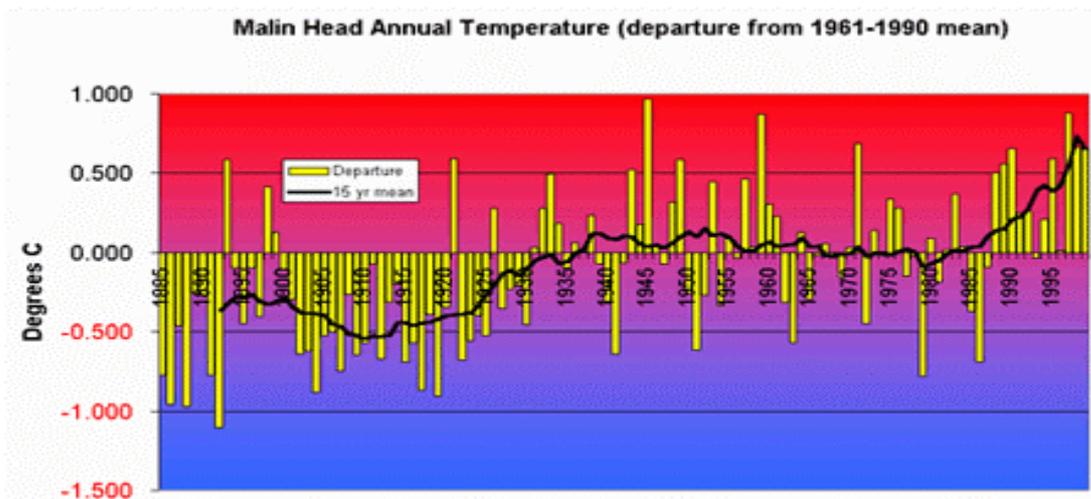
Regional view

The Atlantic Ocean is the dominating influence on Ireland's climate. As a consequence, Ireland does not suffer extremes of temperature that are experienced by many other countries at similar latitude. Average annual temperature is about 9 °C. In the middle and east of the country, temperatures tend to be more extreme

than in other parts of the country. For example, summer mean daily maximum is about 19 °C. Winter mean daily minimum is about 2.5 °C in these areas. Mean annual wind speed varies between about 4 m/sec in the east midlands and 7 m/sec in the northwest. Strong winds are more frequent in winter than in summer. Sunshine duration is highest in the southeast of the country. Average rainfall varies between about 800 mm and 2,800 mm. With South-Westerly winds from the Atlantic dominating, rainfall figures are highest in the northwest, west and southwest of the country especially over the higher ground. Rainfall accumulation tends to be highest in winter and lowest in early summer. The annual number of days with more than 1 mm of rain varies between about 150 in the drier parts and over 200 in the wetter parts of the country (Met Eireann, 2007).

The diagram below shows the mean annual temperature at Malin Head Meteorological Station expressed as the departure from the 1961 to 1990 normal in degrees Celsius. The black line is the average of the 15 year period centred on the year in question.

Figure 178 Malin Head annual temperature



Source: Met Eireann, 2007

11.1.2.4 Preconditions for rural development

Statistical profile

Access to Airports, Seaports and Motorways can be taken from Table 321.

Table 321 Access to Airports, Seaports and Motorways

Access to airports seaports and motorways	Hours
Connectivity to the nearest airport by car	1.14
Connectivity to the nearest seaport by car	3.00
Time to nearest motorway access by car	3.00
Connectivity to transport terminals by car was	0.59

The share of households (in Ireland) with **internet access** (broadband and dial-up) in 2009 was 50%.

Regional focus

Rail Network: The Iarnrod Eireann Rail Network serves the Main station terminals of Cork city and Tralee and the regional stations of Charleville, Mallow, Banteer, Millstreet, Rathmore, Killarney, Farranfore, Glounthaune, and Cobh. (Irish Rail, 2007).

Road Network: The road network in the South West is quite extensive. It consists of a number of National Roads and numerous regional and secondary roads.

The National Roads (N) in the region include the N25 (Cork to Rosslare Port) N28, (Cork to Cobh) N27, N22 (Cork to Killarney) N71 (Cork-Clonakilty, Skibereen Bantry, Glengariff, Kenmare) N20 (Cork-Mallow-Limerick) N70 (Tralee Kilorglin Cahirciveen Kenmare) N86 (Tralee-Dingle) N21 (Tralee-Limerick) N69 (Tralee-Listowel) N8 (Cork-Fermoy).(Cork County Council, 2007, Kerry County Council 2007).

Waste Management: Cork County Council's Divisional Services are responsible for waste collections in three divisions of County Cork – North Division Waste Management, West Division Waste Management, and South Division Waste Management Cork. The Divisional Services deal with the collection and disposal of waste and the provision of waste facilities and civic amenities. Cork County Council also collects recyclable waste direct from households and some commercial outlets on all its collection routes in the North Cork area (Cork County Council, 2007)

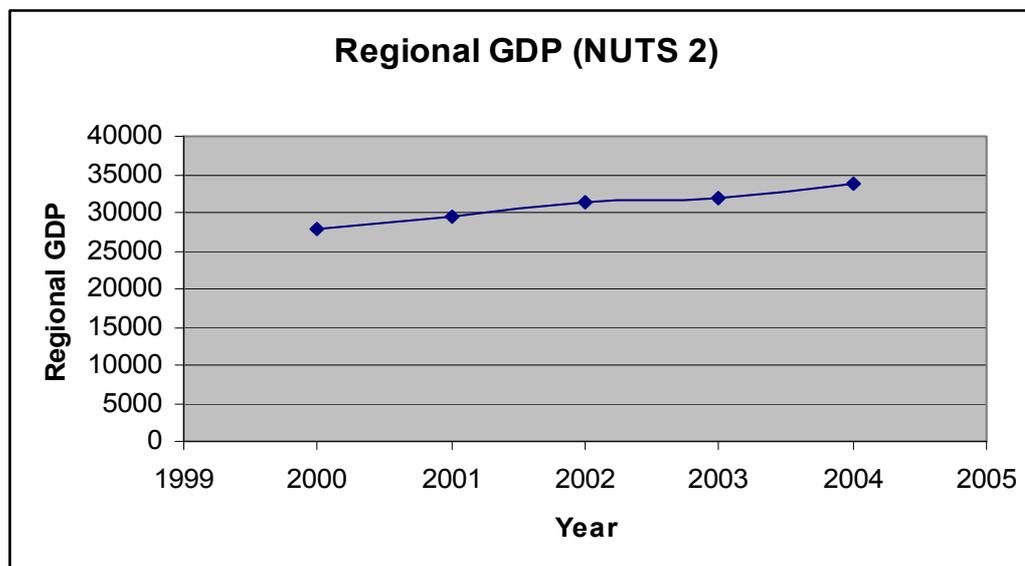
Health Infrastructure: Cork has at least 150 General Practitioner Practices (approximately one per 3,000 people). Many of these practices employ a few General Practitioners. Cork also has seven acute hospitals, two maternity hospitals, and five Child Protection Social Work services. Kerry has 75 General Practitioner practices (approximately one per 2,000 people). Each of these practices may have more than one GP. Kerry has one general hospital.

Energy: The South West Region's energy supply comes from the Electricity Supply Board (coal, oil, Gas and hydroelectric power) and Bórd Gáis (The Gas Board). Ireland consumed 9 mio t of oil in 2004. This is up from 4.5 mio t since 1994. In 2002, Ireland ranked 3rd highest among the EU25 countries in terms of oil consumed per capita. Electricity generation and transportation are the two main factors for Ireland's high oil dependence. Ireland has relied considerably more on oil for electricity generation than most other EU countries. In 2002, Ireland had the 6th most oil dependent electricity generation system of the EU25 countries. The amount of oil used for transportation in Ireland tripled between 1972 and 2002. Ireland consumes at least 50% more per capita than the average of the EU25. Taking into account the Irish economy's relative dependence on imported oil and the relative share of oil in total Irish energy consumption, Ireland is among the most sensitive to rising oil prices and therefore among the most vulnerable to a peak oil scenario. (Forfás, 2006).

11.1.3 Rural economy

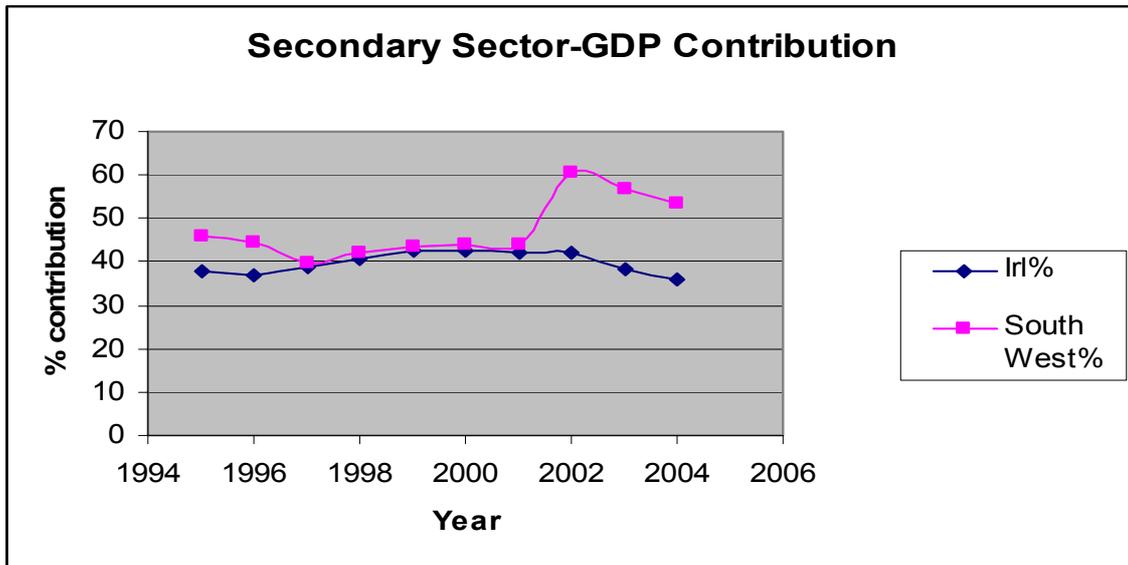
11.1.3.1 Regional performance

Figure 179 Regional Gross Domestic Product (Southern and Eastern Region)



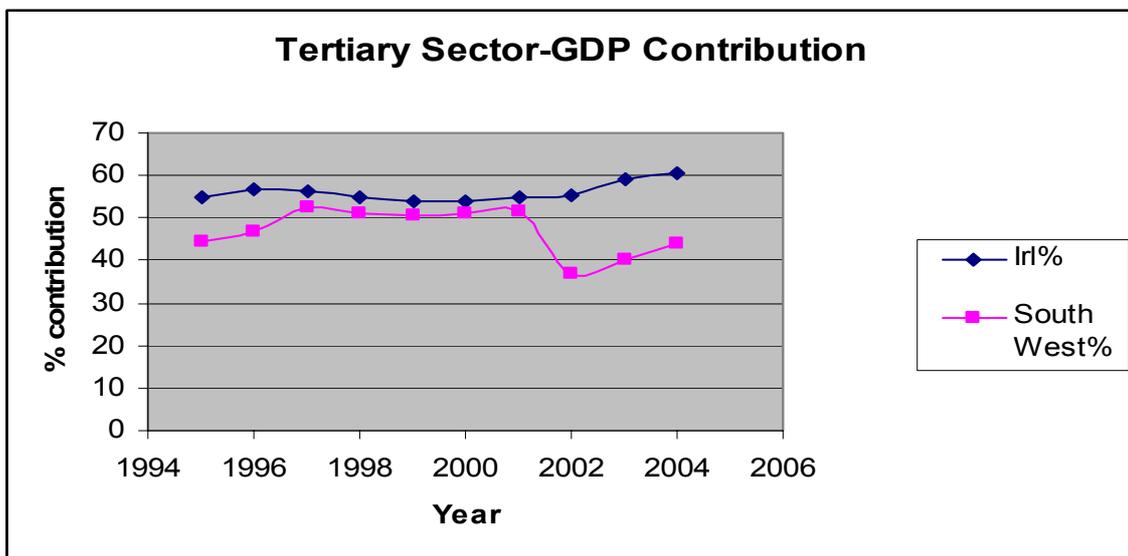
Between 2000 and 2004, regional gross domestic product grew dramatically from EUR 27,844.7 to EUR 33,652.7.

Figure 180 Contribution of the Secondary Sector to GDP



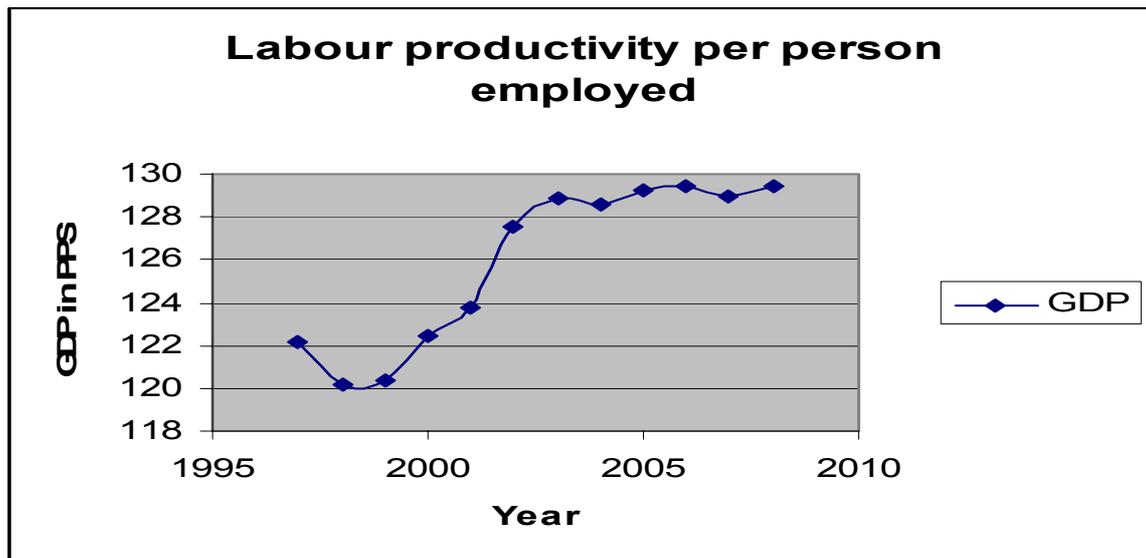
The contribution to GDP of the secondary sector in Ireland did not change dramatically over the 10 year period of 1995 to 2004. In 1995, the contribution to GDP of the secondary sector in Ireland was 38%. This rose to 42.5% of GDP in 2000 and was back to 36% of GDP in 2004. Contribution to GDP of the secondary sector in the South-West increased from 46.1% in 1995 to 53.3% in 2004.

Figure 181 Contribution of the Tertiary Sector to GDP



In Ireland as a whole, the contribution of the tertiary sector to Ireland’s GDP increased from 55% in 1995 to 60.6% in 2004. However, in the South West, there was a slight decrease in 2004 of the contribution of the tertiary sector to GDP 43.8% in 2004 compared to 44.4% in 1995. This is in line with the increased contribution of the secondary sector to GDP.

Figure 182 Labour productivity per person employed



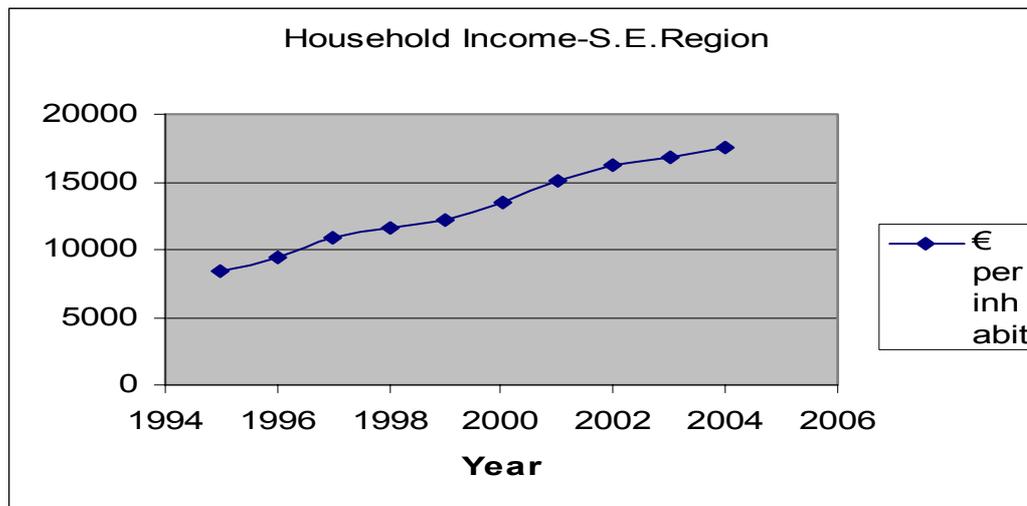
In 1997, the GDP in Purchasing Power Standards (PPS) per person employed relative to the EU was 122.2%. The general trend thereafter was an increase in Purchasing Power Standards relative to the EU average (129% in 2007 and a projected 129.4% in 2008).

Figure 183 Income per Inhabitant-Ireland



As the figure above shows, income per inhabitant in Ireland more than doubled (EUR 8,085.3 and EUR 17,151.70) between 1994 and 2004. The trend at NUTS 2 level was almost identical, with income per inhabitant increasing from EUR 8,401.20 to EUR 17,530.

