

The TIA quick check

Standard Version

A methodology for a TIA ex-ante quick check
 ESPON ARTS aims to develop a tool by which to analyse the impact of EU legislation that takes the sensitivity of regions into account. The analysis of regional sensitivity to EU directives and policies is intended as a simplified, evidence-based procedure of Territorial Impact Assessment (TIA). This 'quick check' should be as simple, comprehensible and user-friendly as possible.



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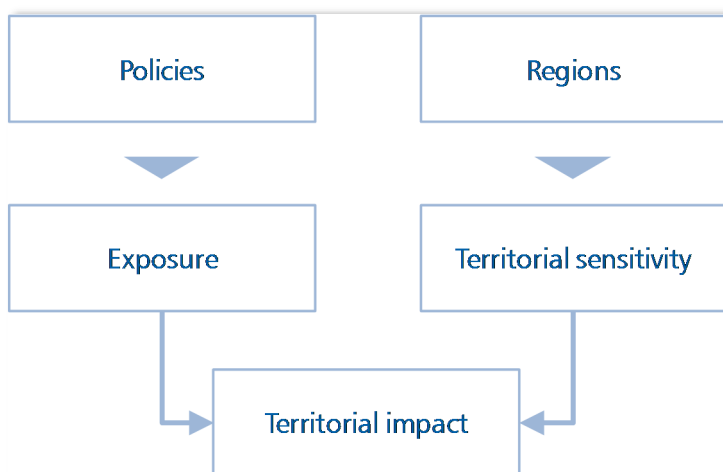


The methodology: based on the vulnerability concept

The TIA quick check is based on the vulnerability concept developed by the Intergovernmental Panel on Climate Change (IPCC). In this case, the effects deriving from a particular policy measure (exposure) are combined with the characteristics of a region (territorial sensitivity) to produce potential territorial impacts. In the TIA quick check the following definitions are used:

- The *exposure* describes the intensity by which EU directives and policies potentially affect European territory through a double logical chain. On the one hand single directives and policies may affect specific classes of regions (*regional exposure*), without reference to the specificity of each region; on the other hand they may affect particular “fields” of the territorial realm, e.g. surface water quality, emissions, sectoral production (*field exposure*);
- The (territorial) *sensitivity* describes how *single* territories/regions are subject and evaluate impacts in specific exposure fields, due to their socio-economic and geographical characteristics and to the social values and priorities they are likely to show;
- The *territorial impact* is the final, likely effect of a given EU policy or directive as a product of exposure and regional sensitivity. The impact can be direct or indirect along specific cause-and-effect logical chains.

Figure 1
Territorial impact combining exposure with sensitivity



The result: An excel tool and a procedure for a TIA quick check

The objective of ESPON-ARTS was to devise a user-friendly methodology that allows one to make a ‘quick and dirty’ ex-ante analysis of the potential impact of EU legislation, policies and directives on the development of regions. To this end, the methodology combines a standardised indicator-based tool developed in Excel with a means to systematically collect expert knowledge in a workshop setting. The expert contribution serves as input for the analysis and for providing the interpretation of the output of the impact indicators.

The TIA quick check uses the indicators and typologies as developed in the ESPON ARTS project. It covers the full range of potential impacts at a general level with common indicators for European NUTS 2 regions.



