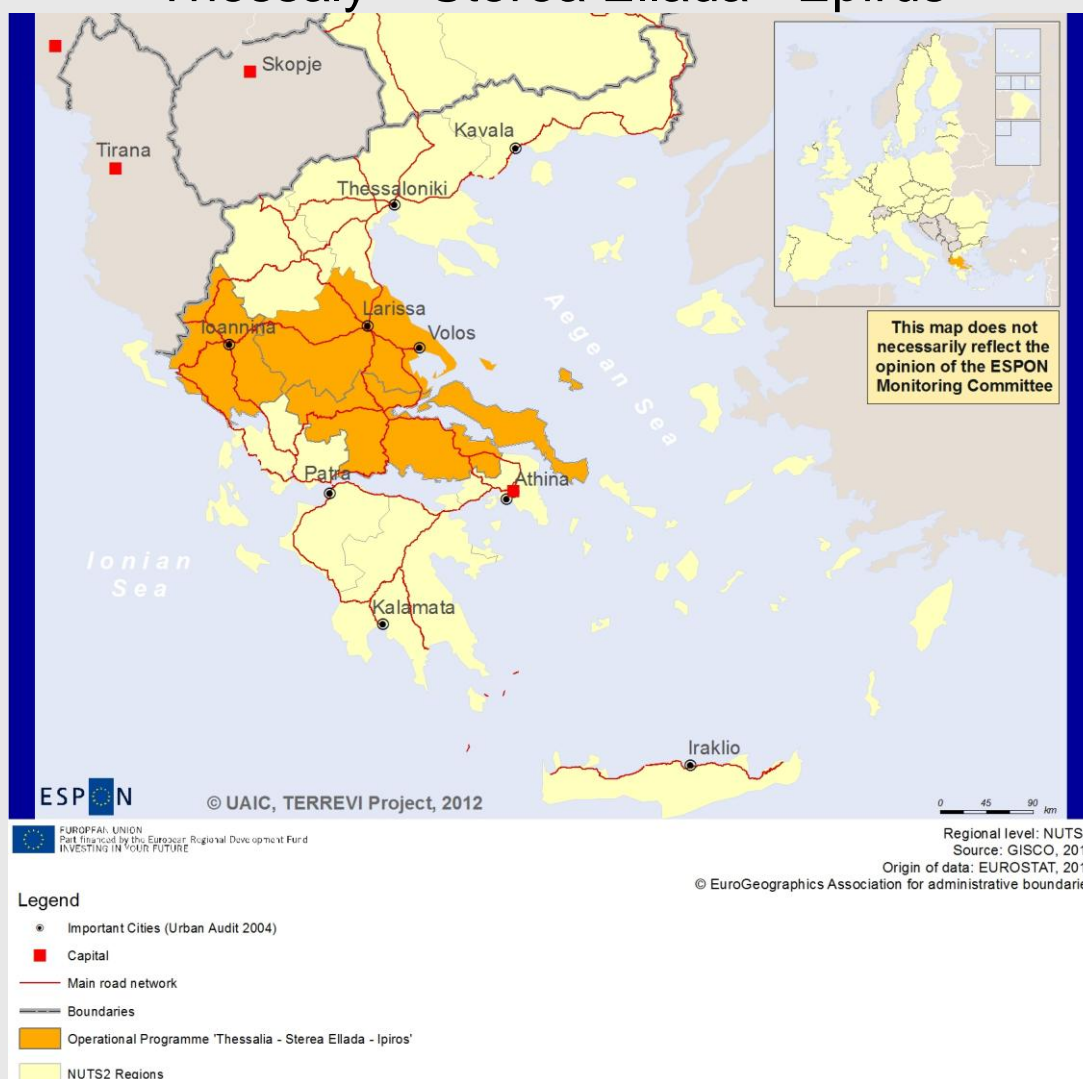


# ESPON

## Evidence Report

### Thessaly – Sterea Ellada - Epirus



ESPON Project TerrEvi

August 2013

This report presents a more detailed overview of the analytical approach to be applied by the project. This "Scientific Platform and Tools" Project is conducted within the framework of the ESPON 2013 Programme, partly financed by the European Regional Development Fund.

The partnership behind the ESPON Programme consists of the EU Commission and the Member States of the EU27, plus Iceland, Liechtenstein, Norway and Switzerland. Each partner is represented in the ESPON Monitoring Committee.

This report does not necessarily reflect the opinion of the members of the Monitoring Committee.

Information on the ESPON Programme and projects can be found on [www.espon.eu](http://www.espon.eu)

The web site provides the possibility to download and examine the most recent documents produced by finalised and ongoing ESPON projects.

This basic report exists only in an electronic version.

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The ESPON TerrEvi Project is carried out by Metis (lead partner), t33, Faculty of Geography and Geology Iasi (FGGI) and Spatial Foresight.

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## Executive Summary

The ESPON TerrEvi project aims at providing evidence for Structural Funds (SF) programmes to support the development of the programmes planned for the period of 2014-2020. The present territorial evidence report is one of ten case studies. This fact sheet has been complemented by the results of the discussions at the March 2013 workshop. The present report assesses the situation of the Thessaly – Sterea Ellada – Epirus region in view of achieving the three objectives of the Europe 2020 Strategy, namely smart, sustainable and inclusive growth.

### Main characteristics

Thessaly – Sterea Ellada – Epirus is characterised by deep differences between its lowlands rural mountainous areas (Karditsa, Trikala) and the western more urban Larissa prefecture. The eastern areas are in fact marked by a higher share of elderly population than the western parts (with Karditsa being amongst the most aging administrative units in Europe with over 25% elderly population), and the economic activity rate of young people in the whole region was low compared to the European average. The Regional Operational Programme (ROP) area, overall, is situated below the European average in terms of Gross Domestic Product (GDP) per capita, where again the eastern parts are better integrated in national and European economic systems than the western parts. Thessaly – Sterea Ellada – Epirus also belongs to the regions with the highest values of gender gap in the EU.

### Europe 2020: Smart growth – Main findings and recommendations

- The share of R&D expenditure of GDP in Thessaly – Sterea Ellada – Epirus is below the Greek national level, and is part of the regions with the lowest shares of R&D expenditure in Europe. However, it is not recommended that the ROP invests more in R&D but rather that the region makes efforts to assimilate and exploit knowledge created in other regions through inter-regional network-creation activities (increased mobility of workers, technology transfer and enhancing the capacity of its work force).

- Moreover, Greek regions are counted amongst the regions with the lowest concentration of employment in knowledge-intensive sectors in the EU. Measures to increase mobility between the regions in order to strengthen the exchange of knowledge and expertise should be introduced or increased.
- As concerns the implementation of the Digital Agenda of the EU, Thessaly – Sterea Ellada – Epirus has a low average of high-speed internet connection which is linked to the large share of rural population and the lack of large cities. Because of this rural structure it is almost impossible for this region to improve the status in high-speed internet connection.
- Overall, in terms of innovation, the region has been classified in the 2nd lowest categories out of 5 possible categories ('smart and creative diversification areas'). Its key advantages reside in their embedded human capital, while their entrepreneurial and creative attitudes can be wisely exploited in view of upgrading innovative strategies.

While these smart growth indicators have been considered useful and fit for the purpose, some indicators have been criticised for being too generic (granularity) and should be broken down to NUTS-3 regions or even explicit sectors. Two further indicators have been suggested at the workshop: 'Number of firms accessing seed/ growth capital'; 'percentage of SMEs introducing marketing or organisational or business model innovations'.

### Europe 2020: Sustainable growth – Main findings

- The wind energy potential of the Thessaly – Sterea Ellada – Epirus region is lower than the Greek national and the EU-27+4 averages. Although efforts have been made to install RES plants and windmills in the region through EU co-financed projects, the local communities disapprove of these efforts which points to the need to raise awareness on the need to increasingly use renewable energies.
- Similarly, the region is more vulnerable to climate change than the national and the EU-27+4 averages. Therefore, policy measures should be introduced to support the region and its inhabitants to adapt to climate change as the adaptive capacity is considerable high.

- On the other hand, the ozone concentration in Thessaly – Sterea Ellada – Epirus is higher than the national Greek average as well as the European average. Within the region, the north-west has a lower ozone concentration than the south-east which has a stronger concentration of transport and shipping. Reductions of emissions should result from implementing different policies targeted at specific point sources, changing fuel types, or regulations for best technologies.
- Considering that Greece is included in the group of the states with the largest implementation gaps as regards the key elements essential for good waste management and the fact that there are no available statistical data of this indicator for the Thessaly – Sterea Ellada – Epirus region it is of great importance to implement measures referring to waste management.

While the indicators were welcomed by the participants at the workshop, complex indicators (such as 'overall adaptive capacity to climate change') are difficult to link with policy initiatives with measureable outputs an impact, in contrast to 'one dimension' indicators. The indicators should also be measurable in closer intervals in order to inform the development of interventions for the next programming period. The following indicators were also considered to be useful: 'Quality of water managements, water quality', '% of recycling of solid municipal waste'.

### **Europe 2020: Inclusive growth – Main findings**

- While the long-term unemployment rate of the ROP area is higher than in the EU-27+4, it is lower than the median value for Greece. Measures have to be implemented in order to prevent the long-term unemployment rate from rising in the context of growing unemployment in Greece.
- The at-risk-of-poverty rate for Thessaly – Sterea Ellada – Epirus is higher than in the EU-27+4 and Greece overall. Greece counts amongst the six countries with the highest share of people at risk of poverty in Europe (along with Bulgaria, Italy, Spain, Romania and Poland). Measures have to

be implemented in order to prevent the at-risk-of-poverty-rate from rising in the context of growing unemployment in Greece.

- Although the share of persons aged 25 to 64 and 20 to 24 with upper-secondary or tertiary education attainment (60.7%) is slightly higher in Thessaly – Sterea Ellada – Epirus than in Greece, it is below the European average (73.4%). Training and education programmes should be modernised, and the capacity of training and education staff should be increased.
- A shrinking labour force will be a problem for many European regions, including the respective ROP. Regardless of how the trajectories of demographic and migratory development will end up for Europe overall, Thessaly – Sterea Ellada – Epirus is most likely to face a negative population development by 2050, due both to low total fertility rates and negative net migration. From 2005 to 2050 the ROP area will witness a decrease of more than 30% of its active population. Measures should be implemented to mitigate the effects of negative migration within a sustainable development strategy.

Although the indicators were seen as useful and fit for the purpose by the workshop participants, the data was seen as dated or obsolete. The indicators were also seen as being too general at times; the granularity at territorial or sectoral level could improve programming. Finally, complex indicators could confuse policy-making. The indicator 'Change in labour force 2005-2050' was seen as irrelevant for direct policy-making and should be used as an informative source only.

**ESPON indicators used by TerreEvi.** The below-mentioned table indicates possible links between the 32 indicators of the ESPON maps on smart, sustainable and inclusive growth presented in this factsheet and the investment priorities for the next funding period 2014-2020. Linking future investment priorities and the indicators used by TERREVI shows that ESPON produces evidence that can be used and support a territorially differentiated development and management of territorial cooperation programmes. In other words, ESPON results can support work linked to achieving territorial cohesion and the implementation of the Europe 2020 strategy.

<div> <div> <b>2014-2020</b>  <b>Thematic Objectives</b> </div> <div> <b>ESPON indicators used by TerrEvi</b> </div> </div>	Share of R&D infrastructure	Private sector R&D expenditures	Employment in Knowledge-Intensive services	Human resources in science and technology	Territorial patterns of innovation	Private use of e-commerce	ICT employment	Tourist arrivals	Travel cost to nearest maritime port	Openness to extra-ESPON and neighbourhood trade	Quality of natural landscape	Wind power potential	Wave power potential	Maritime flows	Combined adaptive capacity to climate change	Potential impact of climate change	Potential vulnerability to climate change	Employment rate	Long-term unemployment rate	Change in population in 2005-2050	Share of old people	Regional sex ratio structure	People at risk of poverty	People with high education	Young academics	Regional early school leavers	Adults in education and training
Strengthening research, technological development and innovation	X	X		X	X		X						X											X	X		X
Enhancing access to and use and quality of ICT			X	X		X	X																				
Enhancing the competitiveness of SMEs	X	X			X					X																	
Supporting the shift towards a low-carbon economy in all sectors												X	X														
Promoting climate change adaptation, risk prevention and management															X	X	X										
Protecting the environment and promoting resource efficiency											X	X	X	X	X	X	X										
Promoting sustainable transport and removing bottlenecks in key network infrastructures									X					X													
Promoting employment and supporting labour mobility			X	X			X											X	X			X		X	X		X
Promoting social inclusion and combating poverty																					X	X	X	X	X	X	X
Investing in education, skills and lifelong learning by developing education and training infrastructure																								X	X	X	X
Enhancing institutional capacity						X																					

## Introduction

ESPON supports policy development in relation to the aim of territorial cohesion and a harmonious development of the European territory. It provides comparable information, evidence, analysis, and scenarios on territorial dynamics, which reveal territorial capitals and development potentials of regions and larger territories. Considering the programme area in its European context adds an important new perspective that can help shaping the programming and the places of implementing projects. The ESPON TerrEvi project focuses on producing evidence for Structural Funds programmes with the aim to support the development of the programmes to be carried out in the 2014-2020 period.

In order to support evidence based planning cartographic visualizations serve as an important medium of communication besides the usage of a common language, diagrams, plans or pictures in this document. Maps can attract attention to specific facts and circumstances with spatial impact since information is communicated and procedures are facilitated. In the ESPON Programme the majority of maps contain thematic representation of regional disparities based on indicators, comprised indicators or typologies. They display the actual state of affairs and therefore serve as a basis for comparison, contextualisation and joint action. In this sense, maps reinforce discussing the reality and performing policy action graphically and in a normative way.

One milestone of this work consisted in presenting selected ESPON research pieces in easy-to-understand factsheets for all territorial cooperation programme areas. The aim is to provide the reader with preliminary insight on types of territorial evidence ESPON holds at hand with regard to the possible investment priorities of future programmes.

[\(Link to the factsheets on the ESPON website\)](#)

The second milestone concerns ten specific programme case studies illustrating how ESPON material can be used to support the development of future programmes e.g. by giving a comparative European dimension to the envisaged programme work. The aim is to provide the reader with insight on different types of territorial evidence ESPON holds at hand with regard to the possible

investment priorities of future programmes, and to stimulate a debate on how this evidence can be used by future programmes.

Criteria like the coverage of all regional categories (less developed, transition, more developed regions), the variance of available budgets, the mix between old and new, small and large, central and peripheral Member States or the expression of willingness to cooperate with TerrEvi built the basis for a shortlist of 20 regions for the final selection of case studies by ESPON in an early stage of the project.

The TerrEvi team started to contact these preliminary selected programmes introducing the project and evaluating the possibility being one of the ten pilot cases. As a matter of fact and due to different reasons the final list of pilot cases consists of four regional programmes, one CBC programme and five TNC programmes:

- Molise (regional)
- Umbria (regional)
- Thessalia (regional)
- Norte (regional)
- Slovakia – Austria (CBC)
- North West Europe (TNC)
- North Sea (TNC)
- Alpine Space (TNC)
- Atlantic Area (TNC)
- South East Europe (TNC)

The list of pilot cases has been set up in coordination with the ESPON programme and has been approved by the ESPON Coordination Unit.<sup>1</sup>

The present report is one of ten evidence reports which have been produced to build the basis for the work of the case studies. A draft version of the document served as basis for a workshop with the programme in the first quarter of 2013. The workshop highlighted

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<sup>1</sup> The detailed selection procedure is part of the Interim Report of the TerrEvi project from December 2012.



the potential use of ESPON material for territorial cooperation programmes.

Following the workshop, this document has been amended taking into account the discussions as well as considerations concerning the usefulness of single indicators in various steps of the programme work.

The Thessaly – Sterea Ellada – Epirus programme is free to use the material for their development and implementation of the programme for 2014-2020.

## Methodology

For this evidence report the TerrEvi project team conducted a workshop with the relevant stakeholders in charge for programming. In the following the workshop methodology is explained enabling readers of this paper to understand how the information has been collected.

Furthermore a User's Guide for the traffic lights in the Europe 2020 chapter of the evidence report is part of this methodology section.

### Workshops

The work on the evidence reports was organised in three main steps.

#### Step 1 – Preparation Phase

After the preliminary contacts made in summer 2012, the team contacted the Programme Authority, (by email) illustrating:

- the ESPON TerrEvi project and the organisation of the team;
- the reason why the area has been appointed to be a pilot case for ESPON 'Territorial Evidence Packs';
- the main steps of the case study activity.

Once the contacts have been established and the framework of the case study fixed, the project team prepares the set for the case study. More specifically the project team:

- sent the Factsheet to the authorities;
- presented a more detailed timetable and some draft contents for the workshop;
- discussed the process of the case study with the participants;
- started the organisation of the workshop.

#### Step 2 - Draft Evidence report, workshop and final Evidence report

Following the preliminary phase, the Draft Evidence Report was delivered to the programme authority. It entailed several indicators and highlighted territorial trends with a European perspective. All thematic objectives were covered and there has been a table to

match our selected indicators with the thematic objectives. The Draft Evidence Report has been sent to the workshop participants for diffusion.

The participants consisted in general of persons in charge for the programming (MA, JTS, external experts). The TerrEvi team addressed in the workshop five relevant programming stages:

- Needs Analysis
- Thematic Concentration
- Result Indicators
- Project Selection
- Stakeholder consultation

Following these stages as a basis the workshop had the structure below:

- Introduction (presenting the set of indicators)
- Relevance of indicators
  - The participants discussed together with the TerrEvi team how relevant/important the presented indicators are at which programming stage. This procedure was done three times, for the indicators in Smart, Sustainable and Inclusive growth separately.
- Discussion about issues of particular interest for the programme.
- Conclusion of the workshop covering the issues:
  - Where does your programme have use of ESPON? (to strengthen the territorial dimension / make your life easier)
  - What could ESPON do to be useful in future? (incl. relevance and availability of information)
  - Territorial dimension & structures (programme area in Europe, diversity within the programme area).

The results were collected by the TerrEvi team and fed into the draft evidence report (Results and feedback from the workshop).

### Step 3 – Feedback

Every programme received a draft version of the final evidence report comprising the workshop results in order to verify if the contents of the ESPON Evidence Report have been used comparing with the expectations collected in the workshop.

### Traffic lights for the programme area indicators: User's Guide

The traffic lights at the beginning of the chapter "Europe 2020" were created in order to graphically represent the situation of each analysed CBC<sup>2</sup> Area compared to the ones of EU-27+4 space, to the rest of CBC programme areas, and finally to each country participating to the CBC Area.

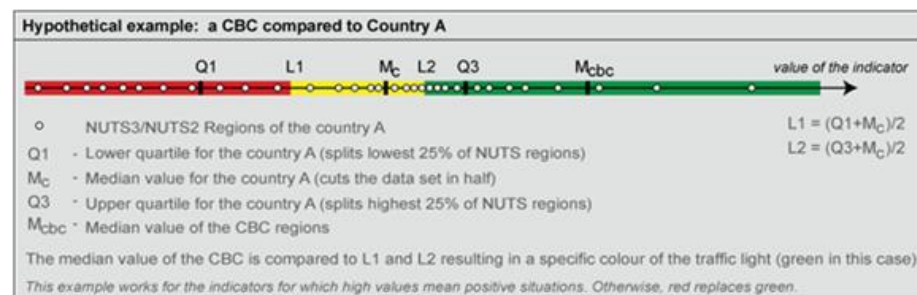
The median value, calculated depending on the values registered for every NUTS 2/NUTS 3 region composing the programme area was used as the central value indicator. The median of the programme area was compared successively to the ones computed for EU-27+4 territories, for the rest of the CBC areas and, ultimately, with those for the countries involved in the CBC Area.

Interval thresholds were obtained by calculating the arithmetic mean between the median and the values of the first (Q1) and third (Q3) quartiles. These calculations defined the lower (L1) and upper limits (L2) of each interval.

Therefore, we have three distinctive situations:

1. When the median value of the co-operation area is below L1, there will be a red traffic light indicating problems inside the CBC Programme Area (or green traffic light if there is a noticeable progress: i.e. long-term unemployment).
2. When the median value of the co-operation area is between the lower and the upper thresholds, there will be a yellow traffic light marking a similar situation of the CBC Area to the rest of the spatial structures.

3. When the median value of the co-operation area is over L2, a green traffic light will be displayed (or red traffic light when there is a negative trend: i.e. potential vulnerability to climate change).



Choosing median as central value requires a special attention in analysing the traffic lights when the number of NUTS 2/NUTS 3 regions is below 7. Using percentiles implies also that the final result is highly dependent on the type of statistical distribution. This should be considered as well when establishing the relative situation of a CBC Area compared to a specific country.

<sup>2</sup> This User's Guide was developed for the CBC area factsheets. The methodology also for TNC or regional programmes compared to the relevant national level(s) remains the same.

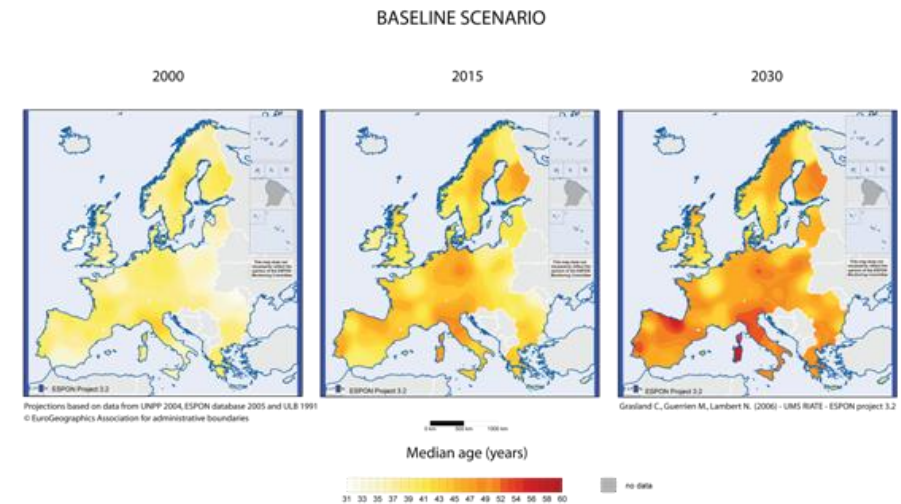
## Context information

The main focus of this report discusses the relation of Thessaly - Sterea Ellada - Epirus to the three objectives of Europe 2020 (smart, sustainable and inclusive growth) and the investment priorities of future Structural Funds. This discussion may help highlighting the comparative advantages of the region which could possibly be further strengthened through the implementation of the future Regional Operational Programme foreseen for this area. Alternatively, one might also be able to detect comparative disadvantage (as compared to the rest of Europe) which the future programme might help to reduce.