Figure 184 Income per inhabitant-S.E. Region



Gross value added at basic prices at NUTS level 3

A comparison of the different employment branches can be seen in Table 322. In the South West, between 1995 and 2004, the total Gross Value Added for the South West tripled from EUR 7,544.4 mio to EUR 23,601.6 mio.

The primary sector activities of agriculture, forestry, fishing and hunting fluctuated in terms of total GVA, but saw an overall decrease over the 10 year period. As a percentage of the total GVA, agriculture, forestry, fishing, and hunting decreased very significantly from 9.5% of the GVA to just 2.9%. In contrast, industry's contribution to GVA increased from 46.1% (EUR 3,480.7 mio) to 53.3% (EUR 12,581.1 mio). The value of the contribution of services increased threefold over the 10 year period (from EUR 3,344.8 mio to EUR 10,339.6 mio). Its percentage contribution fluctuated over the period and saw an overall decrease.

These figures illustrate how the economy of the South West of Ireland grew massively between 1995 and 2004. Industry and services account for all of the growth. Agriculture declined in the absolute size of its contribution and declined greatly in terms of its relative importance to the economy.

Table 322 Gross value added at basic prices

		1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Total	GVA	7,544.4	8,212.9	9,022.3	1,0076.3	1,0076.3	11,372.7	14,852	23,058.7	23,596.7	23,601.6
	GVA %	100	100	100	100	100	100	100	100	100	100
Agri	GVA	716.7	709.4	725.5	678.5	678.5	638.1	721.2	643.2	685.6	680.7
	GVA %	9.5	8.6	8	6.7	5.6	5.1	4.9	2.8	2.8	2.9
Indus- try	GVA	3,480.7	3,639.7	3,567.2	4,239	4,239	4,954.4	6,499.3	13,949.1	13,417.6	12,581.2
	GVA %	46.1	44.3	39.5	42.1	43.6	43.8	43.8	60.5	56.0	53.3
Ser- vices	GVA	3,344.8	3,863.8	4,729.2	5,158.8	5,158.8	5,780.2	7,631.5	8,466.4	9,493.5	10,339.6
	GVA %	44.4	47	39.5	51.2	50.8	51.1	51.4	36.7	40.2	43.8

11.1.3.2 Structure of agriculture

Statistical profile

In 1995 agriculture employed 26% of the workforce in the South West. By 2004, this had declined to 24% of the working population. Given the huge increase in employment and the number of jobs created in the South West during that period, it is clear that many farmers have off-farm employment while maintaining farming activities.

Figure 185 Agricultural Employment at NUTS Level 3 (% contribution to Employment)

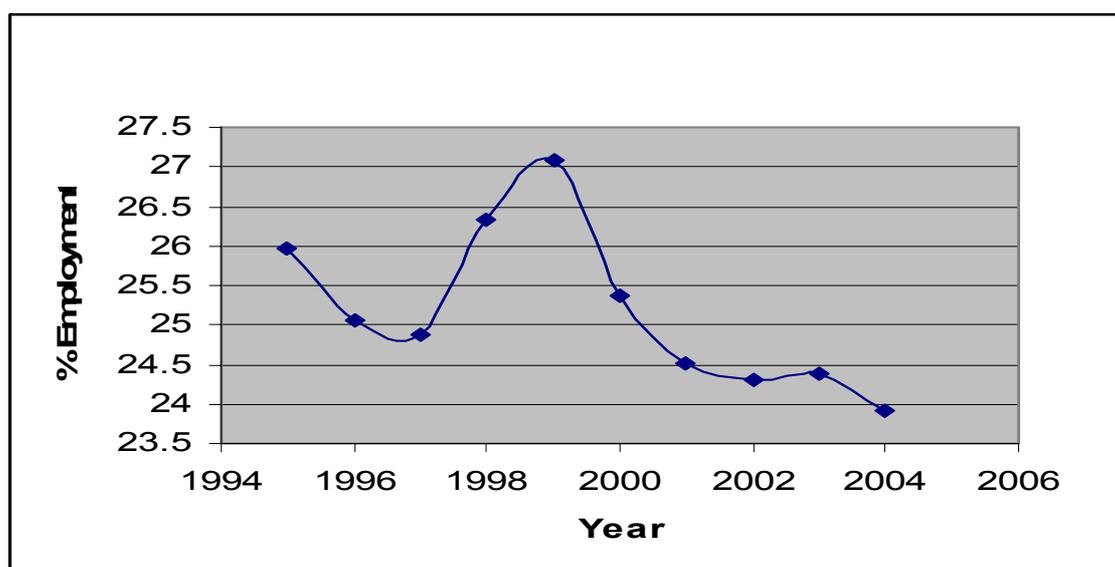


Table 323 Land use: Number of farms and areas by type of farm and economic size

Year		UAA	Share of Total UAA (%)
2000	Agricultural Area (ha)	4,443,970	100
	Arable Land (ha)	1,108,940	25
	Permanent Grassland (ha)	3,333,030	75
	Permanent Crops (ha)	1,580	0.01
	Total Organic Area (ha)	27,231	0.6
2003	Agricultural Area (ha)	4,371,710	100
	Arable Land (ha)	1,183,960	27.1
	Permanent Grassland (ha)	3,185,720	72.9
	Permanent Crops (ha)	1,710	0.01
	Total Organic Area (ha)	27,231	0.7
2005	Agricultural Area (ha)	4,219,380	100
	Arable Land (ha)	1,152,400	27.3
	Permanent Grassland (ha)	3,064,910	72.6
	Permanent Crops (ha)	1,810	0.01
	Total Organic Area (ha)	34,912	0.7

Between 2000 and 2005, the total amount of agricultural land in Ireland decreased from 4,443,970 ha to 4,219,389 ha. This was due to the rezoning of agricultural land for housing and commercial development.

There were increases in both arable land and in permanent crops and a corresponding reduction in grassland. There was also an increase in the amount of total organic area but this remains at a tiny fraction (0.7%) of the total agricultural area.

Regional focus

Structure of Irish dairy co-ops: By the end of 2004, Ireland had 31 dairy cooperatives with a total of 88,569 members and sales of EUR 10.44 bn. These include Co-op-PLCs which were created when a number of bigger co-ops converted substantial percentages of their assets into PLCs. These PLCs were listed on the Irish Stock Exchange. The co-ops and individual co-op members still own substantial interests in these PLCs. As a result of mergers, the number of co-ops has been in decline since the 1960s. Membership and sales also vary greatly from one co-op to another. These days, Co-ops may be categorized as large, medium, small or very small (Ward, 2007).

The three largest dairy co-ops — Kerry, Glanbia and Dairygold account for the majority (82%) of total sales of Irish dairy co-ops and 44% of the members. Kerry and Glanbia grew via the PLC route. Dairygold took a different route for financing growth. In 2006, Dairygold Co-op created a subsidiary called Reox Holdings and launched it in a non-publicly listed “grey market,” which sold shares to farmers and non-farmers. These three largest dairy co-ops have significant international interests and holdings. (ibid)

Medium sized co-ops account for 14% of total sales and 47% of members. Small co-ops that process milk account for 3% of total sales and 5% of co-op members. Examples include the Newmarket co-op, which produces cheese, and North Cork, which produces casein. Very small co-ops collect milk and then sell it to larger co-ops for processing. In most cases, the small cooperatives also operate farm supply stores and some operate grocery supermarkets (ibid).

11.1.3.3 Structure of rural economy

Statistical profile

Table 324 Employment in the South West Industry & Services

Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Industry	55.22	56.69	63.49	68.43	71.87	76.22	78.4	77.13	79.1	82.25
Services	108.89	113.89	120.79	131.66	140.95	148.95	154.16	159.84	163.72	170.1

Employment in industry increased substantially from 55, 220 to 82, 250 over the period 1995 to 2004. Over the same period, employment in services increased substantially from 108,890 to 170,100.

Table 325 Number of Beds in Tourism

Year	1999	2000	2001	2002	2003	2004	2005	2006
Hotels	32,314	32,882	33,089	32,845	32,840	32,376	32,653	31,844
Other Accomodation	17,848	17,521	19,804	17,660	20,120	19,889	18,378	21,064
Total beds	50,162	50,403	52,893	50,505	52,960	52,265	51,031	52,908

Between 1999 and 2006, the total number of beds in tourism increased from 50, 162 beds to 52,908 beds. The number of hotel beds remained fairly constant but the number of beds in other accommodation grew significantly from 17,848 to 21,064.

Agriculture in Ireland

Agriculture and food is an important industry in Ireland. Currently, farmers constitute almost 7% of the workforce. When employment in inputs, processing and marketing are factored in, the agri-food sector accounts for almost 10% of employment and accounts for around 8% of GDP. Primary agriculture accounts for 3% of GDP. Agri-food exports have an 8.5% share of total exports. However, when the low import content of agriculture and the low repatriation of profits are taken into account, the agri-food sector accounts for around 25% of net foreign earnings (Teagasc, 2007).

In 2006, primary agriculture represented 2.3% of GVA at factor cost. The agri-food sector represented 8% of GVA at factor cost. Primary agriculture accounted for 5.4% of employment and 5.8% of total exports. The Agri-food sector accounted for 8.1% of employment and 10% of exports (DAF, 2007).

Land use: Irish agriculture is predominantly a grass-based industry. The land area of Ireland is 6.9 mio ha, of which 4.3 mio ha is used for agriculture. 710,000 ha was used for forestry in 2005. 80% of agricultural area is devoted to grass (silage, hay and pasture), 11% to rough grazing and 9% to crop production. Beef and milk production currently account for 55% of agricultural output at producer prices. Ireland has around 130,000 farmers (DAF, 2007).

Figures for 2002 show that 13% of farmers are less than 35 years old, 46% are between 35 and 55, 21% are between 55 and 65, and 20% are over 65. In common with trends in all EU Member States, farm numbers in Ireland declined continuously over recent decades. The average annual decline during the past 10 years was 1.7%. This compares with an annual decline of almost 3% in other EU states. However the decline in the number of small Irish farms has been more rapid – over 5% per annum for farms less than 5 ha. The number of larger farms increased slightly resulting in average farm size increasing from 27 ha to almost

30 ha during the past decade. Average farm size is 32 ha with almost 50% of farms less than 20 ha (Teagasc, 2007).

Farm Income: Almost 60% of farm household income now comes from off-farm sources. Farm households had a weekly disposable income of EUR 160 per household member compared with EUR 149 for non-farm rural households and EUR 195 for urban households. On 35% of farms, the farmer combines farming with an off-farm job. On 48% of farms, the farmer and/or the spouse have an off-farm job. Farmers with off-farm employment are predominantly involved in cattle or sheep farming. When other sources of farm family income, such as pensions and social welfare, are included, the Teagasc National Farm Survey shows that just 30% of farm families rely on farming as their sole source of income. However, farming remains a critical source of income on a large number of part-time farms (ibid)

Main Commodities and Exports: The contribution of agriculture to the Irish economy, at 3% of GDP, is twice that of the EU average. Agri-food exports account for over 8% of total foreign earnings. Beef and milk production account for around 60% of agricultural output. Tillage and horticulture account for 14% of output while pigs and sheep account for 6% and 5% respectively. Ireland exports nine out of every 10 beef animals, making it the largest beef exporter in the EU and one of the largest in the world. Dairy exports account for 75% of total production while 60% of all sheepmeat is exported (ibid).

Beef: In 2002, Ireland exported 445,000 t of beef worth EUR 1,185 mio. In 2002, 126,000 cattle were exported live from Ireland worth EUR 70 mio. In the same year, Ireland exported 41,000 t of sheepmeat worth EUR 160 mio. France is the main market for Irish sheepmeat with approximately 80% of total exports going there in 2002 (ibid). Ireland exported 129,000 t of pig meat in 2002 worth approximately EUR 270 mio. In 2002, the UK was the main market for Irish pigmeat, taking approximately 49% of our total exports. Continental EU markets accounted for 34% of Irish pigmeat exports while the remaining 17% went to international markets (ibid).

In 2002, total Irish milk output amounted to 5,359 mio l. Of the total milk output, 519 mio l was used for liquid consumption while 3,109 mio l was used in the production of butter. 1,172 mio l of milk were used in the production of cheese, 219 mio l in the manufacture of cream, 210 mio l in whole milk powder production, 80 mio l in chocolate crumb production. In 2002 the Agri-food industry's annual output rose to over EUR 16 bn and had exports valued at EUR 6.7 bn (ibid).

Coillte is a State owned company operating in forestry, land based businesses and added-value processing operations;

- ➔ Coillte was established in 1988 as a private limited company under the Forestry Act 1988 which set out its objectives and duties:
- ➔ The company is owned by the Minister for Finance and the Minister for Agriculture and Food;

- In 2005, Coillte had a turnover of EUR 215.6 m, a profit of EUR 19.6 mio. All of these profits were re-invested in the business.
- Coillte owns over 445,000 ha of land (approx. 7% land cover in Ireland). Since 1989 Coillte has acquired 52,000 ha and increased the estate by a further 12,000 ha through the Farm Partnership Scheme and leases (Coillte, 2007)

Tourism is a growing industry in Ireland. Expenditure by tourists to Ireland in 2004 came to almost EUR 4.2 bn. Almost 140,000 people are employed as a result of tourism. In the last decade, the tourism industry has developed in importance in the Irish economy. The tourism industry in Ireland is still dominated by individual, small to medium sized enterprises competing in an increasingly globalised international tourism marketplace. Traditionally, Ireland attracted tourists because of the level and depth of contact with the Irish people in a relaxed and clean environment and beautiful landscapes. Many visitors now come to Ireland for sporting and recreational facilities including golf, angling, walking, cycling, equestrian, culture and heritage. Ireland has some of the highest standards of accommodation, food and hospitality, often in a pre-dominantly rural setting. Dublin has established itself as a vibrant destination and competes with Europe's renowned capital cities, in particular for short-break business.

Ireland's recent economic success has brought new challenges including pressures on the environment in certain areas; the need to enhance facilities to keep pace with the expansion of tourism; the need to ensure the continuity of the warmth of the traditional Irish welcome as staff shortages arise in a tightening labour market, and continued vigilance in relation to the price competitiveness of Irish tourism in the face of inflationary pressures and exchange rate fluctuations.

Economic growth has resulted in a shift in the focus of Government policy from job creation to a growing emphasis on sustainable and spatially balanced development. This reflects a desire to ensure that the fruits of economic prosperity are shared throughout the country and the negative effects of development on the environment are minimised (Department of Arts, Sport and Tourism, 2007).

11.1.4 Rural society

11.1.4.1 Demography

Table 326 Populations of Cork and Kerry

Location	Female	Male	Total
Cork	240,814	240,481	481,295
Cork city	58,449	60,969	119,418
Cork county	182,365	179,512	361,877
Kerry	70,641	69,194	139,835

Source: CSO, 2007

The South West region has a combined population of 621, 130: Cork 481, 295 and Kerry 139, 835 (CSO, 2007).

Table 327 Population forecast for Ireland up to 2021

	2007	2014	2021
All Ages	3,956	4,032	4,039
0-4 Years	263	226	200
5-9 Years	283	259	225
10-14 Years	267	286	250
15-19 Years	282	270	273
20-24 Years	289	239	245
25-29 Years	321	259	218
30-34 Years	313	315	245
35-39 Years	285	317	291
40-44 Years	273	300	322
45-49 Years	263	272	311
50-54 Years	248	268	277
55-59 Years	225	250	268
60-64 Years	190	225	250
65-69 Years	142	194	220
70-74 Years	116	136	182
75-79 Years	89	98	125
80-84 Years	63	65	76
85 Years and Over	46	53	60

Source: CSO, 2007

11.1.4.2 Education

Statistical profile

Table 328 Education Southern & Eastern Region

Year	Upper Secondary			Tertiary		
	All	Male	Female	All	Male	Female
2000	110,773	53,251	57,522	132,863	61,302	71,561
2002	123,274	68,628	54,646	145,480	65,387	80,093
2003	124,096	69,346	54,750	149,945	66,680	83,265
2004	126,927	70,807	56,120	155,168	69,622	85,546

Source: WP 1

Educational Attainment

Taken as a whole, educational attainment in the Southern & Eastern Region (NUTS 2) is quite high and the number of those with third level qualifications exceeds the national average by 1%. The numbers who have been educated only up to primary level is decreasing – there has been a reduction of 9% in the period 1993 to 1998

mirroring the upward national trend as regards educational achievement. As regards secondary level education, 74% of the population in the S&E Region have achieved educational qualifications to this level the majority of these being female (580,100 as opposed to 542,500 males). The proportion of the population with a third level degree has increased by 25% in the S&E Region while the corresponding figure for the BMW Region is only 19%.

11.1.4.3 Labour market

Statistical profile

Table 329 Employment rates of 15-64 year olds at NUTS level 2 (%)

Year	All	Male	Female
1999	62.5	73.6	51.2
2000	65.2	76.3	53.9
2001	65.8	76.6	54.9
2002	65.5	75.4	55.4
2003	65.5	75.2	55.7
2004	62.5	73.6	51.2
2005	65.2	76.3	53.9

Source: WP 1

In 1999, 62.5% of all 15-64 year olds were employed in the Southern and Eastern Region. By 2005, this had risen to 65.2%. As can be seen in Table 330 below, the increase in employment rates for 55-64 year olds was more marked, with an increase from 43.3% in 1999 to 51.3% in 2005.

