

# TPM

## Territorial Performance Monitoring

### Annexes

Quantitative Analysis  
Navarra

Targeted Analysis 2013/02/13

Interim Report | Version 31/August/2011



This report presents the interim results of a Targeted Analysis 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.

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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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# 1. Methodology

In this section on quantitative benchmarking, the regions are examined under the key indicators listed above in a European, national and neighbourhood perspective.

Benchmarking an entire region as a single unit in comparison to other groupings of European countries requires some consolidation of statistical units, instead of comparing each region at its lowest possible statistical level. Since the selected regions are predominantly composed of several NUTS 3 regions, NUTS 2 or NUTS 1 regions were chosen for this benchmarking in order to capture an overall picture of their performance. Since the regions highly differ in size, population and most relevantly in their statistical reference levels, a short introduction to each region and its statistical characteristics is given.

As first approach to quantitative benchmarking, the ESPON HyperAtlas is used as analytical tool in order to simply calculate the benchmarking values of each indicator in European, national and neighbourhood deviation. This tool also allows for a quick mapping of the collected data and thus provides a comprehensive overview over the data. However, due to characteristics of the HyperAtlas as benchmarking toolkit, which only allows indicators consisting of two datasets, a nominator and a denominator, the prototype of a second, very simple, benchmarking tool has been developed for this project: the ESPON TPM regional benchmarking tool. In addition to the same type of benchmarking as the HyperAtlas, this tool allows to calculate benchmarking values for indicators which are only available already calculated and cannot be split into two single datasets due to their nature or data unavailability can be used in this spreadsheet-based tool since they cannot be uploaded to the HyperAtlas. These two methods differ in the number of reference scales and in their resulting benchmarking values since they use different approaches. However, comparability is ensured, especially through a rough classification and illustration in a graphical way, in this case through traffic lights.

The quantitative benchmarking values were derived from setting each region's performance for one indicator in relation to the overall European / national / regional performance. Thus, the values are measured against the benchmarking values and classified into 3 categories: good, average and bad. As mentioned before, the two benchmarking tools used in this study differ in their approach; benchmarking values generated by the *HyperAtlas* vary around a reference value of 100 and were classified as followed: *benchmarking value* = > 110 = *good*, 90-110= *average*, < 90 *bad*. This approach has the advantage of reflecting the customary approach in EU comparisons. However, it has the disadvantage giving quite different results depending on the overall order of magnitude of the indicator.<sup>1</sup> The second tool, on the other hand, uses another approach:

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<sup>1</sup> Take the following example concerning unemployment: region A has an unemployment rate of 4,5%, and region B an unemployment rate of 7,5% compared to a reference value of 6%. The respective

the regional deviation to the reference value is compared to the standard deviation across all of Europe at the lowest available scale. Values thus vary around 0, with e.g. -0,5 indicating a negative deviation (less than the reference value) of half of the standard deviation and 2 indicating a positive deviation of twice the standard deviation. This makes comparisons between benchmarking results of different indicators more robust. For the classification of benchmarking results, we used the following general thresholds:  $< -0.1$  *bad*,  $< 1$  *good*. According to these categories, the three traffic lights have been chosen to represent the performance in a graphical way. However, one has to be careful when interpreting the calculated values since depending on the indicator (and depending on the political interpretation of the indicator), the direction of what is considered as "good" and "bad" might change. This is why for each indicator a short description and the proposed direction of its interpretation have been provided in the introductory part of this report. Additionally, arrows of the same three colours indicate the change in time for some indicators. The direction of the arrows might vary for each deviation, since it's a measure of relative performance compared to the evolution of the same indicator at the reference level.

As using the two mentioned methods does not provide a more detailed perspective, mapping the indicators on a regional level allows for further differentiation within the regions, according to the underlying data preciseness and shall thus be suggested as another way of monitoring.

## 2. Introduction to the region for quantitative benchmarking

Navarra is just as Catalonia an autonomous community in Spain, bordering the Spanish regions La Rioja, Castile et Leon, Aragon and Basque Country as well as Aquitaine in France.

This NUTS 2 region in northern Spain has a population of 614,526 (2009) on a total area of approximately 10,000km<sup>2</sup>, thus a population density of 61.5 inhabitants per km<sup>2</sup>.

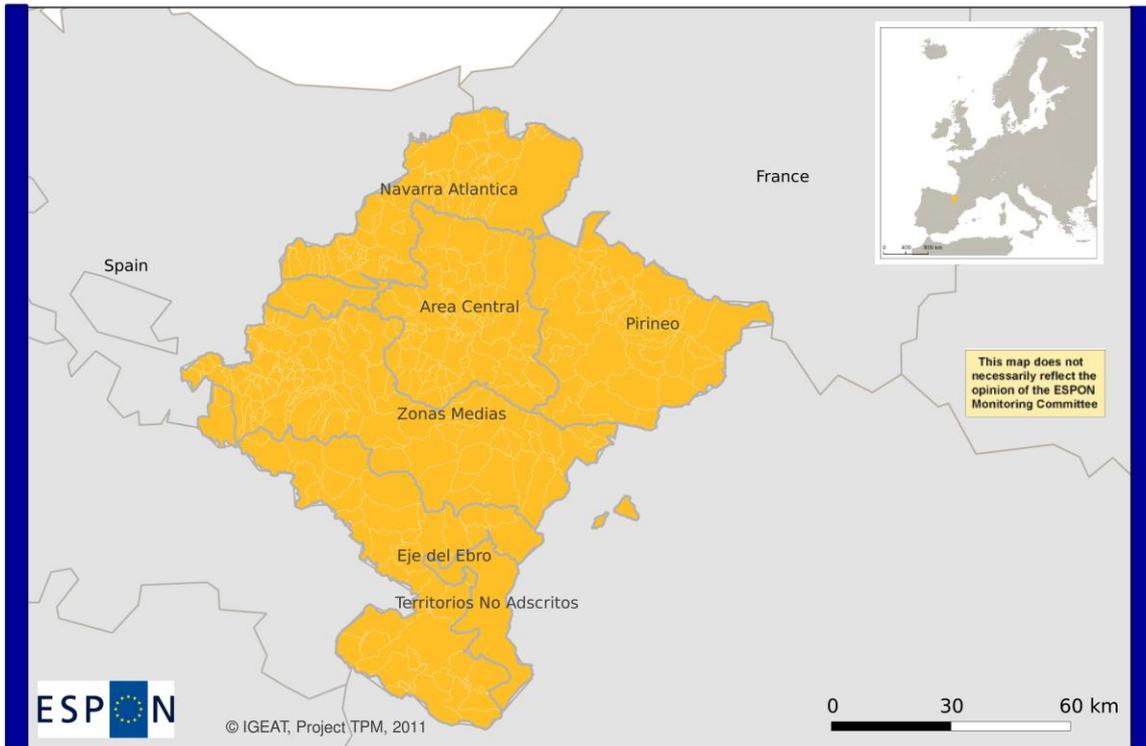
Navarra is subdivided into 5 "Planes de Ordenación Territorial" (POT): Pirineo, Navarra Atlántico, Área Central, Zonas Medias and Eje del Ebro. In turn, the POTs embrace 364 municipalities.

For the benchmarking indicators, the NUTS 2 level has been chosen as reference scale for Navarra.

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benchmarking values would thus be  $4,5/6*100=75$  and 125. If you represent the exact same fact by its complement, i.e. the employment rate, you would get the following results: (A)  $95,5/94*100=102$ , (B)  $92,5/94*100=98$ . Both regions would thus seem much closer to each other in the second case, although the indicator shows the same reality.

## Local map Navarra

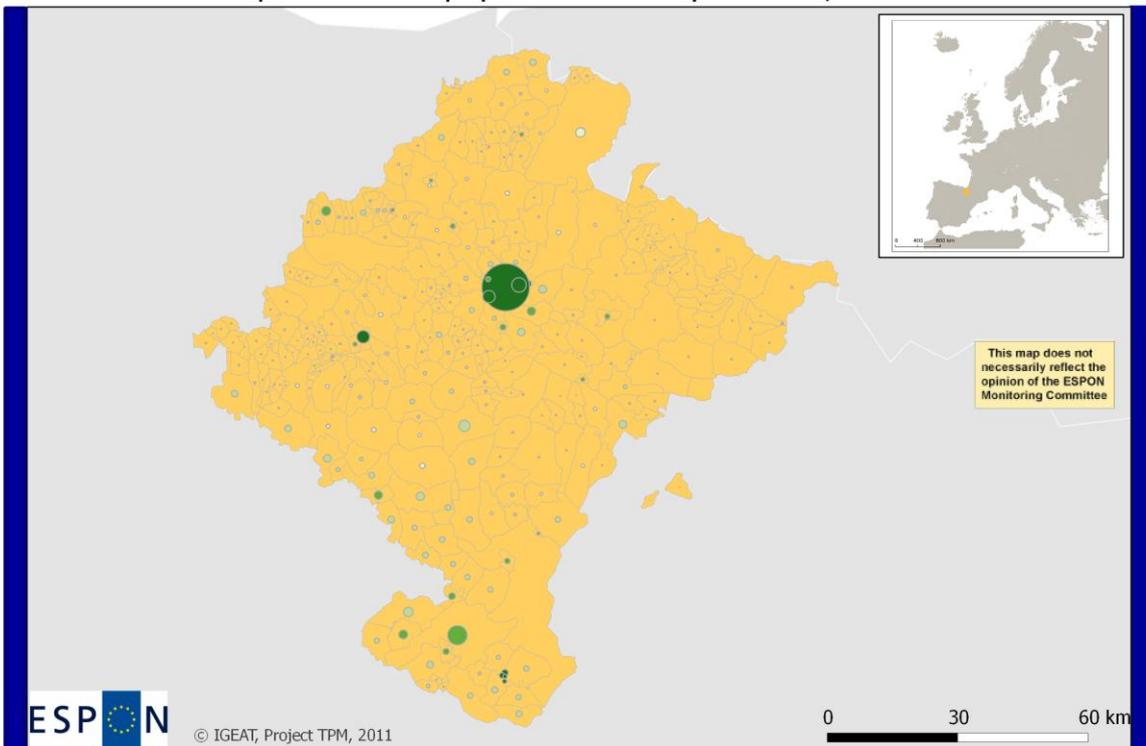



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Local level Spanish municipios  
 Source: ESPON 2013 Database  
 Origin of data: NASURSA, 2011

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## Population and population density Navarra, 2006




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- |   |  |
|---|--|
| <b>Population density Navarra (inh./km<sup>2</sup>)</b><br><ul style="list-style-type: none"> <li>○ 1 - 25</li> <li>○ 25 - 142</li> <li>○ 142 - 590</li> <li>○ 590 - 15990</li> </ul> | <b>Population size (inh.)</b><br><ul style="list-style-type: none"> <li>○ 11,000</li> <li>○ 22,500</li> <li>○ 196,000</li> </ul> |
|---|--|

Municipios Navarra  
 Source: NASURSA, 2011  
 Origin of data: Instituto de Estadística de Navarra, 2006  
 © EuroGeographics Association for administrative boundaries

### 3. Synthesis of quantitative benchmarking

#### 3.1 Globalisation

Benchmarking Navarra's economic performance in relation to other European regions results in a very diverse picture: on the one hand, its expenditure on R&D, its net migration as well as its share of population having tertiary education are relatively high compared to the numbers of other examined European regions; on the other hand, looking at the relative number of patents that have been filed in Navarra, salaries (manufacturing and information/communication) and employment in professional/scientific and technical activities, touristic statistics, the share of population born outside the EU as well as academic and employment aspects and accessibility by car and plane bare an underperformance in the European context.