However, before entering this debate, the focus will be on a few important context indicators such as population change and ageing, GDP per capita and gender inequality in unemployment. These are meant to set the scene and provide a general understanding of the situation in the Region.

### Demographic perspectives

The European population is increasing at a slow pace and Europe is generally facing population trends like ageing and low fertility, and in some areas demographic decline. Population development has significant territorial consequences, and there are large disparities in the demographic profiles between countries and regions.



**Map 1 Demographic perspectives**

## Population change

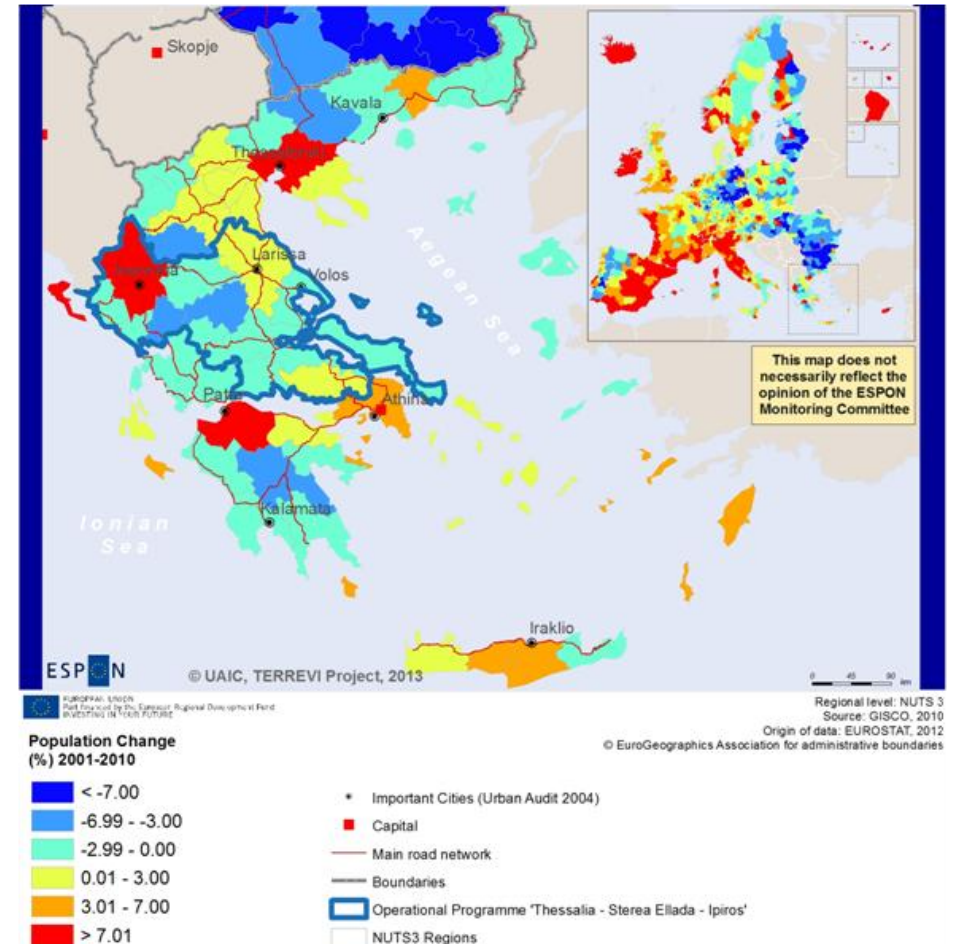
Population change, defined generally, is the difference in the size of a population between the end and the beginning of a given time period (usually one year). Specifically, it is the difference in population size on 1 January of two consecutive years.

A positive population change, when the result of net migration plus live births minus deaths is positive, is referred to as population growth, a negative one is called a population decrease. The crude rate of population growth is the ratio of total population growth during the year to the average population of the area in question that year. The value is expressed per 1 000 inhabitants.

Population dynamics across regions in Thessaly – Sterea Ellada – Epirus was negative with demographic balance trends (-0.22%). This particular evolutionary pattern is specific for predominantly agricultural regions from the Balkan Peninsula, where migration of the wider countryside deficit is offset by the positive dynamics of regional centres as well as maintaining a minimum natural balance surplus for areas where population ageing is still not very advanced.

For the ROP area we can also notice some deep differences between rural areas in the mountains (Karditsa, Trikala), where the total population balance is negative, and the prefecture of Larisa prefecture, where the population dynamics were positive in the last decade.

This map was produced for the ESPON DEMIFER project.

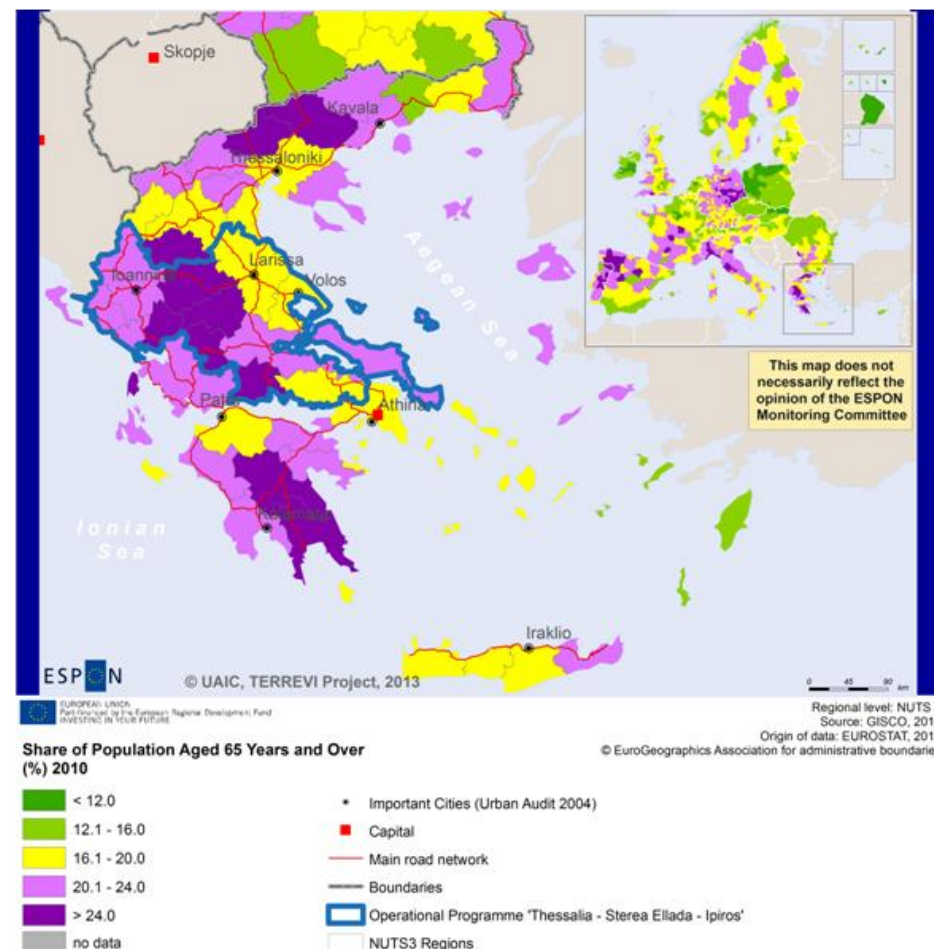


**Map 2 Population change 2001-2010**

## Share of old people

"The impact of demographic ageing within the European Union (EU) is likely to be of major significance in the coming decades. Consistently low birth rates and higher life expectancy will transform the shape of the EU-27's age pyramid; probably the most important change will be the marked transition towards a much older population structure and this development is already becoming apparent in several Member States. As a result, the proportion of people of working age in the EU-27 is shrinking while the relative number of those retired is expanding. The share of older persons in the total population will increase significantly in the coming decades, as a greater proportion of the post-war baby-boom generation reaches retirement. This will, in turn, lead to an increased burden on those of working age to provide for the social expenditure required by the ageing population for a range of related services".

The indicator highlights considerable disparities between lowlands, focused on Larisa metropolitan area, an area more attractive to young workforce, which has not yet exceeded the 20% threshold, and western areas of the region where selective migration manifested itself very early, leading to progressive erosion of fertility indices. The most serious situation is found in the prefecture of Karditsa, which is among the most aging administrative units of this level in Europe with over 25% elderly population



Map 3 Share of old people

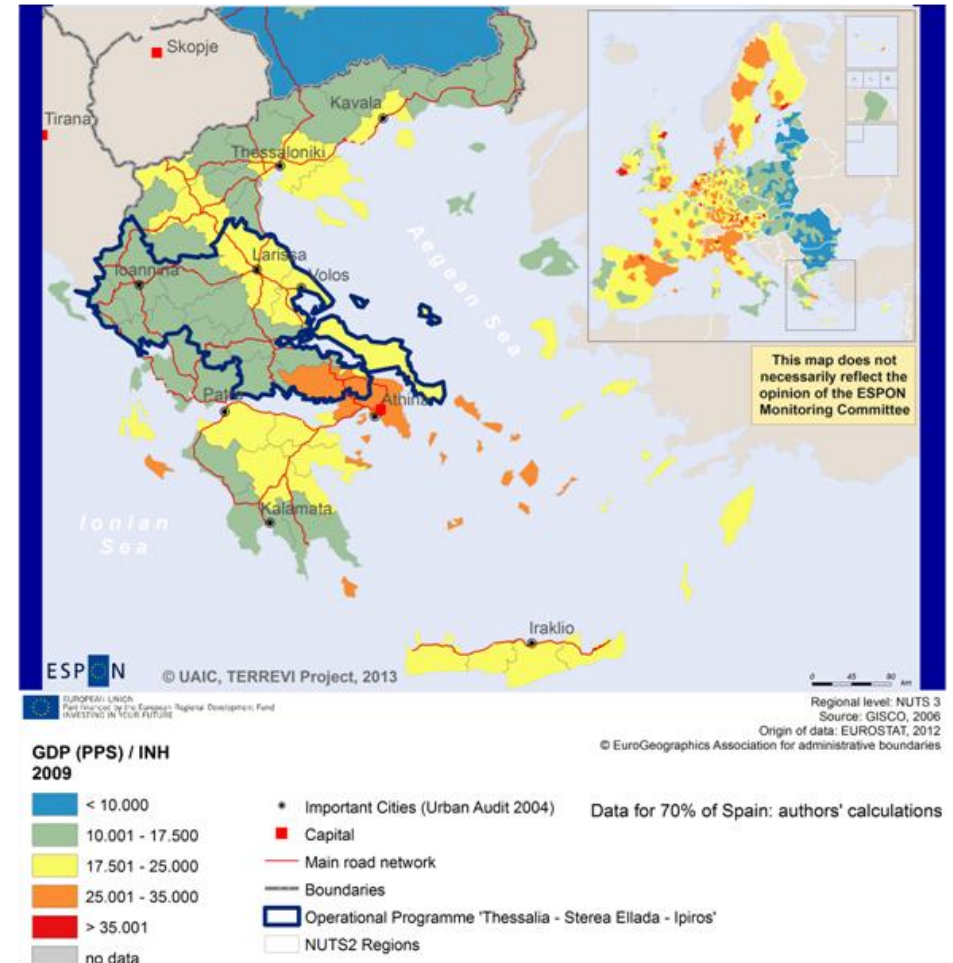


## GDP in PPS per capita

The Gross Domestic Product GDP (PPS) per capita is an important indicator of the level of economic competitiveness, being the ratio between the level of gross domestic product, expressed in purchasing power standards, and total population. Obtained by converting GDP to a fictive currency using special conversion factors, GDP in PPS per capita becomes an indicator comparable across countries by eliminating from national gross domestic products both the differences in currency expression and the differences in the prices levels between the countries.

At EU level, the spatial distribution of GDP respects the principle of spatial autocorrelation, few deviations from the rule being generated either by the presence of competitive urban centres or by the border effect. The most significant difference in GDP per capita appears between former EU-15 Member States and the EU-27 Member States which became part of the EU 2004 and 2007. But there are also regions with comparably low GDP in EU-15, for example in Greece, Southern Italy, Portugal or the UK. Additionally, the map shows that in many states wealthy regions are far from their capital regions (Munich, Salzburg, Álava, Milano) and that even areas of the European periphery are among economic strong regions (northern and central Sweden, Aberdeen, south-western Ireland for example).

The prefectures of Thessaly - Sterea Ellada - Epirus are overall situated below the European average. Even in these circumstances, Thessaly proves major discrepancies between prefectures located in the western half (Trikala and Karditsa, with less than 14,000 PPS/inh.) and those located in the eastern half, more accessible and better integrated in national and European economic systems (Larissa - nearly 18,000 PPS/inh. and Magnisia with more than 20,000 PPS/inh.).

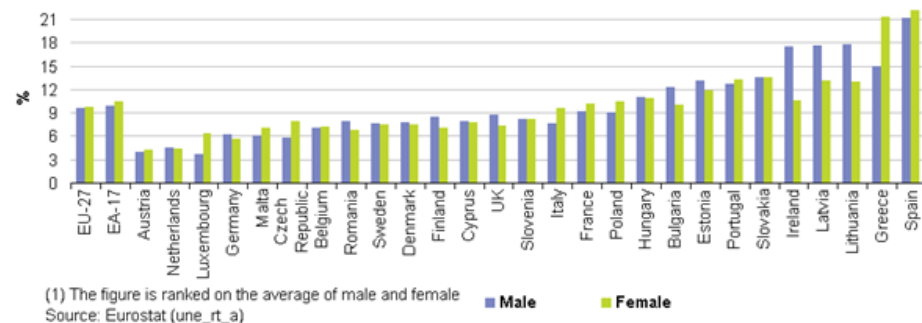


**Map 4 GDP (PPS)/INH.**

## Gender gap in unemployment

An unemployed person is defined by Eurostat, according to the guidelines of the International Labour Organization, as someone aged 15 to 74 without work during the reference week who is available to start work within the next two weeks and who has actively sought employment at some time during the last four weeks. The unemployment rate is the number of people unemployed as a percentage of the labour force.

Eurostat estimates that 25,913 million men and women in the EU-27, of whom 18,703 million were in the euro area (EA-17), were unemployed in October 2012. Compared with September 2012, the number of persons unemployed increased by 204,000 in the EU-27 and by 173,000 in the euro area. Compared with October 2011, unemployment rose by 2,160,000 in the EU-27 and by 2,174,000 in the euro area. Between October 2011 and October 2012, the unemployment rate for males increased from 10.3 % to 11.6 % in the euro area and from 9.8 % to 10.7 % in the EU-27. The female unemployment rate increased from 10.7 % to 11.8 % in the euro area and from 10.0 % to 10.7 % in the EU-27.

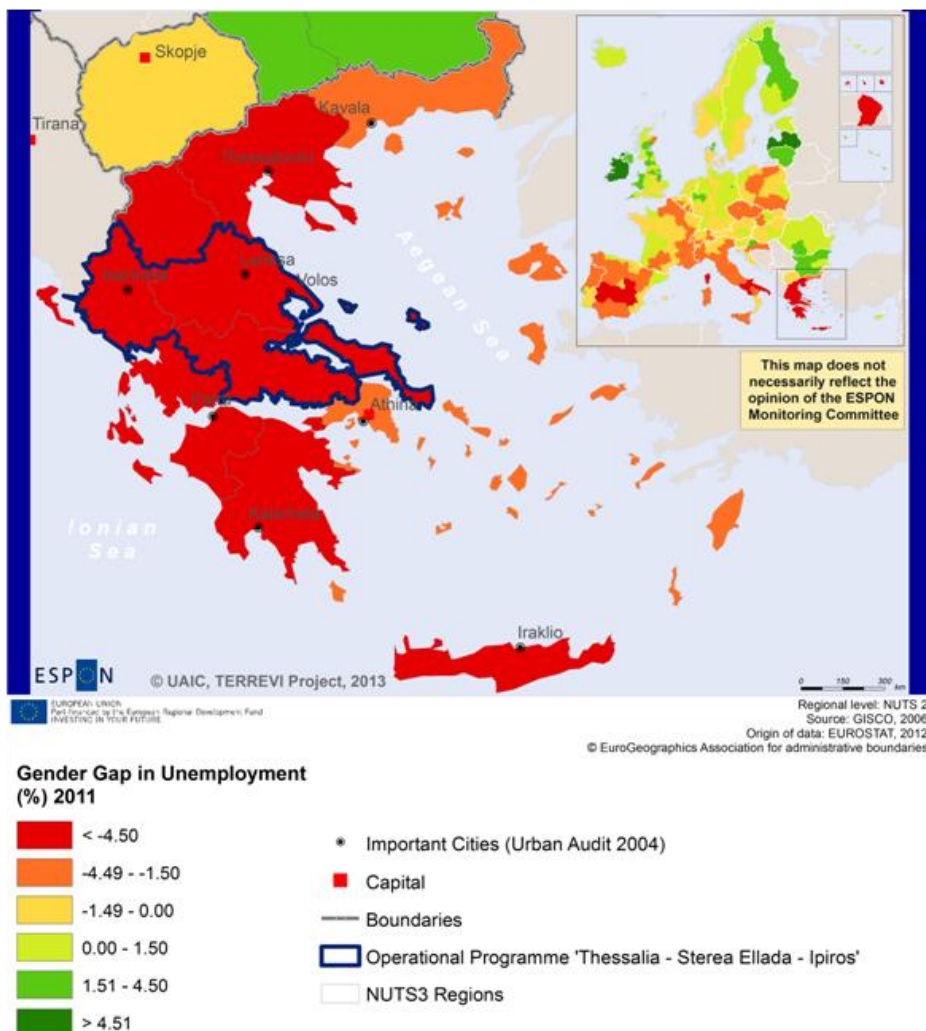


**Figure 1: Unemployment rates, 2011 (%)**

## Male and female unemployment trends

Historically, women have been more affected by unemployment than men. In 2000, the unemployment rate for women in the EU-27 was around 10 %, while the rate for men was around 8 %. By the end of 2002, this gender gap had narrowed to around 1.3 percentage points and between 2002 and early 2007 this gap remained more or less constant. In recent years, most markedly since the first quarter of 2008, male and female unemployment rates in the EU-27 have converged and by the second quarter of 2009 the male unemployment rate was higher. The annual average unemployment rates for 2009 and 2010 were consequently slightly higher for men (9.1 % and 9.7% respectively) than for women (9.0 % and 9.6 %). In 2011 however, unemployment for males slightly declined in the EU-27, while that of women continued to increase such that the rate for males was again lower at 9.6 % than that for females (9.8 %).





**Map 5 Gender gap in unemployment**

During the period of 2001-2007, the Economically Active Population (EAP) aged 15 and over of programme area increased by 3.6% and amounted in 2007 to 320,000 persons. The change rate was lower than the national average (7.3%). The composition by sex of the Thessaly's EAP was in 2001 similar to the national average. The rate of females increased from 39.4% of the total EAP in 2001 to 40.8% in 2007. This rate was more important (45.3%) in 2001 in the relatively more rural and more mountainous prefecture of Trikala; however, this rate diminished to only 41.4% in 2007. During the same period, the economic activity rate of the young population, aged 15-24 years in 2001 in Thessaly - Sterea Ellada - Epirus (11.3%) was equal to the national average. It then decreased substantially and amounted only to 8.2% in Thessaly - Sterea Ellada - Epirus in 2007.

This last rate was higher than the national average (7.4%) but much lower than the EU-27 average (11.3%). In other words, the participation of young population of the ROP in the EAP in 2007 was very low. The decrease during 2001-2007 of the economic participation of the young population was considerably higher in the more mountainous and rural prefecture of Trikala (-6.1 percentage points) while it was very low (substantially lower than the regional average) in the more urbanised prefecture of Magnesia.

In Greece we will find regions with the highest values of the gender gap indicator in EU. Sterea Ellada, Dytiki, Makedonia and Thessaly - Sterea Ellada - Epirus have values ranging from -10.8 to -10.3 (the median value in Greece is -4.9). Even so, we must mention that the Mediterranean regions are facing with significant increases of the unemployment rates in the last years.

# 1 Europe 2020

Europe, with its member states and their regions, is more exposed to global shocks and international competition than at any time before. As the world becomes more interdependent this trend will continue and shape policy thinking across sectors, borders and geographical scales. At the same time, Europe is characterised by a large territorial diversity meaning that global developments can imply rather different development possibilities and challenges for different European regions and cities.

The differences are partly defined by major geographical structures such as urban systems, access and connectivity, the geographical specificity or population density. At the same time, the differences are also spelled out in the larger development trends that affect an area and the way and degree to which it is affected.

The data, indicators and territorial evidence provided by ESPON provides insight on both the main structures and larger territorial trends. The fine art is to identify what can actually be influenced by policy-making and, in particular, by place-based policy and territorial cooperation related to the respective programme area.

This chapter provides a selection of ESPON data related to Europe 2020 objectives of smart, sustainable and inclusive growth, giving also hints as regards to the main thematic objectives envisaged in the draft regulations for the next period of EU Cohesion Policy. The Europe 2020 Strategy aims to enhance smart, sustainable and inclusive growth. This strategy has clear territorial dimensions. However, achieving these goals is challenging in the crisis-driven times. Furthermore, the economic disparities are growing as economic trends and the crisis have various impacts on different parts of Europe.

## 1.1 Smart growth

Smart growth refers to developing an economy based on knowledge and innovation. In the framework of the Europe 2020 Strategy it means improving the EU's performance in education, research, innovation and digital society.

In Figure 2 the traffic lights for selected indicators represent how Thessaly - Sterea Ellada - Epirus compares to wider European medians. Green light means that the ROP performs better for that indicator, yellow = similar, and red = worse. The indicators used for smart growth show three yellow traffic lights for Thessaly - Sterea Ellada - Epirus, meaning that the regional values of research and development (R&D) expenditure, employment in knowledge-intensive services and the rate of individuals using the internet on a regular basis are lagging the median value of the EU-27+4 but are similar or better among other Greek regions.

