

# TPM

## Territorial Performance Monitoring

### Annexes

Quantitative Analysis  
Flanders

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.

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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.

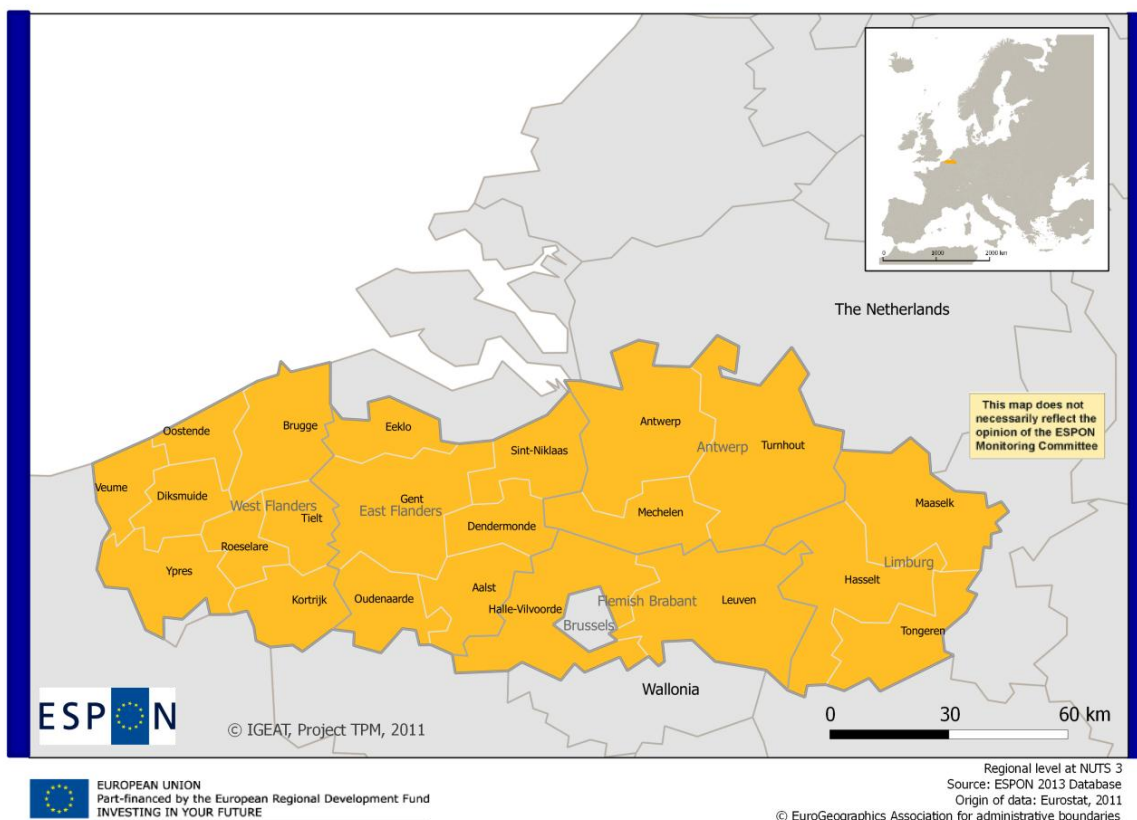
## 2. Introduction to the region for quantitative benchmarking

Flanders is situated in the North of Belgium and adjoins to the other two Belgian regions Brussels and Wallonia, whereas its neighbours in the North and East are Dutch regions and in the west a French neighbour. Flanders comprises an area of approximately 13,500 km<sup>2</sup> and hosts 6.2 Mio inhabitants, which results in a population density of 459 inhabitants per km<sup>2</sup>. The relevant statistical units in Flanders are just as in NRW the NUTS 2 and NUTS 3 regions: 5 NUTS 2 and 22 NUTS 3 regions constitute the statistical basis for the benchmarking analysis of Flanders. In terms of quantitative benchmarking, the NUTS 1 level of Flanders forms the according reference.