Table 330 Employment rates of 55-64 year olds at NUTS level 2 (%)

Year	All	Male	Female
1999	43.3	60.9	26.1
2000	45.5	63.9	27.3
2001	46.9	65.1	28.8
2002	48.2	65.4	31.1
2003	49.3	65.0	33.6
2004	49.6	65.0	34.2
2005	51.3	65.3	37.4

Source: WP 1

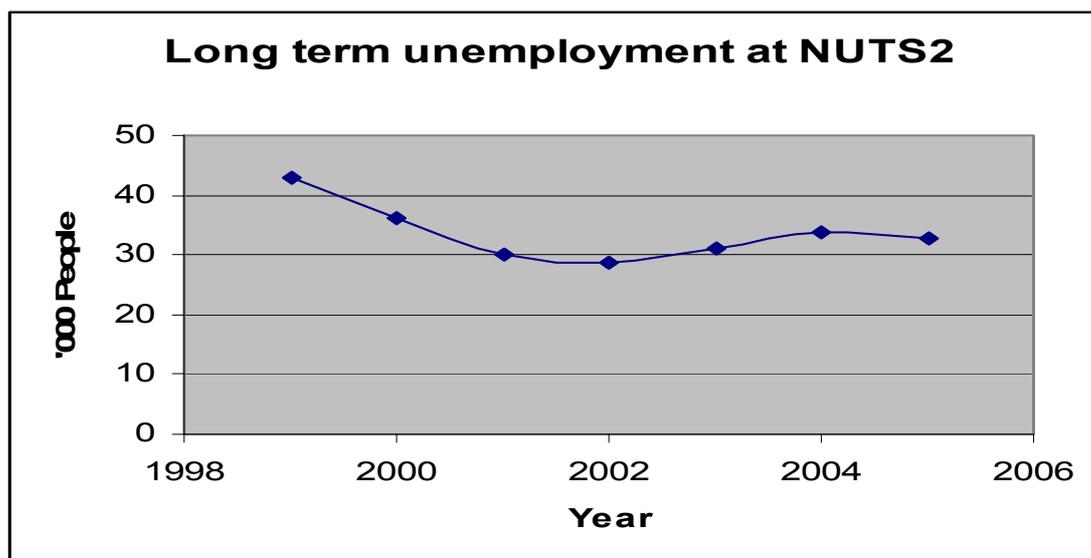
Table 331 Employment rates of 15-24 year olds at NUTS level 2 (%)

Year	All	Male	Female
1999	48.3	50.9	45.6
2000	52.4	56.0	48.7
2001	51.1	54.5	47.6
2002	48.8	51.5	46.1
2003	48.3	50.9	45.7
2004	48.3	50.9	45.7
2005	49.5	51.5	47.5

Source: WP 1

Employment rates of 15-24 year olds at NUTS level 2 increased slightly from 48.3% in 1999 to 49.5% in 2005. As Ireland has a relatively young population and a high participation rate in second and third level education, the increase was not very pronounced for this age group.

Figure 186 Long term unemployment in the NUTS 2 (S.E.) Region



Source: WP 1

The number of people who could be classified as long-term unemployed (12 months and more) in the Southern and Eastern (NUTS 2) in 1999 was 42,970. By 2005, this had reduced to 32,630 people.

Table 332 Regional employment rate of the age group 15-64 – females & males

Year	2001	2002	2003	2004	2005
Females	56.1	56.5	56.6	57.2	59.3
Males	77.4	76.2	75.8	76.2	77.0

Source: WP 1

Between 2001 and 2005 the percentage of females in full-time employment between the ages of 15 and 64 grew from 56.1% to 59.3%. The percentage of males in employment remained quite static at around 77% of males between 15 and 64 years. Although the national unemployment rate is less than 5%, Ireland has a large young population under the age of 25 and a high rate of enrolment at secondary and third level education.

Regional focus

In August 2007, the National unemployment rate was 4.7%. This represented a total of 71,591 people (33,757 males and 37, 834 females).

11.1.4.4 Civil Society

Regional focus

The following is a list of institutional actors in the South West including the political and legislative Bodies, lobbies and representation of interests and regional/economic development agencies.

Political & Legislative Bodies: Houses of the Oireachtas (Legislature) are Dáil Eireann (The Parliament) and the Seanad (The Senate), County/City/Town Councils

Lobbies and representation of interests: IFA, Irish Creamery Milk Suppliers Association (ICMSA), Chambers of Commerce, Cork and Kerry Enterprise Boards

Regional/Economic Development Agencies: Bord Bia, Area Based Partnerships, Bord Iascaigh Mhara, County Enterprise Boards, Teagasc, An Taisce, Regional Tourism Organisations, Chambers of Commerce, Industrial Development Authority, Area Development Management, LEADER Companies, Fás, Local Action Groups, Udaras na Gaeltachta, County/City Development Board, Forfás, Enterprise Ireland, County Councils, INTERREG, University/Colleges.

11.2 Exploring policy intervention

Table 333 Agriculture and Rural Development under NDP

Allocations under National Development Plan 2000-2006 for Agriculture and related Rural Development (including Food and Forestry)		
Measure	Total Public Allocation EUR mio (current prices)	EU Element EUR mio (current prices)
Regional Operational Programmes (Border, Midlands and Western Region and the Southern and Eastern Region)		
(a) Sub-Programme on Agricultural Development	37.8	95.68
Installation Aid for Young Farmers	229.7	10.48
Farm Waste Management	45.4	31.74
Improvement of Dairy Hygiene Standards	13.7	
Improvement of Animal Welfare Standards	1.4	
Animal Carcase disposal	9.6	
Development of Grain Storage Facilities	3.4	
Improvement of Cattle Breeding Infrastructures	6.9	
Improvement of Equine Breeding Infrastructures	19.2	
Development of Horticulture Sector	5.5	
Development of Potato Sector	8.2	
Development of Organic Sector	2.8	
Improvement in Equine Quality on Farm	16.5	
Housing/Handling Facilities for Alternative Enterprises	68.8	
Teagasc Advisory Services	4.1	
Farm Relief Services	75.7	
Area-based rural development initiative	34.4	
Western Investment Fund	8.2	
Rural Development Fund		
Total	591.4	137.9
(b) Sub Programme on Local Enterprise Development		
Woodland Improvement	35.5	25.11
Harvesting	9.0	6.39
Forestry Development	26.6	
Forest Road	12.8	
Total under the Community Support Framework	1,256.9	169.4
Guarantee Funded CAP Rural Development Programme		
Rural Environment Protection Scheme	2,044.8	1,233.1
Compensatory Allowances	1,490.7	435.1
Early Retirement	764.6	369.9
Forestry	687.9	350.8
Total Covered under the CAP Rural Development Programme	4,988.0	2,388.9
Full Total	6,244.9	2,588.3

Source: CAP Rural Development Plan

Table 334 Expenditure on Irish Agriculture

Expenditure on Irish Agriculture, 2006, mio. EUR	
EAGGF Guarantee Direct Expenditure	1,423.49
Single Farm Payment	1,308.95
Premia/area Aid	5.41
Export Refunds	96.40
Other Market Supports	12.73
Intervention Purchases	55.84
Voted Expenditure (excluding Administration)	1,155.77
Rural Development	49.79
Structural Measures	751.73
Animal Health/State Bodies	332.68
Market Intervention and other	21.57
Administration	281.28
Total Voted Expenditure	1,437.05
Total Expenditure	2,916.38

Source: Economics and Planning Division, Department of Agriculture and Food

11.2.1 EU policies for agriculture and rural development

Agriculture & Rural Development

Measure: General Structural Improvement

Sub-Measure (i) Installation Aid for Young Farmers: Does not have EU co-financing. A premium of EUR 9,523 (GBP 7,500) is payable to farmers under 35 years of age (who meet certain eligibility criteria) to help cover the costs of first setting-up in farming.

Sub-Measure (ii) Farm Waste Management: Has EU co-financing of 50% from the EAGGF.

(i) A scheme of grant aid for farmers for (a) the provision of farm waste storage, silage storage, livestock housing necessary to prevent poaching and soil erosion during winter, (b) mobile equipment for the disposal of slurry and farmyard manure and

(ii) Waste Processing Facilities

A number of medium sized pilot projects (not exceeding five) to be undertaken.

Sub-Measure (iii) Improvement of Dairy Hygiene Standards: Has EU co-financing of 50% from the EAGGF. A scheme of grant aid for farmers for the provision of new or upgraded milk production facilities.

Sub-Measure (iv) Improvement of Animal Welfare Standards (Pigs): Does not have EU co-financing. Provision of support for pig producers designed to contribute to improvements in animal welfare standards.

Sub-Measure (v) Animal Carcase Disposal: Does not have EU co-financing. A grant scheme for collectors of fallen animals for processing facilities, storage and other buildings, transport and effluent treatment facilities. This scheme will enable farmers to dispose of dead animals using a safe and reliable collection system thus avoiding the necessity for on-farm burial. It should make an important contribution to environmental protection.

Sub-Measure (vi) Development of Grain Storage Facilities On-Farm: Does not have EU co-financing. The scheme will provide assistance for upgrading of existing grain storage facilities and installation of a limited amount of additional storage facilities on farms. The scheme should help to alleviate the bottlenecks which occur at commercial intake points at harvest time due to the low level of storage facilities on farms. This in turn will significantly improve the quality and safety of the grain.

Sub-Measure (vii) Improvement of Cattle Breeding Infrastructures: Does not have EU co-financing. It is proposed to provide grant aid for the following: (a) development work by the Irish Cattle Breeding Federation (ICBF) on cattle breed improvement programmes, (b) the provision of computer hardware and development of suitable software systems and the upgrading of recording/testing facilities and equipment by ICBF and (c) the provision of computer hardware and the purchase and/or development of software systems for other industry organisations for upgrading cattle registration, recording and data processing systems and the upgrading of recording/testing facilities and equipment by those organisations for the purpose of providing relevant and accurate data through the most efficient and effective communications linkage to the main ICBF system operating on breed improvement programmes.

Sub-Measure (viii) Development of Equine Breeding Infrastructures: Does not have EU co-financing. Grant aid will be provided for projects aimed at improving the quality and production of both thoroughbred and non-thoroughbred horses. The following initiatives will be supported under the measure: Quality Non-Thoroughbred Horse Production, Quality Thoroughbred Horse Production, Equine Research, Surveys.

Measure 2: Alternative Enterprises

Sub-Measure (i): Development of the Horticulture Sector does not have EU co-financing.

This scheme will assist the development of the horticulture sector by aiding capital investments in specialised plant and equipment in commercial horticulture. The aim is to promote the diversification of on-farm activities, improve the quality of

products, facilitate environmentally friendly practices and improve working conditions.

Sub-Measure (ii) Development of the Potato Sector: Does not have EU co-financing. This scheme will provide funding for investment in new or improved storage and other marketing facilities for potato growers commercially engaged in the Potato Sector.

Sub-Measure (iii) Development of the Organic Sector: Does not have EU co-financing. This scheme will assist the development of the organic sector specifically by providing aid to new and existing organic operators towards equipment and facilities for production, preparation, grading, packing and storage of organic products.

Sub-Measure (iv) Improvement in Equine Quality: Does not have EU co-financing. Support will be provided to maximise the potential of non-thoroughbred horse breeding and production as a viable farm enterprise, by providing grant aid to farmers to produce horses selectively, using strict quality criteria.

Sub-Measure (v) Housing/Handling Facilities for Alternative Enterprises: Does not have EU co-financing: Support will be provided for the provision of housing and handling facilities for horses, deer, rabbits, goats and other acceptable non-quota species provided the applicant can demonstrate the viability of the project from an independent assessment.

Measure 3: General Rural Development

Sub-Measure (i) Area Based Rural Development Initiative: Has EU co-financing of 50% from the EAGGF. Funding will be provided for area-based local groups to carry out approved business plans covering administration, animation, networking, including women's networks, training, rural tourism/agri-tourism, local crafts and services, small scale food processing and small scale environmental activities. The Sub-Measure essentially aims to mainstream LEADER II activities as the new Community Initiative (LEADER +) will be focused on a very limited range of areas.

Sub-Measure (ii) Western Investment Fund-does not have EU co-financing: The Western Investment Fund was established under the Western Development Commission Act, 1998. Under this Sub-Measure support will be provided from the Fund to undertake an investment programme.

Sub-Measure (iii) Rural Development Fund-does not have EU-co-financing: Funding will be provided to finance research, including collaboration in policy orientated rural research, by research organisations and third level institutions, and will finance evaluation and pilot actions, where appropriate.

Measure 4: Services for Agricultural and Rural Development Measure

Sub-Measure (i) Advisory Services (Teagasc) Sub-Measure: Does not have EU co-financing: Support from public funds will be provided to Teagasc who will implement a comprehensive support programme through its Rural Viability Service to encourage, stimulate and support farm families who are striving to achieve viability through assisting them in carrying out an analysis of their current position, identifying the threats to their survival and opportunities for additional income generation. (Southern and Eastern Regional Assembly, 2007)

Sub-Measure (ii) Farm Relief Services Sub-Measure: Does not have EU co-financing: This Sub-Measure will provide for the expansion of existing farm relief services by providing training for new and existing personnel, undertaking research to identify the needs, demands and opportunities for the services as they arise and building and equipping further local offices.

Forestry Measure

Sub-Measure 1 Woodland Improvement: has 50% EU co-financing from the EAGGF. This Sub-Measure is aimed at the improvement of the overall quality of the forest estate, enrichment and enlargement of the native and semi-native woodland, establishment of amenity and urban woodland and the reconstitution of damaged woodland.

Sub-Measure 2 Harvesting: has EU co-financing of up to 50% from the EAGGF. This Sub-Measure is designed to support investment in harvesting machinery to maintain growth in the harvesting fleet in line with increasing output from woodland.

Aquaculture Development Measure

The aquaculture development measure has EU-cofinancing from the FIG (35% of eligible costs for investment in firms and 50% for public projects. Provision of grants for private sector initiatives aimed at the development of the aquaculture industry and of grants towards public investment designed to improve sustainability, efficiency, safety and competitiveness in the aquaculture industry.

11.2.2 National and regional policies

Sub-programme Local enterprise Development Tourism Measure

The overall objective of the Tourism Sub-Measures is to develop the tourism product in an environmental and sustainable way that widens the spatial spread of tourism within the Region and diverts pressure from highly developed areas.

Sub-measure Development of Major Tourism Attractors: This project is co-financed by the ERDF (up to 100%). Under this Sub-Measure, there will be support for:- (i)

investment in up to 6 strategically-located, major new day visitor attractions, capable of attracting over 100,000 visitors a year, in areas where none currently exist and which are capable, environmentally and economically, of supporting such attractions; and (ii) for upgrading and improved packaging of identified, geographically coherent and financially sustainable, clusters of existing attractions within the Region including, where necessary, support for investment in some new projects identified as essential for the completion of such clusters.

Sub-measure 2 Special Interest Pursuits: Development of Major Tourism Attractors. This project is co-financed by the ERDF (up to 100%) sub-measure description. Under Sub-Measure 2, there will be support for investment in the development of special interest pursuits including cycling, walking, horse-riding, great gardens, outdoor activities, water-based and health tourism.

Sub-Measure 3 Tourism/Environmental Management: Under this Sub-Measure, funding will be provided for the promotion of the better management of the relationship between tourism and the environment, with a particular focus on the implementation of Integrated Tourism Management Plans in established tourism areas, having regard to BFE's Tourism Development Strategy, 2000-06

Sub-measure 4 Tourism and recreational angling has no EU co-financing: Provision of grants to support the development of the tourist and recreational inland and sea angling sector through the improvement, conservation and expansion of fishery habitats and stocks, the provision of training facilities for tourists and service providers, the supply of technical advice for fisheries development and the strategic promotion and marketing of the angling product in overseas and domestic markets.

Sub-Measure 5 Marine Tourism has no co-financing from the EU: Funding will be provided for projects, particularly those involving co-operation and partnership between the private and public sector, which are designed to build critical mass within the sector and to improve the quality and capacity of the resource within the Region in an environmentally sustainable way.

Microenterprise Measure

Sub-measure 1 Selective Financial Intervention: has EU Co-financing up to 50% of Grant amount, where projects are co-financed. The specific objectives of the Sub-Measure are to:

- provide employment opportunities in less developed and remote areas so as to achieve more enduring and value-added balanced regional development;
- support greater participation of the unemployed and women in the promotion and development of enterprises;
- broaden and strengthen the base of micro-enterprises across the Region;
- reduce dependence on traditional or declining economic sectors;
- maximise the employment and value added potential of micro-enterprises;
- contribute to national competitiveness.

Sub-measure 2 Entrepreneurial and Capability Development: has EU co-financing from the ERDF (50% of funding). Provision of funding for programmes aimed at increasing entrepreneurial managerial capability of individuals and firms through training and development initiatives targeted at students in second level schools and colleges, mentoring programmes for entrepreneurs and development and delivery of dedicated training modules in core management skills for managers/promoters of microenterprises.

Sub-measure 3 Entrepreneurial and capability development: has EU co-financing From ERDF (up to 50% of funding)

Regional Innovation Strategies Measure

Sub-measure Entrepreneurial and capability development: has co-financing from the ERDF of up to 50% of funding. The Measure provides for the development of the infrastructure of the Institutes of Technology by the provision of incubation centres, which will facilitate the commercialisation of research and development projects carried out by their personnel.

Fishery Harbours Measure

Sub-Measure 1 Port Infrastructure Improvement Programme: has EU co-financing of 50% of the grant amount from the ERDF. Funding will be provided to support the development and improvement of port infrastructure and port service facilities (including ice plants, auction halls, landing and storage facilities) at key strategic fishery harbours, and construction and improvement of berthage and related facilities at smaller harbour and landing places, throughout the Region.