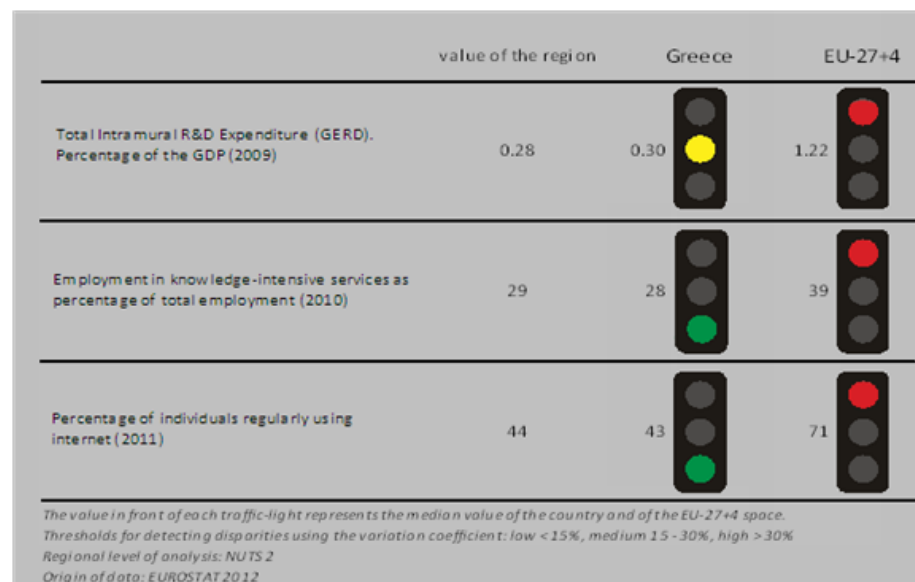


Figure 2: ROP compared to Greece and EU-27+4

## Total intramural R&D expenditure as percentage of GDP

The OECD defines intramural expenditures as all expenditures for R&D performed within a statistical unit or sector of the economy during a specific period, whatever the source of funds. Expenditures made outside the statistical unit or sector but in support of intramural R&D (e.g. purchase of supplies for R&D) are included. Both current and capital expenditures are included.

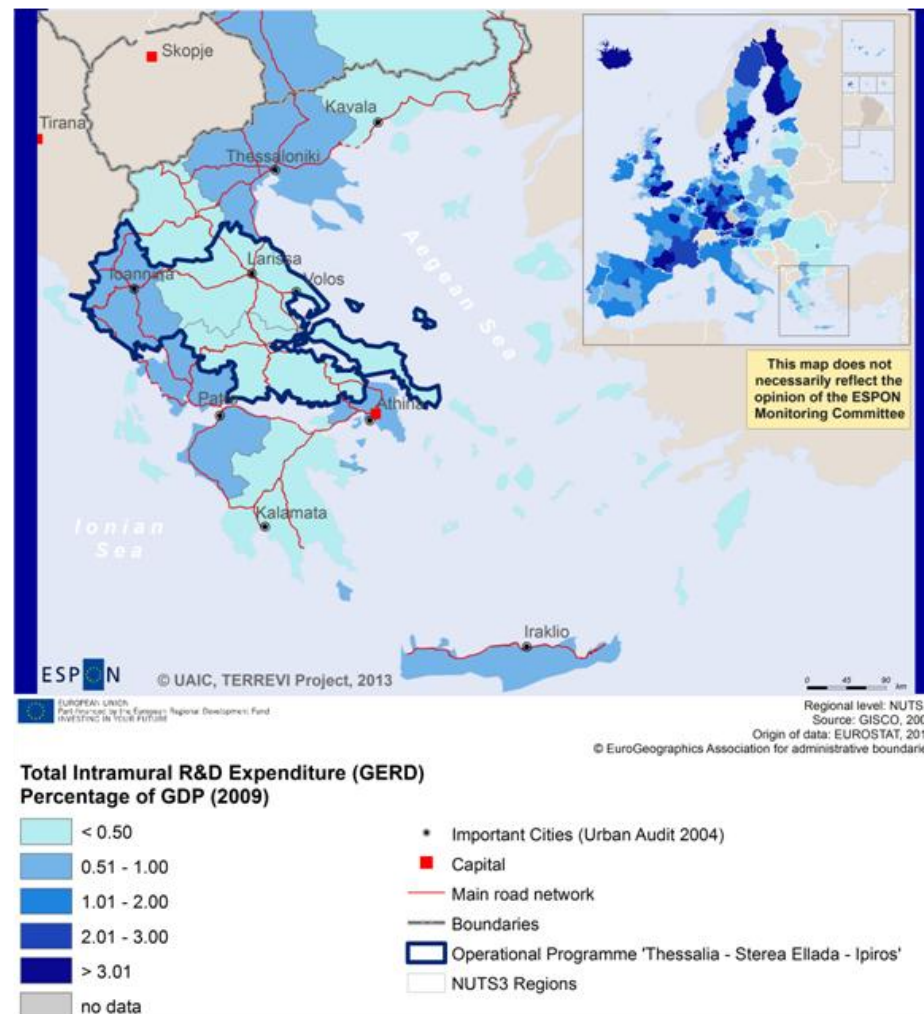
Overall, at national level, Eastern (Thessaly – Sterea Ellada – Epirus included) and Northern Greece have the lowest shares of R&D expenditure on GDP. But there are some differences also within the Thessaly – Sterea Ellada – Epirus region: with 0.64 %, only Epirus has a good national position for this indicator, while Thessaly and Sterea Ellada (with 0.28% and 0.17 % shares of R&D investments) are both under the national NUTS2 average value of 0.40%. At EU level, again, Greek regions have very low shares of R&D investments compared to the EU average (1.58%).

Some of the key findings of the ESPON KIT project indicate that this indicator should be used in conjunction with the territorial patterns of innovation (see Map 9) to elaborate appropriate innovation policies.

Regions characterised by low levels of R&D spending, like the case of Thessaly - Sterea Ellada – Epirus region (0.36 %), take little benefit from further investments in R&D to improve their innovation performance since their elasticity of innovation to R&D is nil, if not negative.

Therefore, it is strongly recommended that Thessaly - Sterea Ellada - Epirus region (especially Thessaly and Sterea Ellada) should couple its investments in R&D with efforts to assimilate and exploit knowledge created in other regions through inter-regional network-creation activities, stimulating the mobility of targeted knowledge workers, promoting technology transfer and enhancing the creative and managerial capabilities of its workforce towards translating internal and external knowledge into new specific commercial applications.

This map was originally proposed by the ESPON KIT project and has been re-produced in the ESPON TerrEvi project.



**Map 6 Total intramural R&D expenditure (GERD) as percentage of GDP**



## Employment in knowledge-intensive sectors

Knowledge-intensive services (KIS) comprise a broad set of very different activities. Innovation processes, structures, and performance differ notably among these services. They include (EUROSTAT):

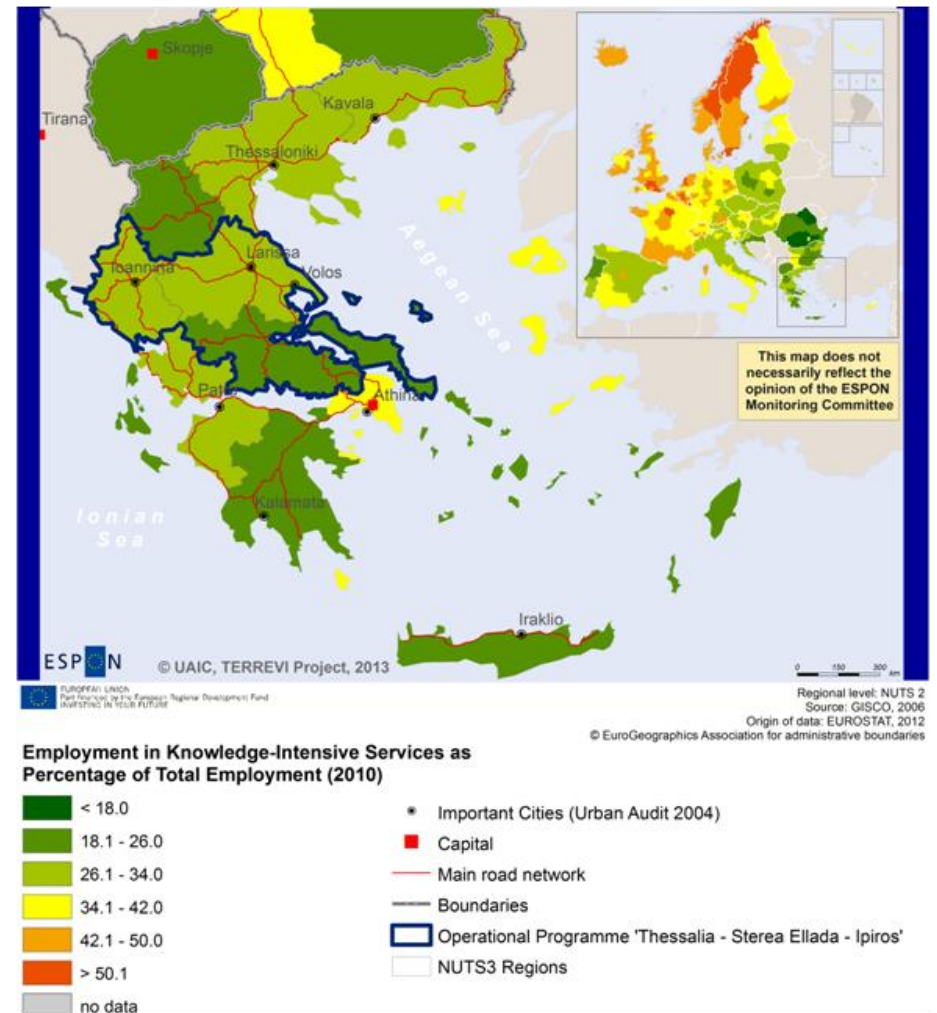
- (1) knowledge-intensive high-tech services: Post and Telecommunications; Computer and related activities; R&D;
- (2) knowledge-intensive market services (excluding financial intermediation and high-tech services): Water transport; Air transport; Real estate activities; Renting of machinery and equipment without operator, and of personal and household goods;
- (3) knowledge-intensive financial services: Financial intermediation, except insurance and pension funding; Insurance and pension funding, except compulsory social security; Activities auxiliary to financial intermediation;
- (4) other KIS: Education; Health and social work; Recreational, cultural and sporting activities.

A North-South gradient can be observed for the territorial variation in the share of employment in knowledge-intensive services. Northern regions (Ireland, the UK, France, as well as the Nordic countries and Germany) are better endowed for this type of human capital, while Southern and Eastern Europe (which includes Spain—except the Madrid region—and Portugal) have shares below the EU average. Capital regions do in general have a higher share of KIS than the surrounding regions. Still, infra-national differences occur, as a result of local combinations of factors.

National territorial variations of this indicator manifest in the case of Greece, with lower shares of knowledge employment on GDP in South-Eastern (Peloponnisos and Sterea Ellada or Kriti) and North-Western regions (Dytiki Makedonia). Still, with 26.89 % share of knowledge employment on GDP, the position of Thessaly - Sterea Ellada - Epirus is just under the national NUTS 2 average value (28.91%). Within this region, only Thessaly ranks higher than the national average, with a 29.32 % share of knowledge employment, and Epirus follows very close with 28.39 %.

At EU level, Greek regions concentrate among the lowest shares of knowledge employment (compared to an EU average value of 38.59 %).

This map was produced for the ESPON TerrEvi project.



**Map 7 Employment in knowledge-intensive sectors**

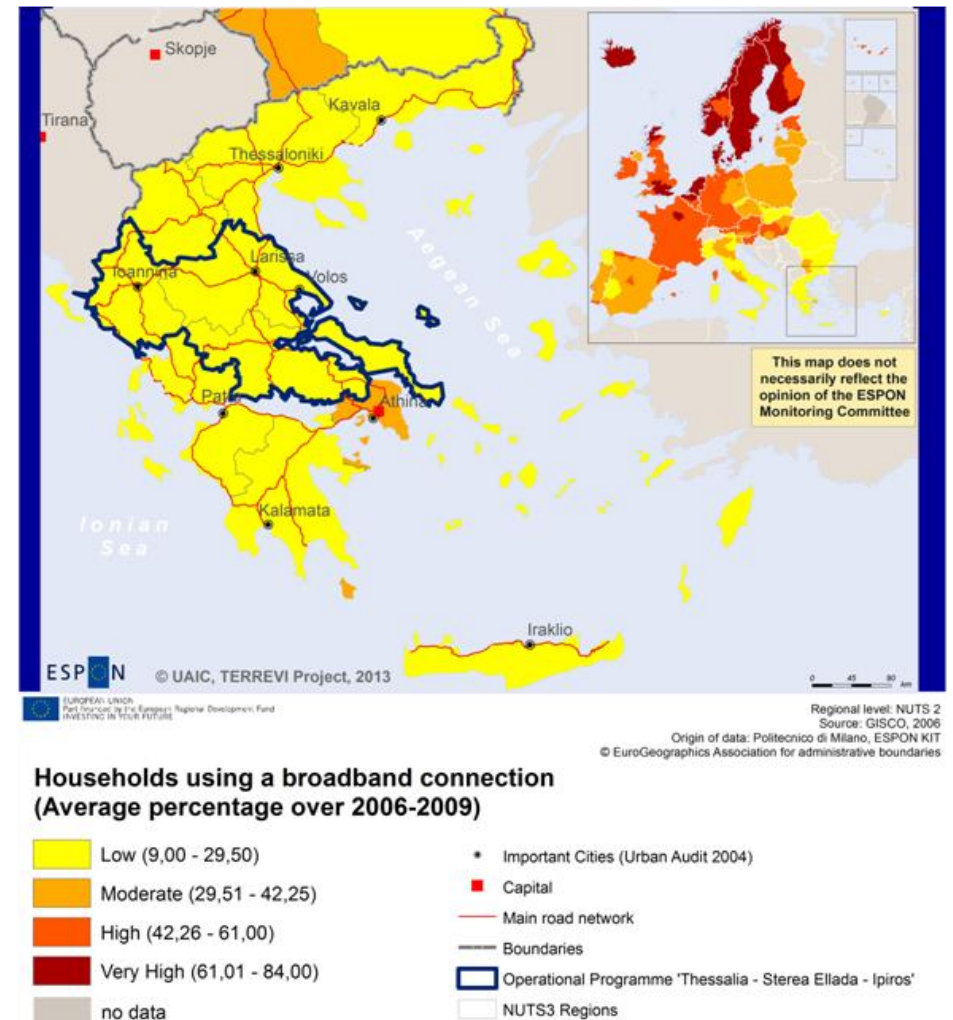
## Households using a high-speed Internet connection and individuals regularly using the Internet

One of the flagship initiatives for smart, sustainable and inclusive growth in the Europe 2020 Strategy concerns “a digital agenda for Europe”. The aim of this initiative is to create a single digital market based on fast and ultrafast Internet and interoperable applications. The aim for 2013 is to have high-speed Internet access for all. For 2020 the aim is that all have access to much higher Internet speeds. The indicator on households using a high-speed Internet connection, used to measure and show the level and trends of Internet usage in Europe is a way to measure the progress of this aim. The territorial distribution of this indicator captures the diffusion of an advanced Internet technology in everyday life and provides an interesting perspective on the social distribution of a new technology.

Data for the percentage of households using high-speed internet connection are collected in yearly surveys administrated by Eurostat. High-speed Internet connections are defined here as those Internet connections that have a capacity equal to or higher than 144 Kbits/s. For each of the years between 2006 and 2009 large data gaps exist. The map, therefore, presents a four year average of the 2006 to 2009 surveys. Regarding the “individuals regularly using the Internet”, the indicator is defined by the individuals using the internet at least once a week (Eurostat 2012).

Like almost all the Greek regions, the ROP area displays a low average of the high-speed internet connection (38.67 %), even if closer to the national NUTS 2 average (41.54 %); only Thessaly ranks better for this indicator, with 44 %.

The spatial (pen) insularity of Greece plays a negative role in the high-speed internet development. Furthermore, the large amount of the rural population and the lack of very big cities make it almost impossible for this region to improve its status in high-speed internet connection.



**Map 8 Territorial Dynamics in Europe – Trends in Internet Roll-out (ESPON, territorial Observation No. 4, April 2011)**

## **Territorial pattern of innovation**

Territorial patterns of innovation are made of a combination of territorial specificities (context conditions) that are behind different modes of performing the different phases of the innovation process.

Overall, a centre-periphery gradient can be observed for in the territorial patterns of innovation for the Greek territory, with: cluster 4 represented in Athens (Attiki) region, cluster 3 in Sterea Ellada and cluster 2 for the rest of Greece. Thus, a large part of the Thessaly - Sterea Ellada - Epirus region is included in cluster 2, that is, smart and creative diversification areas. This pattern characterises mainly Mediterranean countries, some EU-12 agglomerated regions in Slovakia and Slovenia, Poland and Czech Republic, and few regions in Finland and the UK.

The main attributes of this cluster of regions are:

- The knowledge and innovation variables show smaller values than the EU average but the capability indicator, which takes the highest mean value in this cluster. This suggests that the not negligible innovation activities carried out in regions belonging to this cluster mainly rely upon tacit knowledge embedded into human capital.
- Highly entrepreneurial (this variable takes the highest mean value in this cluster)
- Strong creativity and attractiveness (above EU average) that help to absorb and to adopt innovations developed elsewhere.

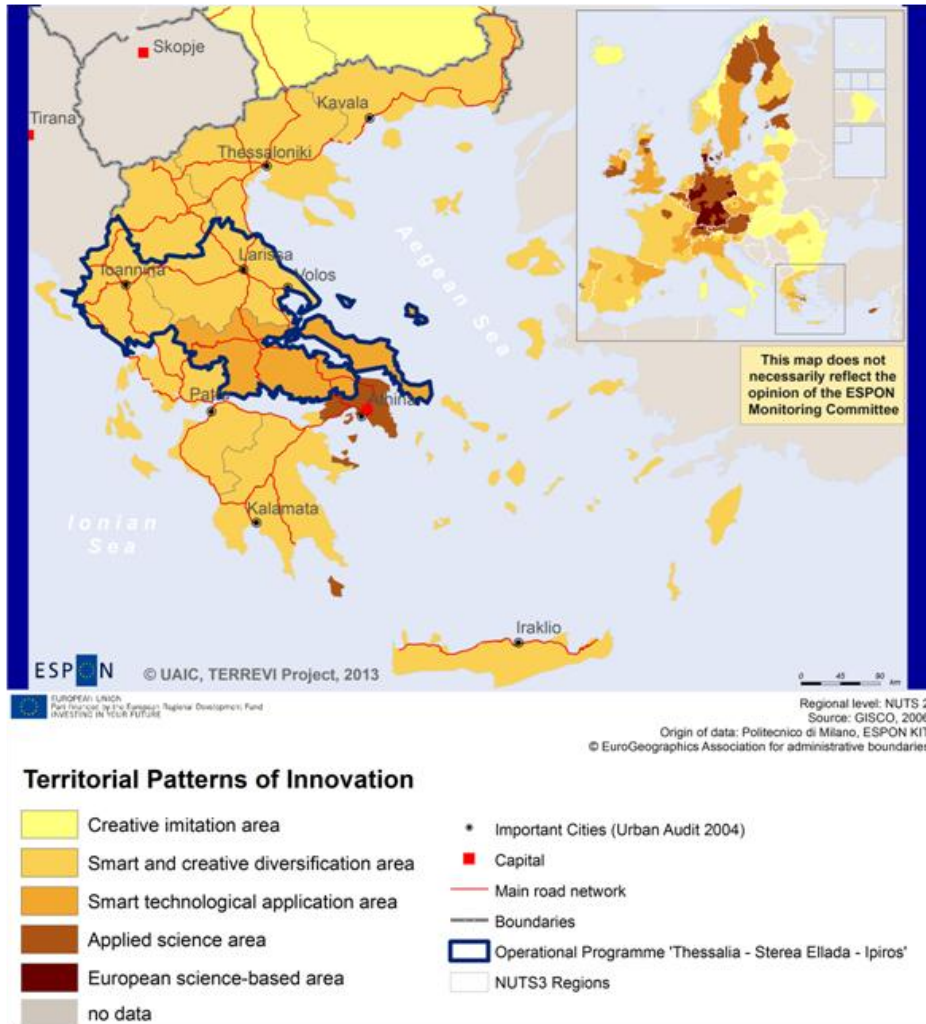
Therefore, the key advantages of these regions reside in their embedded human capital, while their entrepreneurial and creative attitudes can be wisely exploited in view of upgrading innovative strategies. Internal innovation capacity is highly fed by external knowledge, but the type of knowledge acquired from outside is neither basic nor applied formal knowledge; these regions highly *take advantages from external knowledge which is embedded in technical and organizational capabilities, in technicians and SMEs managers*. Thanks to the high degree of creativity present in the area, these regions are able to take advantage from specific capabilities of regions with similar sectoral profiles, and innovate in different products in different industries.

Only Sterea Ellada is included in cluster 3 - smart technological application areas, together with several mostly agglomerated regions of EU15, such as the northern part of Spain and Madrid, Northern Italy, the French Alpine regions, the Netherlands, Czech Republic, Sweden or the UK. The cluster presents the following main attributes:

- Compared to cluster 2, these areas have a significantly stronger knowledge orientation in terms of the generality of the knowledge produced as well as the capabilities and the human resources available (both scientific and highly educated human capital). Additionally, the level of collective learning and creativity are high, supporting the idea of a faster and more efficient recombination of knowledge into new products development. Clusters 2 and 3 also clear differ in the capacity to generate internal knowledge, much more associated to the smart technological application area, which, moreover, shows a stronger capacity to recombine internal and external knowledge via collective learning into superior innovative performance.
- They are oriented towards product innovation (more innovative than the EU average according to this dimension) but they are also among the weakest performers in terms of marketing and/or organizational innovation.
- They present good internal preconditions to translate external knowledge into innovation, thanks to high creativity. Thus, these regions should be able *to efficiently translate internal and external knowledge into new specific commercial applications*.