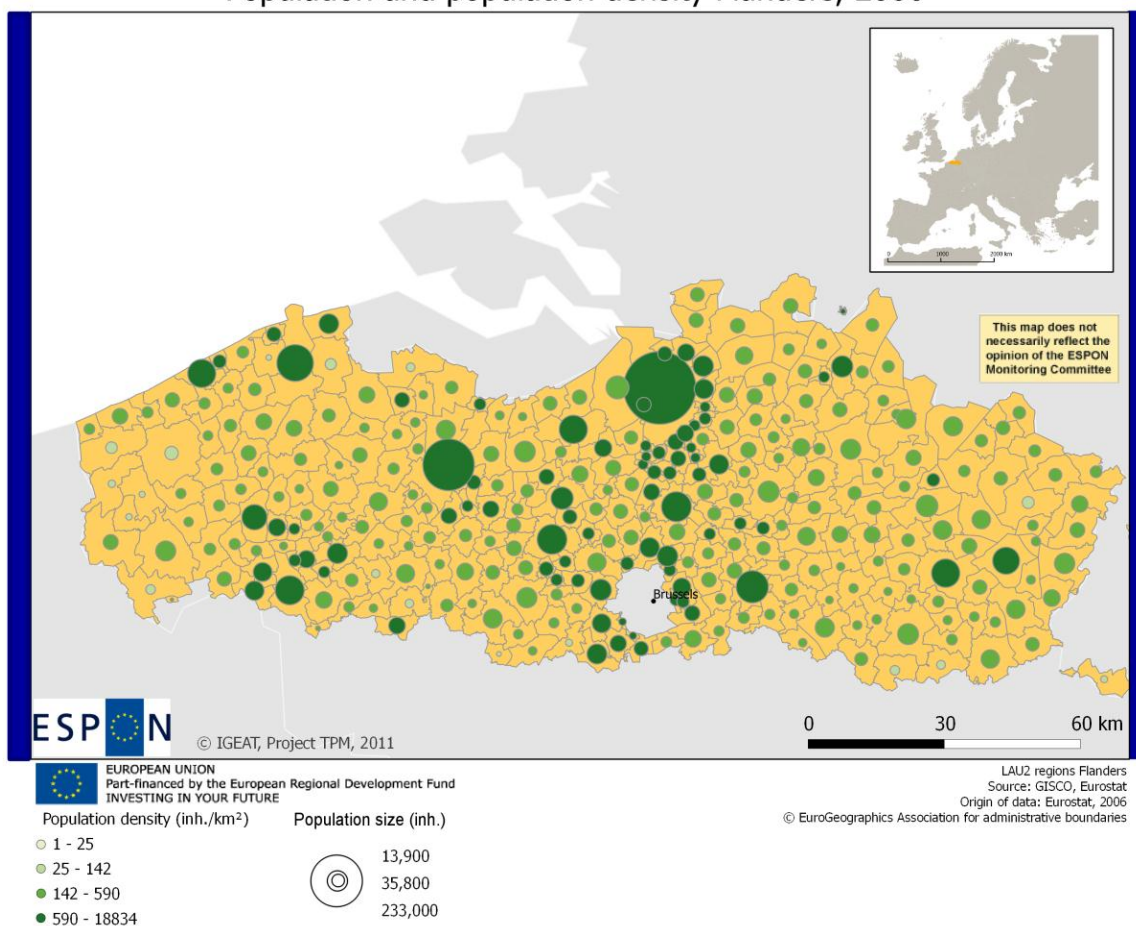
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benchmarking values would thus be  $4,5/6 \cdot 100 = 75$  and 125. If you represent the exact same fact by its complement, i.e. the employment rate, you would get the following results: (A)  $95,5/94 \cdot 100 = 102$ , (B)  $92,5/94 \cdot 100 = 98$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

## Local map Flanders



## Population and population density Flanders, 2006



### 3. Synthesis of quantitative benchmarking

#### 3.1 Globalisation

Summarizing the results of benchmarking Flanders as one region reveals that Flanders is performing well in most of the examined aspects. Overall, Flanders lays above the European average when looking at R&D, accessibility by car, by plane and to services like internet access; education is ranked very highly while the unemployment rate is volitional low compared to the rest of the European space. Attractiveness measured on migration into its NUTS 3 regions as well as temporarily for tourism is comparably very good.

