

Executive Summary

The present study *Regional Challenges in the Perspective of 2020 – Phase 2: Deepening and Broadening* expands the analysis presented in the European Commission publication *Regions 2020 – An Assessment of Future Challenges for EU Regions* from November 2008. The Europe 2020 strategy is Europe's answer to the impacts of the financial and economic crisis and other ongoing global challenges that Europe has been facing in recent years and decades. Globalisation, demographic change, climate change, secure, sustainable and competitive energy, and social polarisation, in addition to the economic and financial crisis, are the major challenges confronting Europe today, challenges of a medium and long-term perspective. In the decade up to 2020, three major scenarios are forecasted regarding how Europe will overcome the economic crisis. These scenarios will have an important influence on the impact of these challenges and the adaption towards them. In the *sustainable recovery* scenario, Europe is able to make a full return to the earlier growth path and raise its potential to go beyond. In the *sluggish recovery* scenario, Europe will have suffered a permanent loss in wealth and start growing again from this eroded basis. In the most pessimistic of the scenarios, the *lost decade*, Europe will have suffered a permanent loss in wealth and potential for future growth and the pre-crisis economic growth levels cannot be reached again until 2020.

Challenges that depend on each other

While these challenges all have different regional impacts, the European regions are all faced with a specific vulnerability. To assess these regional peculiarities, the concept of regional vulnerability, which is borrowed from environmental impact assessments, is expanded to include socio-economic objects of investigation. It distinguishes between a region's measure of exposure towards an influence, the specific regional sensitivity and the capacity of a region to adapt to negative/positive impacts. As the analysed challenges exhibit a very complex nature, more than one indicator typically has to be used. In order to reduce complexity it was decided to split the challenges into topical *key vulnerabilities* based on scientific literature. This makes it possible to avoid overly aggregated indicators that are hard to interpret and allows the challenges to be broken down into a manageable number of indicators available on a regional level. Table I presents these twenty key vulnerabilities.

The study not only includes a vulnerability assessment of the 27 EU member states on a regional level, but also of the candidate countries Iceland, Turkey, Croatia and the Former Yugoslav Republic of Macedonia, the associated EFTA countries Norway, Switzerland and Liechtenstein and all countries of the European Neighbourhood Policy in the Mediterranean Basin and Eastern Europe. The Libyan Arab Jamahiriya and Russia were included where data was available.

What makes the analysis so fascinating is that the challenges cannot be seen separately from each other. They are almost all indirectly interwoven with each other by positive or negative feedback loops and many of the challenges may be regarded as both causes and effects of vulnerability in regions. For example, demographic change may be seen as a cause of social polarisation (with respect to misbalances of supporting vs. supported population) as well as an effect of social polarisation (with respect to income levels and distribution). Increasing global labour division intensifies climate change via the increasing consumption of energy through transportation. A changing climate can have strong negative effects on the economy and the quality of life in certain regions, thus adding to social polarisation. All these feedbacks have to be carefully considered in order to achieve an integrated representation.

Table I Key vulnerabilities

Challenge	Key vulnerability
Globalisation	Global players
	Mobility of persons and goods
	Accessibility
	Knowledge and know-how
Demographic change	Ageing population
	Shrinking population
	International migration and integration
Climate change	Agriculture and forestry conditions
	Natural and semi-natural ecosystems
	Natural hazards and coastal threats
	Health and heat waves
	Water dependency
	Summer tourism climate
Secure, sustainable and competitive energy	Energy capacities
	Fossil energy supply
	Peak energy demand
Social polarisation	Income distribution
	Labour market transformations
	Youth unemployment
	Access to SGEIs

Globalisation: Europe's engine and worry

Globalisation is probably the most immediate challenge Europe is facing both as a union and as individual Member States and their regions. It is a major source of regional disparity as it considerably weakens territorial cohesion between globally integrated regions and regions that are struggling to keep pace. The global economic crisis has also shown the limits of European preparedness vis-à-vis globalisation when consumer markets broke down worldwide and manufacturing production in many European regions dwindled. Without global trade flows and global financial interlinkages the crisis would not have spread as quickly and as radically across the majority of developed and emerging economies of the world. As international trade was drastically reduced, both air and sea cargo volumes dropped, thereby affecting employment and production in the trade and transport sectors. With decreasing real incomes and rising insecurity concerning future incomes, people's inclination to travel was also reduced, which in turn affected the tourism sector.

An overview of the content of the following paragraphs will be shown in Map I.