Overall, the smart technological application regions have their greatest advantage in the combination of a rather marked technological specialization mixed to a strong knowledge intensity, based both on endogenous knowledge capacity but also on the ability to screen, to select and to absorb external knowledge, and to locally recombine and adapt it via collective learning. This enables a substantial innovation performance, especially in terms of product innovation.

This map was produced for the ESPON KIT project.



**Map 9 Territorial Patterns of Innovation**

## Results and feedback from the workshop

In general, the indicators of smart growth provided by ESPON projects and presented within the evidence package are considered useful and fit for the purpose. Some aspects that lead to suggestions for improvement are:

- Dated or obsolete data. Relatively old data sets are difficult to set the baseline context especially during the planning of the new programming period. Although it is clear that data collection and harmonisation needs considerable time, some indicators date back to 2005 for Greece.
- Granularity (territorial or sectoral). Although programming is carried out at the NUTS2 level, it was deemed desirable to improve the granularity of some indicators at the territorial or sectoral level. Finally, an absence of indicators was noticed in terms of monitoring the entrepreneurial perspective of smart growth and two indicators were proposed for this purpose.

## Programming steps

Focussing on details concerning the five programming steps, the reviewed indicators—plus the two newly proposed—are relevant both for the needs analysis and the thematic concentration.

It is clear that the territorial patterns of innovation cannot be used either as a result indicator or for the purpose of project selection.

Finally, it is not clear how employment on knowledge-intensive sectors could inform a stakeholder consultation.

## Further suggestions or remarks

Intramural R&D expenditure as percentage of GDP	<ul style="list-style-type: none"><li>- The frequency of data collection for this indicator should improve since the latest measurement dates back to 2005.</li><li>- A breakdown of expenditure among government, higher education and enterprise is needed.</li></ul>
Employment in knowledge-intensive sectors	<ul style="list-style-type: none"><li>- Very generic to be useful. The granularity of data collection should be improved to cover NUTS3 regions.</li><li>- Should provide explicit coverage of employment in sectors addressed by the regional smart specialisation strategy.</li></ul>
Households using a high-speed Internet connection and individuals regularly using the Internet	<ul style="list-style-type: none"><li>- The granularity of data collection should be improved to cover NUTS3 regions and territorial typology (urban, semi-urban, rural, remote areas).</li></ul>
Territorial Patterns of Innovation	<ul style="list-style-type: none"><li>- Very helpful in terms of needs analysis to fine-tune regionally-focused policy development.</li></ul>
(NEW) Number of firms accessing seed / growth capital	<ul style="list-style-type: none"><li>- Access to non-bank capital is a key prerequisite enabling firm innovative activity, given the current macroeconomic environment.</li></ul>
(NEW) % of SMEs introducing marketing or organisational or business model innovations	<ul style="list-style-type: none"><li>- Given the recommendations of the territorial pattern of innovation, a CIS indicator that captures the non-technological innovative activity of firms is deemed essential.</li></ul>



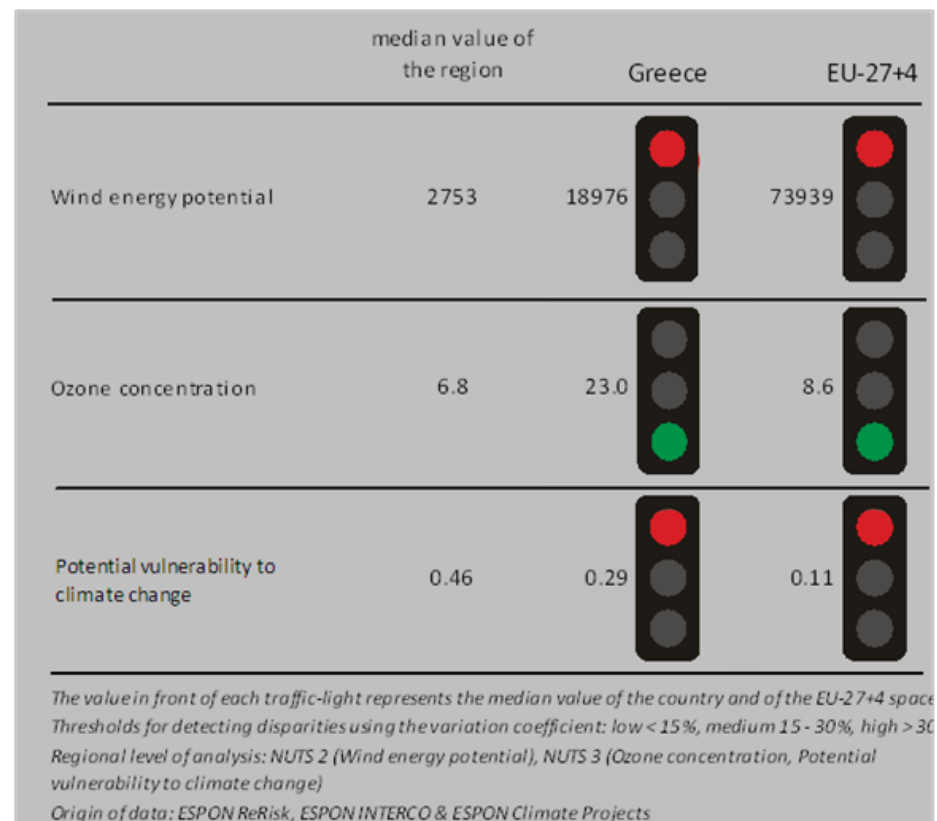
## 1.2 Sustainable growth

Sustainable growth refers to promoting a more resource efficient, greener and more competitive economy. Within the Europe 2020 Strategy it means e.g. building a more competitive low-carbon economy that makes efficient, sustainable use of resources, protecting the environment, reducing emissions and preventing biodiversity loss, capitalising on Europe's leadership in developing new green technologies and production methods, and introducing efficient smart electricity grids. In the framework of the Europe 2020 Strategy it means focus on competitiveness, resource efficiency, climate change and biodiversity.

The EU's 2020 sustainable growth headline targets are neatly expressed in the "20/20/20" formula. It stands for a 20% reduction in greenhouse gas emissions compared to 1990 levels; plus 20% of our energy to come from renewable resources, and finally a 20% increase in energy efficiency. Each country then sets its own targets within this frame.

The Europe 2020 Strategy sees sustainable growth not purely as environmental protection. Rather the aim is to look for ways that growth can be both in harmony with the environment, but also less vulnerable in the future to the kind of economic crises that have so damaged economies since 2007/2008. We need to understand, and act upon, the ecological and environmental drivers of competitiveness and cohesion.

The ROP's values for the sustainable growth indicators 'wind energy potential' and 'potential vulnerability to climate change' are worse compared to both, Greece and the EU-27+4. On the other hand, in terms of 'Ozone Concentration' the ROP is outperforming Greece and the EU-27+4.



**Figure 3: ROP compared to Greece and EU-27+4**

## Wind energy potential

The use of wind energy potential could be one of the cornerstones in building a competitive low-carbon economy in the EU.

This indicator identifies those regions in Europe, which have the highest potential for producing electricity from on-shore wind power. However, the European Environmental Agency [EEA 2009] has introduced some restrictions when calculating the maximum potential, mainly due to environmental reasons. ReRisk has followed these recommendations, using the “restrained” wind potential for the regional analysis. The EEA explains that the report provides an analysis of local wind resources across Europe, primarily based on wind speed data. Those findings are then used along with projections of wind turbine technology development to calculate the maximum amount of wind energy that could be generated (the technical potential) in 2020 and 2030.

Evidently, raw potential can only be one part of the analysis. Policymakers also need to know about the wind energy potential in practical terms. Accordingly other factors beside the raw potential should be taken into account. . For that reason, the subsequent analysis uses various proxies to convey both the (socially and environmentally) 'constrained potential' for wind energy development and the 'economically competitive potential'.

To calculate 'constrained potential', Natura 2000 and other protected areas are excluded from the calculations of wind energy potentials. Although it is not illegal to site wind farms on Natura 2000 sites, they provide a useful proxy for the restrictions implied by biodiversity protection”.

Wind power potential is measured in m/s, but the ReRisk indicator also accounts for the area size of the regions (km<sup>2</sup>).



### Wind Power Potentials

(Measured in km/s and considering the area of NUTS2 regions in km<sup>2</sup>)



**Map 10 Wind power potential (m/s/km<sup>2</sup>)**

Map 10 highlights the regions with the greatest wind power potential, with high wind speeds and large area size. The Thessaly - Sterea Ellada - Epirus area scores lowest wind power potential integrating seamlessly into the land.

The development and utilisation of renewable energy technologies is a top priority in Europe in 2020. Although considerable economic growth has prevailed in Europe, total energy demand has declined considerably, with CO<sub>2</sub> emission reductions of more than 40% compared to 1990 levels. Energy production from renewable sources has grown most extensively, while the demand of coal and oil has been almost excluded in the industrial, residential and energy sectors. The demand of natural gas has shown a modest decrease while the phase-out programmes on nuclear reactors have continued resulting in a progressive reduction of energy supply from this source. Nevertheless, the transport sector has become notably less energy intensive and oil dependant. Europe shows now a new balance between centralised vs. decentralised sources; with particular emphasis on integration of energy systems adapted according to different territorial needs and characteristics as well as potential hazards, among others resource depletion and exposure to extreme weather. The large renewable energy systems mainly solar-thermal, wind and wave; are located in places away from urban areas, a development which has been accompanied by the enlargement and modernization of the power grid. Italy relies largely on imports of energy (accounting for approximately 85% of the consumption in the past five years) and the use of renewable energy sources (RES) is limited (6.8% of total energy consumption and 16.6% of electricity production in 2008). Energy intensity in Italy (energy used relative to GDP) is around 85% of the EU-27 average, lower than in Germany and France.

At the regional level, the Thessaly – Sterea Ellada - Epirus OP is co-financing energy saving pilot projects in public buildings using geothermal energy (with a budget: of EUR 2 million). Financial support from the ERDF and Cohesion Fund is directed at all types of renewable energy sources. The largest share of funding is earmarked for „hydroelectric, geothermal and other sources“ (EUR 148 million) followed by wind power (EUR 81.8 million). However, calls launched so far mainly concern solar energy and use of geothermal sources. A large-scale project for connecting several Aegean tourist islands with

the mainland through the development of RES plants with a total capacity of 150-200 MW is expected to be included in the “Competitiveness and Entrepreneurship” OP. Establishing a connection with Milos is in order to exploit the geothermal potential of the island.

A major issue of concern is the frequent hostility of local communities to the installation of wind mills or other RES. There is a strong need for more awareness raising campaigns in order to reduce the waves of protest against the development of renewable energies.

This map was produced for the ESPON ReRisk project.

## Ozone concentration

The INTERCO ESPON project proposed *the ozone concentration* as one of the indicators for territorial cohesion. The indicator was calculated using the number of days with ground-level ozone concentration above 120 µg/m<sup>3</sup> and population-weighted aggregated value at NUTS 3 level.

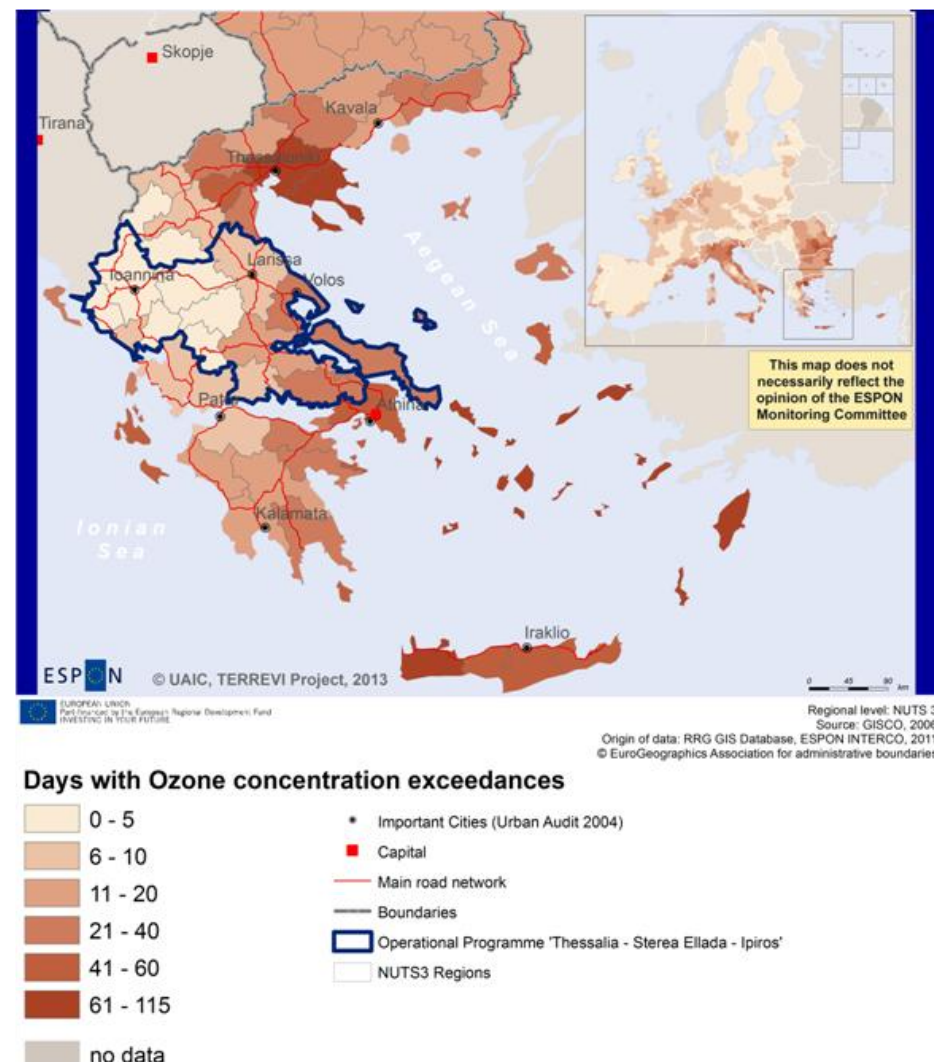
The analysis revealed that the number of days with concentration exceedances is quite low for most European regions with some exceptions, reflecting measures already implemented over the last decade for improving the air quality. The conclusion is that from a territorial cohesion perspective, the indicator on ozone concentration already presents the smallest spatial disparities, followed by PM10, while soil sealing still yield very high disparities.

Air pollution, through PM10 and ozone concentration are very representative of the incoherent policies between local levels when they are managed by administrative bounds though pollution meets no such circulation constraints and have a tremendous impact on public health. (...) to be effective the policies and regulation should be coherent in all territories. For many countries the general number of days with ozone concentration exceedances with less or equal five days is rather low (Scandinavia, Ireland, Spain, Baltic States, Poland).

The highest number of exceedances occurs frequently in the Mediterranean region, the lowest in northern Europe (Figure 3.1.).

Differences in the distribution of ozone precursors emission sources, the chemical composition of the air, and climatic conditions along the north-south and east-west gradients in Europe result in considerable regional differences in summer ozone concentrations

This map was produced for the ESPON INTERCO project.



**Map 11 Ozone concentration exceedances**



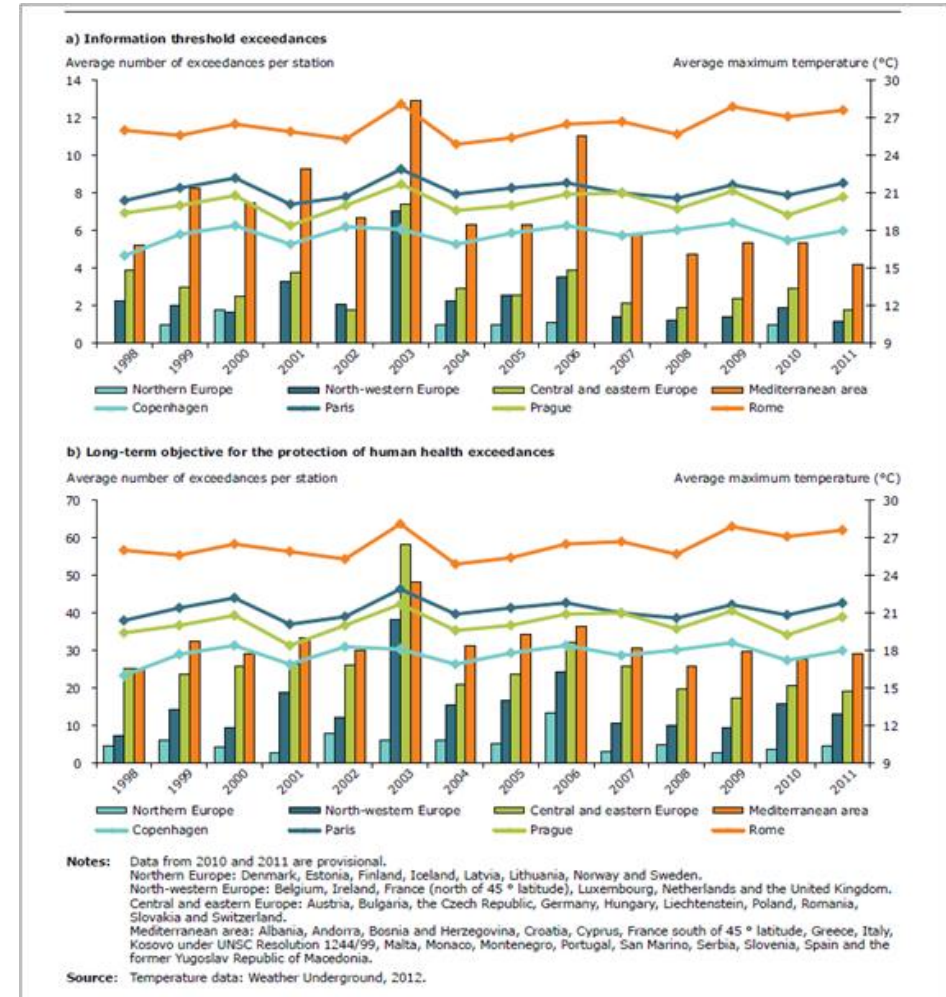
Ozone concentrations in Europe are also influenced by emissions in other northern hemispheric countries and by poorly regulated sectors such as international shipping and aviation. Thus, ozone pollution can no longer be considered a local air quality (AQ) issue — it is a hemispheric and global problem. Ozone levels become particularly high in regions where considerable ozone precursor emissions combine with stagnant meteorological conditions during the summer, when high insolation and temperatures occur.

Ozone concentrations in urban areas with high NO<sub>x</sub> emissions are generally lower than in the countryside.

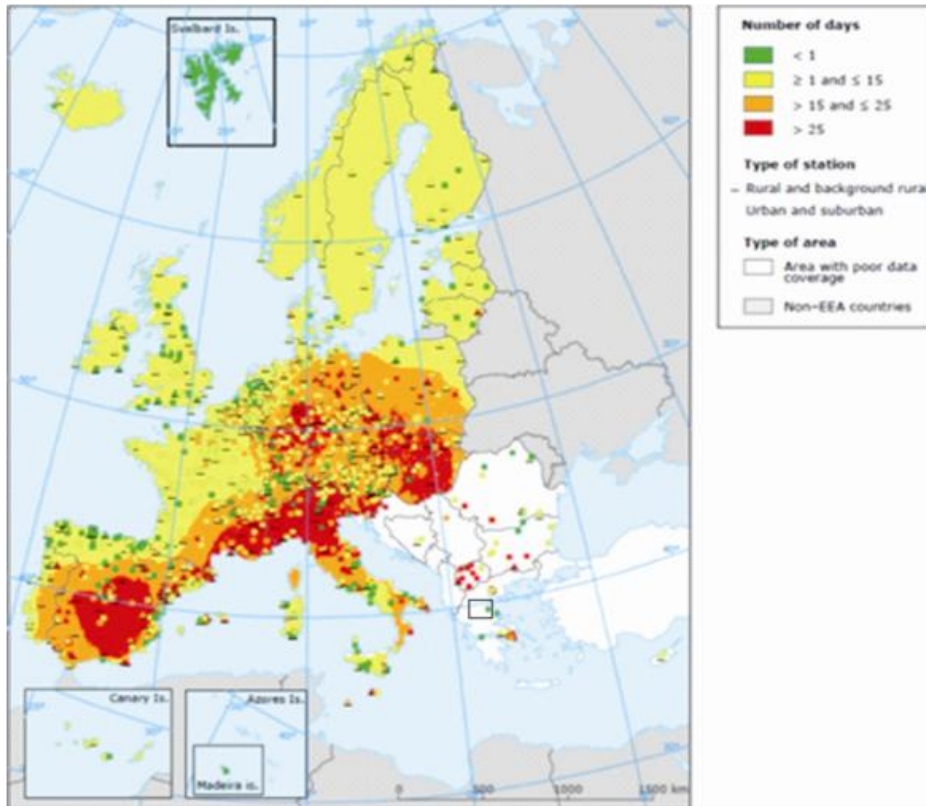
Ozone concentrations become particularly high in summertime in regions with high emissions from traffic and industry.

Located in the Mediterranean basin, the Thessaly – Sterea Ellada - Epirus region recorded values of ozone are (annual average of 12.5 days with exceedances of LTO) far above the European average (8,5 days exceeding the LTO).

Besides the north-south gradient of ozone concentrations given by the climate variability, in the Thessaly – Sterea Ellada - Epirus region it's possible to observe also one west-east (Figure 75): the lowest values are found in north-west (2,5 days in Ioannina) while the highest in the Southeast (37,8 days- Magnisia, 37,6 days- Evvoia). The situation can be explained by the intensity of human activities: the East side is located between the first two urban areas of Greece (*Athens and Thessaloniki*, the latter being the agglomeration with the highest values of ozone in Europe) and is crossed by the main transport axes. Furthermore, the shipping's intensity is higher than in the Western part.



**Figure 4: Regional average number of exceedances during summer, per station for stations that reported at least one exceedance and average maximum daily temperature in selected cities**



**Map 12 Number of days on which ozone concentrations exceeded the long-term objective for the protection of human health (EEA, 2011)**

The spatial distribution of ozone exceedances throughout Europe is generally similar from year to year (Figure 3.1).