Comparing indicators such as employment, the share of tourists coming from outside Navarra as well as change in unemployment between 1999-2009 reveals the need of improvement in order to brighten Navarra's achievements at all benchmarking scales. On the contrary, the share of tertiary education, share of employment in manufacturing sector as well as the expenditure on R&D and average salaries in professional/scientific/technical activities exceed all averages.

On the national deviation, the results only vary slightly in a positive way since the benchmarking values of the number of early school leavers and the unemployment rate turn to "good" and thus, represent Navarra's overall better performance in a national relation.

Looking only at Navarra's neighbouring regions, Navarra shows low performance only in scientific activities and the share of tourists coming from outside the region but does quite well in the other fields.

In sum, this benchmarking reveals better results at smaller deviations than in the greater European context and points at the region's potential for improvement.

#### 3.2 Demography

In terms of demographic structure, Navarra is attended by the European average, except for one aspect: life expectancy at birth, which is higher than the European and national average. Looking at the different deviations does not change the benchmarking result a lot since the young dependency ratio and population growth spread in all deviations around the average. Navarra only sticks out in comparison with its surroundings with a relatively low share of elderly people and the average median age in Spain lies below the 39 years in Navarra. All in all, the benchmarking results are satisfying to good but call for improvement in the European context.

### 3.3 Climate change

In terms of climate change, Navarra does very well in the European perspective: most benchmarking values, including soil sealing, NATURA 2000 areas, concentration of particulate matter at surface level and days with ozone exceedance and changes in all temperature indicators indicate a performance above European average. The same result for a comparison at national level, except for a low share of NATURA 2000 areas in relation to the rest of Spain. Looking at neighbouring areas converts the performance in soil sealing and the areas defined for natural protection to an average one. Thus, Navarra's achievements are good in the European perspective but are put into perspective when compared on a smaller deviation. Only the temperature indicators position Navarra very well in almost all comparisons.

Navarra takes up a bad position when looking at the change in minimum temperature in January: with the high increase since 1994 in the region, this indicator results in low benchmarking values as a measure for climate change.

In comparison to regions in the same ESPON climate change type, Navarra does moderately up to well. Overall, Navarra's position in terms of climate change can be described as average up to good, while better in the European context, and thus points only at some challenges for the region.

### 3.4 Energy

Summarizing the results of benchmarking Navarra as one region reveals that it is not performing well in most of the examined aspects: the region's low potential for generating renewable energy through wind power together with its high share of employment in energy intensive industries and the high share that fuel costs for freight traffic make up of the total GDP of the region lead to a bad position on all deviations. However, the high potential of solar energy brightens the picture because of the region's high benchmarking values for this indicator.

Looking at the different scales or comparing Navarra's performance to other regions classified in the same type of the ESPON energy typology leads to the same results.

All in all, monitoring the listed indicators for Navarra points at the need of improvement in terms of energy in order to stay competitive and stable also in the future.

## 4. Quantitative regional benchmarking

### 4.1 Globalisation

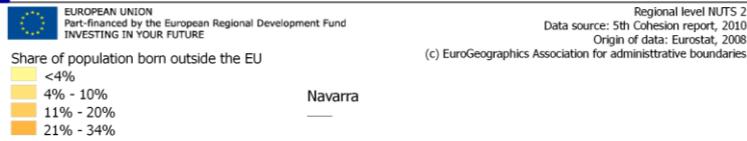
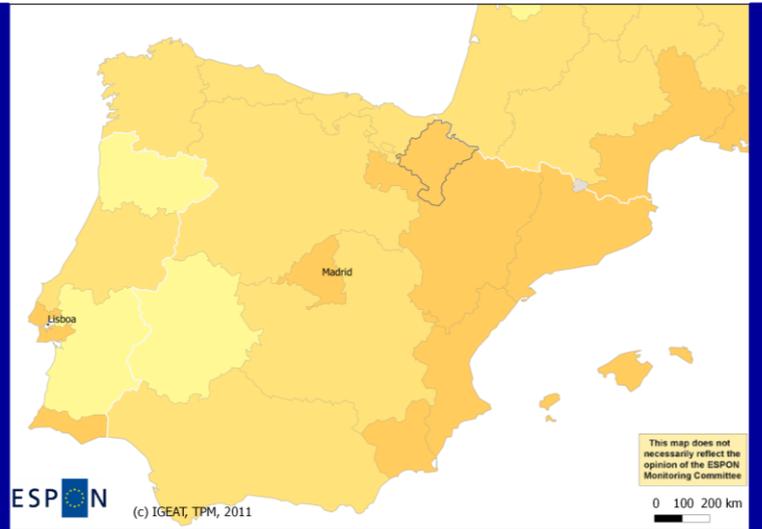
#### a) Comparative analysis globalisation

<b>Globalisation</b>								
<i>Indicator</i>	<i>value</i>		<i>EU</i>		<i>National</i>		<i>Neighbourhood</i>	<i>Typology</i>
Population born outside the EU, 2006	12%	175			95		174	
Internet access, 2009	52%	104			101		105	
Expenditure on R&D, 2007	1.80%	112			179		138	
Relative number of patents, 2005	0.02%	83			311		214	
<i>Average salary per economic sector, 2008</i>								
Manufacturing (C)	28,394 €	121			112		102	
Information, communication (J)	28,310 €	93			91		110	
Professional, scientific, technical activities (M)	18,870 €	82			103		81	
<i>Employment per economic sector, 2008</i>								
Manufacturing (C)	23.80%	205			222		206	

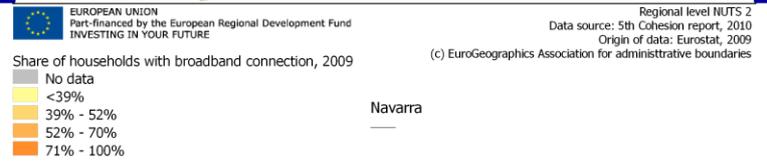
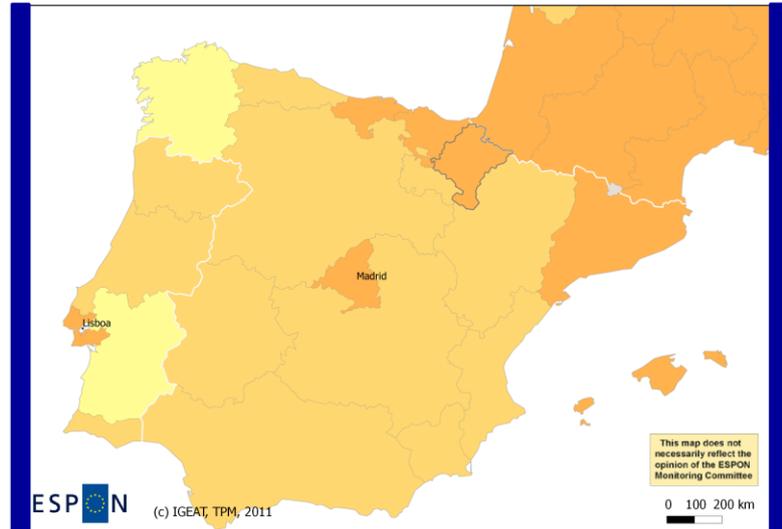
Information, communication (J)	1%	19		53		20	
Professional, scientific, technical activities (M)	4.30%	72		92		64	
Tourism occupancy, 2009	19.50%	88		66		144	
Tourism non-residents, 2009	17.90%	45		31		82	
Daily population accessible by car, 1999	7.368	-0.67		0.04			
Migration into NUTS 3 regions	11.62	1.49		-0.16			
Accessibility to passenger flights	94	-0.73		-0.22			
Tertiary education, 2007	36%	178		133		122	
Early school leavers, 2007	16.80%	123		60		105	
Unemployment rate, 2009	10.90%	122		61		96	
Change in unemployment rate, 2000-2009	+122%	220		121		160	

## b) Regional maps globalisation

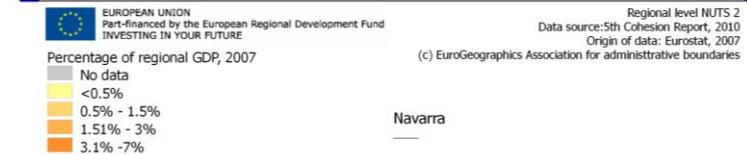
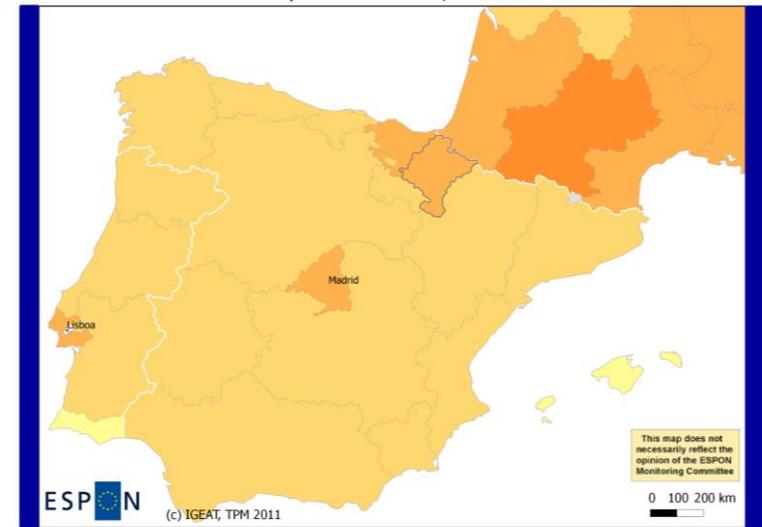
Share of population born outside the EU, 2008