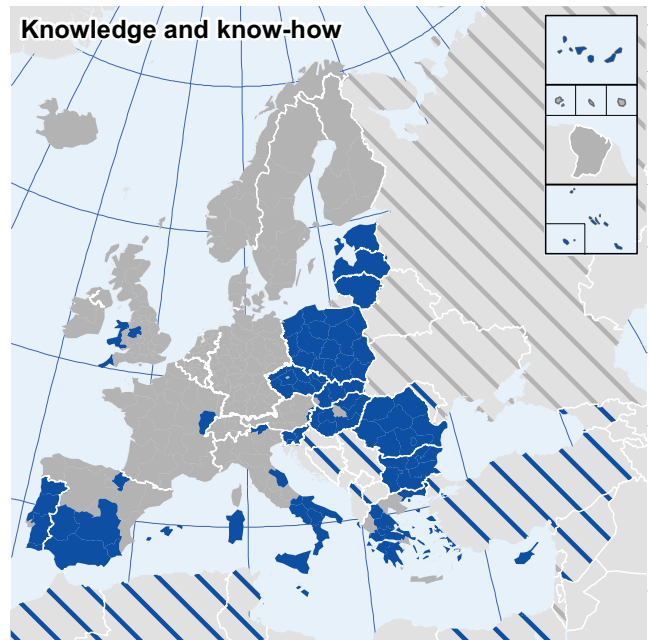
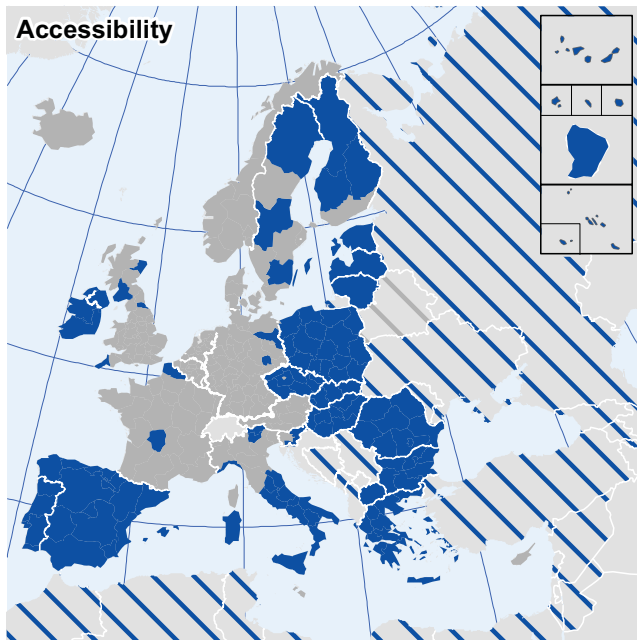
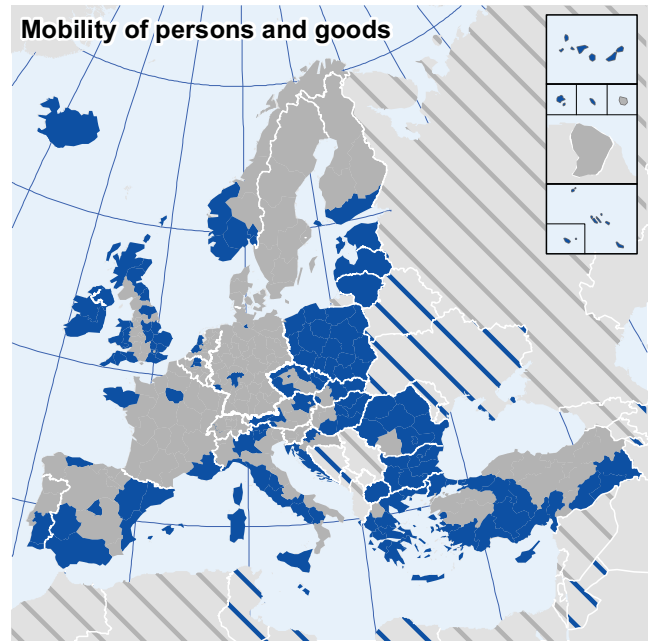
However, globalisation is both a multidimensional challenge and an opportunity for Europe's regions. What globalisation actually means for a region depends largely on its function within the European territory and the profile of its economy. First, larger agglomerations are generally favoured by globalisation developments as they possess the mass necessary to integrate into global economic processes. Especially the EU-12's major cities include some of the main areas of knowledge production and some of the most important trade hubs in the world – Europe's global players. The Eastern and South-Eastern metropolitan regions are still lagging in this respect, although they are in a process of catching up. In the EU 12 many more semi-rural and rural regions, especially those specialising in high-tech and innovation activities, also seem to have found the right answers to globalised production. Particularly the Central European 'pentagon' (the regions enclosed by the metropolitan areas of London, Amsterdam, Berlin, Milano and Paris) regions and the Nordic countries are very well prepared in this respect. In the southern and eastern parts of the Union the majority of rural regions are still lagging in their response to globalisation.

However, as the analysis of the vulnerability towards mobility shows, metropolitan regions that seem at first glance to be successful can also be very vulnerable when it comes to external shocks. For instance, the eruption of the Eyjafjallajökull volcano and unfavourable snowfall conditions (and insufficient preparation) easily paralysed numerous air transport hubs twice in 2010. Many of the metropolitan regions were shown to be vulnerable vis-à-vis mobility issues. A positive outcome of this reduction in transport movements triggered by the crisis was that it helped Europe come closer to its CO₂ goals in that year.

Differences in levels of accessibility largely determine the capacity of individual regions to position themselves in the mobility flows. Peripheral areas are generally understood as those areas with poorer connections to agglomerations in terms of travel times, travel costs and the diversity in the forms of transport and the routes available. This latter aspect can have a particularly significant impact on transport reliability, which is of key importance for most industrial development. As expected, the more peripheral regions (relative to the European core areas) in Northern, North-Western and Southern Europe and the New Member States, which yet are not on the same level when it comes to modern transport infrastructure, are the most vulnerable regions in terms of accessibility. In times of public budgetary constraints, it seems unrealistic in the mid-term to enhance the costly infrastructure endowment of very peripheral regions to the extent necessary that global accessibility will notably improve. So it will become even more important to look for alternative adaptive capacities – concentration on production of knowledge, ICTs or specialisation and the filling of economic niches.

It is not a coincidence that the promotion of knowledge production and know-how remains a key strategy for Europe since the Lisbon Strategy in order to overcome global competitiveness deficits. Investment in education and research is the key for creating a knowledge-based labour force to compete globally and to enhance the necessary conditions for knowledge creation. In the vulnerability analysis that has been based on productivity and R&D personnel, the most vulnerable regions have been identified in the very southern periphery of Europe and the more rural areas in the New Member States.

Globalisation vulnerability at a glance



Legend

EU and recognised candidate countries, EFTA

- Most vulnerable regions and vulnerable regions
- Prepared regions

Neighbouring countries (simplified methodology)

- more vulnerable
- less vulnerable
- Not enough data

0 1.000 2.000 3.000 4.000
Kilometres

Regional Challenges in the Perspective of 2020, Vulnerability Indices
Indicator data source
Eurostat except where indicated



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Global players

Exposure:

- population density
- Total flight passengers (embarked/disembarked)
- Employment in banking and insurance

Sensitivity:

- GDP per Capita

Mobility of persons and goods

Exposure:

- Total air cargo handled at airports
- Total flight passengers
- Total sea cargo

Sensitivity:

- Employment in Trade, Transport, Hotel, Restaurant (%)
- GDP in Trade, Transport, Hotel, Restaurant (%)

Accessibility

Exposure:

- Potential road accessibility (ESPON 1.2.1)
- Potential rail accessibility (ESPON 1.2.1)
- Potential air accessibility (ESPON 1.2.1)

Sensitivity:

- Labour costs per employee in private sec.&tert. sectors
- Total nights spent in collective tourism accommodation/1000 capita

Knowledge and know-how

Exposure:

- Share of employment in manufacturing
- Share of employment in agriculture

Sensitivity:

- Productivity in agriculture (Politecnico di Milano&DG Agri)
- Productivity in industries (Politecnico di Milano, UK Statistics Authority)

Indicators

Adaptive capacity:

- Number of transnational headquarters per 1000 jobs (Fortune)
- R&D expenditures in % of GDP

Adaptive capacity:

- Motorway density

Adaptive capacity:

- Share of households with broadband access
- Patent applications per 1 mio. capita

Adaptive capacity:

- Total productivity (Politecnico di Milano, UK Statistics Authority)
- R&D personnel in % of active population

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Most of the adjacent European neighbourhood finds itself in a similar situation as large parts of the European periphery, i.e. with low productivity levels, weak service sectors and negligible knowledge production. However, a distinction must be made between the more rural areas and aspiring metropolitan agglomerations. Some of these regions, especially Turkey and Northern Africa (depending on the political developments to come), might catch up quickly and challenge the neighbouring European periphery.