At the current level of precursor emissions, the year-to-year differences in the occurrence of ozone threshold exceedances are induced substantially by meteorological variations (EMEP, 2005).

For ozone (O<sub>3</sub>) there was considerable variation over the years. During most years, 20-25% of the urban population was exposed to concentrations above the target value. In 2003, a year with extremely high ozone concentrations due to specific meteorological

conditions, the exposure to high concentrations increased to about 60%.

Despite the progress made in controlling local air pollution, urban areas show increasing signs of environmental stress and air quality is one of the major concerns. PM<sub>10</sub>, ozone NO<sub>2</sub> and SO<sub>2</sub> all remain very significant health concerns for many urban residents in Europe. (...) Any actual reductions of emissions have resulted from implementing different policies targeted at specific point sources (e.g. industries), changing fuel types, or regulations for best technologies. However, emissions from transport are still increasing.

## ESPON ARTS - Territorial impact of directive

ESPON ARTS aims to develop a tool by which to analyse the impact of EU legislation that takes the sensitivity of regions into account.

### *Methodology*

The standardised TIA<sup>3</sup> quick check is done in nine steps using expert knowledge and a set of standardised indicators and types of regions.

1. The conceptual model - it is necessary to detect the potential effects of a policy on territorial development by translating the text into a conceptual model and drawing out the cause/effect relationships (the intervention logic).
2. Branching - different cause/effect chains can be analysed separately.
3. Regional exposure - exposed regions are selected using typologies (e.g. rural/urban, central/peripheral, advanced/lagging, high/low presence of certain sectors).
4. Exposure matrix - 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. To do this, the project produced a Directive-Exposure Matrix (DEM) Excel tool which allows data to be entered according to each field. For each field, the level of exposure is defined by expert judgement.
5. Territorial Impact Matrix, TIM - 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.
6. Plausibility and quality check - the results calculated in the territorial impact matrix should then be checked for plausibility.
7. Mapping the results - this can be followed by another plausibility check.
8. Adaptive capacity discussion - what are the policy implications.
9. Write-up - a short report can be drawn up to serve as the first "quick check" of territorial impact.

### *Directives on the promotion of clean and energy-efficient road transport vehicles*

This directive aims at the introduction of specific measures in the transport sector to address energy use and greenhouse gas emissions with the ultimate goal of better integration of transport and energy policies. Specifically, this directive aims to stimulate the market for clean and energy-efficient road transport vehicles, namely standardised vehicles produced in large quantities such as passenger cars, coaches and trucks. Special attention is paid to the procurement of public-transport services. To this end, the directive includes a list of criteria to be met by vehicles purchased in accordance to public procurement rules. These criteria pertain to pollutants and lifetime energy and environmental impacts.

The directive impacts are expected to follow two distinctive routes. On the one hand, impacts are channelled on the demand-side through incentives for purchasing cleaner and more efficient vehicles. This is expected to lead to positive impacts on the natural environment in terms of lower emissions and pollutants in the air as well as reduced fossil-fuel consumption (*branch a*).

On the other hand, impacts are channelled on the supply side through investment in and production of cleaner and more efficient vehicles. This is expected to influence employment and GDP and stimulate innovation in cleaner and green technologies.

Various environmental exposure fields are hit in branch a of this directive, namely reduction of CO<sub>2</sub> emissions and the level of pollutants in air (PM10). This is linked to a moderate reduction on the dependency of fossil-fuel consumption. The impact is expected to be moderate since the directive does not aim at full substitution of the vehicle fleet, but addresses fleet renewal. Also vehicles can be considered as a substantial although not exhaustive component of CO<sub>2</sub> emissions.

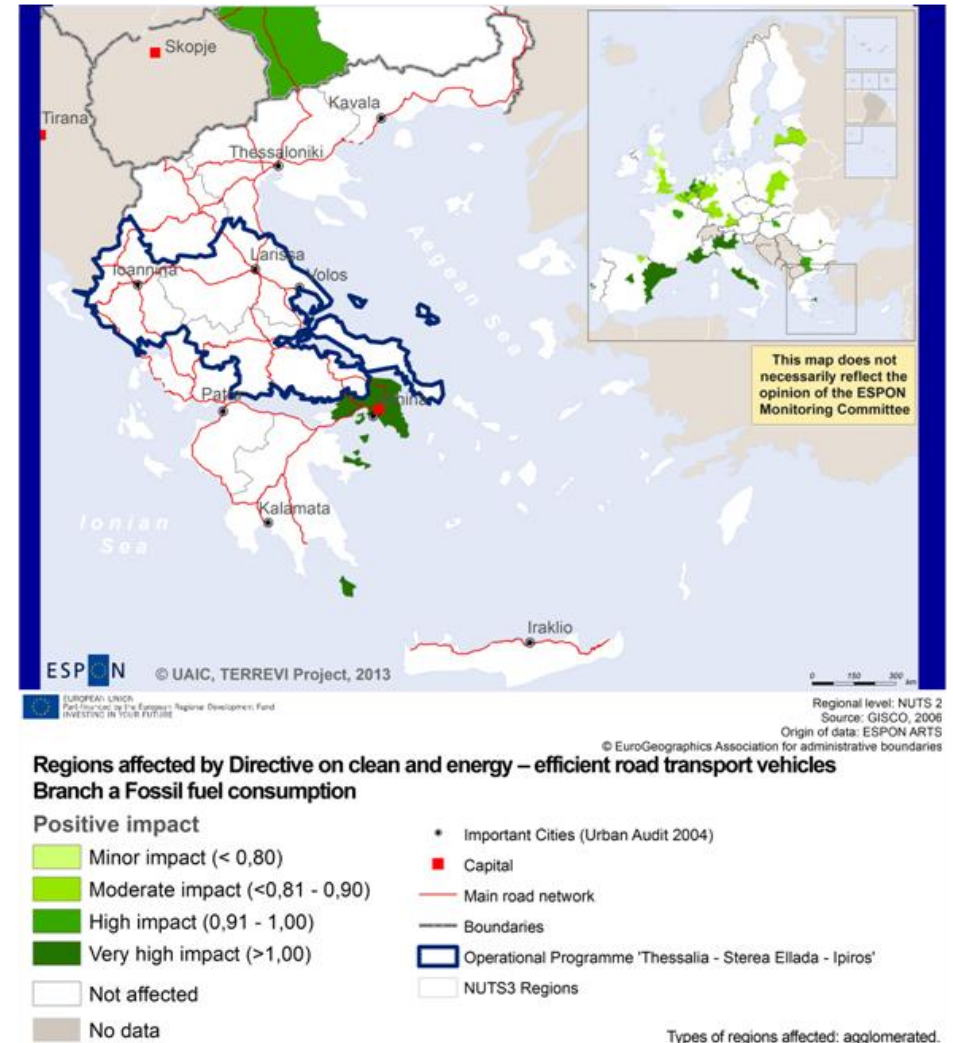
We expect that the region's most affected by this directive are agglomerated regions in the first case, and regions with a considerable share of employment in vehicle production (identified as those regions falling in the top 25 percentile of the distribution of employment in vehicles production over total employment in manufacturing) in the second case. The rationale behind this

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<sup>3</sup> TIA – Territorial Impact Assessment

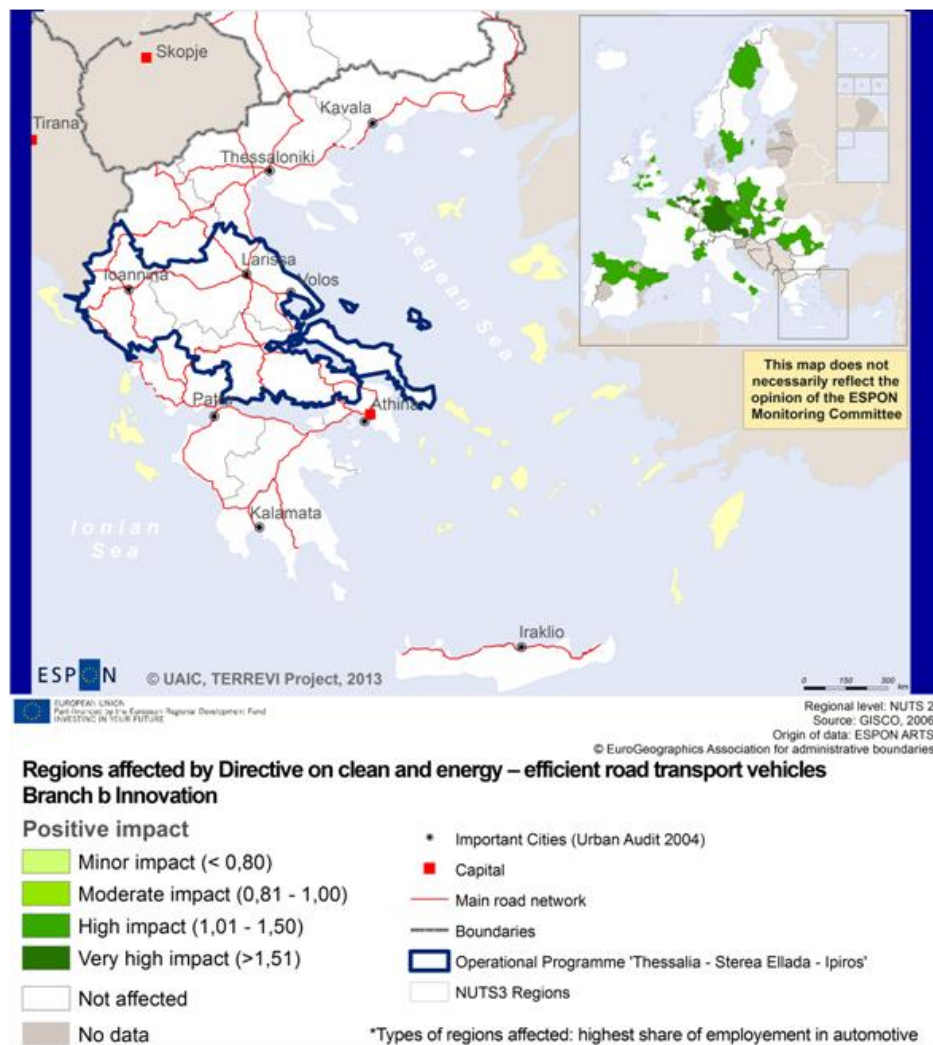
expectation is as follows. In the first case, benefits from the directive will be particularly high in regions that are more congested and polluted, typically agglomerated ones. These regions cover mainly capital cities and highly densely populated regions in central Europe.

Conversely, benefits stemming from the implementation of this directive will mainly affect regions that are highly specialised in vehicle production. These may experience an increase in production and employment. These regions are also concentrated in central Europe, with some hotspots in Italy (namely Piemonte, Abruzzo, Molise and Basilicata), Spain (Galicia, Pais Vasco, Aragón, Castilla y León, Cataluña), France (Basse-Normandie, Nord-Pas-de-Calais, Franche-Comté) and British and Swedish regions in northern Europe. Also several eastern Europe regions look potentially affected by this directive especially in Slovakia, Poland, the Czech Republic and Hungary. The following map depicts the affected regions.



**Map 13 Regions affected by Directive**





**Map 14 Regions affected by Directive on clean energy – fossil fuel**

Lastly, impact on fossil fuel consumption (F34) will be again positive and minor but a larger number of regions seem to be moderately hit in Italy (Liguria, Lombardia, Veneto, Lazio, Campania), Spain (Aragón, Comunidad de Madrid, Cataluña, Comunidad Valenciana), and other Mediterranean regions (Provence-Alpes-Côte d'Azur, Attiki, Malta, Lisboa).

These maps were produced for the ESPON ARTS project.

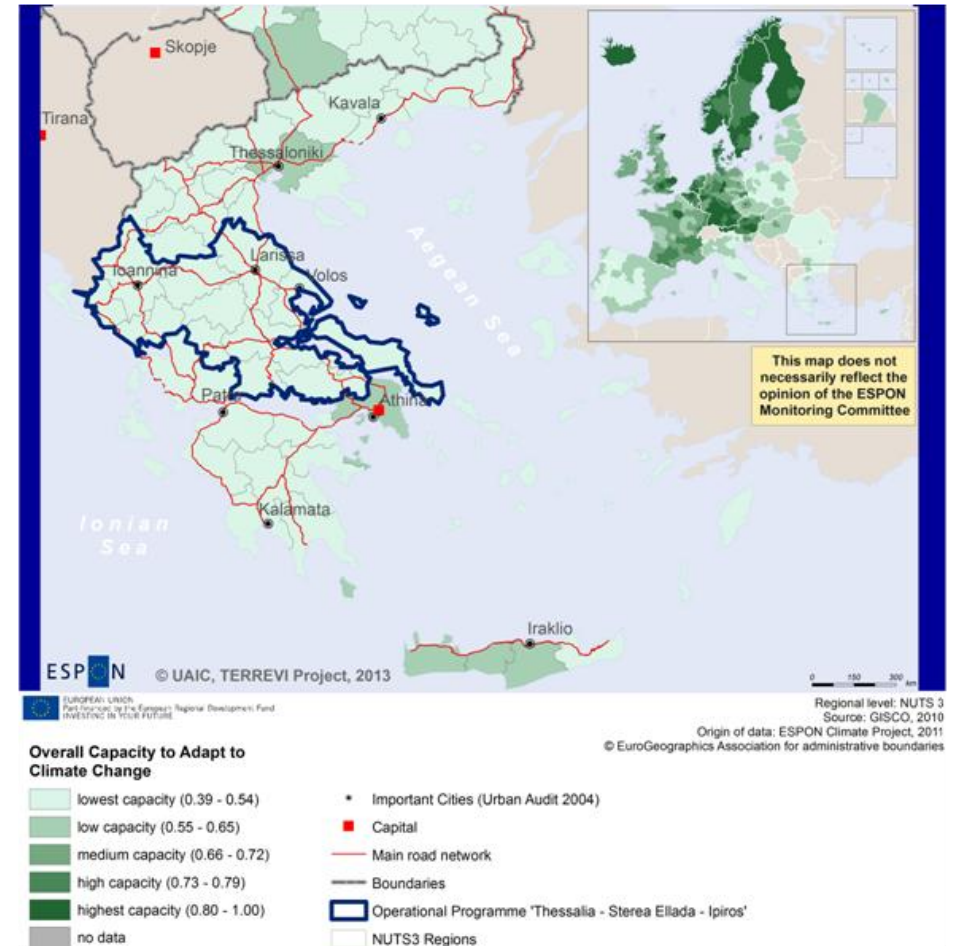
## Combined adaptive capacity to climate change

Adaptive capacity (adaptability) to climate change indicates the ability or potential of a system to respond successfully to climate change and variability, and includes adjustments in behaviour, resources and technologies.

The adaptive capacity in regard to climate change takes into account the economic, socio-cultural, institutional and technological ability of a region to adapt to the impacts of a changing regional climate. This could mean preventing or moderating potential damages, but also taking advantage of new opportunities opened up by climatic changes. A total of 15 indicators were developed and then aggregated to reflect on the five adaptation dimensions of knowledge and awareness, technology, infrastructure, institutions and economic resources. The overall adaptive capacity was again determined by weighting and then combining these dimensions.

The map of adaptive capacity shows the capacity to adapt to climate change of European regions across the continent. Overall, there are variations in adaptive capacity between countries and within countries. At the European level, there are several trends that can be seen from the map. Firstly, in analysing the maps, a difference in adaptive capacity can be distinguished between Northern Europe and Southern Europe. Overall, the Nordic countries have higher capacity than most of the Southern European countries. Most of Western and Central Europe have a relatively high capacity when one considers the European average. In comparison, Eastern European countries, on the whole, have lower capacity than Western or Northern European countries. Overall, the countries around the Mediterranean appear to have lower capacity than the countries around the Baltic Sea region. Similar trends can also be identified at the country and regional level throughout Europe. Firstly, it can be noted that in all countries, capital city regions, overall, have higher capacity than most regions within that country. This is also true, even in cases where the country itself as a whole has lower capacity.

This map was originally proposed by the ESPON CLIMATE project and has been re-produced in the ESPON TerrEvi project.



Map 15 Overall adaptive capacity to climate change

The regional variation within countries also shows how, within some countries, existing regional patterns are reflected in the way that adaptive capacity is spread across the countries. North-South or East-West divisions can be seen in the maps in that they reflect the overall development patterns. Those regions, which are less developed, can also be seen to have less adaptive capacity.

It is also possible to analyse the adaptive capacity of European regions in terms of the dimensions of adaptive capacity, hence focusing on awareness, ability and action. In terms of Northern Europe, where aggregated adaptive capacity is generally high, differences between regions can be seen in all three different dimensions. For example, Sweden scores high on awareness and action but has lower ability to adapt. Finland on the other hand has high ability but scores lower on awareness and action. Similar trends can be observed in Western and Central Europe also. Ability and action are high but awareness is lower in comparison to the other two dimensions.

Capital cities also emerge as having high adaptive capacity from the aggregated map.

In accordance with the general trends described above, Thessaly – Sterea Ellada – Epirus region's adaptive capacity to climate change is low and efforts to enhance it are needed. There is no territorial variation within the region. This applies to the entire national territory, the only exception being Greece's NUTS 3 regions corresponding to the most developed urban centres: Athens and Thessaloniki.

It is also useful to compare the results of this analysis with results from other research efforts that have mapped adaptive capacity on a European scale. The ATEAM produced adaptive capacity maps and published them in their final report (Schröter et al., 2004). Overall, the results of this ESPON study and the ATEAM study show similar trends. This is partially because the construction of the indicators is similar with this ESPON study utilizing similar indicators as the ATEAM. Both maps show that Northern parts of Europe have higher capacity than Southern Europe. The ATEAM maps did not calculate adaptive capacity of Eastern European countries whereas this study does. The ATEAM project also projected changes of adaptive capacity into the future which was not done in this project. The ATEAM does

not explain their methodology, so it is difficult to comment on how this was done. For more details on adaptive capacities, see also ATEAM Adaptive capacity maps.

## Potential vulnerability to climate change

The IPCC defines vulnerability as “the degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate variation to which a system is exposed, its sensitivity, and its adaptive capacity (IPCC 2007c).

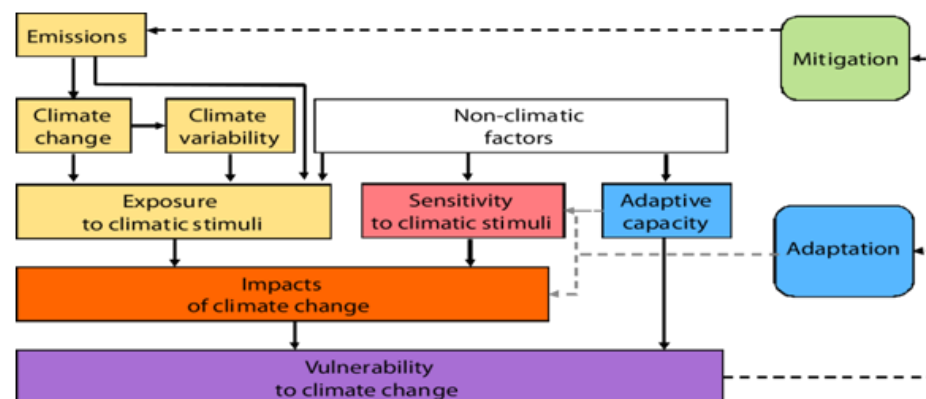
### Methodology

In its methodology IPCC makes use of the so-called *exposure* analysis focused on the climatic changes. It also applied existing projections on climate change and climate variability from the CCLM climate model. Using the IPCC climate scenario A1B (Nakicenovic et al. 2000) the ESPON climate project aggregated data for two time periods (1961-1990 and 2071-2100) for eight climate stimuli. River flooding and sea level rise were added as two immediate ‘triggered effects’ of these climate stimuli.

Each region was then assessed in regard to its climate change *sensitivity*. For each sensitivity dimension (physical, environmental, social, economic and cultural) several sensitivity indicators were developed. Exposure and sensitivity were then combined to determine the *potential impacts* of climate change. For determining impacts each sensitivity indicator was related to one or more specific exposure indicator(s). After determining the individual impacts, all impacts of one dimension were aggregated. The impact values of the five sensitivity dimensions were finally combined to one overall sensitivity value. This combination was calculated on the basis of relative weights, which were determined through a Delphi survey among the members of the ESPON Monitoring Committee.

A third major component of the methodology is the assessment of *adaptive capacity* in regard to climate change. Several indicators were developed for each of the five major determinants of adaptive capacity. The individual indicators were subsequently combined for each determined and finally aggregated to an overall adaptive capacity. This aggregation was again conducted on the basis of the Delphi survey results.

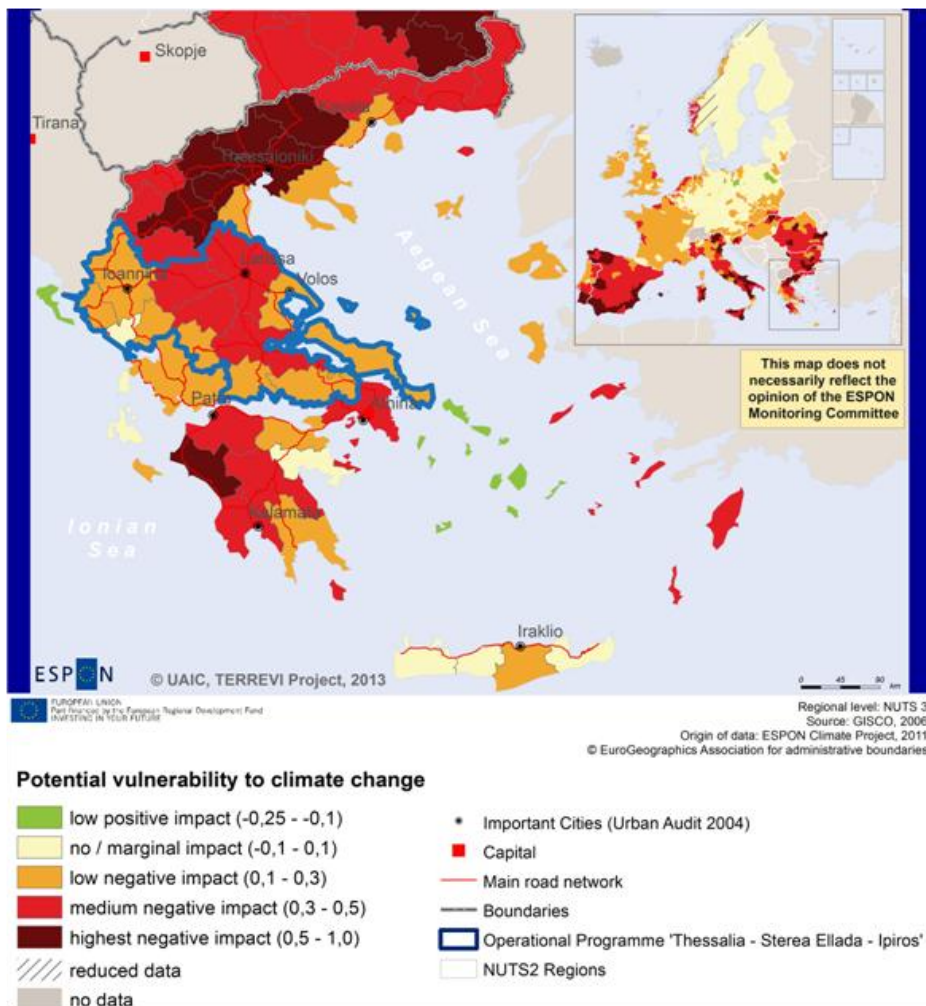
To determine the overall *vulnerability* of regions to climate change the impacts and the adaptive capacity to climate change were combined for each region.