Sub-Measure 2 Rural Development: The specific objectives of the Sub-Measure are to:

- ➔ Improve port infrastructure and port service facilities (including ice plants, auction halls, handling and storage facilities) at key strategic fishery harbours.
- ➔ Construct and improve berthage and related facilities at smaller harbours and landing places.

Investments in rural physical infrastructure: Non-National Roads Measure

Sub-Measure EU Co-financed Specific Improvement Grant Scheme: has EU co-financing of 50% of the grant amount from the ERDF. Provision of grants for development and upgrading of non-National roads, i.e. regional and local roads, which are important to balanced regional development.

11.2.3 Effects of Legislative restrictions

Food Safety Authority of Ireland

The function of the Food Safety Authority of Ireland (FSAI) is to take all reasonable steps to ensure that food produced, distributed or marketed in the State meets the highest standards of food safety and hygiene reasonably available and to ensure that food complies with legal requirements, or where appropriate with recognised codes of good practice (FSAI, 2007).

The FSAI is responsible for:

- putting consumer interests first and foremost
- providing advice to Ministers, regulators, the food industry and consumers on food safety issues
- ensuring the delivery of food safety services to an agreed high standard by the various state agencies involved
- ensuring that food complies with legal requirements, or where appropriate, with recognised codes of good practice
- working with the food industry to gain their commitment in the production of safe food
- setting food standards based on sound science and risk assessment
- risk management in association with frontline agencies and the food sector, and communicating risks to consumers, public health professionals and the food industry

Maintaining Ireland's high status in relation to animal health and welfare is essential given the economic and social importance of agriculture to the country. This is an integral role of the FSAI.

Regulations on Organic Production

Produce that is sold in Ireland as organic, but has originated in another EU Member State must carry labelling or an identifying mark to indicate that it has been produced in accordance with EU organic standards. Food imported from a non-EU (third) country may be sold as organic within the EU if that country is on the list of approved third countries that have satisfied the Commission as to their organic certification and inspection standards.

Organic legislation in the European Union

EU legislation (EC2092/91 as amended) governs the production and marketing of organic produce within individual Member States. These regulations define a method of agricultural production for crops and livestock and regulate the labelling, processing, inspection and marketing of organic products within the European Community. The regulations also lay down strict guidelines for the import of organic products from non-member countries into the EU.

Regulation of organic farming in Ireland

The Department of Agriculture and Food (DAF) is the competent authority regulating organic farming in Ireland and has approved three organic organisations for certification and inspection services:

1. Bio-dynamic Agriculture Association of Ireland (trading under the Demeter symbol)
2. Irish Organic Farmers and Growers Association (IOFGA),
3. Organic Trust Ltd. (Food Safety Authority of Ireland, 2007)

Water

The Legislating authority for the Protection of the Environment Act 2003, relevant to water protection, is the Environmental Protection Agency. The Relevance for rural development of the act is that the main threat to surface water quality is eutrophication, which is the over-abundant growth of plant and algae arising from excess nutrients in the water. The nutrients of concern are phosphorus and nitrogen, which come mainly from agricultural manures and fertilisers, sewage and detergents. The quality of our rivers, lakes, estuaries and coastal waters, bathing waters, ground waters, drinking water, urban waste water treatment, and river basin management will have profound implications plant, animal, fish and human health in our rural areas and thus will have a major impact on rural development.

Soil Protection

The legislating authority for the Protection of the Environment Act 2003, relevant to soil protection, is the Environmental Protection Agency. The Relevance for rural development of the act is the sustainability of rural agriculture depends heavily on protecting and maintaining the quality if the soil.

Biodiversity

The legislating authority for the Protection of the Environment Act 2003, relevant to the preservation of biodiversity, is the Environmental Protection Agency. The relevance for rural development of the preservation and promotion of biodiversity is that Plants, animals, birds and fish are dependent on the habitats in which they live. The biological diversity or biodiversity of Ireland's flora and fauna is under threat due to habitat loss and disturbance. Habitats are under threat as a result of changes in land use, intensive management of agricultural land and forested areas, fragmentation of natural habitats by infrastructure and urbanisation, the influence of mass tourism and pollution. The destruction of Habitats and biodiversity will have negative impacts on rural development as this will affect agricultural production, flora and fauna and the beauty if the natural environment on which rural tourism depends.

Land Use Management

The legislating authorities for the Planning and Development Act 2000, are the county councils (Cork and Kerry). The relevance for rural development is that environmentally sensitive and sustainable land use management is vital for rural development. Also, restrictions and re-designation for use of designated agricultural buildings may have important implications for the development of rural enterprises.

Entrepreneurship

The legislating authority for EU regulations is the European Parliament. The relevance of various EU regulations for entrepreneurship are that EU regulations have been cited by Enterprise respondents in Ireland as being a major constraint to Business Development. The legislating authority for the immigration bill, resulting in labour shortages is the Oireachtas (legislature). The relevance for rural development of the bill is that restrictions on economic immigrants from outside the EU and from new accession states (Romania and Bulgaria) may have led to a deficit of workers available for new rural enterprises. Labour shortage has been cited as a major constraint to Business Development by Enterprise Respondents.

The legislating authority for Insurance costs is the Irish Financial Services Regulatory Authority Insurance Supervision Department. The relevance for rural development is that insurance costs have been cited as a constraint to starting and developing enterprises. Other constraints to Business Development identified by "Enterprise Respondents" in a study entitled "Rural living: An analysis of 1,249 Households in the Republic of Ireland" (Phelan et al. 2005) were Cost of Plant/Equipment to purchase/rent, cost/availability of capital for investment, cost of marketing/distribution, lack of market demand/poor prices.

Employment and social policy

The legislating authority for the Employment Permits Acts, 2003 and 2006 is the Department of Enterprise, trade and employment. The relevance for rural development is that the availability of migrant labour is important for labour supply for rural development. The legislating authority for the Health and Welfare of Worker Act, 2005 is the Health and Safety Authority. The relevance for rural development is that protecting Employees' rights is an important component of sustainable rural development.

Tax conditions for businesses

Corporate Tax Rate in Ireland

The corporate tax rate in Ireland is 12.5%. Corporation tax is charged on the profits of a company. Ireland operates a classical system of company taxation. Under this system, tax payable on corporate dividends is independent of the tax paid by the company paying the dividend and no credit is available to shareholders for tax paid at the corporate level. A company resident in Ireland for tax purposes

is subject to corporation tax on its world-wide income. With some exceptions, a company incorporated in Ireland is automatically considered to be Irish tax resident. A company is also considered to be Irish tax resident if it is managed and controlled in Ireland (IDA Ireland, 2007)

Income Tax Yield From Farmers

There are approximately 110,200 farmers on record with the Revenue Commissioners, including almost 14,000 who are assessed periodically. Provisional estimates show that approximately EUR 112 mio tax was paid on farm profits in 2006.

Table 335 Average Income tax paid by sector

	PAYE (EUR)	Farmers (EUR)	Other self-employed (EUR)
2000	4,558	1,423	8,158
2001	4,602	1,048	9,533
2002	4,008	1,829	9,592
2003	4,180	1,693	6,911
2004	4,549	1,161	8,100
2005	4,609	1,343	9,662
2006	4,826	1,456	11,394

Source: Department of Agriculture and Food, 2007

In 2006, the average farmer in Ireland paid EUR 1,456 in income tax. This compares to the average PAYE (pay as you earn) worker paying EUR 4,826 in income tax and other self-employed workers paying EUR 11,394 in income tax. (DAF, 2007)

Tax conditions for Agriculture

In the Irish Government's budget in 2007, a number of issues were included which were aimed at improving structural change and land mobility in the agriculture sector and encouraging the development of an indigenous bio-fuel industry. The farm specific measures are worth EUR 14 mio annually in income tax and capital tax provisions, EUR 16 mio annually in the VAT rebate and EUR 15 mio over three years in support of a bio-fuel industry. Among these farm measures are:

- Introduction of a third rental income exemption threshold of EUR 20,000 for land leased for 10 years or more subject to EU state aid approval;
- Extension of the stamp duty exemption for land swaps to situations where only one farmer is consolidating his or her holding.
- Renewal of both 25% general stock relief for farmers and the 100% rate for young trained farmers;
- Increase in the flat rate VAT refund for unregistered farmers from 4.8% to 5.2%;

- An extension of capital allowances for the purchase of milk quota to incorporate the new milk quota trading scheme;
- Increase from EUR 500,000 to EUR 750,000 in the Capital Gains Tax (CGT) retirement relief threshold for disposals to third parties;
- Modification to the 10 year rule for CGT retirement relief to cater for certain situations where farmers have land leased out prior to disposal;
- Adjustment to the 80% asset test for Capital Acquisitions Tax
- Minimum eligibility requirement for stamp duty relief for young trained farmers will be the "Advanced Certificate in Agriculture" from 31/03/2008, subject to appropriate transitional arrangements.
(DAF, 2007)

In addition to the above, farm taxation measures, the need for continued focus on innovation and competitiveness in the agri-food industry will be assisted through a renewed and enhanced Business Expansion Scheme and Seed Capital Scheme.

Research and Development tax credits scheme is being fixed at 2003 for a further three years until 2009. This will provide an additional incentive for increased expenditure on research and development in 2007, 2008 and 2009. The corporation tax threshold for treatment as a small company is being increased from EUR 50,000 to EUR 150,000. For small firms, the requirement to pay preliminary tax in the first years of business was removed. Instead, they will be required to pay their corporation tax liability for their first accounting period at the same time as they are required to submit their tax returns (nine months after the end of the accounting period). Some of the incentives for biofuel include an additional provision of EUR 6 mio in the period 2007-2009 to top-up the existing EU Energy Crop Premium; EUR 8 mio to support a Bio-energy Establishment Scheme to grant aid for the planting of willow and miscanthus, over the period 2008-2009, and EUR 1.2 mio for a special scheme to grant aid biomass harvesting machinery. (DAF, 2007)

11.3 Investigating networks – supply chains

11.3.1 Supply chain 1 – Export butter

11.3.1.1 General description

This supply chain begins with raw milk at the producer stage in the South West of Ireland and ends with butter at the consumer stage in Germany. At the producer end, the market position of raw milk is a standardised product, its production system is conventional and its marketing system is indirect marketing via intermediaries. There are five stages in the supply chain i.e. the agricultural production actor (the farmer) the intermediate actor 1 (the processor who transforms the raw milk into butter) a second intermediate actor (the Irish Dairy Board which is involved in wholesaling and distribution of the butter) the German

retailer represents the fourth stage, while the German consumer of Kerrygold butter represents the fifth and final stage.

11.3.1.2 Agricultural and forestry production actors

Production input

There are an estimated 6,000 Dairy farmers in the South West of Ireland. The unit to measure production is typically the litre and 1 ha of pasture land will yield about 10,000 l of milk. The average business size for dairy farmers is larger than typical compared to the primary sector in the region and there are approximately 1.5 persons employed per farm. 60% of dairy farms in Cork range between 10 and 50 ha in size and the average annual turnover is EUR 107,000.

Average production costs per litre of production is 15 cent (range of 10-22 cents). The major production inputs accounting for this cost is workforce at 40% of the cost. Energy, fertiliser and machinery are also significant costs. A change in the volume of milk produced would not occur, regardless of the cost of the above most relevant inputs as the volume of milk produced is regulated by quotas. The only obvious substitute for nitrogenous fertilisers is the growing of clover (which is nitrogen fixing) in the pastures. It takes a small fraction of one hour (0.001 h) of labour to produce a litre of milk on the average dairy farm in the South West. The proportion of self-employed farmers to wage-workers is high and 90% of dairy farm workers are self-employed. Average personnel costs per full time employee in production are much higher than overall labour costs in the primary sector of the region at EUR 36,500 per annum.

The specialisation of knowledge required for farming is high and practically all dairy farmers have basic training and secondary education while approximately 10% of dairy farmers have tertiary education.

Production output

About 15 mio l of milk were produced in the South West in the past year. The most recent sales price per litre was 30 cent (range 27 cent to 32 cent). Producers always break even and the profit per litre is usually about 10 cents for the producer. The relevance of imported competitive products from outside the market is low and (milk from Northern Ireland) and the average sales price of this milk is the same (at 30 cents). The overwhelming majority (98%) of the milk in the supply chain is sold to food processors who convert the milk to butter, cheese, skim milk powder, food ingredients, protein fractionates etc.

Competition within the market is medium. As the milk is raw, it only makes sense to transfer it regionally over a distance of about 80 km. Dairy farmers often organise common marketing activities with other actors along the supply chain as they are often members of the same cooperatives that process the milk.

External effects

The negative impacts of production on land that are listed are either of low or no relevance to dairy farmers. Similarly, most negative environmental effects of production are either low or are not relevant. On the other hand dairy farming makes a major contribution to the protection of cultural heritage and cultural landscape, which makes it also appeal to tourists.

Dairy farming makes a medium contribution to employment in the region. There are approximately 8,000 workers engaged in the primary production of milk. In terms of the contribution of production to the total employment, it is higher for employees ages 55-64 but lower for all other categories. The relevance of social relations is high as are the importance of family ties for farmers in the region.

External factors

Milk can be produced 12 months of the year. The quality of soil is of high relevance to milk production. Special climate conditions are also of high relevance. Natural hazards between 1993 and 2006, such as flood events, drought, fires, hail, erosion and pests were not relevant. According to the National Farm Survey 2005, the estimated share of direct payment subsidies per produced unit was 10%. The relevance of quota systems as a sectoral measure was high, as was export refunds, other market support such as internal price supports and import tariffs. Slurry regulations, nitrates directives, regulations on animal welfare, regulations on food safety, regulations on food safety to protect human health and consumers' interests, regulations to protect an attractive landscape (REPS), regulations on employment and social protection (Agricultural employees act) and regulations to turn agricultural land into building land (planning regulations), were all of high significance. The Nitrates directive influences the production process as it limits intensive production. The Rural Environmental Protection Scheme (REPS) influences production by encouraging extensive production and planning regulations influence the production process by reducing farmland.

In terms of non-market influences on decision making, own self-assurance, family history and routines, and regional values and beliefs are the major factors that influenced farmers to choose dairying. Own self-assurance and family history and routines were major influences for farmers in choosing their ways of production, while non-market pressure of customers inside the supply chain was the major influence for farmers in choosing their way of marketing their milk.

In terms of Economic sustainability, the supply chain performs very highly (very sustainable), and, although not as high, the supply chain performs well on both social and environmental dimensions. The economic dimension is the most important sustainability dimension in the supply chain, while the social dimension is seen as more important than the environmental dimension.

Diversification

The overall relevance or share of farmers in the supply chain with other gainful activity in other supply chains was medium. The relevance of the marketing of by-products within the supply chain was low. No real by-products from the production of raw milk are of any major relevance in the South West at the moment.

Tourism is of medium relevance in terms of diversification of livelihood strategies. Income from letting farm land or buildings is also of medium relevance. Other business ventures are of low relevance in this supply chain. Wage employment in the secondary sector, (building and construction) has the highest relevance and most importance in terms of off-farm diversification of livelihood strategies. Wage employment in the tertiary sector (services) is of medium relevance as a livelihood diversification strategy.

11.3.1.3 Processor

Production input

The maximum, average and minimum production costs per unit of the product (butter) are EUR 2,800, EUR 2,500 and EUR 2,400 respectively. The relevance of the following components workforce, energy, machinery, and storage facilities was high. By far the highest cost component was milk. Milk accounts for approximately 70% of the cost of production of butter. If the prices of milk and packaging increased then it is envisaged that the production of butter would decrease slightly (both components have a price elasticity of 0.2)

The share of labour as a resource of production was medium. It requires approximately two hours of labour to produce 1 t of butter. No processor is self-employed and the average personnel costs per employee in production compared to the overall labour costs in the region are equal (approximately EUR 35,000 per annum). The need for specially trained workers for production is high with a particular need for food technologists and food process engineering.

Production output

A maximum, average and minimum of 22,000 t, 15,000 t and 12,000 t of butter respectively were recently produced in the region on an annual basis. The most recent sales prices per unit of the product were EUR 3,000, EUR 2,700 and EUR 2,400 respectively. Processors always break even and the most recent estimated profit per unit of butter was a maximum of EUR 200, an average of EUR 100 and a minimum of EUR 80. The contribution of the product to the respective sector GVA in the region was 5%. The relevance of imported competitive products from the outside market was low, with an average sales price of EUR 2,700. 80% of butter processed is sold to wholesalers, while 20% is sold directly to retailers. Competition within the market for the butter product was medium while it makes sense to transport the butter globally. Marketing activities

are always organised commonly with other actors along the supply chain due to the role of the Irish Dairy Board in marketing processed dairy products.

External effects

The influence of sealed surfaces has a medium impact on land as there is an effluent treatment plant. Air pollution as a result of processing is not relevant while water and soil pollution have a low relevance. The processing of butter has a medium contribution to total employment in the region. In terms of the contribution to the total employment in the region, the contribution of butter processing to total employment is high.

In terms of the contribution of the production to employment in the respective sector of the region, the contribution is high. 30% of the workers in the respective sector get employed in the supply chain.

In terms of how relevant the contribution of production is to the total employment in the region, it is equal for employees aged 55-64 years, equal for employees aged 15-25, equal for female employees, lower for employees from other Member States and employees from Third countries. The relevance of social relations relating to the involvement of actors in the rural civil society, the relevance is medium.

Legislation

Food safety regulations have a major influence on the production process and production costs as this increases production costs. Regulations on entrepreneurship have a medium impact on the production process and production costs. Regulations on employment and social protection have a high relevance and impact on production process and/or production costs.