On the other hand, the share of employment in the selected economic sectors information/communication and professional/scientific/technical activities is relatively low, even in all comparisons. Also average salaries in these sectors are high above all averages.

Comparing the selected indicators at regional scale, however, points out that Flanders exceeds the national averages only in aspects such as R&D, number of patents, accessibility, the share of people born outside of Flanders and education; but falls behind the rest of Belgium when it comes to people employed in the examined sectors, touristic statistics as well migration between NUTS 3 regions. The national comparison is dominated by average performance. On neighbourhood scale, its performance is highly diverse but Flanders competes well with its neighbouring regions.

Flanders's bad achievement in employment in the information sector as well as the region's high salaries especially in the manufacturing sector is eye-catching in relation to all benchmarking scales.

#### 3.2 Demography

Flanders's demographic structure can be described as similar to other European regions and its neighbours: the region has an average population growth between 1999 and 2009, an average share of young population as well as elderly people, but a life expectancy above average and with 40.6 years a relatively old median age. Comparing the region's performance to the different benchmarking values does not reveal a great depending diversity. Taking the average of the according typology type as benchmarking value also results in an average performance in terms of demographic structure.

#### 3.3 Climate change

In a European perspective, Flanders falls behind the European average expectation in terms of area being sealed up, the share of NATURA 2000 areas of the total NUTS 3 surface as well as the concentration of particulate matter on surface level and the change in minimum and mean



temperature in January. The changes in maximum and mean temperatures in July exceed the average of other European regions. Comparing Flanders to the rest of Belgium does not brighten the performance significantly since it mostly falls into average achievements. Just the area defined as NATURA 2000 makes up a highly greater share in Flanders than the average of all its neighbouring regions. Flanders takes average position in all deviations in terms of days with ozone exceedance and the potential energy consumption for heating. Flanders thus has to cope with the challenges of increasing minimum temperature in January and an overall increase of the mean temperature in January. Overall, Flanders shows its good performance in the examined temperature indicators of the month of July and its mostly average performance at national scale but the benchmarking results clearly call for improvement for tackling climate change in a European perspective.

### 3.4 Energy

Monitoring the region's performance in terms of energy reveals results that clearly need change: besides the relatively high share of fuel costs as percentage of GDP and the relatively large share of employment in energy intensive industries at all benchmarking scales, Flanders also accomplishes low benchmarking results when looking at its potential for solar energy as one way of generating energy in a renewable way. The region only scores well in terms of wind power at European scale as well as compared to other regions classified as the same type of the ESPON energy typology.

Overall, one can say that Flanders is very depended on its status quo of energy supply and purchase when looking at the monitored indicators and thus, needs improvement in order to keep up with other regional players.

## 4. Quantitative regional benchmarking

### 4.1 Globalisation

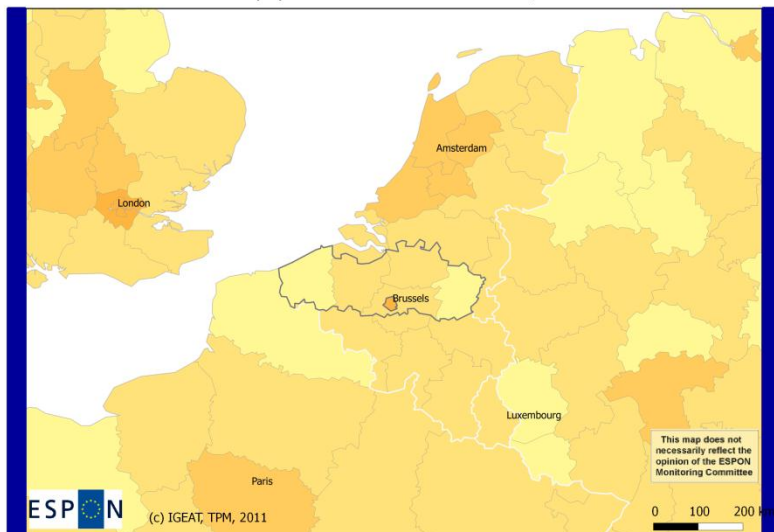
#### a) Comparative analysis globalisation