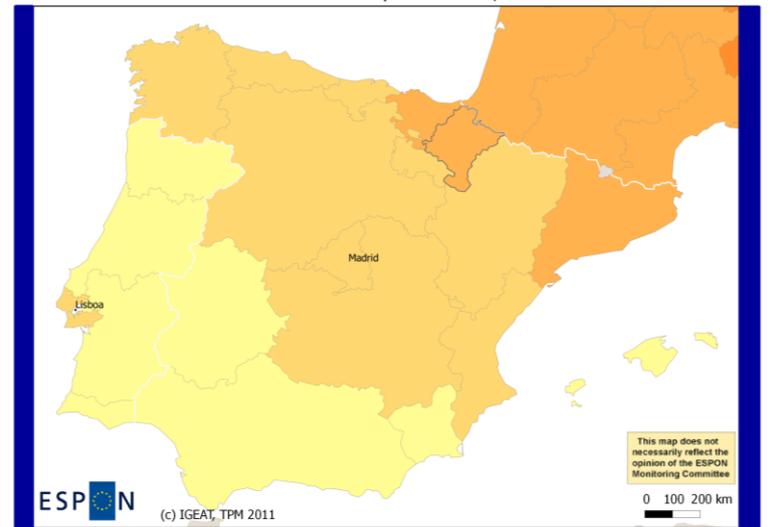
Broadband connection, 2009



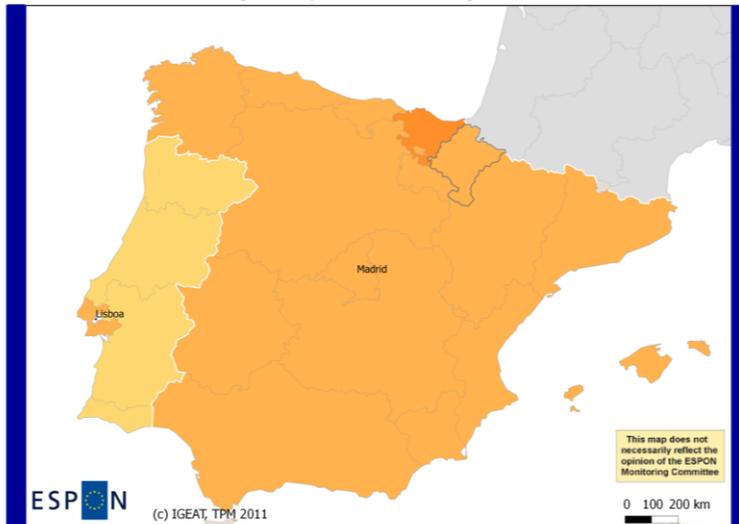
Expenditure in R&D, 2007



Relative number of patents filed, 2005



Average salary in manufacturing sector, 2008

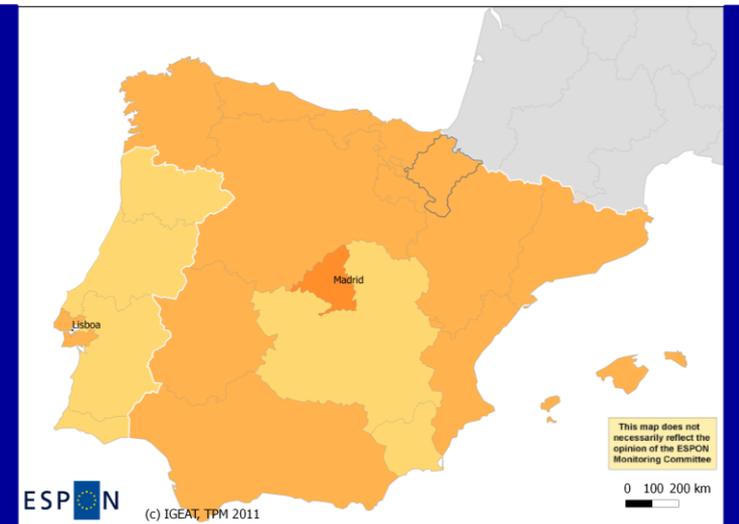


Regional level NUTS 2  
Data source: Eurostat, 2011  
Origin of data: Eurostat, 2008  
(c) EuroGeographics Association for administrative boundaries

salary manufacturing / number of employed persons in the sector (€)

- < 1000
- 1000 - 16000
- 16000 - 30000
- > 30000
- No data

Average salary per sector: information and communication, 2008

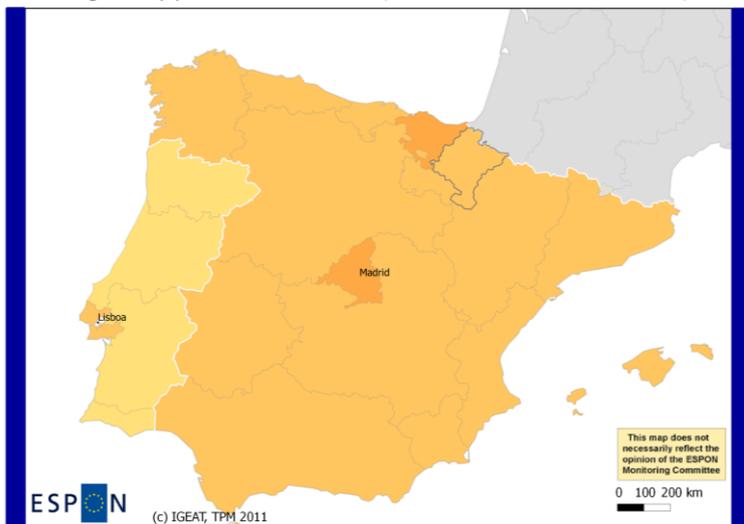


Regional level NUTS 2  
Data source: Eurostat, 2011  
Origin of data: Eurostat, 2008  
(c) EuroGeographics Association for administrative boundaries

salary in this sector / number of employed persons in the sector (€)

- 1538 - 6742
- 6742 - 22738
- 22738 - 32205
- > 32205
- No data

Average salary per sector: Professional, scientific and technical activities, 2008

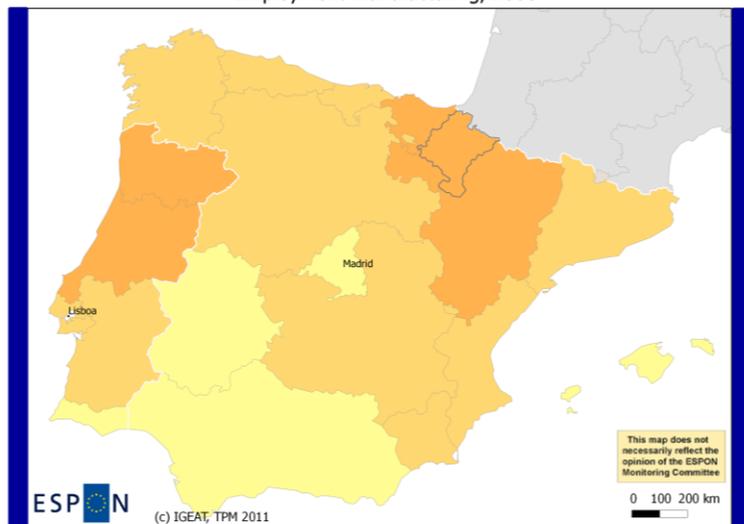


Regional level NUTS 2  
Data source: Eurostat, 2011  
Origin of data: Eurostat, 2008  
(c) EuroGeographics Association for administrative boundaries

salary in this sector / number of employed persons in the sector (€)

- 1538 - 6742
- 6742 - 22738
- 22738 - 32205
- > 32205
- No data

Employment manufacturing, 2008

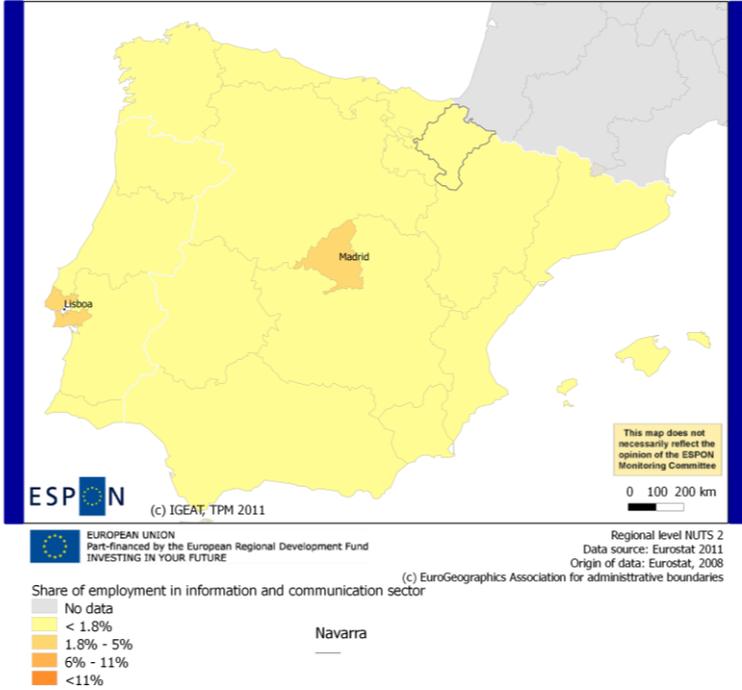


Regional level NUTS 2  
Data source: Eurostat, 2011  
Origin of data: Eurostat, 2008  
(c) EuroGeographics Association for administrative boundaries