11.3.1.4 Irish Dairy Board wholesaler/distributor

The Irish Dairy Board is owned by a number of Dairy Cooperatives in Ireland and acts as a wholesaler/distributor for these cooperatives. Although it acts on behalf of processors, and ultimately distributors in the South West of Ireland, it does not have a large office in the South West region, just some staff at a research facility in Cork. It controls the exports of the majority of Irish Dairy Products, including butter. If the, the most significant cost component, the distribution of butter would not change. The cost of labour and laws and regulations protecting workers has an impact on where IDB locates.

The share of labour as a resource of production was high. The relation of employees to self-employed was low. The personnel costs per employee in production compared to the average labour costs in the region was equal at about EUR 40,000. The need for specially trained workers for production is high.

Production output

The Irish Dairy Board distributes about 120,000 t of butter per year. Export quotas are about 85% and average sales price per unit is about EUR 4,000 (maximum EUR 6,000, minimum EUR 2,000). The most recent estimated profit per unit is a margin of about 2-3% and producers always break even. The relevance of imported competitive products is low but if the price is lower at an average of EUR 3,500 per ton. The butter is distributed to retailers (40%) and other processors and wholesalers (30% each).

The competition within the market for butter is high, the butter can be distributed globally and actors do organise marketing activities commonly with other actors along the supply chain such as with other traders and wholesalers. The amount of butter produced and the export quotas remain constant due to the restriction that quotas place on butter production.

External effects

Air pollution as a result of transportation of the product is of medium relevance. In terms of how relevant the contribution of production is to the total employment in the region, it is equal for all categories of employees

Legislation

Food safety regulations have a major influence on the distribution process as there is a need for tests, need for officials to sign off on approvals and delays on approval-these all cost money. Common organisation of market in Milk-coping with regulations and staying up to speed on developments costs the wholesaler money. Common Organisation of market (for milk). Coping with regulations and staying up to speed on developments cost the wholesaler money.

11.3.1.5 German food retailer and consumer

The German retail market is the single biggest market for butter from the South West of Ireland and it is sold there under the Kerrygold brand, usually in 250 g tubs to 10 major retail multiple chains. Labour and sales facilities are the major cost to the retailer of selling butter. The share of labour as a resource of production is high, the personnel costs per employee compared to the average personnel costs in the region are lower and the need for specially trained workers for production is average. An average of 100 mio tubs of Kerrygold butter are sold in Germany annually. The sales price ranges between EUR 0.65 and EUR 1.09. The estimated profit per unit is 20% and the retailer always breaks even. All of the product is sold to the end consumer. Competition within the market is high.

Environmental effects of selling the butter are not relevant. The contribution of the retailer to the total employment in the region is higher for all employee categories. The impact of legislation such as regulations on food safety (employee training) and

regulations on employee and social protection, is high (it is difficult to make lay-off so firms do not hire-this prevents growth). There has been a strong increase since 2004 in the numbers of employees from Member States and a decrease in the number of employees from third countries.

Demand

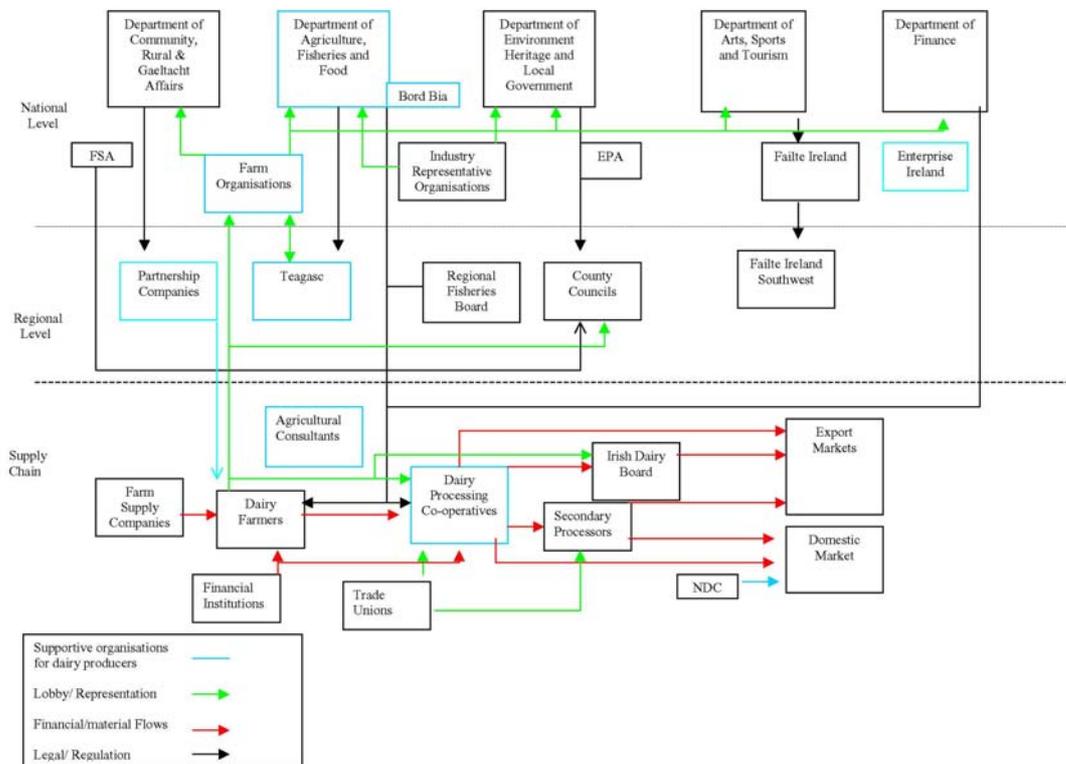
Private households outside the South West Region (Germany) are the main consumer of butter produced in the South West of Ireland. Average consumption of Kerrygold butter in Germany is 6.5 kg. Consumers paid an average of EUR 0.78 (a minimum of EUR 0.65 and a maximum of EUR 1.09). Additional costs such as travel costs are not relevant. If the price of butter increased there would be a minor decrease in consumption.

There is a VAT of 7% on consumer goods.

External factors

Regional values and a belief in the clean and green image of Irish butter are strong factors in the German consumer’s choice of Irish Butter.

Figure 187 Butter supply chain



11.3.2 Supply chain 2 – Beef

11.3.2.1 General description

Beef has a standardised market position, a conventional production system and indirect marketing system. There are four stages in the beef supply chain. Farmer, processor, retailer and consumer. Beef production is measured in tons and it requires 1 ha to produce 560 kg of beef. The majority of beef farms range in size from 10 to 50 ha. The average turnover from purely beef farming is EUR 25,175 while the average turnover from cattle and other is EUR 32,139.

11.3.2.2 Agricultural and forestry production actors

Production input

Average production costs are around EUR 582 per ton for purely beef farming and EUR 659 for beef and other farming. As an input cost, energy is of medium relevance along with fertiliser, machinery and purchased concentrates. Price increases in these inputs would not impact on production as costs would be absorbed by the farmer and purchased concentrates could be substituted by grass. The sharing of silaging equipment and sprayers etc, is done rarely. It requires about 60 h of labour to produce 1 t of beef. The proportion of self-employed persons to wage-workers is high and, although 90% of beef farmers are self-employed, when outside labour is hired, the labour costs are equal to those in the primary sector in the region. All beef farmers have basic on-farm training from parents. Virtually 100% of beef farmers under the age of 40 years have at least some secondary education and all beef farmers under the age of 40 have some tertiary level agricultural training.

Production output

About 95% of all Irish beef is now sold within the EU (50% to the UK) as there are no export quotas. The maximum, average and minimum sales price per unit of the product to the next stage of the supply chain is EUR 2,900, EUR 2,800 and EUR 2,700 respectively. Generally, no profit is made on the sale of the product to the processors and sustainability of productions depends on direct payments. All beef is sold onto food processors. Beef may be transported to customers globally.

External effects

Most of the common negative environmental effects have either no relevance or low relevance in the case of the loss of biodiversity. Agricultural land use offers significant protection to cultural heritage and cultural landscape, appeals to tourists and enhances biodiversity.

Beef farming accounts for approximately 15% of total employment in the region, representing a high contribution to primary sector employment. The contribution of the production to the total employment in the region is much higher for employees aged 55-64, but lower for employees from other Member States and third countries and much lower for female employees. Social relations relating to farmers' involvement in rural civil society and family ties are extremely important.

External factors

Beef can be produced year-round and Ireland's temperate climate is important as it makes it easy to grow grass for pasture and therefore relatively cheap to produce beef. Water logging in peat soils is a major issue for production. Bio-security hazards such as a foot and mouth outbreak did occur since 1993 and had a profound effect on the production and sale of beef. Also the discovery of BSE had a major impact. Estimated share of direct payment subsidies per produced unit was approximately 140%. The relevance of payment schemes such as single payment schemes for areas since 2005 (decoupled) was high. Other subsidies such as the farm waste management grant, the REPS and the compensatory allowance scheme (CAS) were also of high relevance. Sectoral Export refunds for beef exported outside the EU was of medium relevance during this period.

Legislation

Regulations concerning the use of fertilizers and pesticides are of high relevance, as are regulations protecting wild animals, plants and biodiversity (Cross compliance regulations). Regulations on animal welfare are, such as the Animal Welfare act, are of high relevance and are tied into cross-compliance. Regulations on food safety, which incorporate tagging, animal remedies and animal feed control are of medium relevance as are regulations to turn agricultural land into building land and construct buildings. Regulations on employment and social protection (Employee Protection Act, and Farm Safety) are of high relevance to the production process and/or production costs. The Nitrates regulation, which regulates the protection of ground water, increases production costs as farmers need to either reduce stock or else construct new buildings to properly accommodate the storage of cattle in the winter. Cross compliance regulations incorporate nitrates, welfare and environmental regulations. These cross compliance regulations increase production costs as farmers have to adhere to them. Own self assurance of farmers was a major influence in choosing to produce beef. Public bodies were also a major influence as were family history and routines and regional values and beliefs. Big players in the economic sector are also a factor as is willingness for innovation and farmer's cooperatives. Own self-assurance was a major influence in farmers choosing their ways of production, as were public bodies, family history and routines, regional values and beliefs and "big players" in the economic sector. Own self-assurance was a major influence in farmers choosing their own ways of marketing, as was big players in the economic sector. Other influences included family history and routines, regional values and beliefs, willingness for innovation, media, agricultural chamber and farmers' cooperatives.

Relation of the actors activity to the dimensions of sustainability

In terms of the economic dimension, beef production has a mediocre score as it would not survive without direct payments. It performs slightly better in terms of its social dimension and slightly better again in terms of environmental dimension. The Economic dimension is stated to be the most important dimension and the social dimension is given far more weight than the environmental dimension.

Diversification

A high proportion (about three-quarters) of farmers in this supply chain have other gainful activity in supply chains. The marketing of by-products inside the production of the existing supply chains is of no relevance at the farm level production of beef. Diversification towards tourism, particularly B&Bs is of medium relevance. Income from letting farm land and buildings is of low relevance. In terms of establishing business ventures, beef farmers have their own businesses in trades such as carpentry is of medium relevance. As far as wage employment in the primary, secondary and tertiary sectors is concerned, wage employment in the primary sector is the most important (building construction etc) and would represent 70% of wage employment. 10% of wage employment is in the secondary sector (i.e. manufacturing and driving). Wage employment in the tertiary sector (such as teaching, other professions and various services) accounts for about 20% of all wage employment off-farm for beef farmers. This segment is of growing importance however as many people have a main job or career and are involved in beef farming on the side.

11.3.2.3 Processors

Production input

The price that the processor pays for cattle is highly dependent on the supply of cattle. If there is a shortage of cattle the price that the processor pays the farmer will increase, similarly if there is a glut of cattle the processor will pay less.

Labour and Intellectual capital

The relation of self-employed workers to employees in beef processing is extremely low. Personnel costs per employee in production compared to the average labour costs in the region are about equal (annual salary of EUR 35,000). The need for specially trained workers for production is high due to slaughter, safety and hygiene regulations.

Production output

The processors always break even and the contribution of the product to the respective sector GVA in the region is 2.5%. The relation of imported competitive products from outside the market is medium. 8% of processed beef is sold on for

further processing, 30% is sold to wholesalers, 60% of processed beef is sold onto retailers and 2% is sold onto end consumers. The competition within the market for the intermediate product is medium. The maximum distance that it makes sense to transport the product to the customers is within the EU.

External effects

The contribution of the production to total employment in the region is medium (about 2,500 people employed in the processing sector). The contribution of the production to employment in the respective sector is also medium at about 2,500. The relevance of the contribution of the production to the total employment in the region is much lower for employees aged 55-64, equal for employees aged 15-25, much lower for female employees, equal for employees from other Member States, higher for employees from third countries. The relevance of social relations relating to the involvement of actors in the rural civil society is low.

External factors

Food safety regulations increase the infrastructure requirement and training costs. The influence of regulations on employment and social protection is also high due to health and safety acts and employee protection (training costs and protective equipment).

11.3.2.4 Retailers

Production input

Beef from the South West of Ireland is mainly sold to six different large retail multiples- each with over 1,000 stores. The major input cost for the retailer is buying the actual beef from the processor. There is a certain amount of price elasticity associated with beef but after a certain increase in price, people will switch to chicken and Pork etc.

Labour and Intellectual capital

The share of labour as a resource of production is low. Personnel costs per employee in production compared to the average labour costs in the region are about equal. The need for specially trained workers for the sale of beef is low as most of the beef sold at retail level is now pre-packed.

Production output

About 100,000 t of Irish beef are sold by the UK retailer annually. The most recent sales prices per unit of the (intermediate) product to the next stage of the supply chain ranges between EUR 2 and EUR 30 with an average of about EUR 6. The most recent estimated profit per unit of the product ranges between EUR 0.2 and EUR 3. Imported beef from South America has a medium relevance as South American

beef keeps the price of Irish beef lower on the Shelf. It is sold at 35% less than Irish Beef. All (100%) of beef at the retailer level is sold to the end consumer. Competition within the market is high and it only makes sense to transport the beef regionally to consumers (supermarkets tend to draw their customers from their localities) and actors organise marketing activities commonly with other actors along the supply chain in the form of advertising, sales promotion, information etc with Bord Bia. There are often price wars between the supermarkets which keeps the retail price low (and the price back along the supply chain).

External effects

Air pollution is not relevant as a negative environmental effect of production, neither is water pollution nor soil pollution. The contribution of retailers (in total, nota breakdown for numbers involved in selling beef alone) to total employment in the region is high at between 100,000 and 1,000,000). The contribution of the multiples to employment in terms of the retail sector is also high. The relevance of the contribution of the production to the total employment in the region is lower for employees aged 55-64, but higher for all other categories. In terms of relevance of social relations, some retail multiples tend to get very involved in their local areas through various programmes such as computers for schools etc. They also maintain strong contact with local farm groups. The influence of regulations on food safety (protection of human health and consumers interests), on the production processes and outputs is high due to food safety legislation. Food safety regulations requires traceability and putting controls in place, information systems, quality assurance people and own laboratories.

11.3.2.5 End consumption actors

Demand

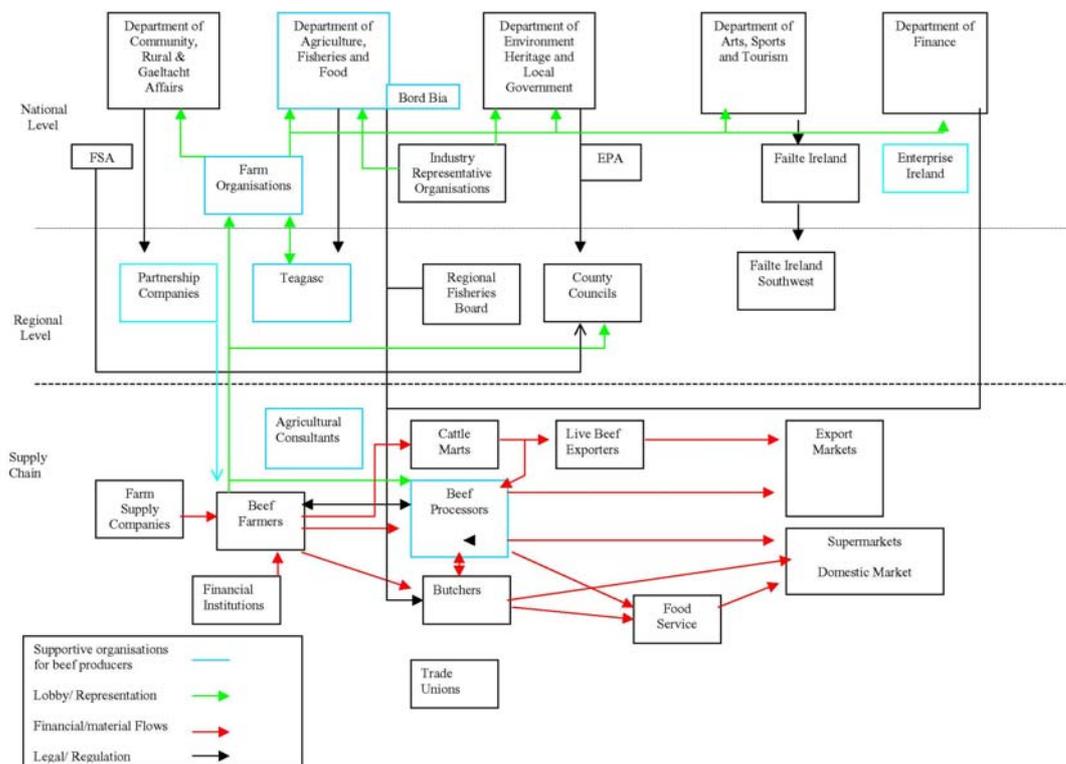
The average annual consumption of the product was 18 kg. Purchasing price per unit of the product ranged between EUR 2 and EUR 30. Average household income in the UK is about GBP 30,000. If price increased for beef there would be a minor decrease in demand from customers. In the event of price increases, the appropriate substitutes for the product would be South American beef, chicken and pork.