From an integrated view, the rural eastern and very southern periphery is the most challenged by the globalised economy. Deficits in productivity and accessibility cannot (yet) be counterbalanced by high-level service and know-how activities. In light of the development of economic profiles and specific functions, regions with activities of a more ubiquitous nature may be of importance as they can enable other regions to perform globally, for example by providing resources and environmental services. This would lead to a functional understanding of polycentricity in which the drivers of European growth are not only urban and metropolitan areas. Instead, they comprise a wide range of regions that have a role in the global division of labour.

Demographic change: population as the major resource

The challenges posed by economic globalisation developments are also challenges to demography, especially in relation to intraregional and international migration. The natural development is much more influenced by cultural and political circumstances. For instance, countries with the best child care offers usually have high birth rates. However, following the classification of the three key vulnerabilities, there are hardly any regions in Europe that do not face any demographic challenge. Regions that do not shrink often do have an ageing population. Strongly growing regions (many metropolitan regions) often owe this fact to international immigration and are therefore confronted with challenges of integration. Generally, demographic change is very closely linked to social polarisation.

An overview of the content of the following paragraphs will be shown in Map II.

The growing share of elderly people is perhaps the most urgent component in the demographic

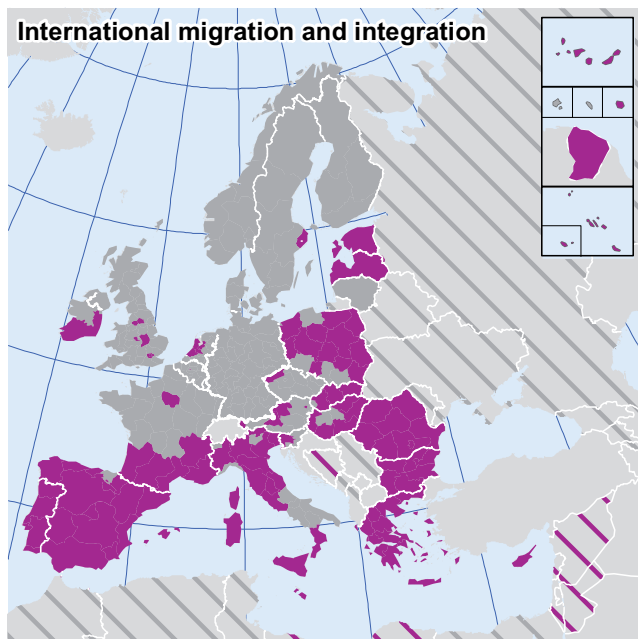
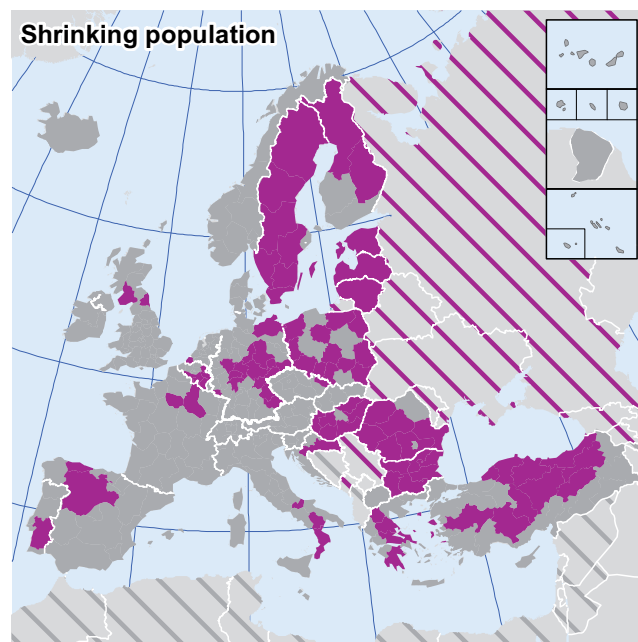
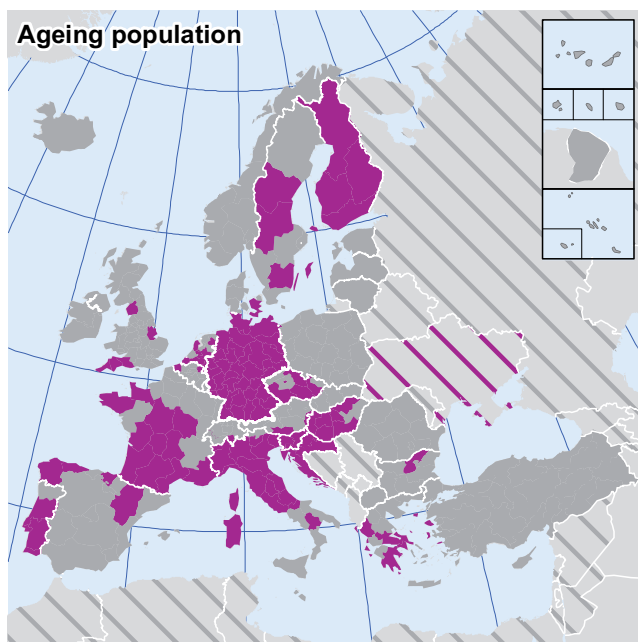
change challenge: in other words, the ageing population. An ageing population requires different strategies to adjust specific infrastructures and has major consequences for the labour force and – supposedly – its productivity. Additionally, it poses threats to the maintenance of public pension systems. Eastern European countries are the main sources of migration flows to the EU, albeit most of the affected EU Member States are still characterised by a positive age composition. The affected regions mostly include France, Italy, Germany, Hungary and the Nordic countries.

These regions are – with the exception of Sweden and Finland – less challenged by a shrinking population. Population decline more recently was caused by emigration from regions with low economic dynamics. However, a large part of Europe still experiences population growth. In fact, a number of regions have a strong growth base with both birth surpluses and migration gains, mainly due to migration flows from Eastern Europe. This already indicates which regions are the most vulnerable vis-à-vis shrinking: the rural regions in the New Member States together with the rural regions of Sweden and Finland, Turkey and East Germany as well as a couple of Southern European regions.

While the natural change of a population works very slowly in the long-term, migration can be influenced relatively quickly and in the short-term. In a world of massive population growth, a policy of increased immigration into the EU countries would be a feasible strategy to mitigate the demographic change. So far, a common basis has not been reached for organising international migration into the EU. There are, of course, reasons for this; one being the cultural gap between the main emigration source countries and the European destination countries. Additionally, cultural and ethnic heterogeneity often result in increased social polarisation. Thus the challenge in this key issue is not migration as such but rather the future efforts that have to be made in the field of integration. It does not come as a surprise that amongst the regions most challenged by integration are the economically flourishing metropolitan regions across Europe, as well as many regions around the Mediterranean basin that face very high immigrant rates, mainly from Africa and South America.