**Figure 5: ESPON Climate Change research framework**

The potential vulnerability of Europe’s regions to climate change looks slightly different compared with the map on aggregate impact: the south-north gradient which was already visible on the aggregate impact map is now much more obvious. This is due to the considerable adaptive capacity of Scandinavia and Western European countries which lowers the potential impact projected for these regions. However, this is somehow astonishing: particularly those countries which may expect a medium to high increase in impact seem to be less able to adapt than others for which the severity of the problem is less visible. In consequence, a medium to high increase of vulnerability may expect in the Mediterranean region, but also in South-East Europe.

This scenario for the future runs counter to territorial cohesion. Climate change would trigger a deepening of the existing socio-economic imbalances between the core of Europe and its Southern and South-eastern periphery. Particularly the East of Europe is also affected by demographic changes (in particular outmigration and ageing; see the following section), which may lead to an additional increase in sensitivity and therefore impact.



**Map 16 Potential vulnerability to climate change**

Although Greece is characterized by medium or high increase in terms of vulnerability to climate change Thessaly - Sterea Ellada - Epirus' vulnerability is low to medium; the highest values inside the region are registered in its more urbanised western part. Overall, Thessaly - Sterea Ellada - Epirus region has considerable adaptive capacity which lowers the potential impact.



## Coverage rate of municipal waste collection

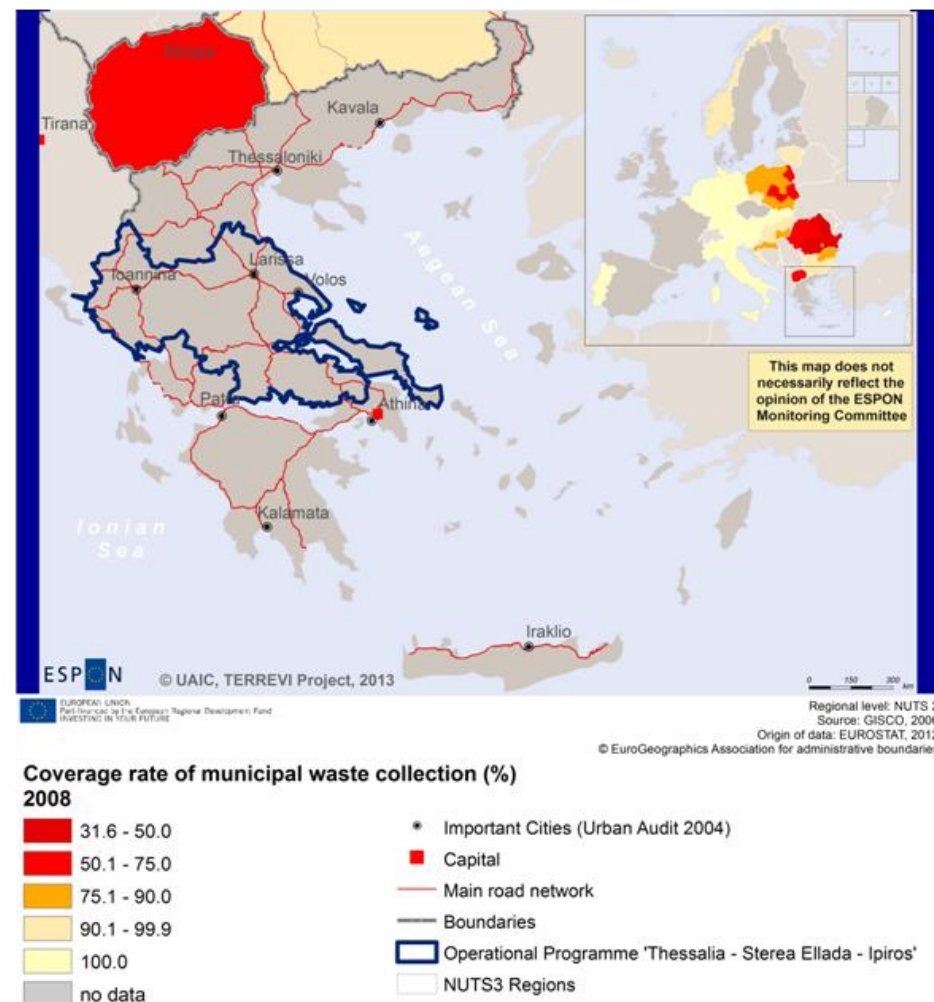
Coverage rate of municipal waste collection refers to the population served by municipal waste collection. The aim of the indicator is to measure the effectiveness of the municipal waste collection systems.

In accordance with Article 3(9) of the WFD, waste collection is an integral part of waste management (the proper recovery and disposal of MSW can only be achieved by appropriate collection of waste.), i.e. Member States are required to comply with the EU provisions and to provide for the establishment of appropriate waste collection infrastructure.

In this context, the collection coverage is a crucial indicator to evaluate whether the waste collection infrastructure in place is adequate. In some Member States not the entire population has access to sufficient waste collection services. In particular, this concerns rural and remote areas which are not provided with such services. If waste is not collected properly, and no 100 % collection coverage is reached, such waste will most likely be disposed of without environmental controls, illegally buried, dumped, burned or stored. Deficits in collection of waste result in uncontrolled abandoning of waste, unused resources and severe impacts on the environment.

There are no available statistical data of this indicator for the Thessaly – Sterea Ellada - Epirus region. However, we mention that from the results of the European Commission report from July 2012, evaluating the states' waste management performance, Greece is included in the group of the states with the largest implementation gaps as regards the key elements essential for good waste management.

This map was produced for the ESPON TerrEvi project.



**Map 17 Coverage rate of municipal waste collection**

The screening showed three groups differing in performance as follows:

A first group includes the ten Member States that are performing above average achieving between 31 and 39 points. The group includes AT, BE, DK, DE, FI, FR, LU, NL, SE and UK. The Member States are above average performing as regards the majority of key elements essential for good waste management – especially with regard to waste treatment, status and development of recycling of municipal waste, existence of restrictions or bans and total typical charges for land filling municipal waste. All of these countries provide for complete collection coverage, sufficient treatment capacity and fulfilment of the targets related to biodegradable waste going to landfills. Further improvements in these Member States could include the extended use of pay-as-you-throw systems which for most only reach regional coverage. Minor deficits were identified with regard to the planning of future capacities and the compliance with technical requirements. This group of MS especially faces problems with decoupling waste production from growing consumption. Furthermore, not all MS of this group have already implemented waste prevention in environmental policies.

The second group consists of five average performing Member States achieving an overall score between 19 and 25 points, consisting of ES, HU, IE, PT and SI. This group of Member States shows fairly deficits: not all households are connected to waste collection, planning of future treatment capacity is not sufficient and waste prevention yet is not on the political agenda. Furthermore, these MS show below average performance in the increase of recycling of municipal waste, treatment of municipal waste in accordance with the waste hierarchy, and the MS do not make sufficient use of economic and legal instruments to move waste up the hierarchy. Two MS of this group still need to achieve full compliance of their non-hazardous waste landfills, including fulfilment of the targets related to biodegradable waste going to landfills. The deficits in waste management are reflected by ongoing infringement procedures and court cases for almost all MS of this group.

The third group includes the twelve Member States with the largest implementation gaps achieving an overall score between 3 and 18, including BG, CY, CZ, EE, GR, IT, LT, LV, MT, PL, RO and SK. This

group of Members States shows severe deficits within all criteria including waste prevention policies (only PL has included a WPP chapter in the current WMP); the below average performance is also reflected in the lack of applying economic and regulatory instruments to divert waste from landfill and insufficient adaptation of existing infrastructure to EU requirements. These Member States are highly depending on land filling, other treatment options are rarely in place. Land filling is generally not restricted or banned for municipal waste and therefore still a large amount of biodegradable waste is disposed of in landfills. In half of these MS not all households are served by municipal waste collection. Four MS have not increased at all the recycling of municipal waste, and another four could achieve only a moderate increase in recycling from 2007 to 2010. Furthermore, undercapacity of treatment is most likely in half of these MS. None of these MS has included a forecast on waste treatment and capacity in their WMP. If a forecast is included, it is limited to estimations of waste generation.

## Results and feedback from the workshop

The indicators provided by ESPON projects were viewed as useful and allowed the workshop participants to engage in a fruitful discussion focusing on two topics: a) how these can be used at the level of programming and implementation and b) what other indicators will be better fitted to the needs of the three regions participating. Some aspects of this discussion:

- Complex indicators (like the "Overall adaptive capacity to climate change" and "Potential Vulnerability to Climate Change") while interesting for debate are deemed to be very difficult to be translated into policy initiatives with measurable outputs and impact. It is clear that from the perspective of the programming authorities at the regional level "one dimension" indicators are more useful and useable.
- The timing of the data is crucial, especially for indicators that can be affected by interventions implemented in the current programming period. In other words, programming authorities need measurements on indicators as close as possible to the end of each programming period in order to be able to design interventions for the next programming period. In this sense it might be better to have fewer indicators followed by ESPON but have them available in closer time intervals.

Finally the discussion on "sustainable growth" indicators led the group to propose three more indicators that could be useful from their perspective

### Programming steps

Concerning the five programming steps, the reviewed indicators—plus the three proposed—are relevant both for the needs analysis and project selection.

The workshop participants estimate that the "days with ozone concentration exceedances" indicator can be used only at the level of "needs analysis" given that it can be affected mostly but actions at national level and beyond.

The "Territorial impact on fossil fuel consumption of directive on the promotion of clean and energy-efficient road transport vehicles":

although it is an indicator that is not relevant to the three participating regions (it does definitely not have any impact at the supply side but also only minor impact at the demand side) it is viewed as a very useful indicator at the level of project selection.

The "Coverage rate of municipal waste collection" indicator presents data from 2008. All three participating regions assert that currently they have achieved municipal waste treatment targets.

### Further suggestions or remarks

Wind power potential	<ul style="list-style-type: none"><li>- The indicator is somewhat important only for the Region of Sterea Ellada.</li><li>- Other RES indicators can be more relevant: hydro, solar, biomass, geothermal.</li><li>- A compound index that measures regional RES capacity would also be very relevant.</li></ul>
Days with ozone concentration exceedances	<ul style="list-style-type: none"><li>- Difficult to be influenced at the regional level.</li><li>- Useful only at the needs analysis step.</li></ul>
Territorial impact on fossil fuel consumption of directive on the promotion of clean and energy-efficient road transport vehicles	<ul style="list-style-type: none"><li>- Useful at the level of public procurement (project selection step).</li></ul>
Overall adaptive capacity to climate change	<ul style="list-style-type: none"><li>- Difficult to be translated into policy initiatives at the regional level - only at national level.</li><li>- Also too complex to be useful for programming.</li></ul>
Potential vulnerability to climate change	<ul style="list-style-type: none"><li>- Difficult to be translated in policy initiatives at the regional level.</li><li>- Too complex to be useful for programming.</li></ul>



Coverage rate of municipal waste collection	- Data are outdated. The indicator should measure compliance with relevant EU acquis. Thessaly - Sterea Ellada - Epirus already complies with national targets.
Quality of water management, water quality - water directive	- Water management is a key challenge in Thessaly - Sterea Ellada - Epirus.
Share of RES in gross final energy consumption	- See also the comments on the first indicator above.
% of recycling of solid municipal waste	- This is a simple and important indicator that can be used at the stages of needs analysis, results and project selection.

### 1.3 Inclusive growth

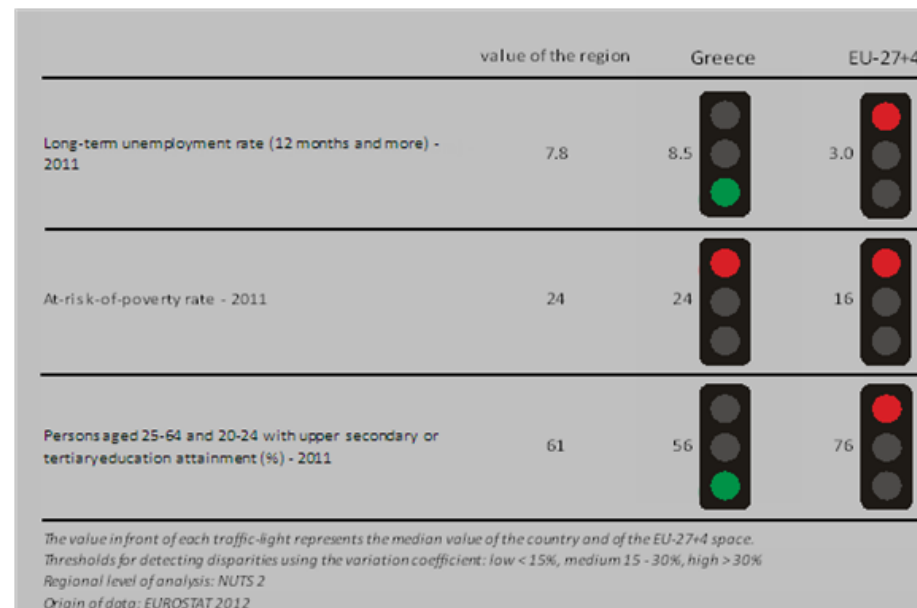
Inclusive growth refers to fostering a high-employment economy delivering social and territorial cohesion. Within the Europe 2020 Strategy it means raising Europe's employment rate, helping people of all ages anticipate and manage change through investment in skills and training, modernising labour markets and welfare systems, and ensuring the benefits of growth reach all parts of the EU. In short the key factors are employment and avoiding risk of poverty and social exclusion.

Following the World Bank, inclusive growth analytics is about policies that should be implemented in the short run, but for sustainable inclusive growth in the future. In this perspective territorial evidence can be used to analyse at a regional or city level the sources, and constraints to sustained, high growth, and not only on one group – the poor. The territorial evidence allows looking for ways to raise the pace of growth by utilising more fully parts of the labour force trapped in low-productivity activities or completely excluded from the growth process.

The main policy instruments for inclusive growth are seen in the field of productive employment. In other words, inclusive growth means raising Europe's employment rate by creating more and better jobs, especially for women, young people and older workers, by helping people of all ages anticipate and manage change through investment in skills & training, and by modernising labour markets and welfare systems ensuring the benefits of growth reach all parts of the EU.

Growth is highly dependent on levels of income, poverty, and asset inequality, but also geography, demography, governance, politics, social considerations, and the set of existing policies. These differ not only between countries, but also over time within the same country.

In territorial terms, this raises important question as to the mobility of labour force and regional difference of the labour force, as well as regional differences in related to poverty and education levels and the infrastructure and mechanisms to overcome challenges and help individuals to escape poverty and benefit from lifelong learning increasing their prospects on the labour market.



**Figure 6: ROP compared to Greece and EU-27+4**

In terms of the three context indicators on inclusive growth (see Figure 6) Thessaly - Sterea Ellada - Epirus underperforms EU-27+4 in all three while it shows better performance than the median value for Greece in 'Long-term unemployment rate (12 months and more)' and 'Persons aged 25-64 and 20-24 with upper secondary or tertiary education attainment'.

## Change in labour force 2005-2050

Labour force participation measures the proportion of a specific population (such as women and older workers) considered to be either working or actively searching for a job. The declining number of persons active in the labour market makes labour force participation an issue of growing significance in the EU and has been a primary concern of the European Employment Strategy.

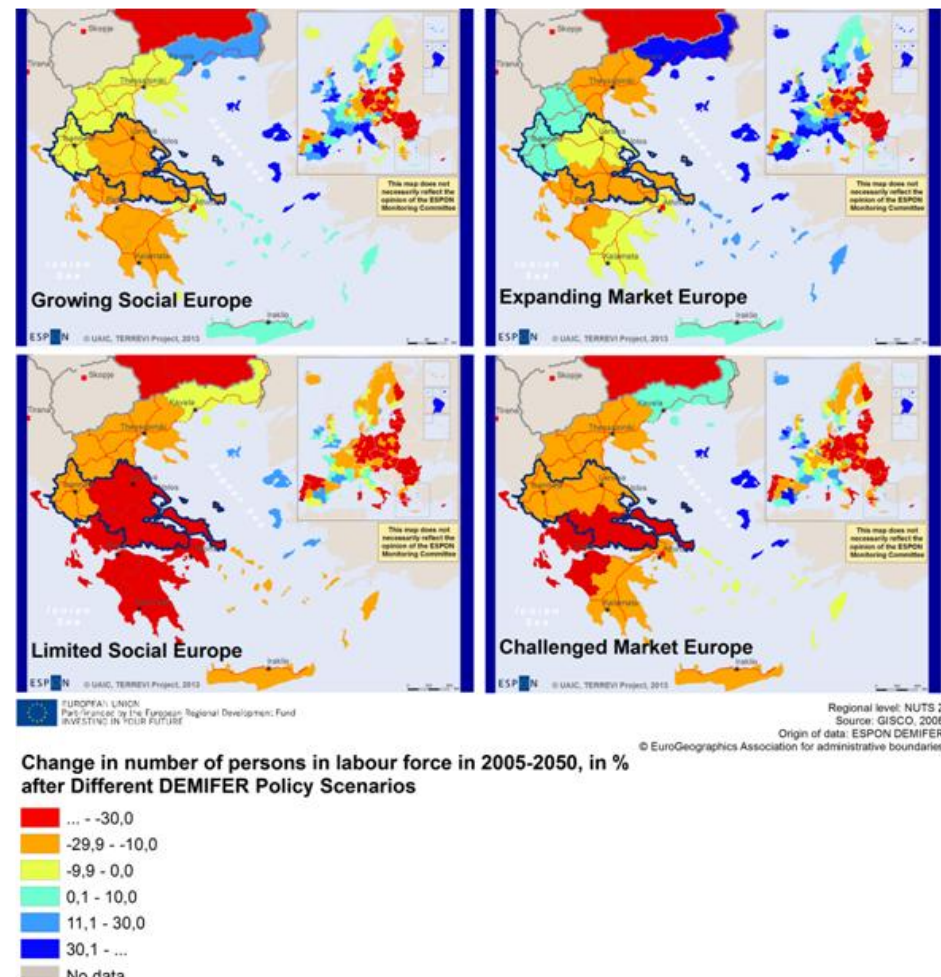
The scenarios developed within the DEMIFER project use various policy bundles as the basis for different trajectories of demographic and migratory development.

The four scenarios are

- Growing Social Europe (successful economy-environment policies; effective cohesion policies),
- Expanding Market Europe (successful economy-environment policies; policies favouring successful regions that neglect the also-ran regions),
- Limited Social Europe (unsuccessful economy-environment policies; effective cohesion policies) and
- Challenged Market Europe (unsuccessful economy-environment policies; policies favouring successful regions that neglect the also-ran regions).

These four policy scenarios show what may be expected to happen if certain policy combinations are followed within the labour markets (Map 19).

A shrinking labour force will be a problem for many regions, including Thessaly - Sterea Ellada - Epirus, in the future, but this will affect fewer regions under the Expanding Market Europe scenario and to a slightly lesser extent the Growing Social Europe scenario more than in the other scenarios. Thus the labour market is expected to be much more vital in more regions of Europe under a general policy scenario axis where resources are used in such a sustainable and cost-efficient manner that the post-carbon economy as a whole continues to grow. Therefore, pursuing policies within a sustainable development strategy will have positive implications on labour market dynamics.



**Map 18 Change in Labour Force 2005-2050**

In all four scenarios Thessaly - Sterea Ellada - Epirus fits the "Challenge of Decline" type of region (Map 20). This type of regions has a negative population development, due both to low total fertility rates and negative net migration. These are some of the "shrinking" regions of Europe. The proportion of older workers (above 55 years) is significantly higher than in the rest of the ESPON space and the share of younger adults (20-39 years) is below average, thus leading to a potential problem in maintaining sufficient workforce to uphold social welfare schemes.