External factors

The media can have a strong influence when it is used for marketing campaigns and advertising (e.g. by Bord Bia). The media can also be an important factor in negative publicity if there are food scares such as BSE, Foot and Mouth, E.Coli etc. Regional values and beliefs have a major influence on the UK consumer's decision to purchase and eat beef. However, the consumption of Irish beef does not arise from any regional values and beliefs. In terms of how the beef supply chain performs in terms of the three classic sustainability dimensions from a consumers' viewpoint, the supply chain performs well economically, less well socially and less

well again environmentally. The economic dimension is the one most important to the consumer, with social and environmental dimensions carrying equal importance.

Figure 188 Beef supply chain



11.3.3 Supply chain 3 – Mussels

11.3.3.1 General description

Mussels are a standard product with a conventional production system and indirect marketing system. There are five different supply chain actors i.e. the mussel producer, the processor, the wholesaler/distributor, the retailer and the consumer. 1 ha of mussels will produce 15 t of mussels. There are approximately 36 mussel farms in the South West of Ireland. There is an average of 3-4 persons per farm. 50% of farms are between 10 to 50 ha. The average farm size is 15 ha. The average turnover is EUR 150,000.

11.3.3.2 Agricultural and forestry production actors

Production input

The average production costs per unit are about 650 per ton. Labour accounts for about 65% of the total production costs, machinery accounts for 25% while storage facilities account for 10% of all production costs. The level of production would not change due to price increase in these areas. Expansion is needed for greater efficiency and producers strive for economy of scale in order to cope with price changes. Farmers are encouraged by other bodies such as Bord Iascaigh Mhara to cooperate with each other with technology and knowledge so that they can compete with other countries.

Labour and Intellectual capital

30% of people working on mussel farms are owners. Many mussel farmers are both self-employed and also work for other mussel farmers when they are not tending to their own farms. All farmers have basic agricultural training. Secondary and tertiary education for mussel production is not relevant. Many of the mussel farmers were on-land farmers who saw an opportunity for farming in the sea. Many others were and are still fishermen.

Production output

On average, about 6,000 t of the unit are produced annually in the region. The most recent estimated profit per ton has been an average of EUR 50. 70% of mussels are sold onto food processors while 15% are sold to wholesalers and another 15% are transported to the East Coast where they are transplanted to seabed mussel cultivation. Competition within the key sales market is high as a result of competition from other countries. Processed mussels can be transported globally but fresh or live mussels can only be transported a short distance of several hundred km.

External effects

The production of mussels may also promote pests in a small way as mussels are a source of food for starfish. Because of this mussel farmers are not allowed to locate lines over sand beds. The contribution of agricultural land use to protect cultural heritage is of medium relevance. Mussel farming can enhance biodiversity if well located and can increase the number of seabirds particularly. Although mussel farming has large potential as an industry it is still relatively small and in comparison to the massive growth of the Irish economy over the last 10 years, it makes, in a relative sense, a very small contribution to total employment.

External factors

Mussels can be produced year-round but some bays are shut down sometimes and harvesting of mussels is not allowed due to high levels of biotoxins over the warmer summer months. The quality of the sea water in which the mussels are produced is extremely important for the production of mussels. Other special climatic conditions necessary for the production of mussels includes phytoplankton (there is a spring and autumn bloom) and also water quality is very important for the production of the mussels. Since 1993, the major natural hazard which had a major impact on production was the excessive level of biotoxins in the water in 2005. This effectively halted the harvesting of rope mussels in some of the bays of West Cork and mussels had to be brought in from the outside by the processors. Regulations for protecting wild animals, plants and biodiversity are of medium relevance (EU Habitats Directive (92/42/EEC)). Regulations on food safety are of very high relevance. In terms of economic sustainability, the economic dimension scores quite well, as does the social dimension. Environmentally, mussel production is very sustainable. The economic dimension is the most important dimension. The social dimension is marginally less important than the environmental dimension for the supply chain.

The overall relevance of mussel farmers with present other gainful employment is medium and accounts for about 50% of all farmers in the supply chain. In terms of other agri-products that mussel farmers are involved in, in-shore fishing is of medium relevance (30% of all mussel farmers), shrimp fishing is of low relevance (10% of all mussel farmers), on-land farming is of medium relevance (about 25% of farmers). In terms of non-agri products, tourism is of low relevance, while other means of diversifying livelihood such as working in services and engaging in other tourism activities such as fishing trips and sight-seeing, are of low relevance.

11.3.3.3 Processors

Production input

About 55% of total costs of production are labour costs. 30% of the costs are for the mussels and the remaining costs can be divided among energy, machinery, storage facilities and sauces. In terms of price increase for the major components or raw materials, this would cause no change in production, unless it was a major increase. In terms of labour and intellectual capital, the share of labour as a resource of production is high. The need for specially trained workers for production is high and workers need training such as HACCP training.

External effects

Water effluent is of low relevance and processors need to have effluent discharge licences. The contribution of production to the total employment in the region is low (approximately 200 workers). 65% of all mussel workers in the region are employed in processing.

External factors

Regulations on food safety (protection of human health and consumer's interests) such as EU Directive 91/67/EEC, have a very high relevance for the processing of mussels. The cost implications of food safety regulations are that depuration, labour costs for testing for toxins, documentation of test results costs. The economic dimension is regarded as the most important dimension as if the economic dimension of mussel processing is not sustainable then the other dimensions will not work either. The social dimension is regarded as slightly less important than the environmental dimension at the processing level.

11.3.3.4 Distributors

Production input

Mussel are distributed in packs that range in size from 400 g to 5 kg. There are a total of 20-30 main distributors of mussels in France with 5 main ones that account for 80% of the distribution of mussels. These larger firms have several thousand employees and have a turnover of several billion euros. The average distributor business size is larger than typical for the region. The average production costs per unit of the mussels distributed is EUR 0.45. The relevance of workforce, energy and storage facilities as a share of total production costs are high. The purchase of mussels from the processors is the single highest input cost. It is difficult to gauge how distribution activity would change for each distributor if labour, energy and storage costs changed. Distribution activity depends on competition and is very competition sensitive. This has a much bigger impact. The share of labour as a resource of units of mussels distributed is impossible to calculate as distributors distribute a multitude of products at a time. The relation of self-employed/employees is very low and is under 1%. The average personnel costs per employee in production compared to the overall labour costs in the region are equal and stand at about EUR 20,000 to EUR 30,000 per annum. There is an average need for specially trained workers for production as the distribution stage requires commercial, legal, logistical and food safety expertise.

Production output

Approximately 4,000 t of Irish Rope mussels are distributed in a year. The most recent sales price per unit of the product onto the next stage of the supply chain is EUR 2.50 per kilo. Distributors always break even and the contribution of distributing mussels to the respective sector GVA in the region is <1%.

The relevance of imported competitive products from the outside market is medium and the average sales price is EUR 2.30. The relevance of the sale of mussels from distributors to food processors is medium, to retailers is low (in the case of Irish rope mussels) and to the catering industry (hospitals, schools, prisons, hotels etc) is high (the principal market for distributors of Irish rope mussels). Competition within the market for distributing mussels is high. It makes sense to transport the

product nation-wide (1,000 km). Distributors often organise marketing activities commonly with processors and retailers but do not cooperate with each other.

External effects

Negative impacts of production on land are not relevant. The issue of air pollution from the transportation of mussels is of medium relevance. Issues of water and soil pollution are not relevant. Distribution of mussels makes a small contribution to the total employment in the region (there are about 10-15,000 people employed in the distribution stage of the supply chain. Distribution of mussels makes a high contribution to the total employment in the respective sector.

Legislation

Regulations on food safety (protection of human health and consumer's interests) are of high relevance to the distributor. These regulations influence the production costs as food safety training, auditing, certification and refrigeration to make sure that temperature abuse does not occur, all add to production costs. Employment and social protection regulations are also of high relevance as

11.3.3.5 End consumption actors

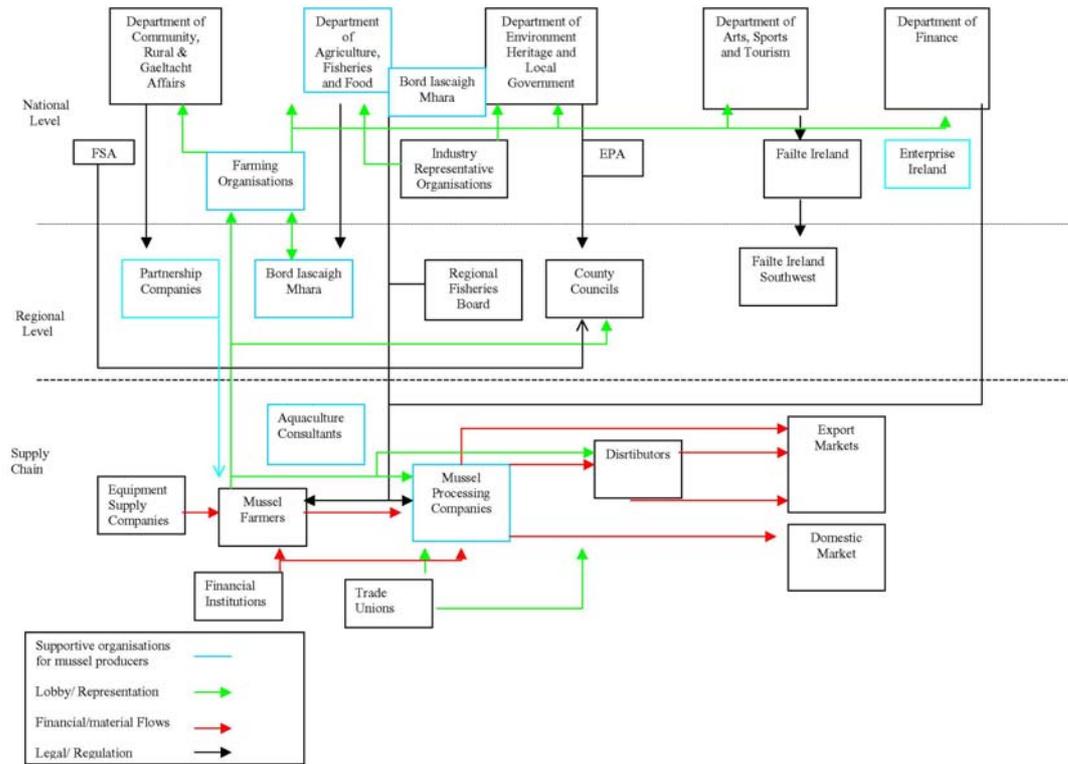
Demand

Public households and institutions are the main consumers of rope mussels produced in the South West of Ireland. This is the case for all mussels in general. In the specific case of Irish rope mussels, the mussels are mainly sold to restaurants and the catering industry- hotels, schools, prisons, hospitals etc. Very few are sold to retailers. The purchasing price per portion of the product ranges between EUR 1.80 and EUR 4.30 (average of EUR 3. If the price of mussels increases there would be a minor decrease in the consumption of mussels. The tourism sector has a strong influence over the consumption of mussels as there is a strong consumption in coastal areas. The Food service sector also has a strong influence by sourcing and providing the mussels for consumers.

External Factors

It is impossible to say what other demand options may have been taken in terms of foods as there is no obvious rival or direct substitute for mussels in the eyes of the consumer. Changes have occurred in terms of the presentation and packaging of the product i.e Modified Atmosphere Packaging (MAP)-resulting in a 7 day shelf-life (packs of 1.6 kg – 2 kg)

Figure 189 Mussel supply chain



11.3.4 Non-agricultural activities and dynamics in the South-West Region

Farmers in the region that leave farming tend to do so on a partial basis. Typically they take up wage employment on the construction or services sector and either continue to farm in a more extensive manner or lease their land to other farmers in the region. Therefore in the vast majority of cases they and their families continue to live and work in the region.

Regional data on off-farm employment and income is not available, but national data give a strong indication of trends in the sector. Nationally, 58% of farms had off-farm employment (farmer or spouse in employment) in 2006. This is part of an increasing trend over the last decade (see table below). There are push and pull factors at work in driving the increased incidence of off-farm employment. Push factors include low levels of profitability in agriculture up to and including 2006, the unattractiveness of working hours and conditions on farms relative to the non-farm sectors (especially for young people). Pull factors include the buoyant non-agricultural economy, attractive wage levels available particularly in the construction sector and the increased concentration of services in urban centers.

Table 336 Percentage of Irish Farms with Off Farm Job for Farmer and/or Spouse

Year	2002	2003	2004	2005	2006
Percentage	48	50	52	55	58

Source: Teagasc, National Farm Survey 2006

Overall on 42% of Irish farms, the farmer had off-farm employment in 2006. The incidence of the farmer having off-farm employment is highest in the small farm size groups and the incidence of the spouse having an off-farm job is highest in the intermediate farm size groups. The average off-farm income for all farms in 2006 was EUR 23,100. In 2006, in 82% of all farms, the farmer and or spouse had some source of off-farm income be it through employment, social assistance or pension. For dairy farmers, 50% had off-farm employment (farmer and/or spouse) and 12% of farmers only had off-farm employment. In the case of cattle (beef) farming 64% had off-farm employment and 53% of farmers only had off-farm employment.

Table 337 Average Weekly Earnings of Unskilled Operatives in the Construction Sector 2000-2006

Year	2000	2001	2002	2003	2004	2005	2006
EUR	521.62	580.62	632.53	649.15	676.46	725.63	751.82

Source: CSO, 2007

The construction sector has been very buoyant until the second half of 2007 and the opportunities for attractive earnings have been very good even for unskilled operatives (see table). The construction sector and related services has been an attractive outlet for off-farm employment over the last number of years, however construction activity is expected to decline significantly in 2008 therefore the attractiveness of the construction sector as an alternative to full-time agriculture will decline. In addition, the rapid increase in the price farmers received for milk in 2007 is likely to decrease the tendency to exit dairy farming. On the other hand prices for beef producers have remained low.

11.4 Investigating social networks

The institutional actors that influence rural development in the South West of Ireland may be separated into three distinct categories:

Political & Legislative Bodies

Houses of the Oireachtas (Legislature) are Dáil Eireann (The Parliament) and the Seanad (The Senate), County/City/Town Councils

Lobbies and representation of interests

Irish Farmer's Association (IFA), Irish Creamery Milk Suppliers Association (ICMSA), Chambers of Commerce, Cork and Kerry Enterprise Boards

Regional/Economic Development Agencies

Bord Bia, Area Based Partnerships, Bord Iascaigh Mhara, County Enterprise Boards, Teagasc, An Taisce, Regional Tourism Organisations, Chambers of Commerce, Industrial Development Authority, Area Development Management, Leader Companies, Fás, Local Action Groups, Udaras na Gaeltachta, County/City Development Board, Forfás, Enterprise Ireland, County Councils, INTERREG, University/Colleges.

However the following nine institutional actors have, arguably, the largest influence on rural development in the South West.

These institutional actors are:

1. The Department of Agriculture, Food and Fisheries (National Government)
2. Department of Community, Rural and Gaeltacht Affairs (National Government)
3. Teagasc (semi-state Agricultural Advisory Service)
4. Irish Farmers Association (IFA)-represent producers at national and EU level and lobby for their interests
5. Partnership Companies (including the Leader companies-promote sustainable rural development)
6. County Councils of Cork and Kerry (Local Governance and Administration)
7. Irish Dairy Board (responsible for wholesaling and distributing most butter produced in the South West, into foreign markets)
8. Bórd Bia (The Food Board: responsible for marketing of Irish Food and Beverages in Ireland and on export markets)
9. Bord Iascaigh Mhara semi-state: support the sustainable development of the Irish Seafood Industry and provide technical support.

Networking actors interviewed for the supply chain analysis

The Department of Agriculture and Food distributes all subsidies. Subsidies distributed include EAGGF Guarantee Direct Expenditure of EUR 1,423.49 in 2006. This comprised of Single Farm Payments of EUR 13,085 mio, Premia/Area aid of EUR 5.41 m, Export Refunds of EUR 96.4 mio and Other Market Supports of EUR 12.73 mio. Intervention Purchases amounted to EUR 55.84 mio. Voted expenditure (excluding administration) amounted to EUR 1,155.7. This included rural development of EUR 49.79 mio. Structural measures of EUR 751.73 m, Animal Health and State Bodies expenditure of EUR 332.68 m, market intervention and other of EUR 21.57 mio. Administration costs came to a total of EUR 281.28 mio.

Teagasc, information to dairy and beef farmers on financing and legislation. They are an advisory service for primary producers and advise farmers on their eligibility for various payments and on issues of cross compliance etc which ensure that the farmer adheres to sound farming practices in terms of animal welfare, food safety and environmental protection etc.

Bord Iascaigh Mhara, the Irish Fisheries and Marine Board provides mussel farmers with information relating to financing and legislation. They provide information regarding eligibility of mussel farmers for licences and also their eligibility for grants etc for start-up costs, equipment and new technologies.

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PART D

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ANNEX 2: INTERVIEW DOCUMENTATION

In each region various interviews have been conducted.