Globalisation									
Indicator	value		EU		National		Neighbourhood		Typology
Population born outside the EU, 2006	5%	72			63		47		
Internet access, 2009	69%	137			109		103		
Expenditure on R&D, 2007	2%	118			104		115		
Relative number of patents	0.04%	148		↓	114		↓	95	
Average salary per economic sector, 2008									
Manufacturing (C)	26,381 €	113			113		125		
Information, communication (J)	42,380 €	140			97		127		
Professional, scientific, technical activities (M)	27,410 €	120			99		113		
Employment per economic sector, 2008									
Manufacturing (C)	Errors have been detected in the data; data will be updated								

Information, communication (J)	2.20%	40		86		29	
Professional, scientific, technical activities (M)	4.10%	69		100		46	
Tourism occupancy, 2009	22.60%	102		↓ 104		↓ 114	
Tourism non-residents, 2009	46.50%	116		↓ 88		↓ 112	
Daily population accessible by car, 2004	51,334	1.96		- 0.16			
Migration into NUTS 3 regions	3.97	0.19		- 0.23			
Accessibility to passenger flights	1,000	0.69		0.14			
Tertiary education, 2007	28.10%	139		100		110	
Early school leavers, 2007	12.80%	94		83		106	
Unemployment rate, 2009	4.90%	55		↓ 61		→ 70	
Change in unemployment rate, 2000-2009	+24%	123		102		99	

## b) Regional maps globalisation

Share of population born outside the EU, 2008



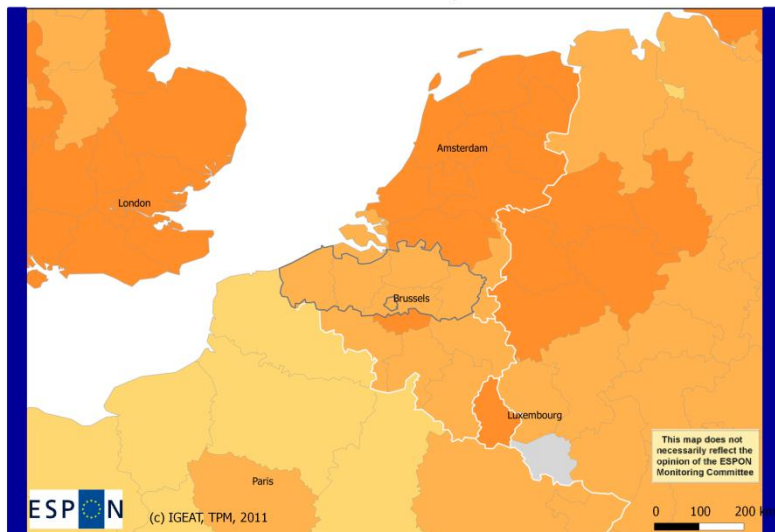
Share of population born outside the EU

- <4%
- 4% - 10%
- 11% - 20%
- 21% - 34%

Flanders

(c) EuroGeographics Association for administrative boundaries

Broadband connection, 2009



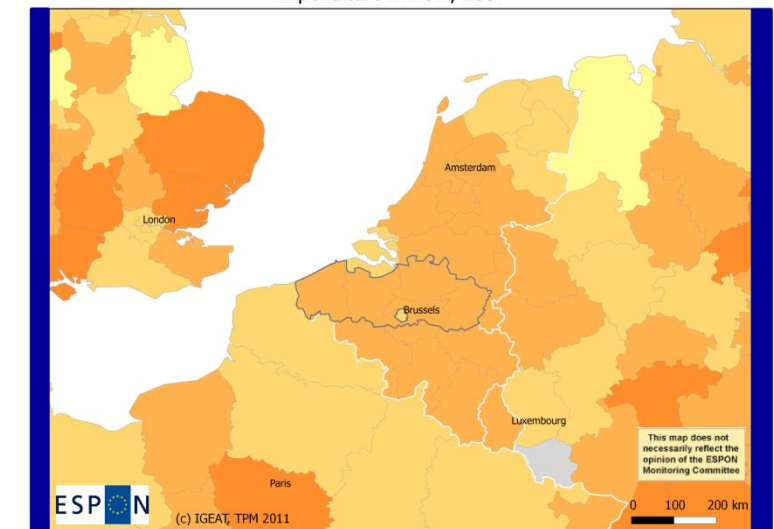
Share of households with broadband connection, 2009