How to do the advanced TIA quick check

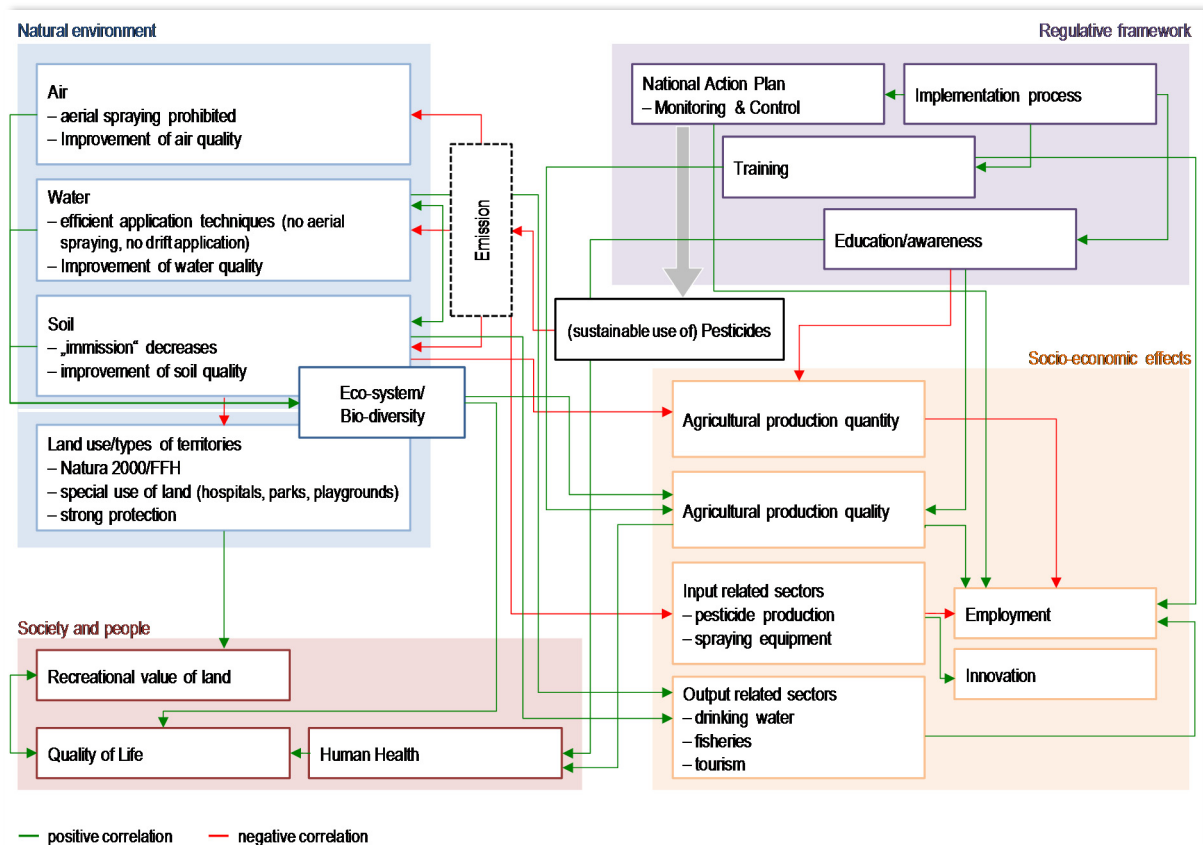
The standardised TIA quick check is done in nine steps using expert knowledge and a set of standardised indicators and types of regions. It can be performed in a workshop atmosphere; preferably with a group of experts in the field of the policy proposal and experts on regional development.

(1) The conceptual model: How does a policy affect the development of regions?

In a first step, it is necessary to detect the potential effects of a policy (in the case of ARTS, EU-directives were chosen) on territorial development. Based on a careful study of the actual text of the proposal, the experts then draw a conceptual model that translates the text into cause/effect relations (the intervention logic). Not only intended effects, but also unintended and indirect effects are considered, and on as many different fields as possible. This exercise is best done in an informal workshop setting so as to maximize the amount of input.

The cause/effect relationships can then be drawn out. Here, links between all the effects deriving from the policy proposal (exposure in the vulnerability concept) and the receptive capacity of a region (sensitivity in the vulnerability concept) are made explicit. The result is a systemic picture or flowchart showing the conceptual model of the proposal according to its intervention logic and potential effects (see following example).

Figure 2
Conceptual model of the directive 2009/128/EC / Directive on the sustainable use of pesticides



(2) Dealing with discrete cause/effect chains (branching)

In some cases, a policy will have only one chain of effects. In most cases, there are different, often mutually exclusive alternatives. For example, some policies only set targets, allowing member states to implement their own measures to meet these targets. Depending on the measure, the policy can have quite different territorial impacts. In other cases, the effects of a policy will vary according to type of region. In order to deal with this variability the policy is “branched” into different cause/effect chains, and each one is analysed separately.

(3) Which types of regions are affected? (regional exposure)

A policy proposal may affect only particular regions (e.g. coastal regions, regions with presence of particular productions or facilities like nuclear power plants etc.) or different types of regions could be affected in different ways. Therefore, it is essential to only include those regions being affected in the analysis. Exposed regions are selected using typologies (e.g. rural/urban, central/peripheral, advanced/lagging, high/low presence of certain sectors). ESPON ARTS provides a set of pre-selected types of NUTS2 regions to choose from, but in theory any typology or selection is possible.¹

(4) What is the intensity of exposure on different fields? (exposure matrix)

In the next step, the conceptual model is translated into a set of indicators that describe the intensity of policy exposure. This is done using a predefined set of thematic fields such as natural environment, regional economy as well as society and people. To do this, the project produced a Directive-Exposure Matrix (DEM) Excel tool which allows data to be entered according to each field.