Map II Demographic change vulnerability at a glance (following page)

Demographic change vulnerability at a glance



Indicators

Ageing population

Exposure:

- Mean age
- Life expectancy at birth

Sensitivity:

- Dependency ratio
- Biller index
- Healthy life expectancy at birth

Adaptive capacity:

- Labour force replacement ratio
- (Social) Support index

Shrinking population

Exposure:

- Population development 1998-2008 in %
- Accumulated natural development 1998-2008
- Accumulated migration 1998-2008

Sensitivity:

- Population density
- Share of third level education employment
- Share of population with third level qualification

Adaptive capacity:

- Disposable income of households, net
- Labour costs

International migration and integration

Exposure:

- Accumulated migration 1998-2008

Sensitivity:

- Population in working age born outside of the EU

Adaptive capacity:

- Innovation performance

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Kilometres

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The New Member States at the time of writing do not face major international migration; however, on account of their economic structure, most of their regions mainly attract less-skilled migrants that have been statistically shown to be more difficult to integrate into their new society.

The European neighbourhood in the East faces similar problems with ageing and shrinking as the EU. The North African and Near East countries still have relatively high outflows of people; however, these are compensated by generally very high birth rates

Climate change: the long-term threat to many European regions

Climate change is a challenge Europe is facing that differs considerably from the other challenges examined in this study. The most serious effects of climate change will not occur within the time horizon covered by this analysis (until 2020). They are long-term threats to Europe's natural resources, quality of life and, not least, its economy. An overview of the content of the following paragraphs will be shown in Map III on the opposite page.

There are no regions in Europe that can ignore climate change. However, the generally most challenged regions are the Mediterranean regions in Southern Europe, which often face combined threats such as the increasing frequency of heat

waves and their impacts on human health, increasing water scarcity and precipitation differences combined with the water dependency of the agriculture and tourism sectors, and natural hazards in the form of brush fires and the like. The frequently high sensitivities (importance of valuable ecosystems for the primary sector and tourism) require numerous adaptive measures that can exceed existing adaptive capacities.

In North Western and Scandinavian Europe, it is usually a specific aspect of climate change that threatens regions. Natural hazards and coastal threats in the form of Atlantic storm surges and coastal flooding aggravated by rising sea levels are the major issues in this macro region. From an integrated point of view however, these regions are amongst the least vulnerable to climate change and are even somewhat favoured on account of milder temperatures and higher crop potentials (for instance, initial viticulture efforts were established in the 1990s in the UK and southern Sweden). Summer tourism could profit in regions too cold at present, while existing tourism locations in Southern Europe would need to adapt their facilities to even hotter summers.

Large parts of the European mainland have average exposure, average sensitivity and considerable adaptive capacities for most climate change aspects, if viewed within the time range of this study, i.e. through 2020. Therefore they are not especially vulnerable at present.

Indicators of Map III 'Climate change vulnerability at a glance' (page VII)

Natural and seminatural ecosystems Indicators describing exposure: - Difference of summer to annual precipitation ratio (Source: E OBS) - Vegetation days change (Source: E OBS) - Annual mean temperature difference (Source: E OBS) - Loss of natural, extensive to artificial, intensive area (Source: Corine) - Loss of vegetated surface (Source: Corine) Indicators describing sensitivity: - Share of Natura 2000 areas (Source: DG Envi)	Indicators describing adaptive capacity: - Sufficiency index (Source: DG Environment)	Water dependency Indicators describing exposure: - Annual precipitation difference (Source: E OBS) - Water exploitation index (Source: EEA) Indicators describing sensitivity: - Irrigated land - Industry share of GVA - Hydropower production (Source: Primes)	Indicators describing adaptive capacity: - Implementation of Water Framework Directive 1 (Source: DG Envi) - Implementation of Water Framework Directive 2 (Source: DG Envi)
Natural hazards and coastal threats Indicators describing exposure: - Occurrence of winter or tropical storms (Source: ESPON 1.3.1) - Physical exposure to floods (Source: UNEP) - Occurrence of landslides (Source: ESPON 1.3.1) - Occurrence of storm surges (Source: ESPON 1.3.1) Indicators describing sensitivity: - Existing coastal protection measurements (Source: Euroson)	Indicators describing adaptive capacity: - Disposable income of households, net (EUROSTAT) - GDP per capita (EUROSTAT)	Summer tourism climate Indicators describing exposure: - Tourism Climate Index 1970 (Source: Peseta) - Tourism Climate Index difference (Source: Peseta) - Quality of coastal bathing water (Source: DG Environment) - Quality of inland bathing water (Source: DG Envi) Indicators describing sensitivity: - Total overnight stays - Share of employees in tourism	Indicators describing adaptive capacity: - Disposable income of households, net - GDP per capita
Health and heat waves Indicators describing exposure: - Days over 30°C per year (Source: E OBS) - Tropical nights per year (Source: E OBS) Indicators describing sensitivity: - Population density - Share of population over 65y (Source: European Spatial of the BBSR)	Indicators describing adaptive capacity: - Physicians or doctors per 100,000 capita - Health care expenditures in % of GDP	Map developed by ÖIR © February 2011	