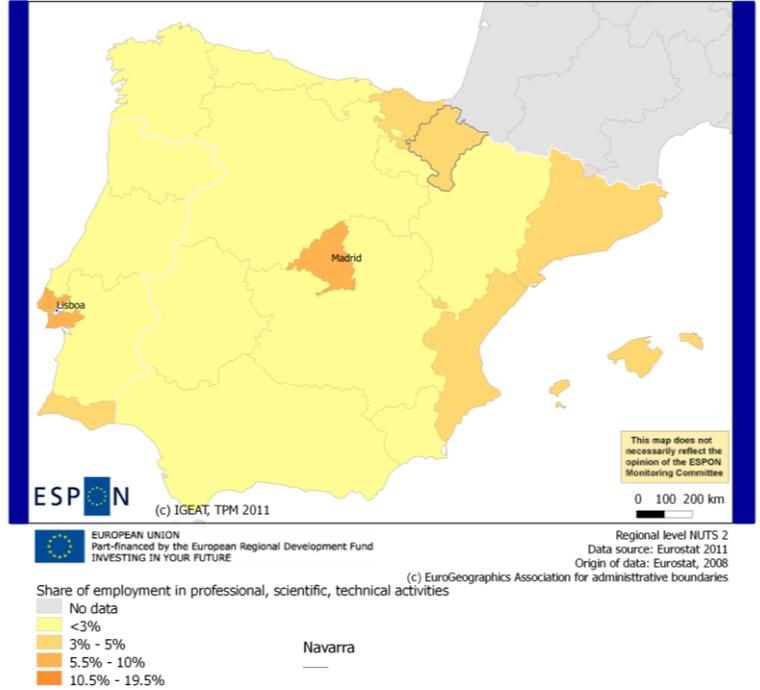
Share of employment in manufacturing

- No data
- < 6%
- 6% - 12%
- 13% - 20%
- 20% - 30%

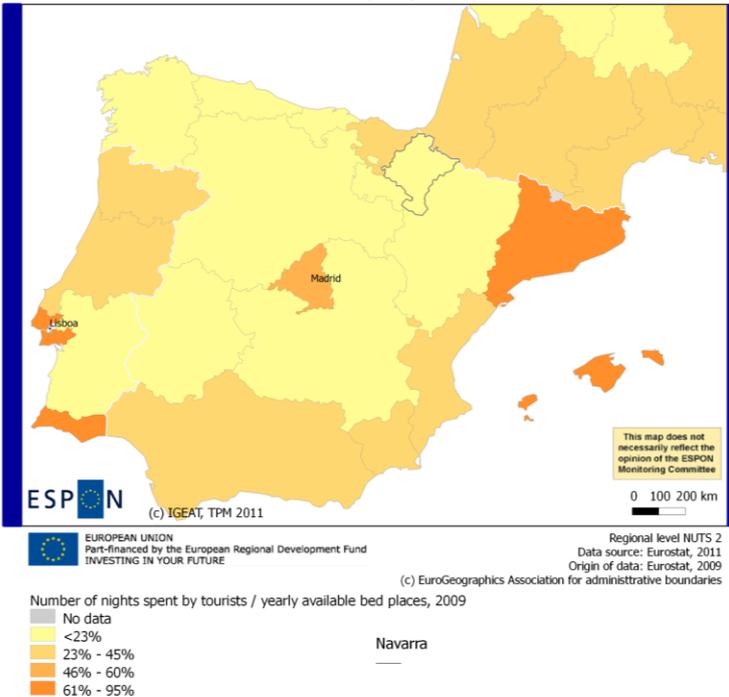
Employment information and communication, 2008



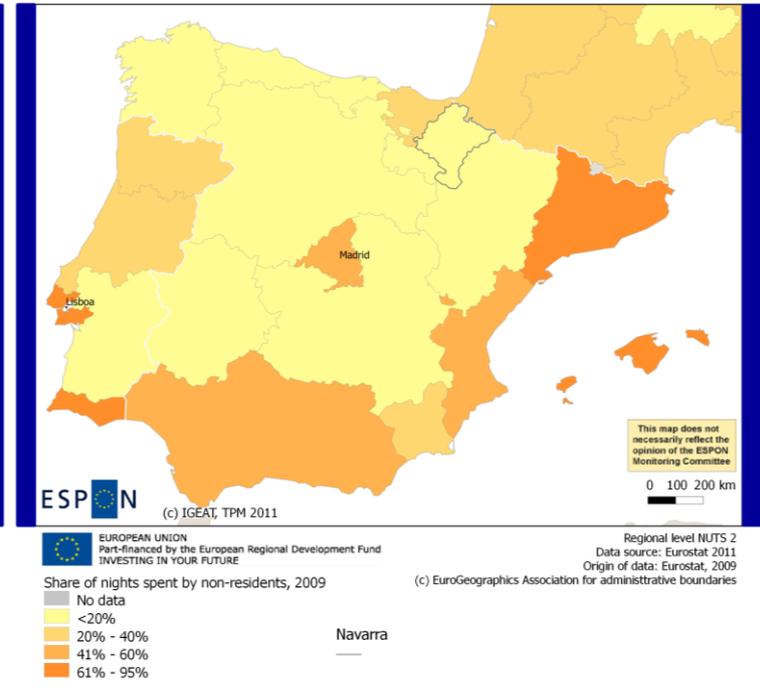
Employment professional, scientific, technical activities, 2008



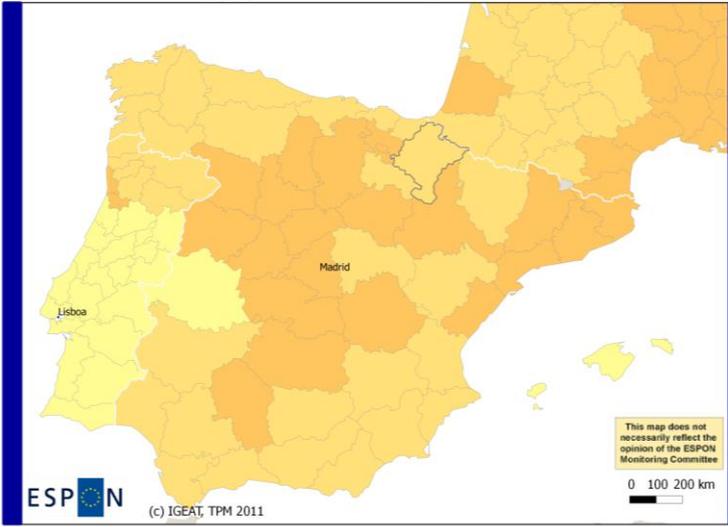
Tourism occupancy rate, 2009



Tourism non-residents, 2009



Daily population accessible by car, 2004



(c) IGEAT, TPM 2011

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daily population accessible by car, 2004

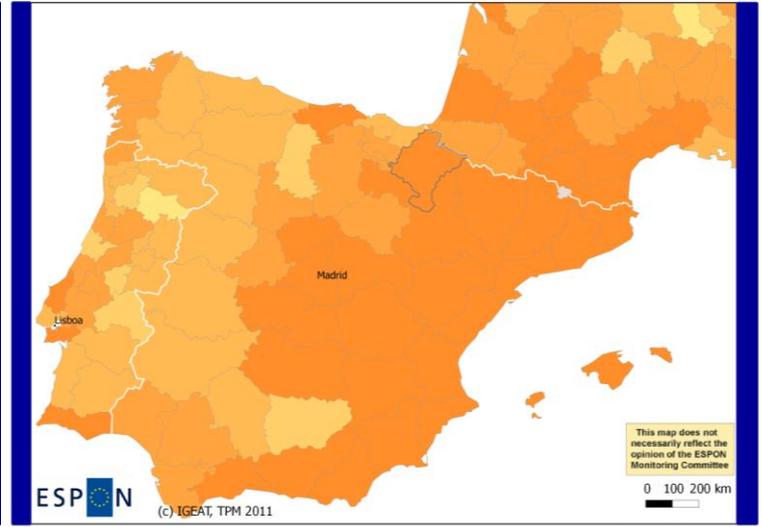
- < 2500
- 2500 - 9000
- 9000 - 20000
- 20000 - 40000
- > 40000

Navarra

Regional level NUTS 3  
Data source: ESPON 2013 Database  
Origin of data: ESPON Project EDORA, 2004

(c) EuroGeographics Association for administrative boundaries

Net migration NUTS 3 regions, 2001-2007



(c) IGEAT, TPM 2011

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net migration per million inhabitants (annual average)

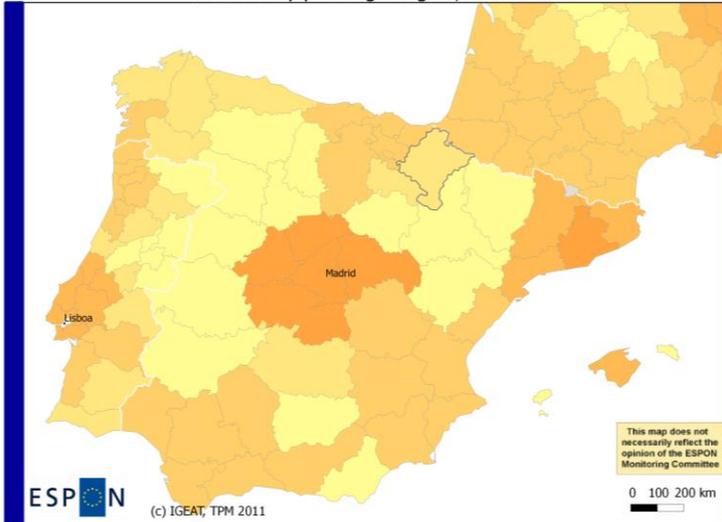
- < -1.5
- 1.5 - 0
- 0 - 1.5
- 1.5 - 5
- 5 - 10
- > 10
- No data

Navarra

Regional level NUTS 3  
Data source: 5th Cohesion Report, 2010  
Origin of data: Eurostat, ESPON

(c) EuroGeographics Association for administrative boundaries

Accessibility passenger flights, 2008



(c) IGEAT, TPM 2011

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Population weighted average of passenger flights per day  
travel time to the closest airport < 90 min