Table 1
Example for filling in the Directive Exposure Matrix (DEM)

		Effects on ...	Natural environment				
		Details	Soil			Landscape and cultural heritage	
		Detailed effects on ...	erosion	pollutants in soil	share of artificial areas / soil sealing	conservation of natural heritage (landscape)	conservation of cultural heritage
							pollutants in air
potential effects on:		Indicator value					
1 Tourist			no effect	no effect	decrease	increase	no effect
1 Urban			no effect	decrease	no effect	no effect	increase
comments							reduction of acid rain
Transformation: from indicator value to territorial welfare							
exposure type: cost or benefit for region?			cost	cost	cost	benefit	benefit
potential effect on terr.welfare							
1 Tourist			0	0	1	1	0
1 Urban			0	1	0	0	1

¹ The following types of NUTS2 regions are available at the moment: Agglomerated regions, areas at highest technological/environmental risk, regions with relevant chemical industries, densely populated regions, forest regions, harbour regions, regions with a high density of rail, regions with a high density of road, regions with highest density of rail and road network, regions with highest share of employment in automotive, industrial regions, major airport location, regions with a high share of natural areas, rural regions, shrinking regions, regions with unprofitable farming, urban regions, wealthy regions, regions exposed to PM₁₀.



Table 2
List of exposure fields

Natural environment				
Soil	Water	Air	Climatic factors	Fauna/Flora/Habitat
erosion	water consumption	pollutants in air	emissions of CO2	biodiversity
pollutants in soil	pollutants in ground/surface water		heavy rain/flood hazard/occurrence of landslides	conservation of natural heritage (landscape diversity)
share of artificial areas/soil sealing				conservation of cultural heritage
Regional economy				
Economic development	Agriculture	Industry	Services	Tourism
economic growth	employment in primary sector	employment in secondary sector	employment in tertiary sector	overnight stays
innovation	% of arable area, permanent grass/-crop area			
entrepreneurship				
market barriers				
Society and people				
Social disparities	Demography	Accessibility	Built environment	Governance
disposable income in PPS per capita	out-migration/brain drain/"shrinking" regions	daily accessibility by air	increase of urbanization relative to population growth	efficiency of government/governance mechanisms
equal income distribution	number of people exposed to noise	daily accessibility by waterways	mixed land use	duration or complexity of planning procedures
Employment rate	accident rate in transport	daily accessibility by road		participation rate
	accident risk: industry/energy supply	daily accessibility by rail		societal transfers (e.g. tax added)
	healthy life expectancy at birth	renewable energy		transnational cooperation between member states
		fossil fuel consumption		

For each field, the level of exposure is defined by expert judgement according to the following classes:

- ++ strong advantageous effect on territorial welfare (strong increase)
- + weak advantageous effect on territorial welfare (increase)
- O no effect
- weak disadvantageous effect on territorial welfare (decrease)
- strong disadvantageous effect on territorial welfare (strong decrease)
- ? Unknown effect / effect cannot be specified
- +/- direction cannot be specified (diverse effects)

These classes are then converted into numerical terms so as to allow further computation.












(5) What is the territorial impact in European regions? (Territorial Impact Matrix, TIM)

Once the Directive Exposure Matrix in the previous step has been filled in, the impact values are calculated using predefined sensitivity adjustments. These are determined for each field and called the Regional Sensitivity Matrix. The Territorial Impact Matrix (TIM) calculates the impact for each thematic exposure field and for each NUTS 2 region (= 42 fields x 287 NUTS 2 regions) and sorts the results into 9 classes:

Table 3
Example for the Territorial Impact Matrix (TIM)