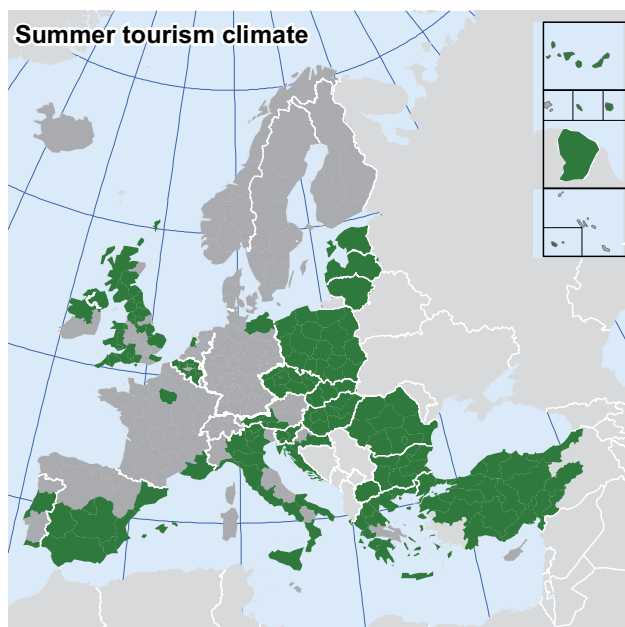
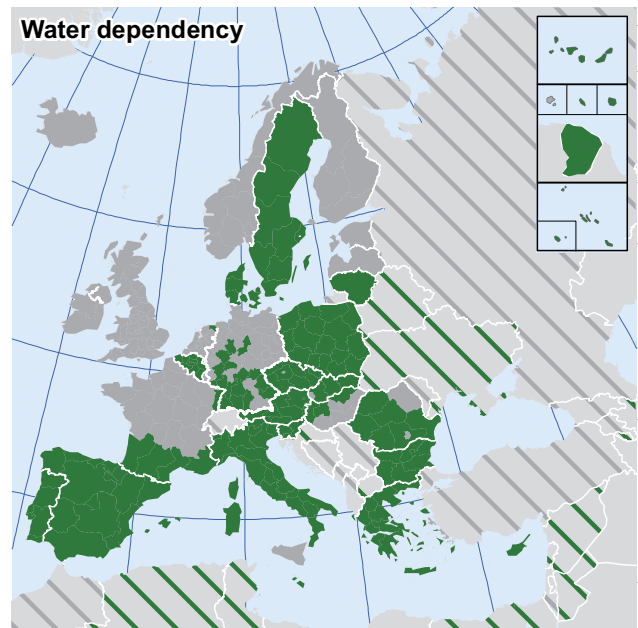
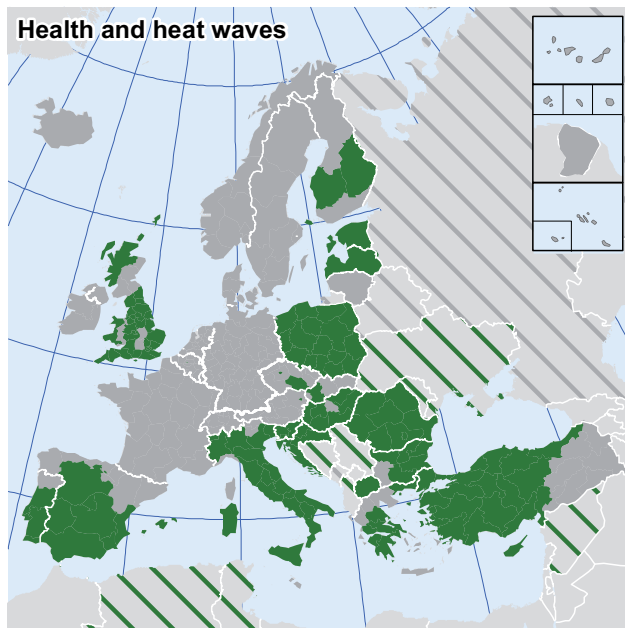
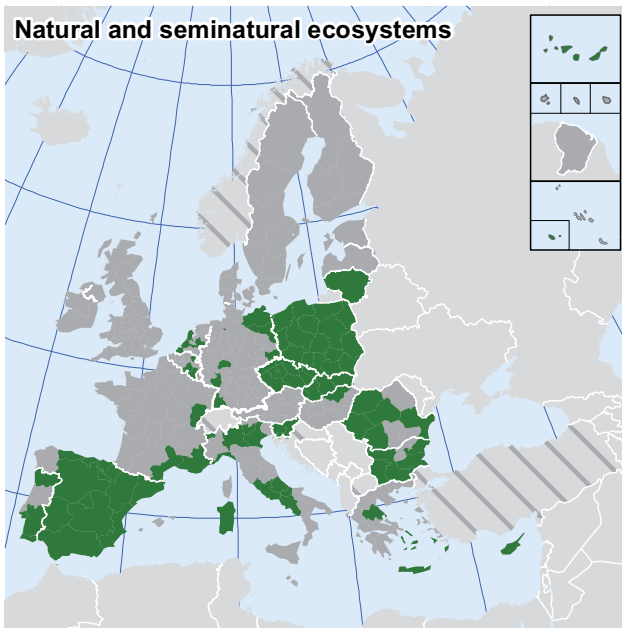
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Map III Climate change vulnerability at a glance (following page)

Climate change vulnerability at a glance



Legend

EU and recognised candidate countries, EFTA
 ■ Most vulnerable regions and vulnerable regions
 ■ Prepared regions

Neighbouring countries (simplified methodology)
 ▨ more vulnerable
 ▩ less vulnerable

■ Not enough data

Indicators

Indicators listed on page VI



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In the continental climate regions of Eastern Europe, the exposure to climate changes until 2020 is also within the European average. But as these regions generally have low adaptive capacities toward the challenges, for example due to low GDP levels or weak environmental policies, they nonetheless face increased vulnerabilities. This area also faces specific threats, for instance an increase in major river floods in the Danube, Odra, Vistula and Elbe basins could be observed in the last decade leading to high vulnerabilities to natural hazards. On the other hand, Bulgaria and parts of Romania, as well as candidate and neighbouring countries in the subtropical Balkan regions and Turkey, are confronted with similar threats as those faced by the Mediterranean regions. The rest of the European neighbourhood will face similar problems as Europe depending on their climatic zones. However, adaptive capacities are generally lower, making particularly the Mediterranean neighbourhood and the Caucasus area highly vulnerable because of rising temperatures, less rainfall and the high importance of the primary sector in most of these countries. These vulnerabilities will not have an immediate impact on the climate challenge in Europe – except possibly through the spread of new pests and diseases not tackled in neighbouring regions. However, demographic trends coupled with effects of climate change could aggravate issues of social polarisation and migration pressure with possible repercussions on Europe.

Climate change cannot be stopped within this century. However, the sooner effective measures to mitigate climate change are introduced, the less adaptation will be needed in the long run. Both mitigation and adaption interests must be kept in mind over the next decades. Fast and strong economic growth increases adaptive capacity to the challenges of climate change, but strong economic growth likely also increases GHG emissions and therefore enhances climate change.

Secure, sustainable and competitive energy: a key issue for Europe's resources and global position

Energy supply is one of the most crucial issues Europe is facing today and will be facing in the future. Since 2008, European regions have been challenged by various crises and changes in the energy markets. The biggest challenge however was the economic and financial crisis, which has

massively weakened the energy demand. There is clear evidence that energy investments in most regions and sectors dropped sharply in 2009. Decrease in energy demand, especially in OECD countries, contributed to a decline in international prices of oil, natural gas and coal, and both supply and demand side investments are being affected. As for the demand side, which Europe cannot directly influence, the most recent developments in North Africa show the high elasticity of energy prices.