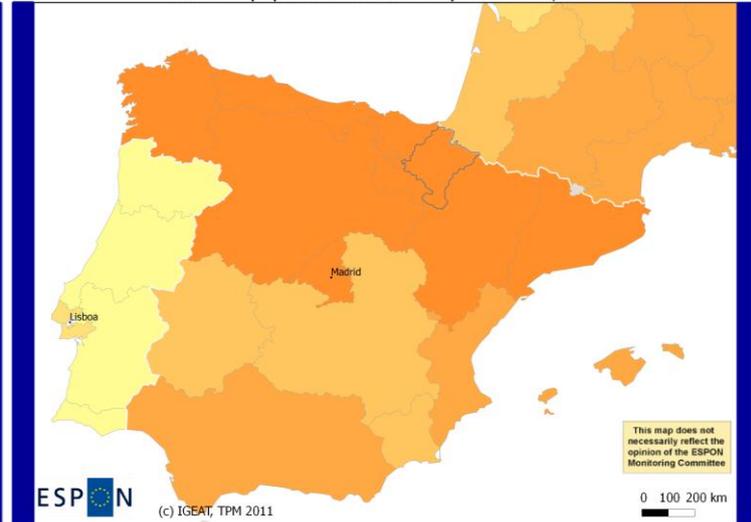
- 0 - 50
- 50 - 150
- 150 - 350
- 350 - 800
- 800 - 1500
- 1500 - 3500

Navarra

Regional level NUTS 3  
Data source: ESPON 2013 Database  
Origin of data: ESPON Project TIPTAP, 2010

(c) EuroGeographics Association for administrative boundaries

Share of population with tertiary education, 2009



(c) IGEAT, TPM 2011

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Share of population with tertiary education

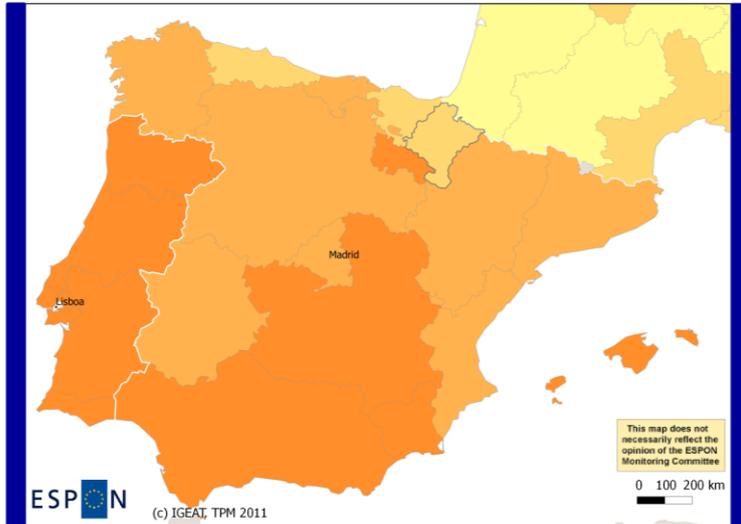
- No data
- <15%
- 15% - 19%
- 20% - 22%
- 23% - 26%
- 27% - 41%

Navarra

Regional level NUTS 2  
Data source: 5th Cohesion Report, 2010  
Origin of data: Eurostat, 2009

(c) EuroGeographics Association for administrative boundaries

Early school leavers, 2007



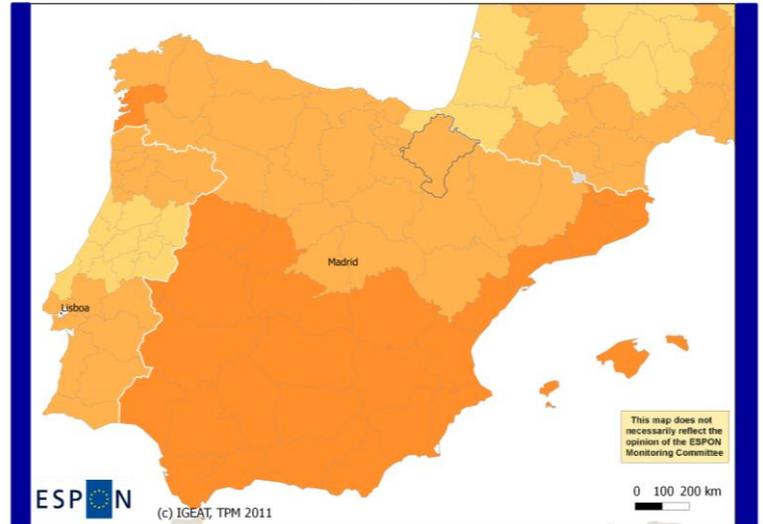
Regional level NUTS 2  
Data source: 5th Cohesion Report, 2010  
Origin of data: Eurostat, 2007  
(c) EuroGeographics Association for administrative boundaries

Share of early school leavers of population aged 18-24, 2007

- 2% - 10%
- 11% - 20%
- 21% - 30%
- 31% - 47%

Navarra

Unemployment rate, 2009



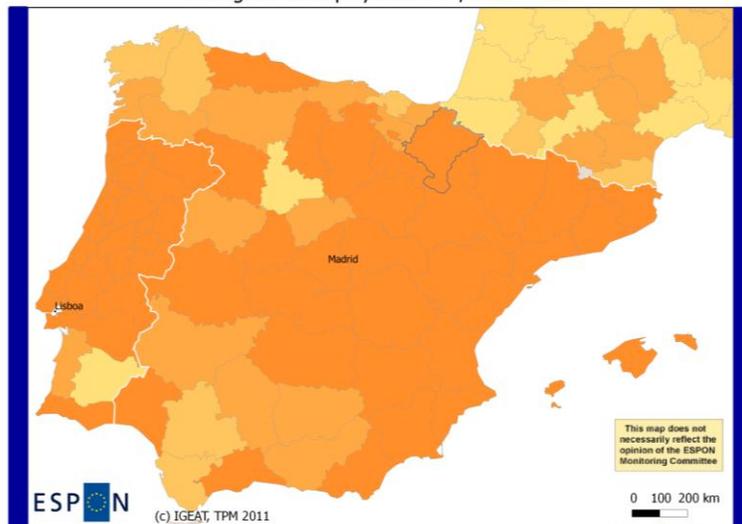
Regional level NUTS 3  
Data source: Eurostat, 2011  
Origin of data: Eurostat, 2009  
(c) EuroGeographics Association for administrative boundaries

Unemployment rate of population older than 15, 2009

- No data
- < 5%
- 5% - 9%
- 10% - 15%
- 16% - 29%

Navarra

Change of unemployment rate, 2000-2009



Regional level NUTS 3  
Data sources: Eurostat, 2011  
Origin of data: Eurostat, 2009  
(c) EuroGeographics Association for administrative boundaries

Percentage of NATURA 2000 area of total NUTS 3 area

- No data
- <8%
- 8% - 15%
- 16% - 26%
- 27%-58%

Navarra

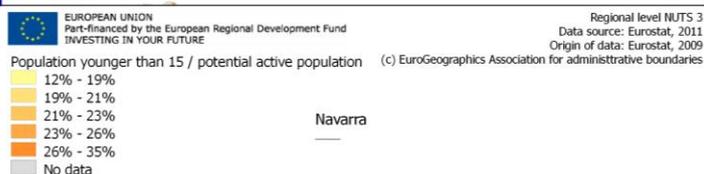
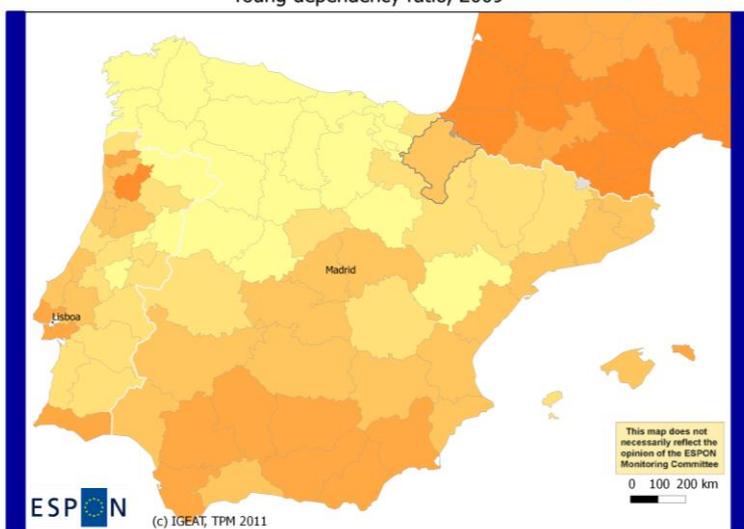
## 4.2 Demography

### a) Comparative analysis

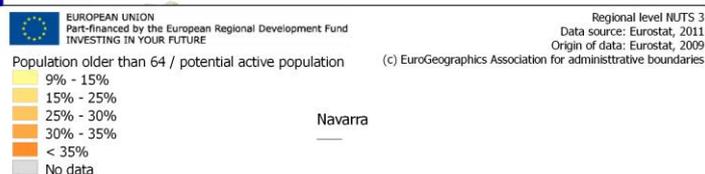
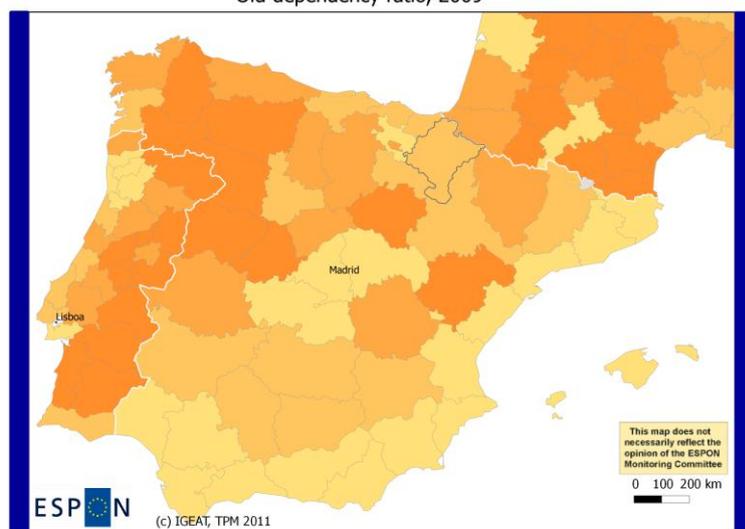
<b>Demography</b>									
<i>Indicator</i>	<i>value</i>		<i>EU</i>		<i>National</i>		<i>Neighbourhood</i>		<i>Typology</i>
Young age dependency ratio, 2009	22%	95		102		104		92	
Old age dependency ratio	26%	102		107		85		124	
Life expectancy	81.6	1.2 9		0.5 2				0.7	
Median age	39	0.0 2		- 0.3 6				- 1.0 1	
Population growth, 1999-2009	+13%	109		98		106		101	