		E1	E2	E3	E10	E11	E12	E13	E14
AT11	Burgenland	0,00	0,00	0,00	0,00	0,00	0,00	na	0,00
AT12	Niederösterreich	0,00	0,00	0,00	0,00	0,00	0,00	na	0,00
AT13	Wien	0,00	0,00	-1,06	-0,77	0,00	0,78	na	1,79
AT21	Kärnten	0,00	0,00	0,00	0,00	0,00	0,00	na	0,00
AT22	Steiermark	0,00	0,00	0,00	0,00	0,00	0,00	na	0,00
AT31	Oberösterreich	0,00	0,00	-0,77	-0,78	0,00	0,81	na	1,78
AT32	Salzburg	0,00	0,00	-0,76	-0,99	0,00	0,80	na	1,74
AT33	Tirol	0,00	0,00	0,00	0,00	0,00	0,00	na	0,00
AT34	Vorarlberg	0,00	0,00	-0,78	-1,04	0,00	0,80	na	1,78
BE10	Région de Bruxelles-Capi	na	0,00	-1,19	-0,75	0,00	0,76	na	1,69
BE21	Prov. Antwerpen	0,00	0,00	-0,91	-0,76	0,00	0,80	na	1,74
BE22	Prov. Limburg (B)	0,00	0,00	-0,88	-0,78	0,00	0,84	na	1,76
BE23	Prov. Oost-Vlaanderen	0,00	0,00	-0,88	-0,75	0,00	0,83	na	1,73
BE24	Prov. Vlaams Brabant	0,00	0,00	-0,91	-0,75	0,00	0,81	na	1,74
F1	erosion			F11	conservation of culture heritage				
F2	pollutions in soil			F12	economic growth				
F3	soil sealing			F13	innovation				
F10	landscape diversity			F14	entrepreneurship				

Table 4
Scale of potential territorial impact

	very high positive impact		minor negative impact
	high positive impact		moderate negative impact
	moderate positive impact		high negative impact
	minor positive impact		very high negative impact
	no exposure		

(6) Do the results make sense? (plausibility and quality check)

The results calculated in the territorial impact matrix allows for a first plausibility check. Usually the results show that a proposal only affects a few thematic fields. The results should be discussed with the experts along two lines:

- Does the selection of regions provide a plausible picture? If not, the selection of the types of regions may need to be modified.
- Is the relationship between the different fields of exposure plausible? If not, the expert judgment about the intensity of exposure may need to be modified.

Once adjustments are made, the Territorial Impact Matrix (TIM) can be recalculated with the new values