- No data
- <39%
- 39% - 52%
- 52% - 70%
- 71% - 100%

Flanders

(c) EuroGeographics Association for administrative boundaries

Expenditure in R&D, 2007



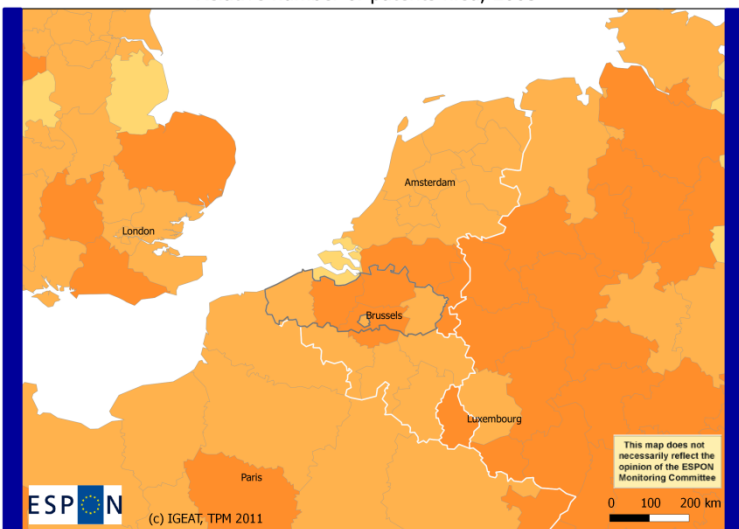
Percentage of regional GDP, 2007

- No data
- <0.5%
- 0.5% - 1.5%
- 1.51% - 3%
- 3.1% - 7%

Flanders

(c) EuroGeographics Association for administrative boundaries

Relative number of patents filed, 2005



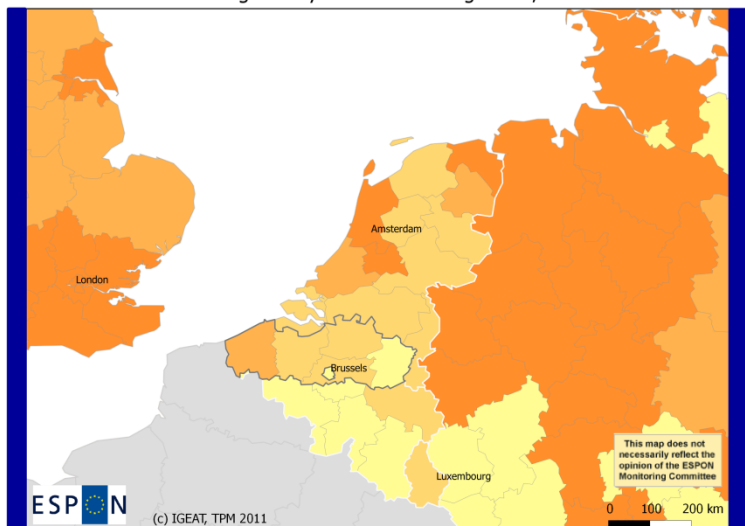
Ratio of patents filed to employed persons, 2005

- < 0.002%
- 0.002% - 0.01%
- 0.01% - 0.03%
- 0.03% - 0.2%

Flanders

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Average salary in manufacturing sector, 2008