### b) Regional maps demography

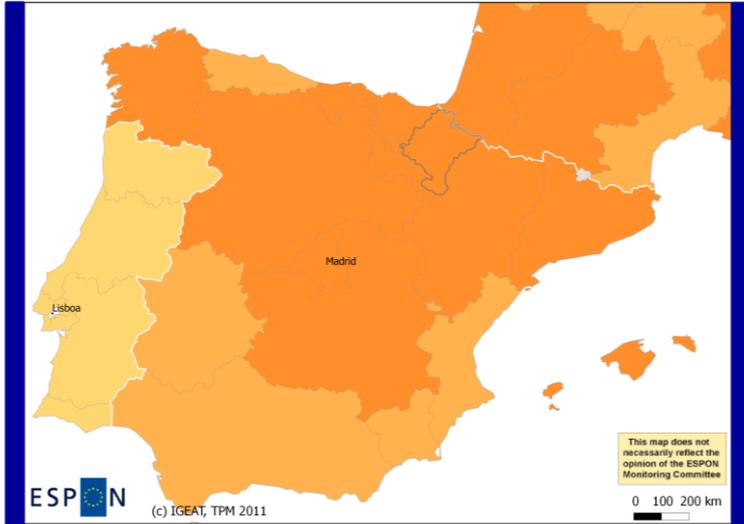
Young dependency ratio, 2009



Old dependency ratio, 2009



Life expectancy at birth, 2004



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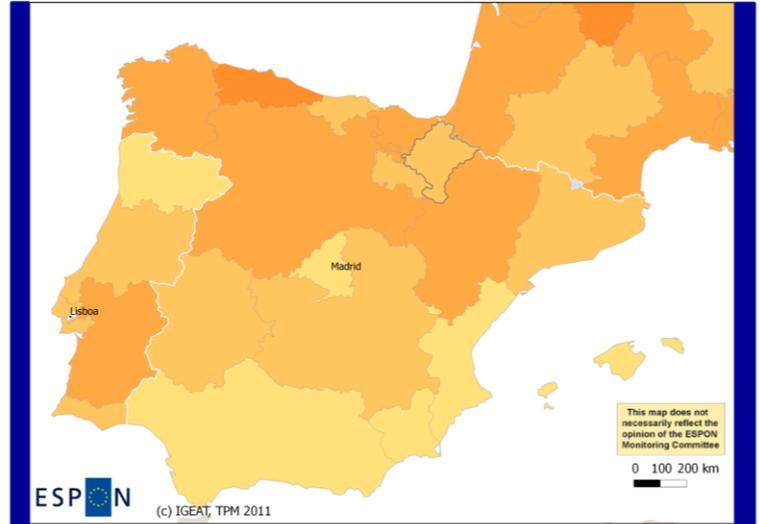
number of years that a newborn is expected to live

- 70 - 75
- 75 - 78
- 78 - 80
- 80 - 82

Regional level NUTS 2  
Data source: ESPON 2013 Database  
Origin of data: ESPON DEMIFER Project, 2010  
(c) EuroGeographics Association for administrative boundaries

Navarra

Median Age, 2008



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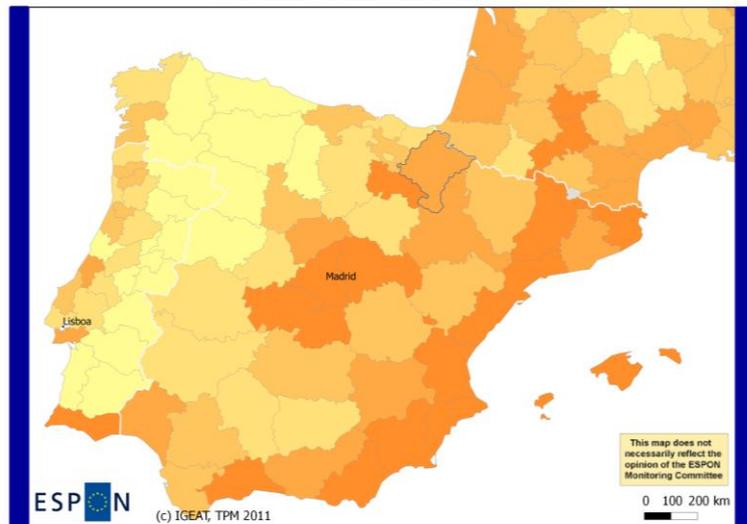
age that divides a population into two numerically equal groups

- 31 - 34
- 34 - 37
- 37 - 39
- 39 - 43
- 43 - 46
- No data

Regional level NUTS 2  
Data source: Eurostat, 2011  
Origin of data: Eurostat, 2008  
(c) EuroGeographics Association for administrative boundaries

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Population growth, 1999-2009



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change in population 2009/1999

- < 0 %
- 0 - 5 %
- 5 - 10 %
- 10 - 15 %
- >15 %

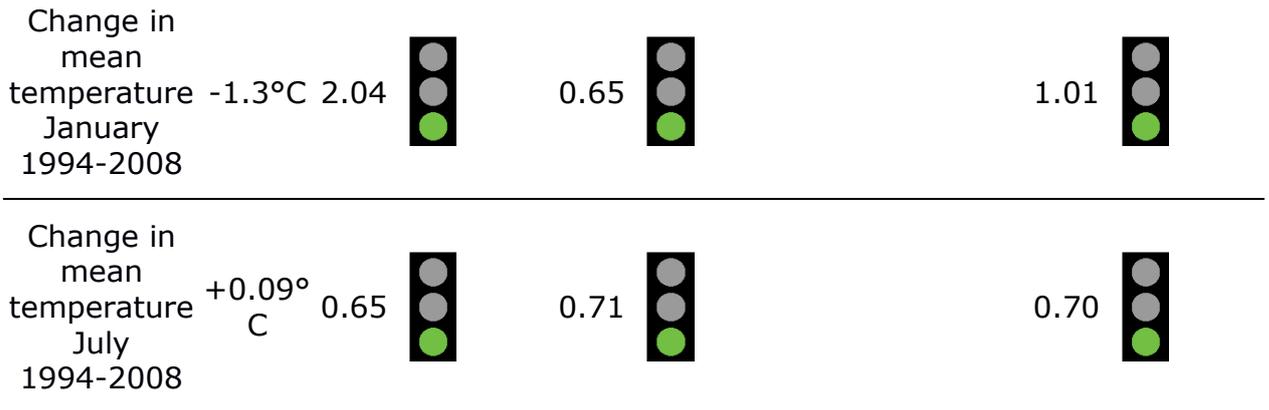
Regional level NUTS 3  
Data source: Eurostat, 2011  
Origin of data: Eurostat, 1999, 2009  
(c) EuroGeographics Association for administrative boundaries

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## 4.3 Climate Change

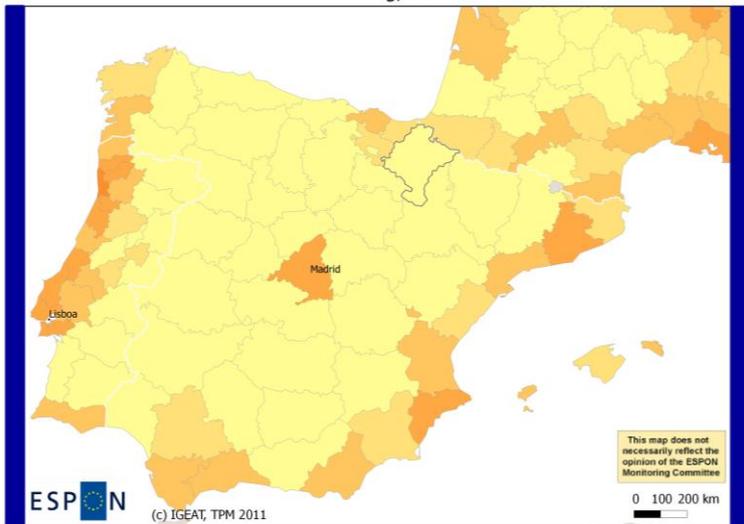
### a) Comparative analysis

<b>Climate Change</b>										
<i>Indicator</i>	<i>value</i>		<i>EU</i>		<i>National</i>		<i>Neighbourhood</i>		<i>Typology</i>	
Soil sealing, 2006	1%	47			70		97		99	
NATURA 2000 areas, 2009	24%	142			89		103		108	
Concentration of particulate matter on surface level, 2009	10.67 $\mu\text{g}/\text{km}^3$	0.77			0.27				0.56	
Ozone exceedance days, 2008	0.25 days	0.87			0.45				0.86	
Energy consumption for heating, 1981-2009	-4%	93			96		97		94	
Change in minimum temperature January 1994-2008	-1.9°C	0.4			-0.32				0.15	
Change in maximum temperature July 1994-2008	-1.42°C	1.96			1.89				2.00	

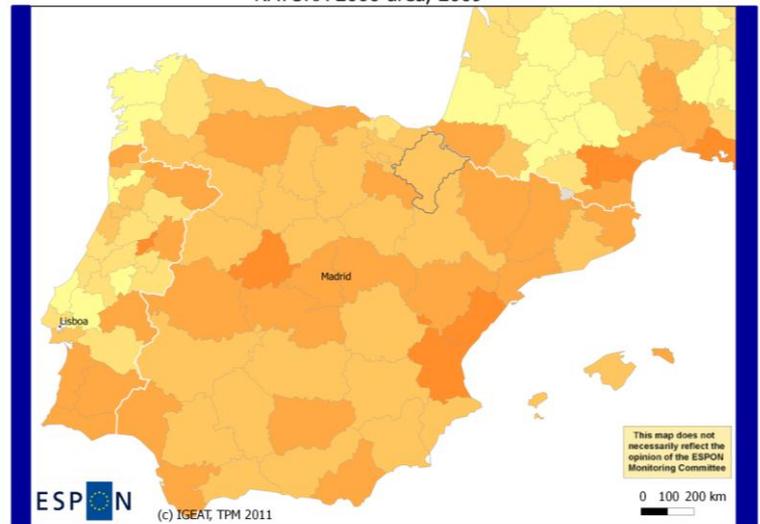


### b) Regional maps climate change

Soil sealing, 2006



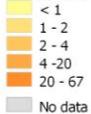
NATURA 2000 area, 2009



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Regional level NUTS 3  
Data source: 5th Cohesion Report, 2010  
Origin of data: AEE, REGIO-GIS  
(c) EuroGeographics Association for administrative boundaries