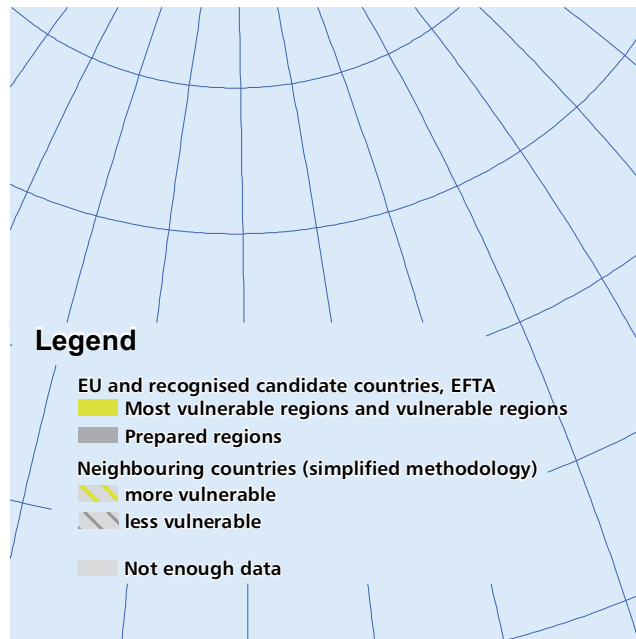
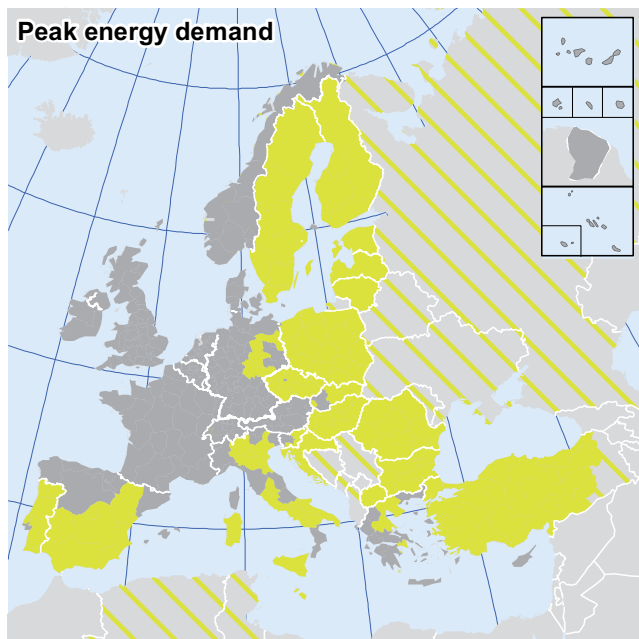
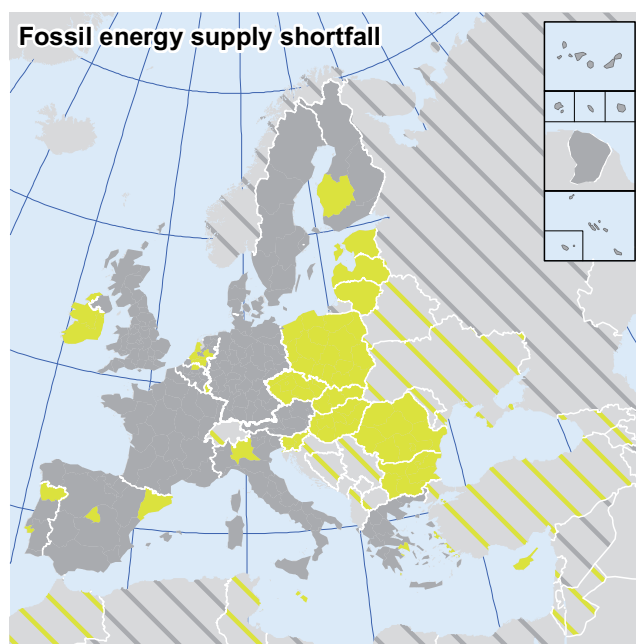
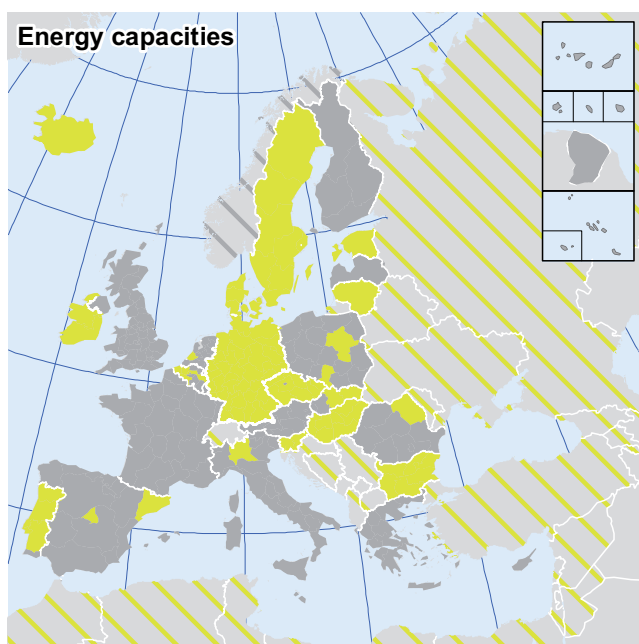
There was a positive (external) effect of the crisis: GHG emissions decreased due to trade flow decline. However, in the mid-term, the economic crisis may lead to higher emissions in a scenario of increasing reliance on fossil fuel capacities. If a recovery takes longer than expected, a shift to coal- and gas-fired plants, in addition to the prolongation of nuclear power plant operation at the expense of more capital-intensive options such as renewables, is expected. There is a justifiable danger that sustained lower investment in supply could lead to a shortage of capacity and result in a severe increase of energy prices, just when the economy is on the road to recovery. In light of this, it is expected that the effects of the crisis on investments in the EU energy sector, the EU's increasing dependence on fossil fuel imports from non-EU countries and extreme weather events will affect regional competitiveness and that some regions may be more exposed than others.

An overview of the content of the following paragraphs will be shown in Map IV on the opposite page.

Generally, most European countries depend on imported fossil fuels. Only Norway, Denmark and the UK are able to cover most of their demand from their own resources, which makes them less vulnerable to global developments. Denmark does, however, have capacity vulnerability in power production as do Slovenia, Sweden, Iceland, and Portugal. Countries with larger shares of renewables, e.g. Portugal, Austria, Romania, Finland and Sweden, even if not exposed to capacity deficits, might still be vulnerable towards climate change driven changes in water regimes if they depend on hydraulic power. All New Member States and the candidate countries still have notable deficits in energy efficiency.