Norway: Hedmark

Main expert	
Name: Bjørnar Sæther	Position: Ass. Professor of Geography, University of Oslo
Please shortly describe the main experts' competence with regard to training, experience, career, the institution he is working at etc.:	
An expert of farming and farm products/supply chains in Hedmark	
Other interviewees present	
Agnar Hegrenes	Research Director, Norwegian Institute for Agricultural Economics

United Kingdom: West Sussex

Interview no. 1	Case study region, West Sussex
Supply chain(s):	Salad production
Name: Peter Zwinkels	Position Manager, Madestein Ltd.
Owner of Madestein Ltd., Owner of Nv Produce Marketing, 26 years of experience, 23 years member of West Sussex Growers Association	
Date: 15/01	
Time: 10:30-12:30	
Venue: Chichester	

Interview no. 2	Case study region, West Sussex
Supply chain(s):	Salad production
Main expert	
Name: Dave Moore	Position: Manager, Langmead Ltd.
Owner of Langmead Ltd., owner of Nature's Way Foods Ltd	
Date: 15/01	
Time: 12:30-13:30	
Venue: Chichester	

Interview no.	West Sussex
Supply chain(s):	Milk and cheese
Main expert	
Name: John Evans	Position: Rural projects manager, Sussex Enterprise
<p>He heads the only publicly financed consulting for farmers in the region, located within the chamber of commerce/sussex enterprise. They are heavily engaged in developing and delivering consultancy services in East and West Sussex and with some newer projects also across the whole of South East (e.g. developing the biofuel market).</p> <p>They also run 'a taste of sussex', which created a regional brand for different local products. They consulted farmers and intermediare firms for the development of the regional dairy sector.</p> <p>This is enriched with information from the Milk Development Council and the British Cheese Board.</p>	

Interview no. 1	Case study region, country ... West Sussex
Supply chain(s):	Rapeseed
Main expert	
Name: John Evans	Position: Rural projects manager, Sussex Enterprise, Burgess Hill, West Sussex
<p>John heads the only publicly (DEFRA) financed consultancy for farmers in the region, located within the the regional Business Link branch, called here Sussex Enterprise. They are engaged in developing and delivering consultancy services for farmers and food supply chains in East and West Sussex and with some newer projects also across the whole of South East (e.g. developing the biofuel market).</p> <p>They also run 'a taste of sussex', which is a regional brand for different regional products.</p>	

Interview no. 3	Case study region, country ... West Sussex
Supply chain(s):	Wheat
Main expert	
Name: RichardWright	Position: Crop Marketing, Bartholomews Agri Food, Chichester, West Sussex
<p>Richard has worked in the grain trade for 20 years. The last 11 years with Barholomews. The company's role is to provide the link between farmer producers and consumers/first processors of grain. This covers establishing volume through market information and on farm sampling of quality. The the logistical element including on farm collection by road, storage, conditioning, exporting, shipping etc. The trade areas of Bartholomews are the whole of South of England, but the interview has been rrestricted to West Sussex only.</p>	

Interview no. 1	Case study region, country ... West Sussex
Supply chain(s):	Wheat
Main expert	
Name: John Evans	Position: Rural projects manager, Sussex Enterprise, Burgess Hill, West Sussex
<p>John heads the only publicly (DEFRA) financed consultancy for farmers in the region, located within the the regional Business Link branch, called here Sussex Enterprise. They are engaged in developing and delivering consultancy services for farmers and food supply chains in East and West Sussex and with some newer projects also across the whole of South East (e.g. developing the biofuel market).</p> <p>They also run 'a taste of sussex', which is a regional brand for different regional products.</p>	

Interview no. 2	Case study region, country ... West Sussex
Supply chain(s):	Wheat
Main expert	
Name: Martyn Sands	Position: Consultant, Agri Business Development, Haywards Heath, West Sussex
Expert on the later stages of grain supply chains in the region.	

Interview no. 3	Case study region, country ... West Sussex
Supply chain(s):	Wheat
Main expert	
Name: Richard Wright	Position: Crop Marketing, Bartholomews Agri Food, Chichester, West Sussex
Richard has worked in the grain trade for 20 years. The last 11 years with Bartholomews. The company's role is to provide the link between farmer producers and consumers/first processors of grain. This covers establishing volume through market information and on farm sampling of quality. The the logistical element including on farm collection by road, storage, conditioning, exporting, shipping etc. The trade areas of Bartholomews are the whole of South of England, but the interview has been rrestricted to West Sussex only.	

France: Savoie

Interview no.	Case study region, country ... Savoie, Franc e
Supply chain(s):	Beaufort cheese
Main expert several experts	
Pierre Laurent, expert at the union of beaufort producers ,	
Gerard Oeuvarad, director of cooperative in Beaufort,	
Florent Michez, director of "farming systems" department at the chamber of agriculture of Savoie and director of goatkeeper union.	
Didier Curtenaz director of the chamber of agriculture of Savoie	
Gerard Oeuvarad, director of cooperative in Beaufort	
Stephanie Colombani, expert in product communication in SUACI Alpes du Nord,	
Emmanuel Minguasson, SUACI Alpes du Nord, expert in the field of marketing	
Christian Neumuller, officer in charge of agriculture, national Parc of Vanoise,	
Audrey Stucker local activator in charge of agriculture in a the natural regional parc du massif des Bauges,	
Sylvie Ries, in charge of the negotiation of projects in the field of land-use, conservatoire des espaces naturels de Savoie,	
Marie-Pierre Tissot, expert in the field of territorial developement, mission développement prospective de la Savoie,	
Michel Dietlin, departmental agency for tourism,	
Claude Comet, director of Savoie Mont-Blanc tourism (promotion of tourism in Savoie)	

Interview no.	Case study region, country ... Savoie, France
Supply chain(s): Beaufort cheese	
Main expert several experts	
<p>Florent Michez, director of "farming systems" department at the chamber of agriculture of Savoie and director of goatkeeper union.</p> <p>4 farmers representative of Savoie goatkeepers (near an agglomeration, in a national park and near a ski resort), with different strategies, Christian Neumuller, officer in charge of agriculture, national Parc of Vanoise</p> <p>Didier Curtenaz director of the chamber of agriculture of Savoie,</p> <p>Emmanuel Minguasson, SUACI Alpes du Nord, expert in the field of marketing</p> <p>Sebastien Breton, ancient director of goat cheese producers union in Savoie, Didier Curtenaz director of the chamber of agriculture of Savoie</p> <p>Christian Neumuller, officer in charge of agriculture, national Parc of Vanoise, Audrey Stucker local activator in charge of agriculture in a the natural regional parc du massif des Bauges, Sylvie Ries, in charge of the negociation of projects in the field of land-use, conservatoire des espaces naturels de Savoie, Marie-Pierre Tissot, expert in the field of territorial development, mission développement prospective de la Savoie, Pierre-Yves Grillet, director of Savoie Métropole (territorial development and land management), Michel Dietlin, departmental agency for tourism, Claude Comet, director of Savoie Mont-Blanc tourism (promotion of tourism in Savoie)</p>	

Interview no.	Case study region, country ... Savoie, France
Supply chain(s): "standard" milk	
Main expert several experts	
<p>Jean-François Laval, director of federation of milk cooperatives of Savoie</p> <p>Florent Michez, director of "farming systems" department at the chamber of agriculture of Savoie and director of goatkeeper union.</p> <p>Didier Curtenaz director of the chamber of agriculture of Savoie</p> <p>Stephanie Colombani, expert in product communication in SUACI Alpes du Nord,</p> <p>Emmanuel Minguasson, SUACI Alpes du Nord, expert in the field of marketing</p> <p>Christian Neumuller, officer in charge of agriculture, national Parc of Vanoise,</p> <p>Audrey Stucker local activator in charge of agriculture in a the natural regional parc du massif des Bauges,</p> <p>Sylvie Ries, in charge of the negociation of projects in the field of land-use, conservatoire des espaces naturels de Savoie,</p> <p>Marie-Pierre Tissot, expert in the field of territorial development, mission développement prospective de la Savoie,</p> <p>Michel Dietlin, departmental agency for tourism,</p> <p>Claude Comet, director of Savoie Mont-Blanc tourism (promotion of tourism in Savoie)</p>	

Germany: Barnim

Interview no. 1	Case study region, country ... Barnim, Germany
Supply chain(s): 3	
Main expert	
Name: Lothar Krüger,	Position: Chief of the department commercialisation in the Forest managemnt Barnim-Uckermark
The hole forest in the region will be managed from the public forest management bureau Barnim Uckermark. Mr. Krüger is the chief of the department wood commercialisation in this bureau.	
Other interviewees present	
(Name:)	(Position)
Date: 02/11/2007	
Time: 2 hours	
Venue: Eberswalde	

Interview no. 2	Case study region, country ... Barnim, Germany
Supply chain(s): 3	
Main expert	
Name: Jens Lemme	Position: employee in the association Eberswalder informationcenter for wood- energy E.I.C.H.E. e.V.
The information-center was found in 2005 to supporting the regional development in the field renewable energies. Mr. Lemme is one of the first member in this association. He study forestmanagement in Eberswalde.	
Other interviewees present	
(Name:)	(Position)
Date: 02/11/2007	
Time: 1 hour	
Venue: Eberswalde	

Interview no. 3	Case study region, country ... Barnim, Germany
Supply chain(s): 2. Alternative for 1 & 2	
Main expert	
Name: Georg Kaiser	Position 1. Director of Biocompany Geschäftsführer der Biocompany
One of the two directors of the supermarket chain for organic products Biocompany	
Other interviewees present	
(Name: Hans Schreiber)	yes (Position: marketing manager of Biocompany)
Date: 25/10/2007	
Time: 2 hours	
Venue: companies location	

Interview no. 4	Case study region, country ... Barnim, Germany
Supply chain(s): 3	
Main expert	
Name: Stefan Wetzel	Position: owner of privat forest, member in the Brandenburger Forstverband
He is a farmer and owner of privat forest	
Other interviewees present	
(Name:)	(Position)
Date: 02/11/2007	
Time: 1.5 hours	
Venue: Altenhof	

Interview no. 5	Case study region, country ... Barnim, Germany
Supply chain(s): 2 + alternatives	
Main expert	
Name: Ludolph von Maltzan	Position: Director and owner of the agricultural enterprise Ökodorf Brodowin
University graduated agronomist, owner, and director of the agricultural enterprise Ökodorf Brodowin; co-partner of Meierei GmbH & Co. KG ¹ and GmbH & Co. Vertriebs KG Ökodorf Brodowin	
Other interviewees present	no
(Name:)	(Position)
Date: 09/10/2007	
Time: 1.5 hours	
Venue: Brodowin	

Interview no. 6	Case study region, country ... Barnim, Germany
Supply chain(s): 2. Alternative for 1 & 2	
Main expert	
Name: Sepp Steinbrecher	Position Expert
Independent marketing expert, introduced different milk products to the Berlin market for Brodowin, developed the strategy plan for 2005/06, expert for Berlin's market for organic products	
Other interviewees present	no
(Name)	(Position:)
Date: 24/08/2007	
Time: 2.5 hours	
Venue: Cafe in Berlin	

Poland: Chelmsko-zamojski

Interview no.	Case study region, country ... chelmsko-zamojski (PL 312)
<p>Main expert Name: Tadeusz Cichosz Position farmer Please shortly describe the main experts' competence with regard to training, experience, career, the institution he is working at etc.: farmer, president of <i>Krasnystaw Hop Producers Association</i> and president of <i>Hop Producers Group Krasno-chmiel</i></p> <p>Other interviewees present (Name:) (Position) Date: 01/08/2007 Time: 13:00 Venue: private home, Siedliska</p>	
<p>Main expert Name: Jan Jonasz Position farmer Please shortly describe the main experts' competence with regard to training, experience, career, the institution he is working at etc.: several years of experience</p> <p>Other interviewees present (Name:) (Position) Date: 26/07/2007 Time: 13:00 Venue: Lublin, ul. Diamentowa 27</p>	
<p>Main expert Name: Krzysztof Kargul Position main company manager Please shortly describe the main experts' competence with regard to training, experience, career, the institution he is working at etc.: agricultural university graduate, Ph.D.</p> <p>Other interviewees present (Name:) (Position) Date: 31/07/2007 Time: 13:00 Venue: Zolkiew Wies, private house</p>	
<p>Main expert Name: Teresa Zielinska Position chief accountant Please shortly describe the main experts' competence with regard to training, experience, career, the institution he is working at etc.: 15 years of work in the company</p> <p>Other interviewees present (Name:) (Position) Date: 01/08/2007 Time: 09:00 Venue: Lublin, ul. Nadbystrzycka 7, office</p>	
<p>Main expert Name: anonymous * Position Please shortly describe the main experts' competence with regard to training, experience, career, the institution he is working at etc.: several years of experience</p> <p>Other interviewees present (Name:) (Position) Date: 22/08/2007 Time: 08:30 Venue: phone interview</p>	

<p>Main expert Name: Joanna Jagiełło Position farmer Please shortly describe the main experts' competence with regard to training, experience, career, the institution he is working at etc.: 2 years of experience on managerial position Other interviewees present (Name:) (Position) Date: 08/08/2007 Time: 11:00 Venue: Pokrowka, company office</p>
<p>Main expert Name: Jacek Wrobel Position head of the warehouse Please shortly describe the main experts' competence with regard to training, experience, career, the institution he is working at etc.: For almost 15 years the head of the warehouse belonging to a large trading company, which is one of the largest in the country Other interviewees present (Name:) (Position) Date: 31/07/2007 Time: 15:00 Venue: warehouse office, Zamosc</p>
<p>Main expert Name: Irmina Jaszuk Position Stocktaking Specialist Please shortly describe the main experts' competence with regard to training, experience, career, the institution he is working at etc.: almost 20 years of work at PSS Społem Chełm Other interviewees present (Name:) (Position) Date: 23/07/2007 Time: 16:00 Venue: private house, Chełm</p>
<p>Main expert Name: Marianna Rogal Position Dairy Department Worker Please shortly describe the main experts' competence with regard to training, experience, career, the institution he is working at etc.: almost 5 years of work at Pawilon Handlowy Nr 1 PSS Społem Chełm which is among top 10 biggest shops in Chełm Other interviewees present (Name:) (Position) Date: 23/07/2007 Time: 19:30 Venue: private house, Chełm</p>
<p>Main expert Name: Urszula Nowomiejska Position owner Please shortly describe the main experts' competence with regard to training, experience, career, the institution he is working at etc.: owner of the shop for 12 years Other interviewees present (Name:) (Position) Date: 16/08/2007 Time: 10:00 Venue: shop, Dabrowica</p>

Main expert	
Name: Jacek Dobrowolski	Position
Please shortly describe the main experts' competence with regard to training, experience, career, the institution he is working at etc.: expert from Department of Economic Geography at Maria Curie-Skłodowska University in Lublin	
Other interviewees present	
(Name:)	(Position)
Date: 09/08/2007	
Time: 09:00	
Venue: private house	

Interview no.	Case study region, country: Chelmsko-zamojski (PL 312)
Main expert 1	
Name: Katarzyna Domańska	Position
Please shortly describe the main experts' competence with regard to training, experience, career, the institution he is working at etc.: assistant in Department of Agribusiness Economics and Organization at the Agricultural University in Lublin	
Main expert 2	
Name: Agnieszka Komor	Position
Please shortly describe the main experts' competence with regard to training, experience, career, the institution he is working at etc.: assistant in Department of Agribusiness Economics and Organization at the Agricultural University in Lublin	
Date: 30/07-10/08/2007	
Time:	
Venue: Lublin	

Interview no. 1	Case study region, country ... PL312
Main expert	
Name: Szwera Tomasz	Position farmer
Please shortly describe the main experts' competence with regard to training, experience, career, the institution he is working at etc.: several years of experance	
Other interviewees present	
(Name:)	(Position)
Date: 31/07/2007	
Time: 10:00-13:00	
Venue: private house, Skierbieszów	

Interview no. 2	Case study region, country ... PL312
Main expert	
Name: Kontek Janusz	Position farmer
Please shortly describe the main experts' competence with regard to training, experience, career, the institution he is working at etc.: several years of experance	
Other interviewees present	
(Name:)	(Position)
Date: 05/08/2007	
Time: 13:00-16:00	
Venue: private home, Żurawlów	

Interview no. 3	Case study region, country ... PL312
Main expert	
Name: Wojciech Żulczyk	Position sales director
Please shortly describe the main experts' competence with regard to training, experience, career, the institution he is working at etc.: 13 yeras of experience	
Other interviewees present	
(Name:)	(Position)
Date: 31/07/2007	
Time: 11:00-13:30	
Venue: ZT Bodaczów	

Interview no. 4	Case study region, country PL312
Main expert	
Name: Mieczysław Parzydło	Position – Director of production
Please shortly describe the main experts' competence with regard to training, experience, career, the institution he is working at etc.:	
Several yeras of experience as a director of production at ZT Warsaw S.A.	
Other interviewees present	
(Name: Bogdan Sadura)	(Position: business agent – contracts for rape seed in Lubelskie voivodship)
Date: 20/07/2007 and 24/07/2007	
Time: 16:00-17:30 and 09:00-10:00	
Venue: private possession in Lublin (Bogdan Sadura) and telephone call (Mieczysław Parzydło)	

Interview no. 5	Case study region, country ... Chelmsko-zamojski (PL 312)
Main expert	
Name: Jacek Wrobel	Position: head of the warehouse
Please shortly describe the main experts' competence with regard to training, experience, career, the institution he is working at etc.:	
For almost 15 years the head of the warehouse belonging to a large trading company, which is one of the largest in the region and in the country	
Other interviewees present	
(Name:)	(Position)
Date: 31/07/2007	
Time: 15:00	
Venue: warehouse office, Zamosc	