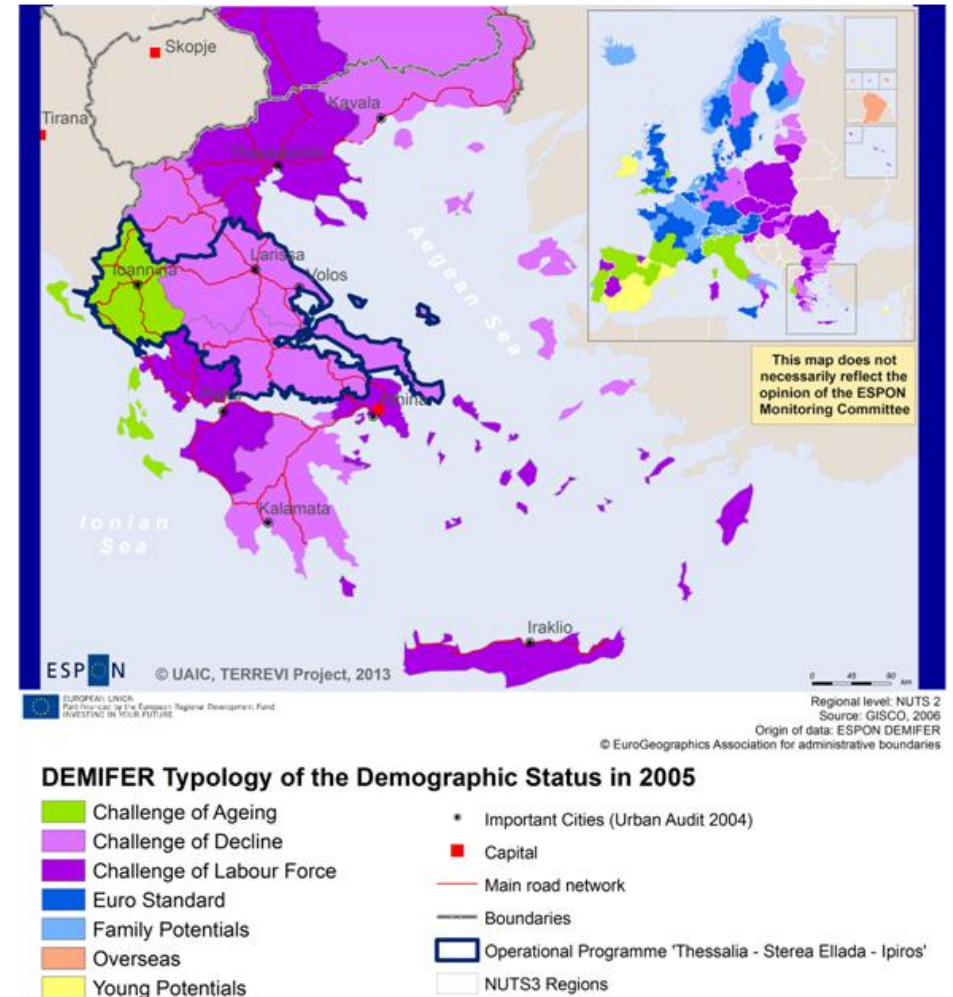
After the "Challenged Market Europe" scenario from year 2005 until year 2050 there will be a decrease with values situated between 10 and 30% as in the "Growing Social Europe" scenario.

If applying the "Expanding Market Europe" scenario we will notice a slight decrease of no more than 10%.

Instead, if we will apply the "Limited Social Europe" scenario we will notice a reduction with more than 30%.

Note: in this region, no matter what scenario will be applied from the year 2005 until the year 2050 we will notice a decrease with more than 30% rate of the working active people.

These maps were produced for the ESPON DEMIFER project.



**Map 19 Labour Force Change by type 2005-2050**



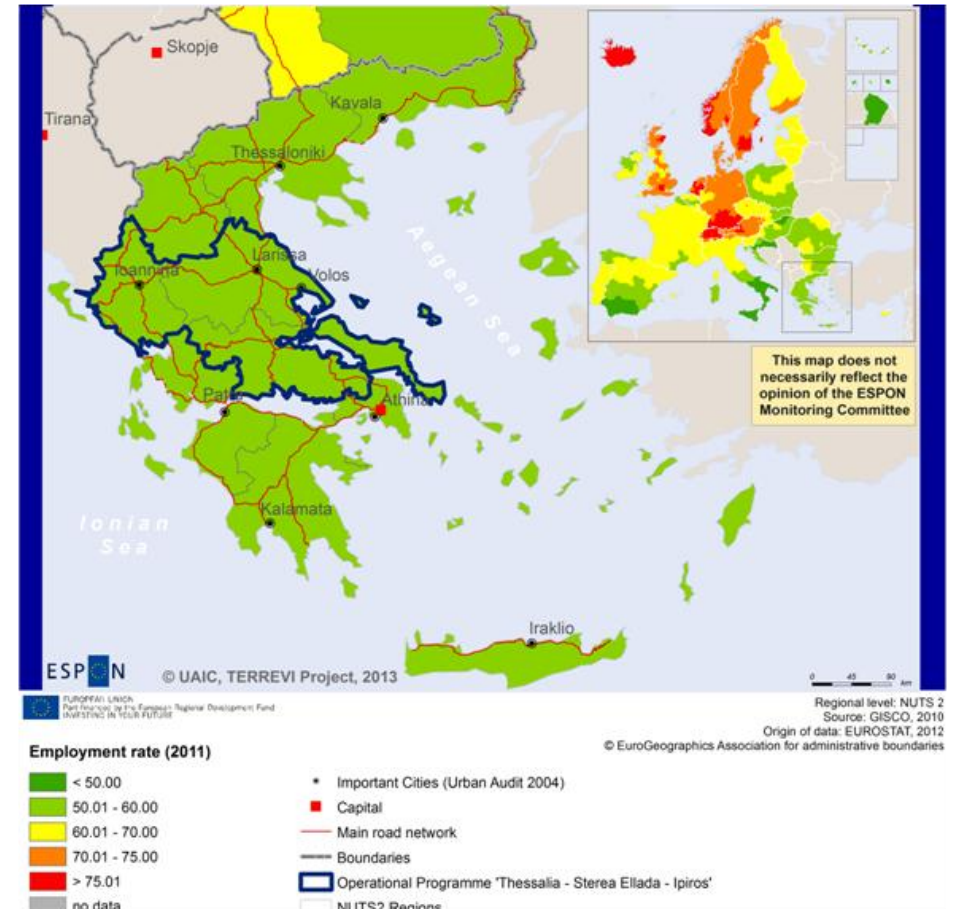
## Employment rate 2010

Employment rate represents persons in employment as a percentage of the population of working age (15-64 years).

Employment can be measured in terms of the number of persons or jobs, in full-time equivalents or in hours worked. All the estimates presented use the number of persons; the information presented for employment rates is also built on estimates for the number of persons. Employment statistics are frequently reported as employment rates to discount the changing size of countries' populations over time and to facilitate comparisons between countries of different sizes. These rates are typically published for the working age population, which is generally considered to be those aged between 15 and 64 years, although the age range of 16 to 64 is used in Spain, Sweden (only until 2001) and the United Kingdom, as well as in Iceland; this age group (15 to 64 years) is also a standard used by other international statistical organisations.

Employment rates are above 70% in all Nordic countries (except Finland), Germany, the Netherlands, Austria, Switzerland and most parts of the UK. However, no explicit gradient (neither north-south / east-west nor core-periphery) exists, as e.g. the Baltic States, France, northern Italy, northern Spain, Portugal, the Czech Republic and some parts of Poland and Finland show employment rates above 60%. Nevertheless, most regions with rates below 60%—such as Thessaly - Sterea Ellada - Epirus and the rest of the Greek regions—are situated in peripheral regions in Southern, Eastern and Southeast Europe.

This map was produced for the ESPON TerrEvi project.



**Map 20 Employment rate**

## Long term unemployment rate

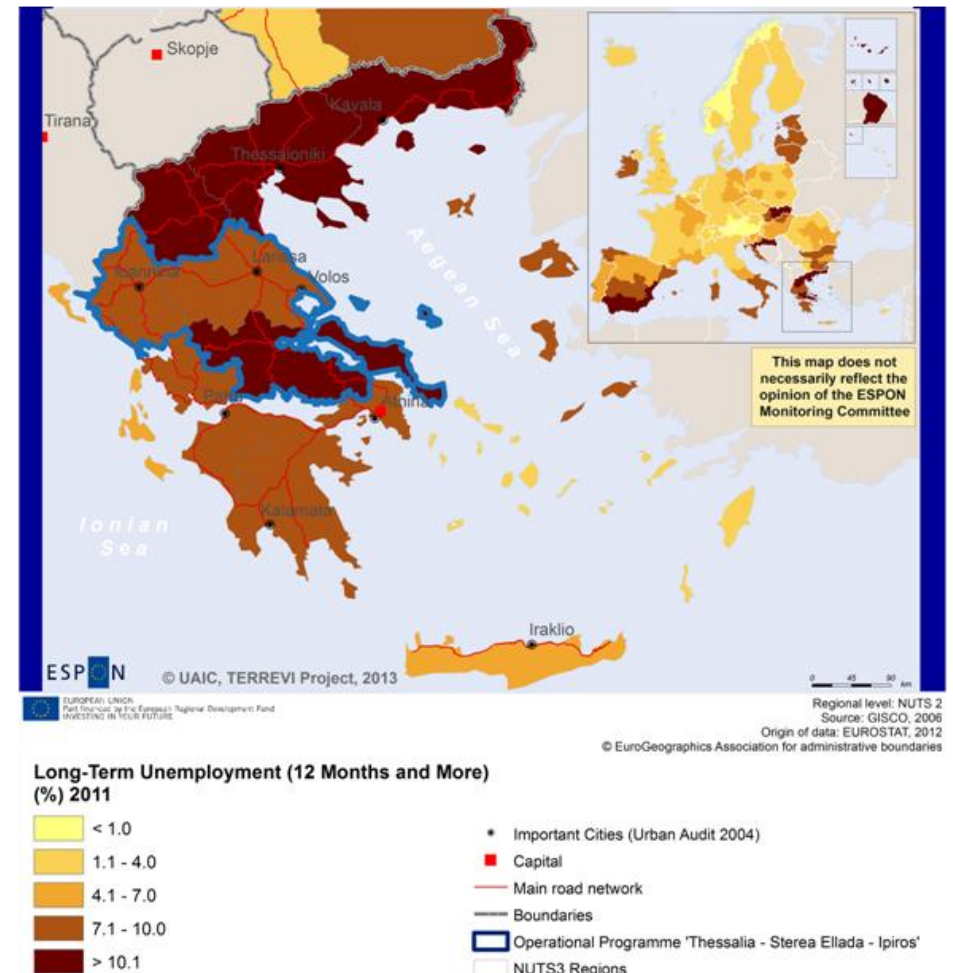
Long-term unemployment refers to the number of people who are out of work and have been actively seeking unemployment for at least a year.

An unemployed person is defined as being aged 15 to 74 (or aged 16 to 74 in Spain, the United Kingdom, Iceland and Norway) who was without work during the reference week, was currently available for work and was either actively seeking work in the last four weeks or had already found a job to start within the next three months. The unemployment period is defined as the duration of a job search, or as the length of time since the last job was held (if shorter than the time spent on a job search).

There are specific countries in Europe that have all their regions with high long-term unemployment rates like Ireland, the Baltic states, Slovakia (except Bratislava), Croatia (except Zagreb) and Greece. Other states from Southern and South-eastern Europe like Italy, Spain or Romania have large areas with high unemployment rates, i.e. more than 7 %. Most parts of Europe have medium rates (1-4 %) although some regions with structural problems from Central Europe like East Germany, southern Belgium or Northern France, or from the periphery like Romania, Portugal and Spain stand out (4-7 %). On the other side, mainly regions from Austria and Southern Germany, and Norway as a non-EU country are outstanding with very low long-term unemployment rates (<1 %).

The region Thessaly - Sterea Ellada - Epirus is experiencing a high rate of long term unemployment rate, close to 10%, but the value will increase in subsequent years. This situation is present in all Greek regions as the economic crisis deeply felt nationwide.

This map was produced for the ESPON TerrEvi project.



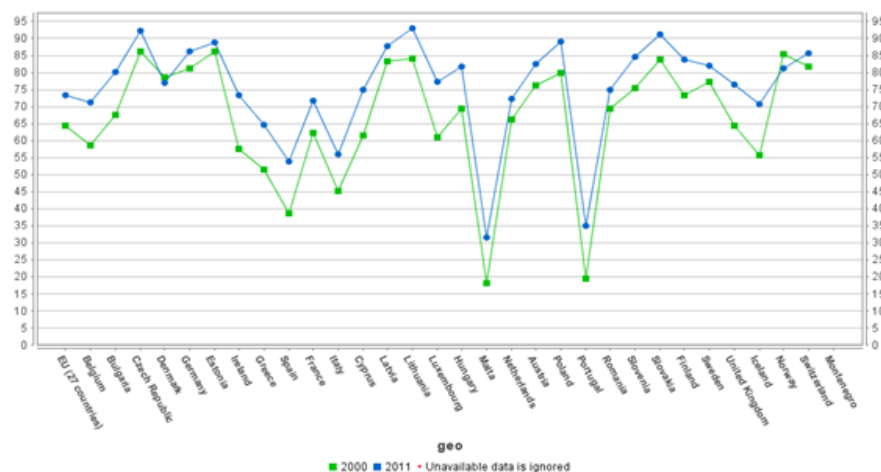
**Map 21 Long-term unemployment rate**



## Persons aged 25-64 and 20-24 with upper secondary/tertiary education attainment

*Total population having completed at least upper secondary education*

Population aged 25 to 64 (%): The indicator shows the percentage of the adult population (25-64 years old) that has completed upper secondary education. The indicator aims to measure the share of the population that is likely to have the minimum necessary qualifications to actively participate in social and economic life. It should be noted that completion of upper secondary education can be achieved in European countries after varying lengths of study, according to different national educational systems<sup>4</sup>.



**Figure 7. Total population having completed at least upper secondary education - Population aged 25 to 64 (%)**

Tertiary educational attainment: the proportion of the population aged 25 to 64 who had successfully completed a university or similar (tertiary level) education; the demographic profile of a region has some influence on this measure, as younger generations tend to

report higher levels of attainment than older persons. In 2010, an average of 25.9 % of the EU-27 working age population (25 to 64 years) had attained a tertiary level of education.

There were 14 NUTS level 2 regions (out of a total of 266 regions) in the EU where more than 40 % of the population aged 25 to 64 had completed a tertiary level education. Five of these regions were in the United Kingdom (four located in or around London and the fifth in North Eastern Scotland which provides support for North Sea oil and gas extraction), three were in Belgium (in and around the Belgian capital), while the others were the capital city regions of Denmark, Sweden, Finland and Spain, as well as the País Vasco (Spain) and Utrecht (the Netherlands). Outside of the EU Member States, Oslo (Norway) and Zürich (Switzerland) also reported in excess of 40 % of their residents between the ages of 25 and 64 possessed a tertiary level of education.

At the bottom end of the ranking there were 36 regions that reported that 15 % or less of their population aged 25 to 64 had attained a tertiary level education. Among these there were 12 regions from Italy (just over half of all the Italian regions), seven from Romania (all except the capital city region of Bucuresti – Ilfov), six from Portugal (all except the capital city region of Lisboa), four regions from the Czech Republic, two regions each from Greece and Slovakia, and one region each from Hungary and Austria; Malta (which is just one NUTS level 2 region) also had a ratio below 15 %. Looking within each country, the regions which had the lowest proportion of working age residents with a tertiary education were often concentrated in rural or remote regions — for example, the island region of the Açores (Portugal), or Valle d’osta/Vallée d’Aoste (Italy).

For statistics on this issue employment rates are based on the age group 25 to 64 rather than 15 to 64. The importance of this indicator stems from the fact that it has been shown that employment rates vary considerably according to levels of educational attainment. The employment rate of those who had completed a tertiary education was 83.7 % across the EU-27 in 2011 (see Table 3), much higher than the rate (53.5 %) for those who had attained a primary or lower secondary education. The EU-27 employment rate of persons with an upper secondary or post-secondary non-tertiary education

<sup>4</sup> <http://epp.eurostat.ec.europa.eu/tgm/web/table/description.jsp>

was 73.2 %. The largest falls in employment rates since the beginning of the financial and economic crisis (comparing 2008 with 2011) were witnessed for persons with a primary or lower secondary education.

In the region of Thessaly - Sterea Ellada - Epirus 57.36% of persons aged 25-64 and 20-24 graduated upper secondary or tertiary education. Although this value is comparable to other regions in Greece, is less than the European average of 73.4%.

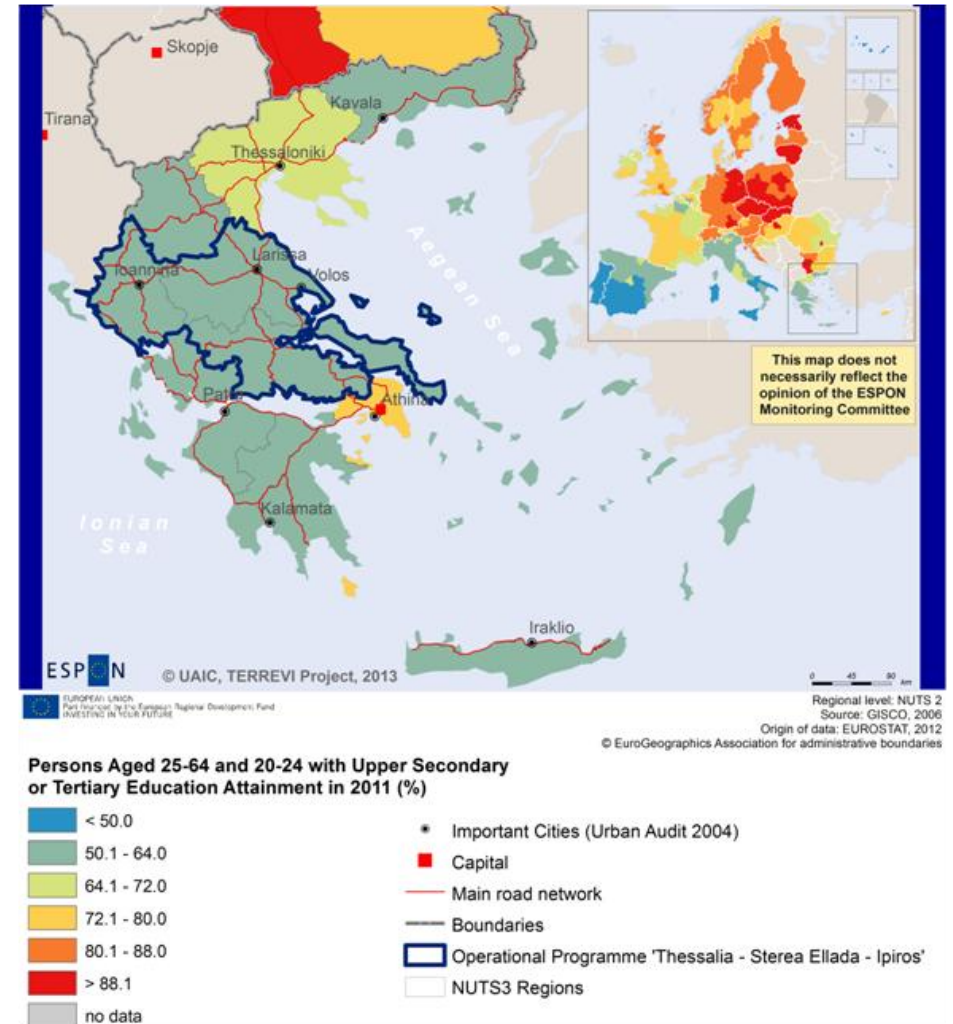
The positive and negative impacts of human resources in the ROP area (as were identified by studies in this region) are:

- Positive impacts: Adequacy of training structures in the region; Good presence of social services institutes; A significant number of structures that promote equal opportunities for both sexes; People with executive knowledge and experience in education and training, counselling, social planning and advisory services; Presence of higher education institutions.

Negative impacts: Inability for designing and planning of training programs for connection to the labour market; Lack of adequate statistics at regional and departmental level; Inability to connect training with the production, the research enterprise and the innovation. The bodies of the local community (public and private) and the social partners usually remain uninvolved because they almost never are asked for their opinion.

According to the results of the ESPON – INTERCO project, the disparities as for the tertiary education % among the urban and rural and the mountainous / lowland areas of the region are much more clearly presented through the LAU-1 level analysis.

This map was produced for the ESPON SIESTA project.



**Map 22 Persons aged 25-64 and 20-24 with upper secondary or tertiary education attainment**

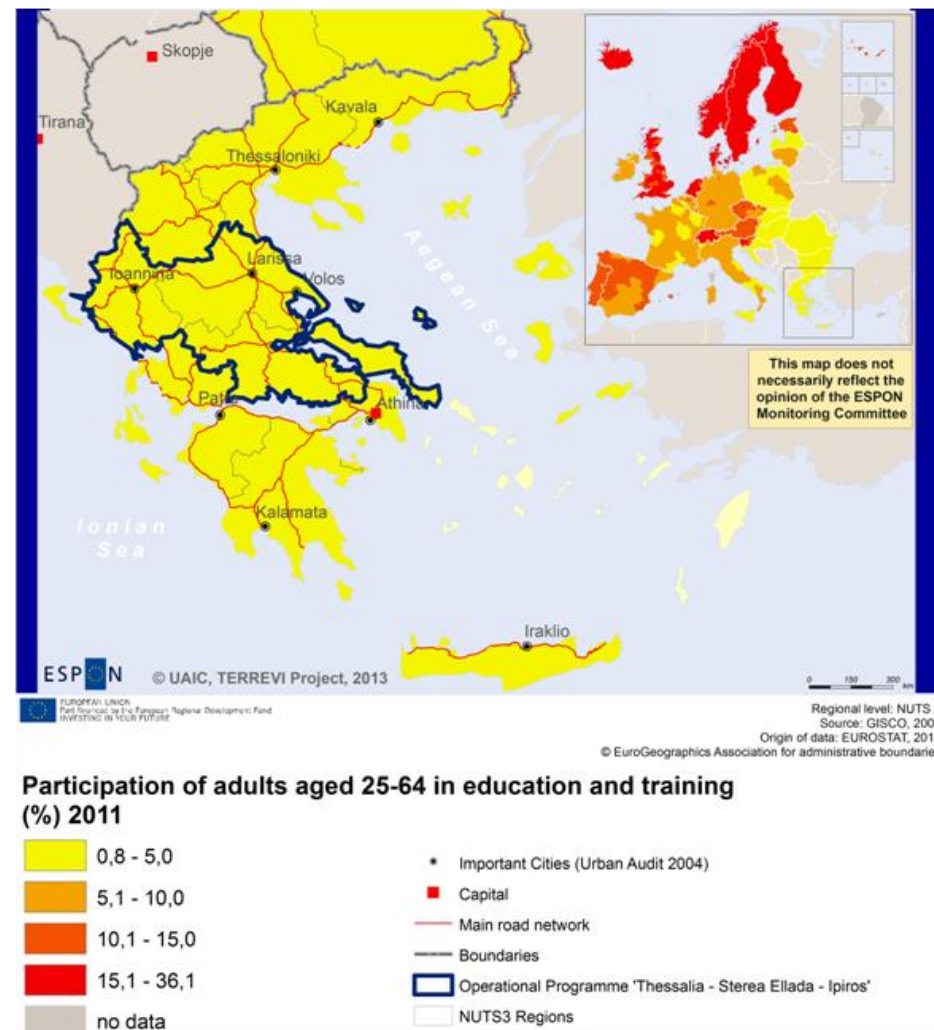
## Participation of adults (aged 25 to 64) in education and training

Lifelong learning is as an important element of the knowledge-based economy requiring constantly changing skill needs. Lifelong learning encompasses all purposeful learning activity, whether formal, non-formal or informal, undertaken on an ongoing basis with the aim of improving knowledge, skills and competence. The intention or aim to learn is the critical point that distinguishes these activities from non-learning activities, such as cultural activities or sports activities.