% of total NUTS 3 surface



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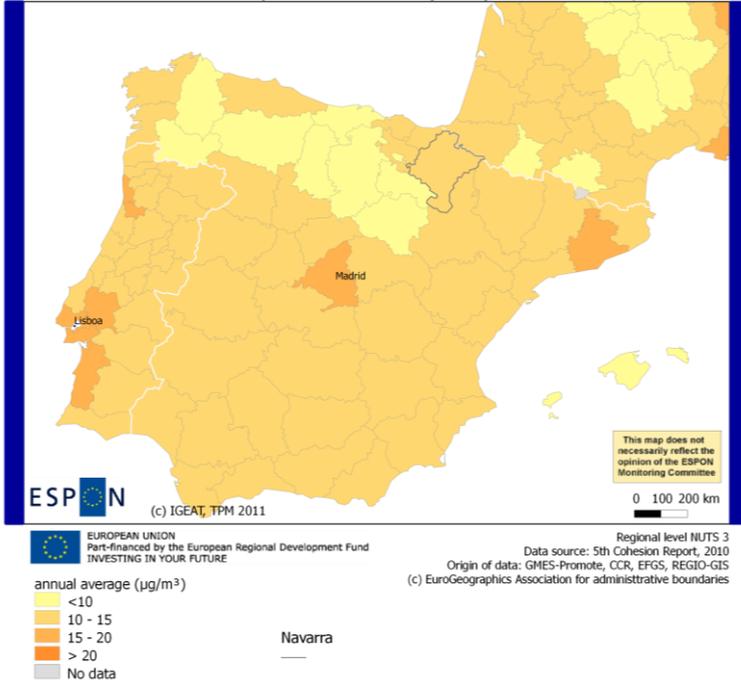
Regional level NUTS 3  
Data source: 5th Cohesion Report, 2010  
Origin of data: AEE, REGIO-GIS  
(c) EuroGeographics Association for administrative boundaries

% of total NUTS 3 surface

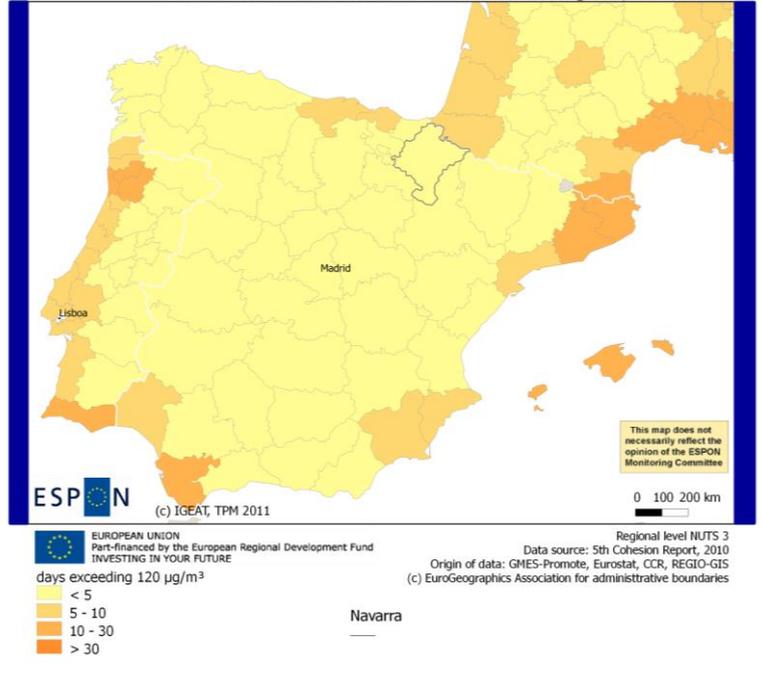


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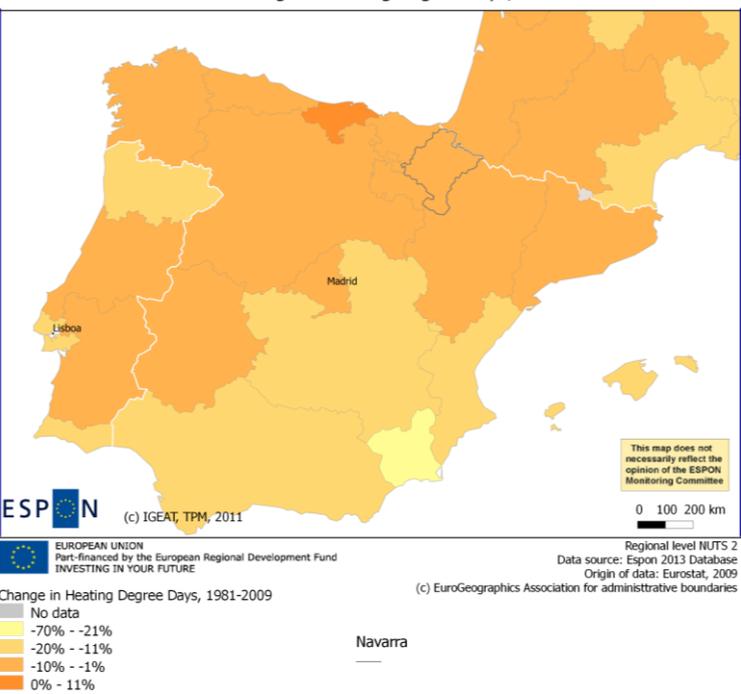
Concentration of particulate matter (PM10) at surface level, 2009



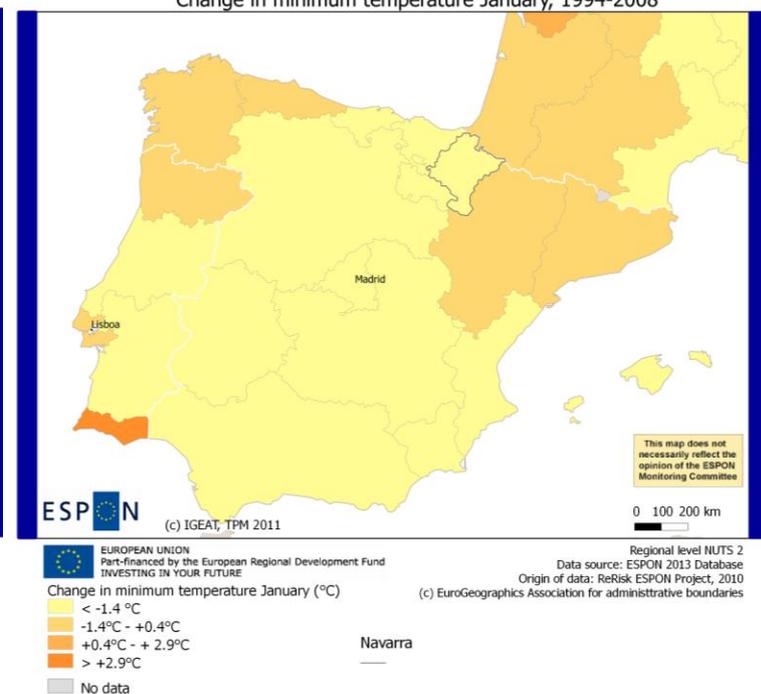
Ozone concentration exceedances in NUTS 3 regions, 2008



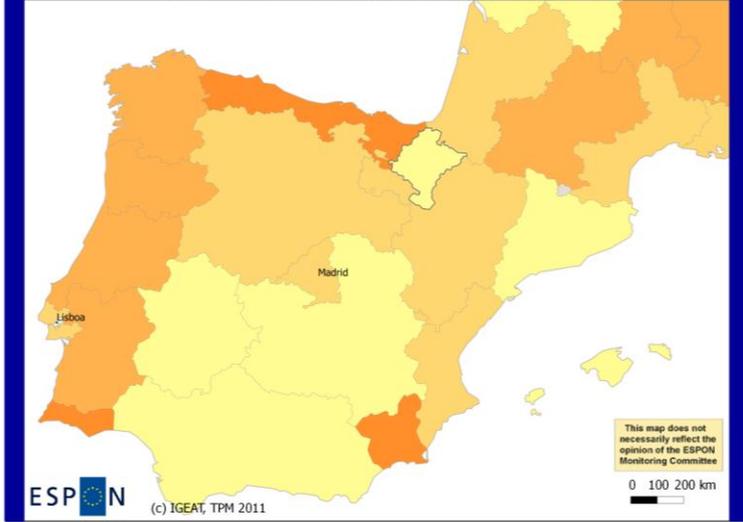
Change in heating degree days, 2009



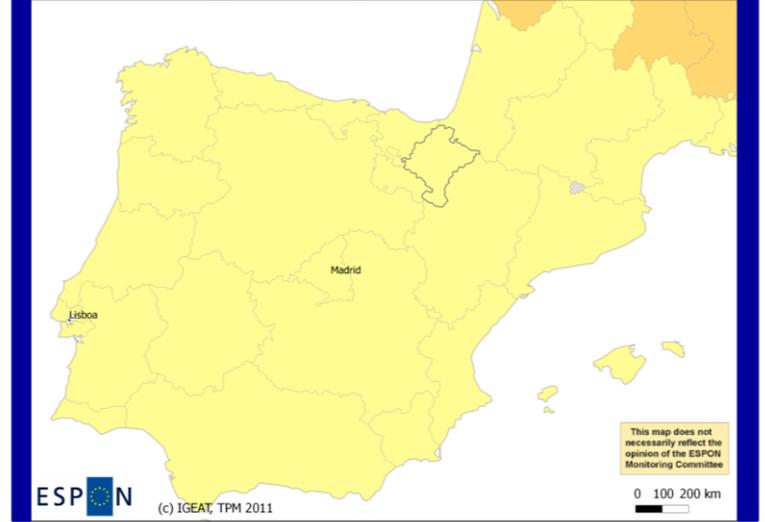
Change in minimum temperature January, 1994-2008