Map IV Secure, sustainable and competitive energy vulnerability at a glance (following page)

Energy vulnerability at a glance



Indicators

Energy capacities

Exposure:

- Average load factor (Primes)
- Flexibility margin (Primes)

Sensitivity:

- Share of electricity in total final energy consumption
- Share of wind in net generation capacity
- Electricity market price, domestic
- Electricity market price, industry

Adaptive capacity:

- Electricity intensity
- GDP per capita

Fossil energy security

Exposure:

- Resource Concentration Price Indicator fossil fuels (ECOFYS)
- Resource Concentration Physical Availability Indicator gas (ECOFYS)

Sensitivity:

- Share of oil and gas imports
- Share of renewable sources in final energy demand
- Gas price, domestic

Adaptive capacity:

- Energy intensity
- GDP per capita

Peak energy security

Exposure:

- De-rated electricity peak capacity margin

Sensitivity:

- Cooling degree days
- Heating degree days
- Share of electricity in total final energy consumption

Adaptive capacity:

- Electricity intensity
- GDP per capita

0 1.000 2.000 3.000 4.000
Kilometres

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The closer European neighbourhood is an important source for fossil imports (mainly Russia, Algeria, Libya, and Azerbaijan). They will play a strategic role at least in the mid-term to Europe's energy demands and the present upheavals in the Arab countries may have a crucial influence. Europe needs to intensify its existing cooperation in addressing issues of mutual interest ranging from regulatory cooperation to infrastructure development and from the promotion of sustainable policies to joint projects.

In the mid-term efficiency and availability of renewable energy sources will depend on economic development; in the case of lost output levels it might take longer for renewable sources to succeed in the energy markets and the dependency on fossil imports will continue. However, a sustainable recovery will also lead to an increasing demand that can probably not be met by higher efficiencies and increasing renewable production. The EU needs a technological shift in order to reach its 2050 ambitions to decarbonise the electricity and transport sector if it wants to deliver the 20-20-20 targets on greenhouse gas emissions, renewable energy and energy savings. Additional priorities include the completion of the internal energy market, achieving energy savings and promoting low carbon innovation.

Social polarisation: the nationally driven challenge

As an indirect effect of all other topics analysed in this report, the challenge of social polarisation heavily depends on economic progress influenced by globalised markets, changing natural conditions influenced by climate change, demographic aspects such as the workforce and its skills, and affordable and secure energy. Although a key political issue in the EU, there are still hardly any powerful common policy measures on the macro-level. The unequal distribution of material or immaterial resources in a society hampers equal access to public and private services and affects the opportunities to participate in society. This in turn leads to self-reinforcing social inequity which affects every sphere of socio-economic life.

An overview of the content of the following paragraphs will be shown in Map V on page X.

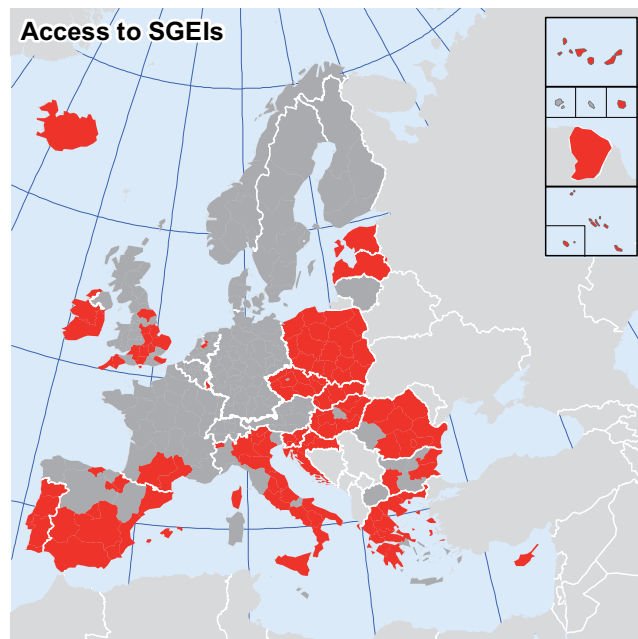
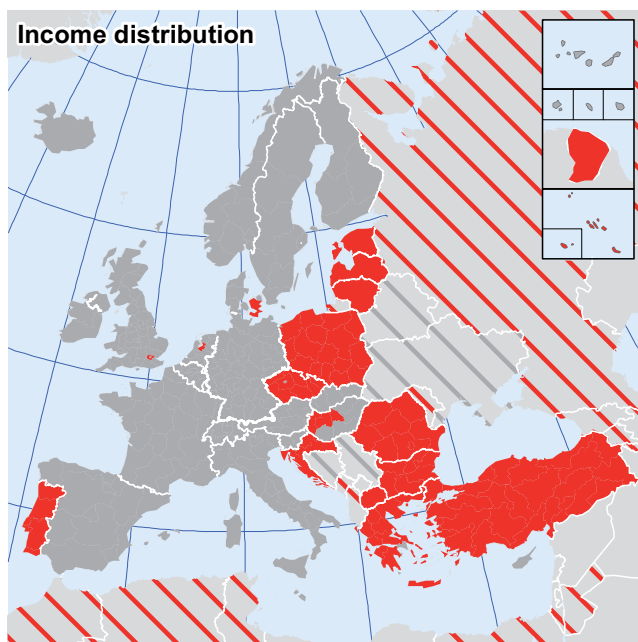
Generally speaking, social polarisation vulnerabilities follow the general European regional split with Eastern and Southern regions being more vulnerable than the rest of Europe. With respect to education levels, the South-Eastern regions show the largest deficits. Youth unemployment is a major threat to the Mediterranean countries, while the New Member States and especially the candidate countries are affected by income distribution. The dangers of ongoing labour market transformations towards a service and knowledge economy cause rising unemployment and calls for adaption efforts. This affects equally the economically weaker periphery and the most industrialized regions of the European centre.

Economic wealth and incomes in Asian and African neighbouring countries are distributed much more unequally than in Europe. Youth unemployment and unemployment in general is highly concentrated in the Balkans and in the Mediterranean neighbourhood and has been a major driving force of the early 2011 political upheavals in the Arab region.

In the mid-term social polarisation is expected to improve in the sustainable recovery scenario due to the return to a path of economic growth. However, the threat of increasing income disparities may increase. Labour market transformation will favour new sectors and thus lead to a more balanced territorial distribution of wealth. The sluggish recovery scenario bears the challenge of slower growth rates and thus of less labour market opportunities for young people. The economy will show more path dependencies and fewer opportunities with respect to decreasing disparities. The lost decade scenario will hit, in particular, the wealthier central European regions with respect to income inequalities and decreasing levels of SGEIs. The European periphery will be less affected due to low starting conditions.