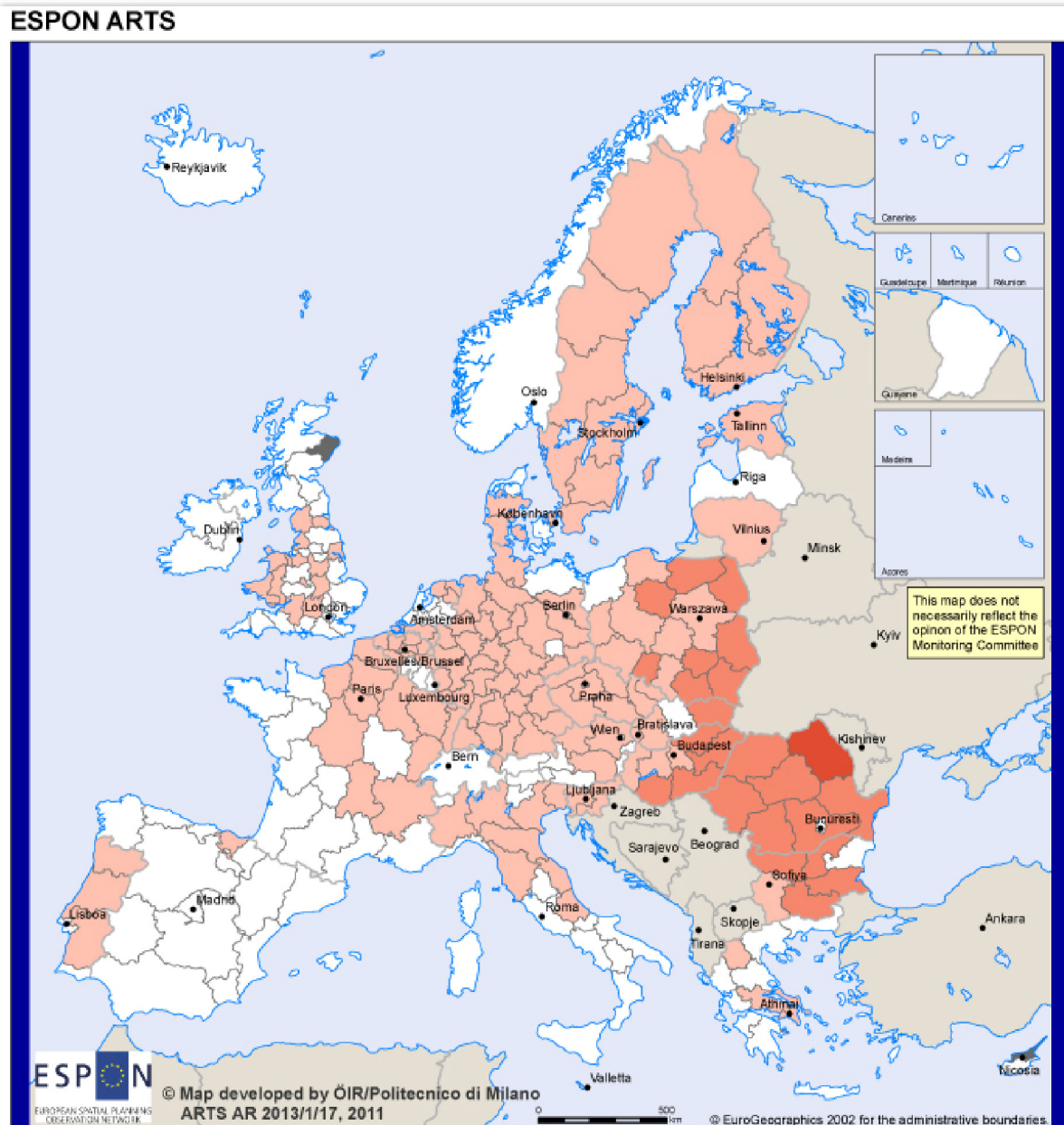


(7) Which regions will be affected in which fields? (mapping)

When the results are reliable, maps showing the impact of different indicators can be drawn up. This can be followed by another plausibility check. In the trial run using 12 directives, several TIMs were recalculated after scrutinising the final maps.

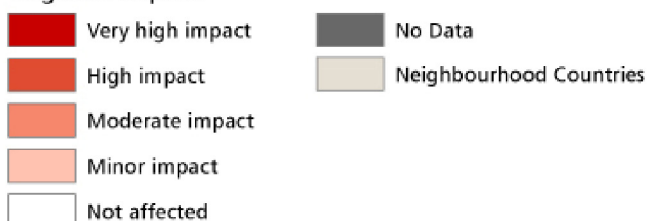
Map 1

Example for a Map depicting the territorial impact on one field



Regions affected by Directive on air quality branch b Economic Growth (GDP/capita) (F12)

Negative Impact



Transformation and Compilation of Data based on:
ESPON DB, EUROSTAT, 5th Cohesion report, DG-AGRI

(8) What are the policy implications? (discussion)

The maps provide the framework for the subsequent discussion on policy implications. The territorial patterns of both the positive impacts and negative effects are examined and discussed. Furthermore, the issue of potential adaptive capacity should be raised, as well as governance strategies to facilitate a successful implementation

(9) How to communicate the results (reporting)

Based on the results of the territorial impact assessment and the expert discussion, a short report should be drawn up including maps on relevant indicators. This communicates the results of the ex-ante analysis to the relevant audience.



Proposed agenda of a TIA workshop

- 9:00: Step 1:
The conceptual model: how does a policy affect the development of regions?
Result: a systemic picture showing the conceptual model of the policy proposal investigated according to its intervention logic and potential effects
- 11:00 Coffee break
- 11:30 Step 2:
Dealing with discrete cause/effect chains (branching)
Step 3:
Which types of regions are affected? (regional exposure)
Result: decision about different logical chains (branches) deriving from one policy proposal and about the types of regions affected (regionally exposed)
- 12:00 Step 4:
What is the intensity of exposure on different fields? (exposure matrix)
Result: the translation of the conceptual model into a set of indicators that describe the intensity of policy exposure (directive exposure matrix) for each branch
- 13:00 Lunch break
- 14:00 Step 5:
What is the territorial impact on regions? (Territorial Impact Matrix, TIM)
Step 6:
Do the results make sense? (plausibility and quality check)
The impact values are calculated using predefined sensitivity adjustments automatically. The TIM provides information about the relevant fields touched by the policy proposal.
Result: a stable result of the territorial impact of a policy proposal
- 15:00 Step 7:
Which regions are affected in which fields? (mapping the results)
Result: maps of the territorial impact for the relevant indicators
- 15:30 Step 8:
What are the policy implications? (adaptive capacity discussion)
Result: information about policy implications, and the potential adaptive capacity and governance strategies to facilitate a successful implementation.
- 17:00 End of the meeting
- After the meeting:
Step 9:
How to communicate the results (write-up)
result: minutes





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