In 2011, the proportion of persons aged 25 to 64 in the EU-27 receiving some form of education or training in the four weeks preceding the labour force survey was 8.9. Denmark, Sweden and Finland stood out as they reported considerably higher proportions of their respective populations participating in lifelong learning, ranging between one fifth and one third; the Netherlands, Slovenia and the United Kingdom were the only other Member States where the participation rate in 2011 already exceeded the 15 % target. In contrast, Bulgaria, Romania, Greece and Hungary reported lifelong learning participation rates of less than 3 %.

With an average percentage of 1.53 % from the adults (aged 25 to 64) attended in education and training in 2011, the region of Thessaly - Sterea Ellada - Epirus comes close to the national average of 2.4%. Although, the percentage is one of the lowest from Europe being relatively far away from the year 2020 target of 15%. In Greece, the best situation will appear in Attiki (3.2%) while the worst average will appear in Peloponnesus region (0.9%).

This map was produced for the ESPON SIESTA project.



**Map 23 Participation of adults (aged 25 to 64) in education and training, 2009<sup>5</sup>**

<sup>5</sup> ESPON Siesta



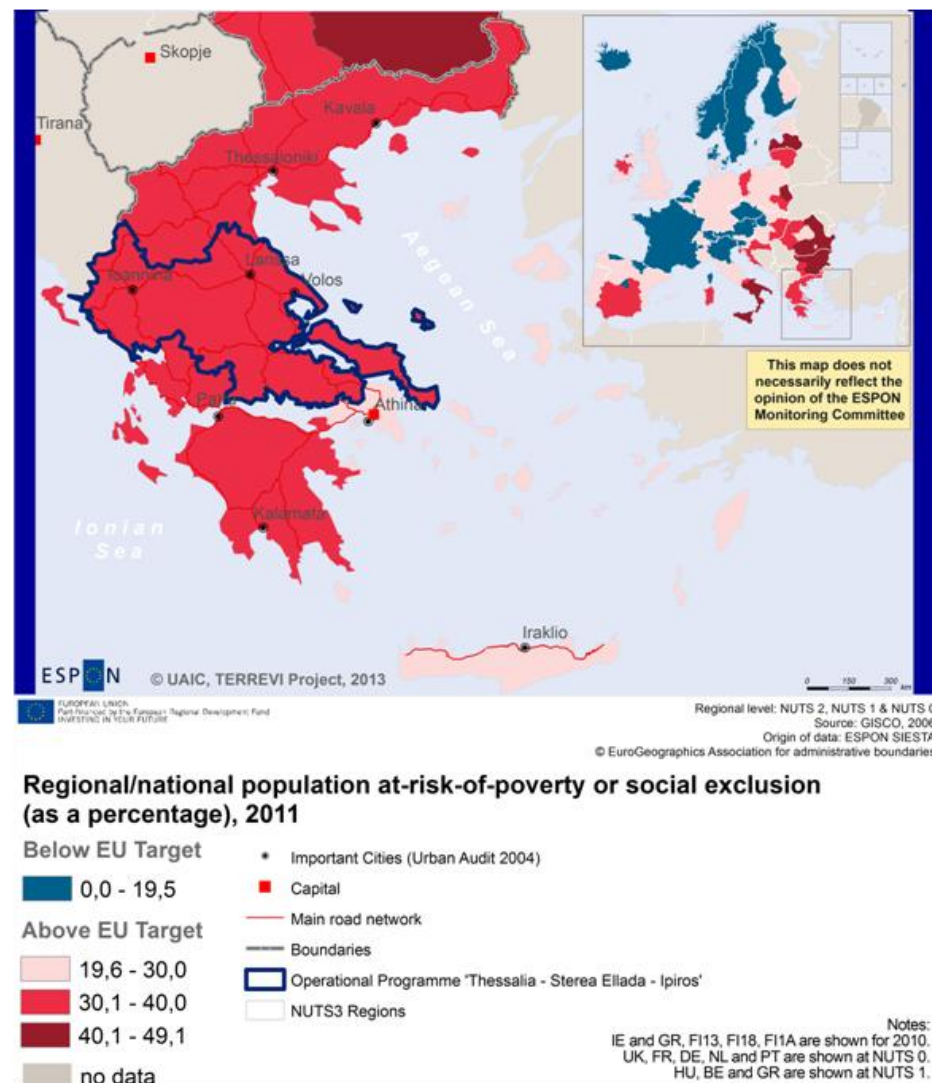
## At-risk-of poverty rate

One of the Europe 2020 objectives is to lift 20 million people out of being at risk of poverty and exclusion. The indicator chosen covers the number of people who are at risk of poverty and/or severely materially deprived and/or living in households with very low work intensity. At risk of poverty - a widely used measure of relative poverty - is defined as having equivalent disposable income (i.e. adjusted for household size and composition) of less than 60% of the national median household income. It is a great tool to show regional disparities within countries. However it has several weaknesses if used in EU-wide comparisons. For example, housing costs are not included, yet access to affordable and decent housing is one of the main determinants of people's well-being.

In general, there are hardly any considerable variations within the most developed countries (towards the North and the West). In these countries poverty is distributed rather equally across regions. In contrast, in the Eastern and Southern countries internal heterogeneity is more pronounced, i.e. Italy, Spain, Bulgaria, Romania and Poland. This suggests that poverty is a very territorial issue in these countries, especially the more peripheral ones.

According to 2011 Eurostat data, in six European countries (Bulgaria, Latvia, Romania, Lithuania, Greece and Hungary) the risk of poverty indicator was above 30%.

This map was produced for the ESPON SIESTA project.



**Map 24 Population at Risk of Poverty or Social Exclusion, 2010**

## Results and feedback from the workshop

In general, the indicators of inclusive growth provided by ESPON projects and presented within the evidence package are considered useful and fit for the purpose. Some aspects that lead to suggestions for improvement are:

- Dated or obsolete data. Relatively old data sets are difficult to explain the baseline context especially now that planning for the new programming period takes place.
- Granularity (territorial or sectoral). Although programming is carried out at the NUTS2 level, it was deemed desirable to improve the granularity of some indicators at the territorial or sectoral level.
- Complexity. Although composite indicators can provide interesting insights into a specific policy theme, they can confuse policy making.

## Programming steps

Focussing on the details concerning the five programming steps, the reviewed indicators except "Change in labour force 2005-2050" are relevant for all stages.

Since the "Change in labour force 2005-2050" indicator is essentially the outcome of a foresight exercise, it was deemed appropriate only for informing needs analysis and supporting thematic concentration.

## Further Suggestions or Remarks

Change in labour force 2005-2050	- Very helpful to inform long term policy making.
Employment rate	- Very generic to be actionable. Gender, age, economic sector and educational level information should be provided.
Long term unemployment rate	- The granularity of data collection should be improved to cover NUTS3 regions.
Persons aged 25-64 and 20-24 with upper secondary/ tertiary education attainment	<ul style="list-style-type: none"><li>- This is essentially a composite indicator that could be split in two.</li><li>- The first half (persons aged 25-64 with tertiary education attainment) is affected by policy actions that were put in place many years before and therefore it's difficult to change.</li></ul>
Participation of adults (aged 25 to 64) in education and training	- Although the rationale of this indicator is straightforward, some qualitative or sectoral elements should be introduced, possible linked to the regional smart specialization strategy.
At-risk-of poverty rate	- All the elements of the composite Europe2020 indicator should be available at the NUTS3 level

## 2 Territorial factors of interest for the programme area

### Urban-rural typology

The rural-urban meta-narrative draws together various story lines relating to migration, rural-urban relationships, access to SGI, agglomeration (or its absence), and highlights the cumulative causation process which drives the differentiation of, and disparities between, accessible and remote/sparsely populated rural regions.

*Rurality/accessibility.* This typology relates to the Rural-Urban meta-narrative, and was developed (by Dijkstra and Poelman [2008] at DG Regio) from the OECD typology. Four types of (non-urban) regions are distinguished; intermediate accessible, intermediate remote, predominantly rural accessible, and predominantly rural remote.

### *Rural-Urban Relationships*

This theme is touched upon in a wide variety of contexts and that there is a wealth of relevant material, both conceptual and empirical. At the same time, however that material is very disparate and the task of drawing it together into a coherent “narrative” which could form the basis for perspectives of the future or a policy approach are exceptionally challenging. The difficulty is increased by a number of issues relating to the characteristics of rural and urban areas, and the relationships between them: Urban areas and rural hinterlands are not two discrete spaces, they overlap and interlink in a complex system of economic and social interactions, (commuting, service provision patterns, leisure and recreation linkages etc).

In the current, increasingly globalised, context, many rural areas have as many links to distant regions across Europe or the rest of the world as they do to adjacent urban areas. Indeed one of the key conclusions from the business networks literature is that such linkages are the key to the successful development of NRE activities.

Administrative boundaries have variable relationships to urban and rural areas, creating complex issues in terms of policy design, and often providing no separate institutional advocacy relating to rural needs and potential. Where regions contain both an urban core and

outlying rural areas the needs of the former will generally have far more political weight than those of the latter.

In the current policy context (exacerbated by the “project state”) urban and rural areas, or more specifically their associated governance structures, are more likely to see themselves as competing for scarce resources than cooperating for the benefit of rural areas.

### *The rural-urban meta-narrative*

Urbanisation, counter-urbanisation and commuting are key drivers of the rural-urban meta-narrative.

As a result of these flows, many accessible rural areas experience “accumulation” of resources and development assets, and acquire an economic structure increasingly similar to that of nearby urban regions. By contrast other rural regions, especially in the more remote parts of the EU are still being “depleted” of population and economic activity through cumulative, self-perpetuating, cycles of decline.

The rural-urban meta-narrative also draws on the concept of peripherality, which incorporates two main causal elements, distance from sources of goods and services, and an absence of agglomerative economies. Associated with these are ‘contingent’ disadvantages, such as the high cost of service provision, low rates of entrepreneurship, and a range of associated problems, such as slow adjustment of sectoral structure, poor local infrastructure, and so on” (Copus 2001). Peripherality is thus viewed as a “... consequence of the location of a region in relation to all other regions, and their economic size/importance. Quite simply, a region which is close to centres of economic activity will have a range of advantages over one which is located further away, and *vice versa*.”

### *Methodology*

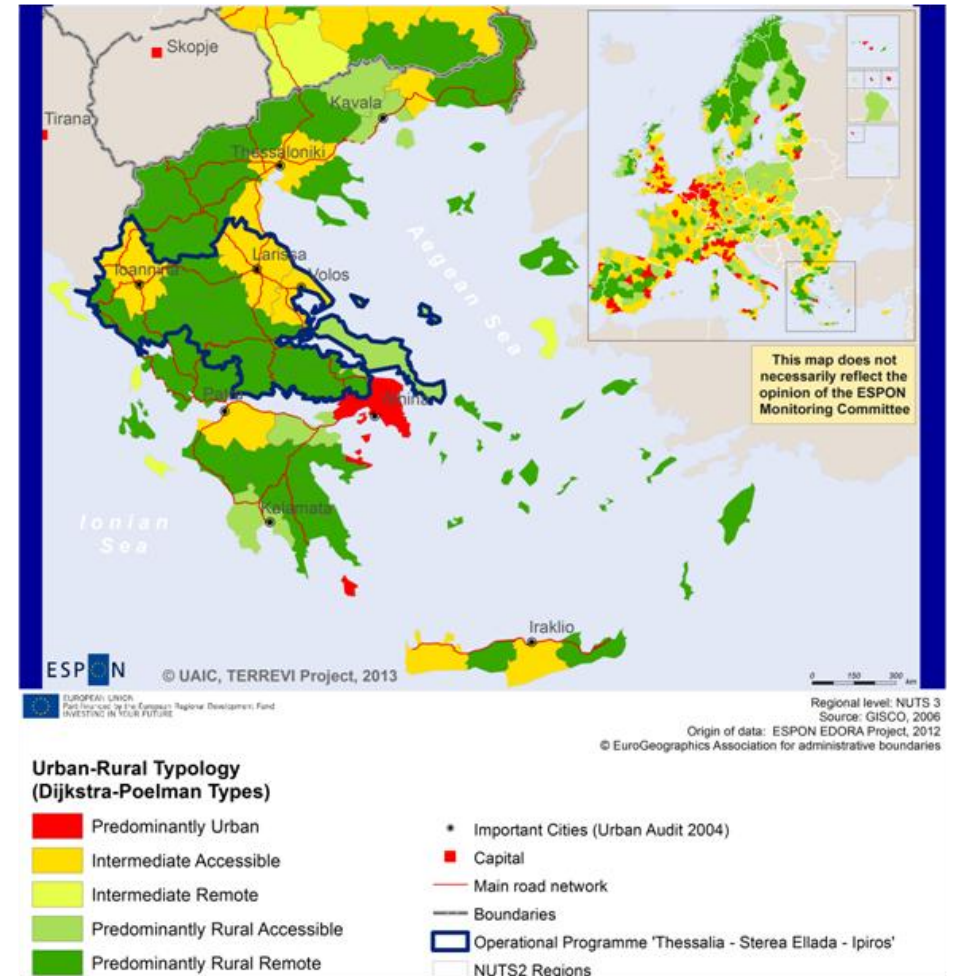
The full methodology for the D-P typology is described in Dijkstra and Poelman (2008). The first step is to classify all “local units” within each NUTS 3 region as urban or rural, using a criteria of population density of 150 inhabitants per square kilometre. Predominantly Urban (PU) regions are those in which less than 15% live in local units which are rural. Intermediate regions are defined as those in which between 15% and 50% live in rural local units.



Predominantly Rural (PR) regions have more than 50% of their population living in rural local units. Each of these three categories is further divided into accessible and remote groups. A region is placed in the accessible group "if more than half of its residents can drive to the centre of a city of at least 50 000 inhabitants within 45 minutes. Conversely, if less than half its population can reach a city within 45 minutes, it is considered remote." (Ibid p3)

Considering the pattern imposed by Greece, Thessaly - Sterea Ellada - Epirus is no exception. It has predominantly rural and remote regions.

This map was originally proposed for the ESPON EDORA project and re-produced for the ESPON TerrEvi project.



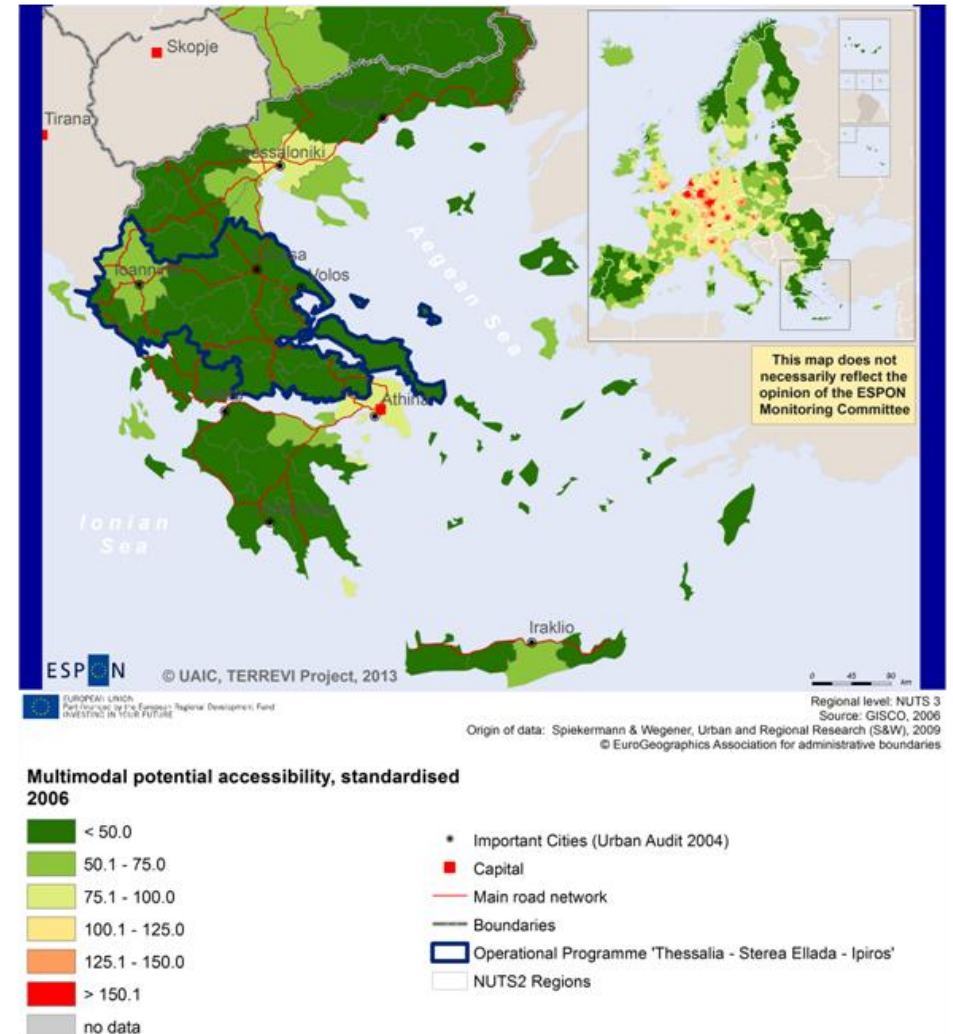
**Map 25 Urban-rural typology of NUTS3 regions**

## Multimodal accessibility

With the purpose of providing an overview of the degree of connection between European regions, potential multimodal accessibility synthesizes indicators specific for each travel mode in part (road, rail and air). At European Union level, potential multimodal accessibility captures a spatial architecture articulated according to core - periphery model. Through the specific manner of trading travel costs (strongly dependent on the physical distances on the ground and on the limits of travel speed), road and rail networks are the main responsible for concentrating high values of potential accessibility in the central part of the European Union, while in the peripheral areas of EU space, multimodal accessibility is declined primarily based on air accessibility, the only one able to provide fast connections for such regions.

According to this model, Thessaly - Sterea Ellada - Epirus endures a double disadvantage. On the one hand, it bears the consequences of being in a peripheral geographical position in the European context, and on the other hand it has to face the challenge of being an intermediary space between the main poles of Greece (Athens to south and Thessaloniki to north). Poor connections with the rest of the European community (all four prefectures have values below 50% of EU average) are also explained by the existence of the hard penetrable borders of Western Balkans (Macedonia, Albania, Montenegro, Serbia etc.). Political opening and possibly the integration of these countries into the European Union could be an opportunity for creating quick and direct links to central and Western Europe.

This map was originally proposed in the ESPON TRACC project and re-produced for the ESPON TerrEvi project.



**Map 26 Multimodal potential accessibility.**

### 3 Recommended ESPON reading

ESPON provides an essential underpinning for translating into practice the calls for integrated and place-based approaches to economic development, when analysing a programme area or deciding about future programme priorities. ESPON has published a wide range of exciting reports providing valuable territorial evidence for future territorial cooperation initiatives.

The table below shows examples of relevant projects for the Cooperation Region. However, you have to study other ESPON reports as well in order to capitalise fully on the European information available for the cross-border programming.

ESPON study	Topic	Content
EDORA	Rural areas	It provides evidence on the development opportunities of diverse types of European rural areas and reveals competitiveness options (see maps in Appendix 1).
CLIMATE	Climate change	It analyses how and to which degree climate change will impact on the competitiveness and cohesion of European regions and Europe as a whole (see from map 1 to 23).
TIPTAP	Territorial impact assessment	It provides a tool for the ex-ante assessment of territorial impacts of policies to deliver evidence on the territorial impact of policies (see from map 2.3.1 to 2.3.9).
CAEE	Agglomerati-on economies	It aims at a better understanding of the economic costs and benefits of large urban agglomerations (see figure.1).
TRANSMEC	European cooperation	It develops a method providing guidance on how ESPON results can add value to support territorial cooperation programmes (see map 27 and from map 36 to 39 on potential accessibility indicators).
SEMIGRA	Rural migration	It identifies the main reasons and consequences of selective migration in rural regions in order to develop strategies for territorial development (see map 1, 4 and 5).
KIT	Innovation	It describes patterns and potentials of regions in terms of knowledge and innovation economy and explores development opportunities (see from map 3.1.1 to 4.4.1).
SGPTD	Growth poles	It provides evidence about performance and roles of European secondary cities (see from figure 2 to 2.12).

Furthermore, some of overall ESPON products of particular interest for territorial cooperation are:

- **ESPON Synthesis report** “new evidence on smart, sustainable and inclusive territories” provides an easy to read overview on ESPON results available.
- **ESPON Territorial Observations** is a publication series, which on a few pages presents policy relevant findings deriving from latest ESPON research.
- **ESPON 2013 Database** provides regional information provided by ESPON projects and EUROSTAT.
- **ESPON Hyperaltas** allows comparing and analysing a region’s relative position at European, national and local scale for a wide range of criteria.
- **ESPON MapFinder** provides access to the most relevant ESPON maps resulting from ESPON projects and reports.
- **ESPON Typologies** provides nine regional typologies for additional analysis of regional data to be considered in the European context.

All ESPON reports and tools are freely available at

[www.espon.eu](http://www.espon.eu)

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The ESPON 2013 Programme is part-financed by the European Regional Development Fund, the EU Member States and the Partner States Iceland, Liechtenstein, Norway and Switzerland. It shall support policy development in relation to the aim of territorial cohesion and a harmonious development of the European territory.