Map V Social polarisation vulnerability at a glance (following page)

Social polarisation vulnerability at a glance



Legend

- EU and recognised candidate countries, EFTA**
- Red: Most vulnerable regions and vulnerable regions
 - Grey: Prepared regions
- Neighbouring countries (simplified methodology)**
- Diagonal red lines: more vulnerable
 - Diagonal grey lines: less vulnerable
 - White: Not enough data

0 1,000 2,000 3,000 4,000
Kilometres

Regional Challenges in the Perspective of 2020, Vulnerability Indices
Indicator data source
Eurostat except where indicated



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Income distribution

- Exposure:**
- Inequality of income distribution, Gini coefficient
- Sensitivity:**
- Disposable income of households, net

Labour market transformation

- Exposure:**
- Unemployment rate, 15 years and over
- Sensitivity:**
- People with max.edu. ISCED Level II (%)
 - Empl. in sel. sectors at risk of offshoring (Eurostat/Eurofound)

Youth unemployment

- Exposure:**
- Unemployment rate 15-24 years
- Sensitivity:**
- Population aged 18-24 with at most lower secondary education and not in further education or training (%)

Access to SGEIs

- Exposure:**
- Hospital beds / 100,000 capita
 - Physicians or doctors / 100,000 capita
 - Expenditures for elderly care in % of GDP
 - Road density
 - Children in pre-primary education
- Sensitivity:**
- Population development 2001-2007

Indicators

- Adaptive capacity:**
- Disposable income of private households as % of primary income
 - GDP per capita

- Adaptive capacity:**
- Share of Persons (25-64 Y) participating in life long learning courses on total population 25-64 Y
 - Total intramural R&D expenditure as a share of GDP

- Adaptive capacity:**
- Students in tertiary education, as share of the population aged 20 to 24 Y
 - Students at upper secondary and post-secondary non-tertiary education, as share of the population aged 15 to 24

- Adaptive capacity:**
- Health care expenditures per capita
 - GDP per capita

**Regional Challenges in
the Perspective of 2020**



One region, multiple challenges

When statistically analysing all of the various challenges that European regions are facing, one discovers distinct economic, societal and geographical patterns (Methods of cluster analysis were used). A number of regions are barely vulnerable to any challenge. These are all economically strong which helps them to affirm their demographic status and to maintain social peace and equality. These regions are the globally integrated and successful metropolitan areas, the Nordic countries, the UK, Switzerland and Luxemburg. Most of the regions in these countries also have a favourable climatic position which makes them well prepared for climate change. The other most prosperous European regions in economic terms, e.g. the European centre except for the major metropolitan areas (in France, Germany, Austria, Belgium, and the Netherlands), shows moderate vulnerability. They are, however, prepared for most challenges as a result of their economic wealth, which offers them the possibility to adapt. Also, many former convergence regions, located in Spain, Ireland and Italy, which managed to close the gap to the leading European economies, are generally only moderately vulnerable. Due to their geographical position they partly have increased vulnerability to climate change issues.

The rest of Europe can be defined as highly vulnerable because these regions are each facing a number of challenges. In the New Member States, effects of globalisation and indirect effects of social polarisation are a major challenge. These regions have to adapt by increasing their global integration and moving away from their prevailing agricultural and manufacturing economies towards knowledge and service oriented activities. A crucial requirement to achieve this will be adequate infrastructures and the better usage of the relatively high education levels in these countries. The very southern periphery of Europe (Portugal, parts of Spain, Southern Italy, Greece, and to some extent Turkey) not only relies largely on the unstable sectors of agriculture and tourism but is also severely threatened by climate change. If these regions wish to maintain their economic mix, adaption measures will clearly have to take place.

Lessons learned for Cohesion Policy

The findings of the European vulnerability analysis seem to underline most of the lessons for the future Cohesion Policy drawn from the 5th Cohesion Report. It must be emphasized that it is necessary to pay attention to a territorially

specified policy mix in line with the identified vulnerabilities. It is important that all funding not be concentrated only on the lagging regions. For instance, classic convergence regions have difficulties capitalising innovation funds, because institutional and economic structures for innovation are often missing. In more successful regions, funding impulses might produce more positive effects, because they can make use of synergies and present structures.

Regional circumstances are to be considered with respect to multiple challenges, especially in the most vulnerable regions to the South and the East. The development of adaptive capacities is important even if the current regional conditions seem to be relatively favourable (see, for instance, the Central European regions facing the challenge of an ageing population and the associated social challenges). This is consistent with the need of Cohesion Policy to target beyond short term and directly increasing GDP measures. In particular, quality of life, health and long-term environmental changes will have to be captured in order to evaluate the capacity of Cohesion Policy to find answers that address the challenges. Other aspects continue to be the balanced development of regions (i.e. balanced distribution of economic sectors contributing to the regional economic income) and their embeddedness in strong socio-economic unions and cooperation, which seems to decrease vulnerability and strengthen the adaptive capacities of regions. This is in line with the general concept of resilience of systems, with a higher variety and diversity within systems proving stronger against external shocks. This principle should lead to Cohesion Policy taking notice of overemphasis of growth poles and overspecialisation of regions.

The following table attempts to summarize the findings of this report. The table shows the regions on an aggregated level that resulted from a cluster analysis of multiple challenges. The five subsequent columns show the challenges most crucial for the macro regions, while the three 'growth strategy' columns give an impression which of the three Europe 2020 growth strategy strands should be most strongly emphasised. Compared to the Cohesion Policy criteria based on economic wealth, it becomes clear that there is a tendency among economically lagging regions to also need more support in order to reach the 2020 targets. This is, at least to some extent, a result of low adaptive capacities towards challenge impacts that are often measured by economic power and wealth. The table may be seen as a compass to territorially guide Cohesion Policy by showing which regions should be

emphasised by Cohesion Policy. To a large extent this corresponds to existing objective areas, which are indicated in the final column. Cohesion Policy is in need for an update beyond the programming period. Regions need to better address the challenges by concentrating on them and setting the right priorities for the investments and fund the right policy mix. There are some regions which will have to address more challenges and need

broader approaches than others. It is important that future investments have the critical mass to change challenges into opportunities. Achieving the right policy mix that is attached to this criteria and its implementation will have an influence on whether the Cohesion Policy will be more or less successful in contributing to the answers to the challenges Europe will face in the next decade.

Table II European macro regions, their challenges and emphasis on growth strategies

Challenges							growth strategies		
		Globalisation	Demographic change	Climate change	Secure, sustainable and comp. energy	Social polarisation	Smart growth	Sustainable growth	Inclusive growth
Macro regions									