Interview no. 6	Case study region, country ... PL312
Main expert	
Name: Irmina Jaszuk	Position – Stocktaking Specialist
Please shortly describe the main experts' competence with regard to training, experience, career, the institution he is working at etc.: Almost 20 years of work at PSS Spolem Chelm as a shop controler	
Other interviewees present	
(Name:)	(Position)
Date: 23/07/2007	
Time: 14:00	
Venue: private house, Chelm	

Interview no. 7	Case study region, country ... PL312
<p>Main expert Name: Marianna Rogal Position – Diary Department Worker Please shortly describe the main experts' competence with regard to training, experience, career, the institution he is working at etc. : Almost 5 years of work at Pawilon Handlowy Nr 1 PSS Spolem Chełm Other interviewees present (Name:) (Position) Date: 23/07/2007 Time: 18:00 Venue: private house, Chełm</p>	

Interview no. 8	Case study region, country ... Chelmsko-zamojski (PL 312)
<p>Main expert Name: Urszula Nowomiejska Position – owner Please shortly describe the main experts' competence with regard to training, experience, career, the institution he is working at etc. : owner of the shop for 12 years Other interviewees present (Name:) (Position) Date: 16/08/2007 Time: 10:00 Venue: shop, Dabrowica</p>	

Interview no. 9	Case study region, country ... PL312
<p>Main expert Name: Jan Janicki Position Consumer Please shortly describe the main experts' competence with regard to training, experience, career, the institution he is working at etc. : 10 years of experience as sales manager in food-selling companies; rapeseed oil consumer Date: 09/08/2007 Time: 19:00 Venue: private house</p>	

Spain: Murcia

Interview no.	Case study region, country ... Murcia
Supply chain(s): tomato	
<p>Main expert Name: Pedro Segura, Pere Pappasei Different experts from the University and Scientific Institutes Date: October, December</p>	

Interview no.	Case study region, country ... Murcia
Supply chain(s): Letuce	
Main expert	
Name: Pedro Segura, Pere Pappaseit, Andres Lopez, Miguel Martin, Fulgencio Perez, Alicia Langreo, Loreto Salas, Fernando Gomez	Position: Researcher and consultant, Expert within the regional cooperatives, farm unions, experts within regional administration
Different experts from the University, Scientific Institutes, and regional cooperatives, farm unions, expert within regional administration, Producers Syndicate	
Date: July, September	

Interview no.	Case study region, country ... Murcia
Supply chain(s): Lettuce	
Main expert	
Name: Pedro Segura, Pere Pappaseit, Andres Lopez, Miguel Martin, Fulgencio Perez, Alicia Langreo, Loreto Salas, Fernando Gomez	Position: Researcher and consultant, Expert within the regional cooperatives, farm unions, experts within regional administration
Different experts from the University, Scientific Institutes, and regional cooperatives, farm unions, expert within regional administration, Producers Syndicate	
Date: October – December	

Interview no. 1	Case study region, country ... MURCIA
Supply chain(s): pork meat	
Main expert	
Name: Antonio Muñoz Luna, Alicia Langreo, Vicky Soldevila, Pedro Segura, Manuel Zapata, Antonio Falegan, Antonio Rouco Yañez, Francisco Carreño, Sanchez Espin, Ramon Armengol.	Position researchers and teachers, policy makers, producers.
Several experts from the National Scientific Institute, consulting firms and the university (veterinarian school, economy and geographic faculties,...) General Director for Lifestock of Murcia regional government, some producers.	
Date: August and September	

Interview no.	Case study region, country ... Murcia
Supply chain(s): tomato	
Main expert	
Name: Pedro Segura, Pere Pappaseit, Andres Lopez, Miguel Martin, Fulgencio, Alicia Langreo, Loreto Salas, Fernando Gomez	Position: Researcher and consultant, Expert within the regional cooperatives union, expert within regional administration
Different experts from the University, Scientific Institutes, and regional cooperatives union, expert within regional administration, entrepreneur's association	
Date: July, September	

Austria: Lungau

Interview no. 7	Case study region, country: Lungau/Austria
Supply chain(s):	Schnaps
Main expert	
Name: Gabriele Moser	Position: farmer, professionalized production of high quality Schnaps, many rewards
Date: 18/10/2007	
Time: 09:00-10:30	
Venue: Vienna, telepon interview	

Interview no. TD01	Case study region, country ... Lungau, Austria
Supply chain(s): Schnaps	
Main expert	
Name: Peter Pichler ("Franzlerbauer")	Position farmer, own processing and marketing
acquisition of experience, one of the two main producers of Schnaps in the region – wide marketing network.	
Date: 10/10/2007	
Time: 15:20-17:20	
Venue: at farm home, in direct marketing selling room, Glanz bei Tamsweg	

Interview no.	Case study region, country: Lungau/Austria
Supply chain(s):	wood
Main expert	
Name: Mr. Clemens Graggaber	Position: owner and managing director
Owner of the enterprise, took over three years ago, increase of production	
Date: 10/10/2007	
Time: 11:30-12:30	
Venue: Tamsweg, office of the sawmill	

Interview no. TD02	Case study region, country ... Lungau (Austria)
Supply chain(s): wood	
Main expert	
Name: Mr. Wolfgang Hutter	Position owner and managing director
He owns the enterprise; there are 2 locations (separate enterprises), own the actual saw mill, and the other a processing plant some km away; Plant 1 has 50 employed persons; plant 2 about 30 employed persons.	
This interviews applies to plant 1 only.	
Date: 10/10/2007	
Time: 13:15-15:15	
Venue: St. Martin, plant 1, office of general manager.	

Interview no. 2	Case study region, country: Lungau/Austria
Supply chain(s):	Agricultural production, end-consumption
Main expert	
Name: Dipl. Ing. Leopold Kaiser	Position: agricultural chamber, regional level, Tamsweg
manager of the agricultural chamber, expert in milk-production, excellent knowledge of the regional situation in Lungau	
Date: 18/09/2007	
Time: 13:30-17:00	
Venue: agricultural chamber in Tamsweg	

Interview no. 2	Case study region, country: Lungau/Austria
Supply chain(s):	Agricultural production, end-consumption
Main expert	
Name: Dipl. Ing. Leopold Kaiser	Position: agricultural chamber, regional level, Tamsweg
manager of the agricultural chamber, expert in milk-production, excellent knowledge of the regional situation in Lungau	
Date: 18/09/2007	
Time: 13:30-17:00	
Venue: agricultural chamber in Tamsweg	

Interview no. 1	Case study region, country: Lungau/Austria
Supply chain(s):	Agricultural production
Main expert	
Name: Dipl.Ing. Leopold Kirner	Position: senior researcher, expert in dairy farming, Bundesanstalt für Agrarwissenschaft
Date: 28/08/2007	
Time: 09:00-10:45	
Venue: Bundesanstalt für Agrarwissenschaft	

Interview no. 1	Case study region, country: Lungau/Austria
Supply chain(s):	Agricultural production
Main expert	
Name: Dipl.Ing. Leopold Kirner	Position: senior researcher, expert in dairy farming, Bundesanstalt für Agrarwissenschaft
Date: 28/08/2007	
Time: 09:00-10:45	
Venue: Bundesanstalt für Agrarwissenschaft	

Interview no.	Case study region, country: Lungau (Austria)
Supply chain(s):	
Main expert	
Name: Mr. Willi Niedermüller/Alpenmilch Salzburg	Position: adviser for farmers (Hofberater)
Date: 19/10/2007	
Time: 11:00-12:30	
Venue: telephon interview	

Interview no. 3	Case study region, country: Lungau/Austria
Supply chain(s):	Wood
Main expert	
Name: Dipl.Ing. Franz Lanschützer	Position: Landwirtschaftskammer Salzburg
Date: 18/09/2007	
Time: 13:00-15:30	
Venue: Cafehaus Hochleithner in Tamsweg	

Italy: Bolzano-Bozen

Experts
Name: Walter Schullian, Revisionsabteilung Raiffeisenverband Südtirol
Name: Manfred Lang, Beratungsring Obst- und Apfelanbau
Name: Dr. Markus Kelderer, Sektionsleiter Bioanbau Obst, Land- und Forstwirtschaftliches Versuchszentrum Laimburg
Name: Andreas Mayr, Südtiroler Bauernbund, Bereichsleiter landwirtschaftlichen Buchführung
Name: Miotti Ivonne, ASTAT Südtirol, Abteilung Wirtschaftstätigkeit
Name: Helmuth Scartezzini, Abteilung Landwirtschaft der Provinz, Direktor Amt für Obst und Wein
Name: Davide Vidri, Manager cluster Alimentaris
Name: Kurt Mayr, Geschäftsführer, VOG – Frubona,
Name: Paolo Fox, Abteilung Landwirtschaft der Provinz, Direktor Amt für EU-Strukturfonds

Hungary: Bács-Kiskun

Interview no. 1	Case study region, country ... County Bács-Kiskun
Supply chain(s):	
Main expert	
Name: József Vancsura	Chairman of the Board of a local public company
University of Horticulture, Chairman of the Board, President of Grain Producers Association	
Other interviewees present	
(Name:)	(Position)
Date: 06/12/2007	
Time: 09:00	
Venue: Felsőszentiván	

Interview no. 1	Case study region, country ... County Bács-Kiskun
Supply chain(s):	
Main expert	
Name: Antalné Labancz	Position Head of Agricultural County Office
County administration office of the Ministry of Agriculture and Rural Development	
Other interviewees present	
(Name:)	(Position)
Date: 18/07/2007	
Time: 08:00	
Venue: Kecskemét	

Interview no. 1	Case study region, country ... County Bács-Kiskun
Supply chain(s):	
Main expert	
Name: György Kiss	Position Managing director
managing director of a locally big producing and processing company with 20 years of experience.	
Date: 29/07/2007	
Time: 10:00	
Venue: Borota	

Interview no. 1	Case study region, country ... County Bács-Kiskun
Supply chain(s):	
Main expert	
Name: Daniella Franc	Position managing director
Managing director of a sunflower producing Ltd in Bács-Kiskun County	
Date: 12/07/2007	
Time: 09:00	
Venue: Baja	

Ireland: South West

Interview no. 1	Case study region, country South West, Ireland
Supply chain(s):	
Main expert	
Name: Dr. Michael Keane	Position Senior Lecturer, Department of Food Business and Development, University College Cork
Please shortly describe the main experts' competence with regard to training, experience, career, the institution he is working at etc.: PhD, Dairy Economist, Expertise in Dairy Policy	
Research Expertise	
<ul style="list-style-type: none"> - Agricultural and Food Economics and Marketing - Dairy Quotas and Seasonality - Dairy Marketing Strategies - Dairy and Meat Market opportunities Analysis 	
Research Activity	
<u>Agri Food Policy Analysis</u>	
<ul style="list-style-type: none"> - EU Agenda 2000 - GATT/WTO 	
<u>Dairy Industry Supply Chain Economics and Marketing</u>	
<ul style="list-style-type: none"> - Milk and Milk Product Pricing Issues - Price Transmission - Quota Issues - Seasonality Issues - Scale Economies 	
Date: 05 + 06 + 10/07/2007	
Time: 11:30, 11:30, 14:00	
Venue: University College Cork	

Interview no. 3	Case study region, country ... South West of Ireland
Supply chain(s): Mussels	
Main expert	
Name: David Millard	Position Regional Development Officer with Bord Iascaigh Mhara
Please shortly describe the main experts' competence with regard to training, experience, career, the institution he is working at etc.: MSc (1994) from University College Cork. Worked as Salmon Farm Manager for Freshwater fisheries. Worked at Bord Iascaigh Mhara Headquarters as a technical expert for salmon and seaweed. Currently working as a Regional Officer for CLAMS (Coordinated local Aquaculture management schemes, for South West of Ireland).	
Date: 06/08/2007, 13/08/2007	
Time: 11.30, 09:00	
Venue: Bord Iascaigh Mhara (BIM Offices) Castletownbere	

Interview no. 4	Case study region, country South West of Ireland...
Supply chain(s):Beef	
Main expert	
Name: Michael Gottstein	Position Drystock Specialist, Teagasc
Please shortly describe the main experts' competence with regard to training, experience, career, the institution he is working at etc.: BAGRSc, MSc Animal Nutrition. Drystock Advisor Specialist since 2003 with Teagasc (Agricultural Advisor Service), covering south of Ireland	
Date: 27/07/2007, 10 + 12/08/2007	
Time: 10:00, 10:00, 10:00	
Venue: Teagasc Offices, Killarney co Kerry	

ANNEX 3: GLOSSARY

Some of the definitions in the glossary were extracted from DG Agri's website http://ec.europa.eu/agriculture/glossary/index_en.htm.

Actors – Each person/organisation in a region is an actor in that he/it has the autonomy to change the evolution of the network by changing its behaviour. He/it can act inside or outside the region, however his/its actions influence the regional networks. Actors along the supply chains of agricultural and forestry production are part of the regional networks and will be analysed within the supply chains: e.g. production factor manufacturers, farmers; first level manufacturing such as food processing industry, energy producers, raw material processing, second level manufacturing such as packaging, quality control, crafts, service closely linked to agriculture, retailers such as supermarkets or also restaurants and consumers/households. Institutional actors will be analysed within the regional institutional networks: e.g. political (legislative) bodies, administration on national, regional and local level, as e.g. regional planning authorities, land use planning authorities, lobbies and representation of interests (esp. farmers associations, consumer associations, Chamber of commerce), non-governmental organisations (NGOs for farmers as e.g. farmers' NGOs, NGOs for households, environmental, social), lobbying groups of different economic sectors, various authorities.

Agents – Agents are actors that are actually used in the agent based model. They influence the regional networks and are influenced by them as well.

Analysis level (of the case studies) – There are two major analysis levels in the case study reports: one is the "NUTS 3 level" (see "region"), on which European and in most cases also national data can be obtained. The other level is the "supply chain level" (see "supply chain"), where most of the information will be collected by experts' knowledge and interviews. Read more about the supply chain survey in deliverable "D 2.2 STANDARDISED DESIGN FOR THE CASE STUDIES", part A chapter3. EU level analysis is part of work package 1 and will flow into subsuming deliverables as "D 2.3 CASE STUDY REPORT".

Bundesland – German and Austrian sub-national administrative units.

Cross-compliance – Cross-compliance requires that farmers respect statutory management requirements regarding public health, animal health, plant health and animal welfare. Farmers are also required to maintain all their agricultural land in good agricultural and environmental condition. Cross-compliance applies to farmers that receive direct payments. If farmers do not respect these requirements then their direct payments may be reduced or cancelled.

Decare – Measurement of area (1,000 m³).

Decoupling – Term used to describe the separation of the amount of subsidy paid to farmers and what farmers produce. Decoupling should encourage farmers to

produce what is required by the market and not be dictated by subsidy incentives. It is also designed to reduce negative impacts on the environment, brought about by over-production and intensive farming methods.

Diversification – The entrepreneurial use of farm resources for a non-agricultural purpose for commercial gain.

European Size Unit (ESU) – A European Size Unit (ESU) is a measure of the economic size of a farm business based on the gross margin imputed from standard coefficients for each commodity on the farm. The application of these standard coefficients results in the Standard Gross Margin (SGM) for a farm or group of farms. 1 ESU = 1,200 SGM. The Standard Gross Margin may be different from actual margin on a farm because of the wide variation between farms with the same physical composition.

Institution – Institutions are sets of interrelated rules governing given aspects of social life which are acknowledged (or even sanctioned) by all or some members of society. Institutions regulate relationships among individuals and between social and ecological system, i.e. rights and duties as well as cost and benefits of actions, and therefore institutions are the essential linkage between social and ecological system. (Goglio 1997, Ostrom et al. 1993, Gatzweiler et al. 2001)

Landkreis – German sub-national administrative unit.

Modulation – A mechanism that transfers funds from direct payments to rural development measures. Modulation became compulsory from 2005. Member States must apply it at the rates agreed in the 2003 reform of the common agricultural policy. It applies to the direct payments that farmers receive over and above the first EUR 5,000.

Organisation – An organisation (or organization – see spelling differences) is a social arrangement which pursues collective goals, which controls its own performance, and which has a boundary separating it from its environment.

Region – Regions are addressed to as analytically processable geographical unities. For the case studies, NUTS 3 has been selected as statistical level because it is the smallest entity that is appropriate for a comprehensive data selection. In most case study countries the respective NUTS 3 regions are also national administrative regions (except Norway, UK, Poland, Ireland) which was not as often the case in NUTS 2 regions and hardly ever in LAU 1 regions.

Rural – Rural is defined as an area with low population and infrastructure density, characterised by agriculture, forestry and/or wilderness as dominating land use.

Regional development – In EU policies rural development is not the same as regional development and policy interventions do not end in the CAP. For TERESA rural development is a subset of regional development

Policy intervention – In the rural development subject of this study policy intervention deals mainly with public funding and legislative frameworks.

Supply chain – A supply chain is a coordinated system of organisations, people, activities, information and resources involved in transforming raw materials and components into finished products that are delivered to the end customers. In TERESA, the distinctive feature is the agricultural producer, who stands in the centre of a supply chain (no matter whether he produces traditional foodstuffs, tourism lodging or bio energy).

Transhumance – Seasonal livestock movement.

Triticale – Hybrid of wheat and rye.

Województwo – Polish sub-national administrative unit.