Change in maximum temperature July, 1994-2008



Change in mean temperature January, 1994-2008



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Change in maximum temperature July (°C)

- 2.8°C - 0°C
- 0°C - +0.8°C
- +0.8°C - +1.6°C
- +1.6°C - +3.5°C
- No data

Regional level NUTS 2  
Data source: ESPON 2013 Database  
Origin of data: ReRisk ESPON Project, 2010  
(c) EuroGeographics Association for administrative boundaries

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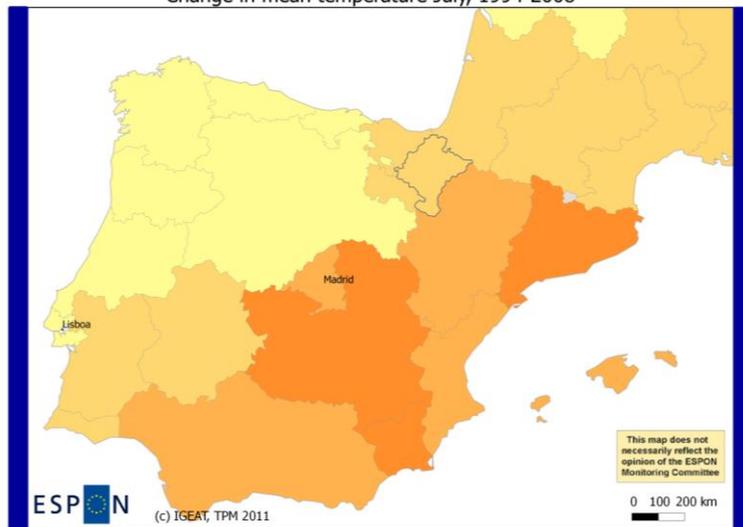
Change in mean temperature January (°C)

- 1.5°C - -0.1°C
- 0.1°C - +0.9°C
- +0.9°C - +1.6°C
- +1.6°C - +2.8°C
- No data

Regional level NUTS 2  
Data source: ESPON 2013 Database  
Origin of data: ReRisk ESPON Project, 2010  
(c) EuroGeographics Association for administrative boundaries

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Change in mean temperature July, 1994-2008



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Change in mean temperature July (°C)

- 0.7°C - 0°C
- 0°C - +0.3°C
- +0.3°C - +0.6°C
- +0.6°C - +1.7°C
- No data

Regional level NUTS 2  
Data source: ESPON 2013 Database  
Origin of data: ReRisk ESPON Project, 2010  
(c) EuroGeographics Association for administrative boundaries

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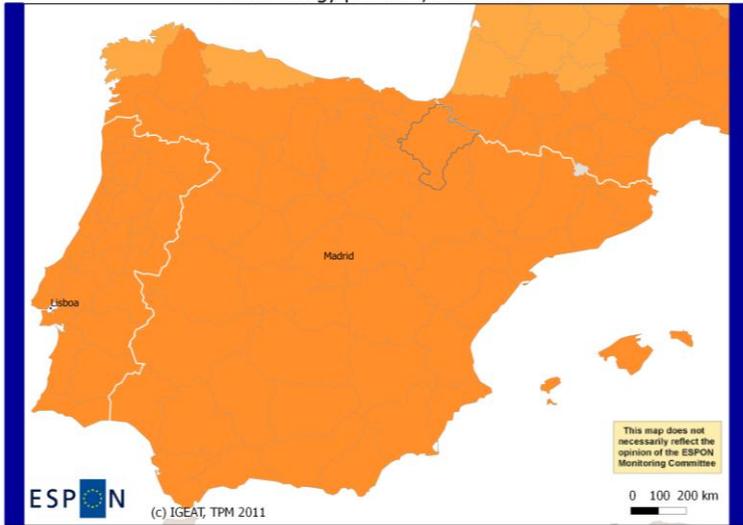
## 4.4 Energy

### a) Comparative analysis

<b>Energy</b>						
<i>Indicator</i>	<i>value</i>	<i>EU</i>	<i>National</i>	<i>Neighbour- hood</i>	<i>Typology</i>	
Solar energy resources, 1981-1990	1641 kWh/m <sup>2</sup>	1.10	0.48		1.39	
Wind energy potential, 2005	1091h	- 0.40	0.03		-0.62	
Fuel costs of freight traffic as % of GDP, 2005	4.45%	- 1.13	- 0.72		-1.48	
Employment in energy intensive industries, 2005	0.46%	- 1.37	- 0.68		-0.99	

## b) Regional maps energy

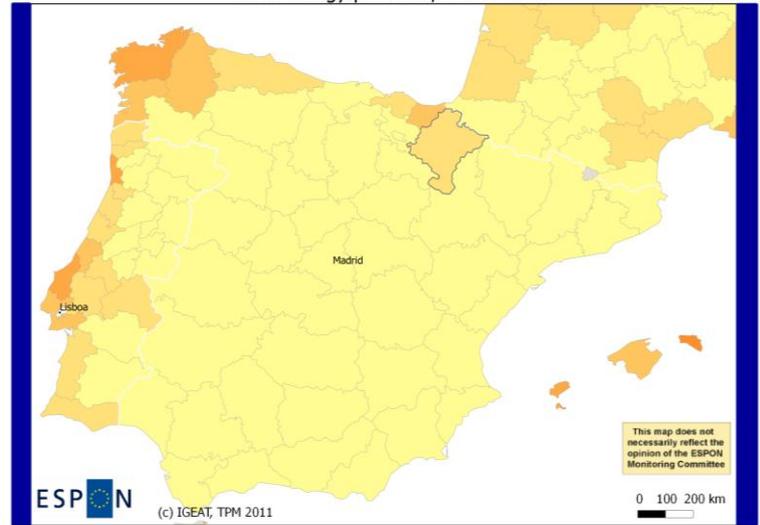
Solar energy potential, 1981-1990



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 Solar energy potential NUTS 3 regions (kWh per year)  
 < 1100  
 1100 - 1160  
 1160 - 1312  
 1312 - 1571  
 > 1571  
 No data

Regional level NUTS 3  
 Data source: 5th Cohesion Report, 2010  
 Origin of data: CCR  
 (c) EuroGeographics Association for administrative boundaries

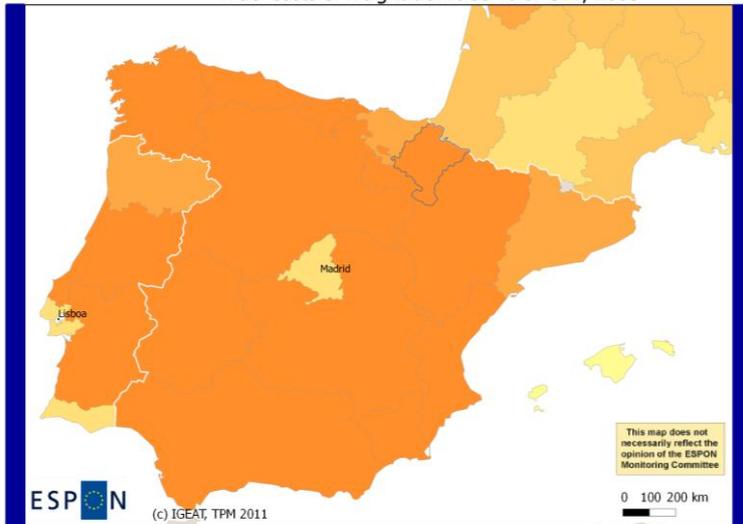
Wind energy potential, 2000-2005



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 Wind energy potential NUTS 3 regions (h per year)  
 < 1000  
 1000 - 1500  
 1500 - 2000  
 2000 - 3000  
 > 3000  
 No data

Regional level NUTS 3  
 Data source: 5th Cohesion Report, 2010  
 Origin of data: EEA TC-ACC, REGIO-GIS  
 (c) EuroGeographics Association for administrative boundaries

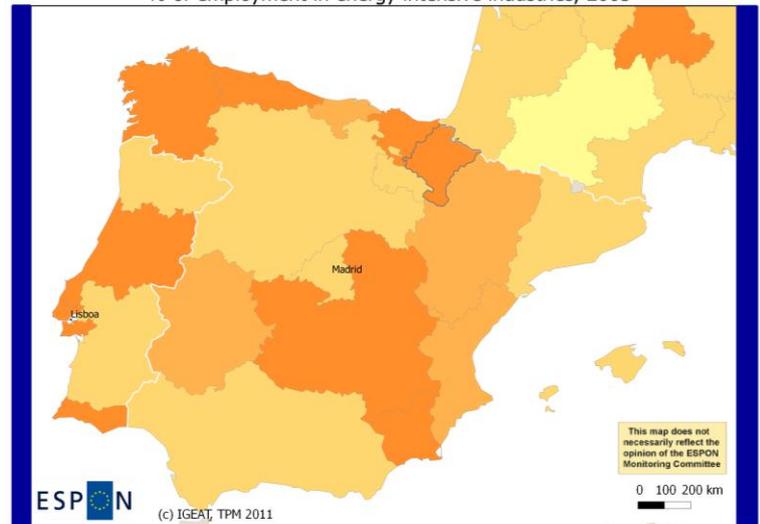
Fuel costs of freight traffic as % of GDP, 2005



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 fuel costs of freight traffic as % of GDP  
 < 0.8%  
 0.8% - 1.8%  
 1.8% - 2.3%  
 2.3% - 3.5%  
 3.5% - 14%  
 No data

Regional level NUTS 2  
 Data source: ESPON 2013 Database  
 Origin of data: ESPON Project ReRisk, 2010  
 (c) EuroGeographics Association for administrative boundaries

% of employment in energy intensive industries, 2005



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 % of employment in energy intensive industries  
 <0.2  
 0.2 - 0.3  
 0.3 - 0.4  
 0.4 - 0.7  
 No data

Regional level NUTS 2  
 Data source: ESPON 2013 Database  
 Origin of data: ESPON Project ReRisk, 2010  
 (c) EuroGeographics Association for administrative boundaries

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

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ISBN