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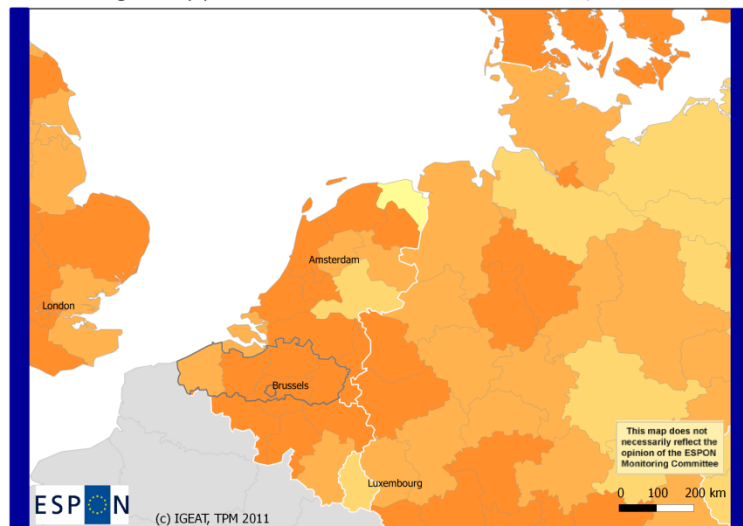
salary manufacturing / number of employed persons in the sector

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

Flanders

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

Average salary per sector: information and communication, 2008



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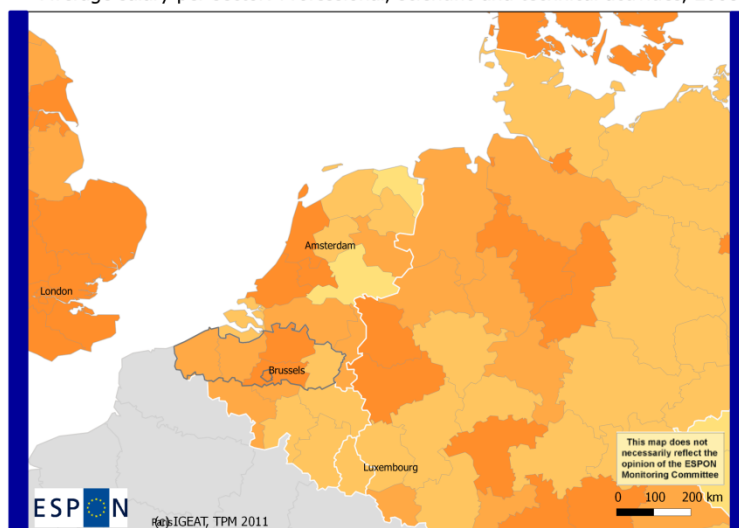
salary in this sector / number of employed persons in the sector (€)

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

Flanders

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

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



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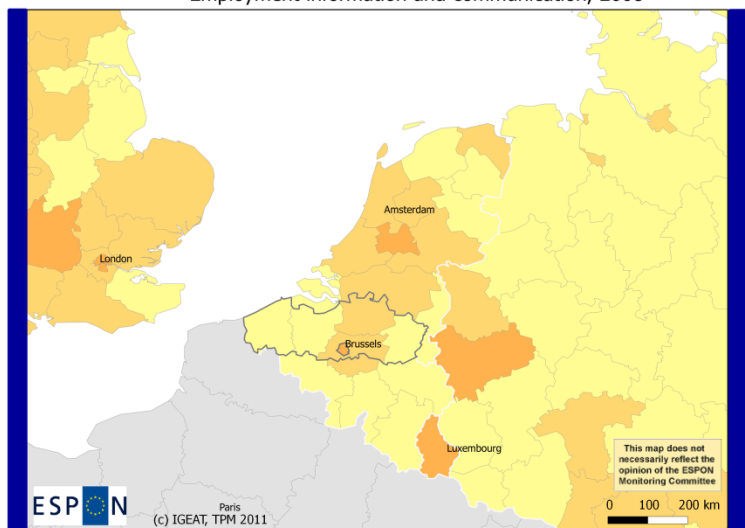
salary in this sector / number of employed persons in the sector (€)

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

Flanders

Regional level NUTS 2  
Data source: Eurostat, 2011  
Origin of data: Eurostat, 2008  
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Employment information and communication, 2008



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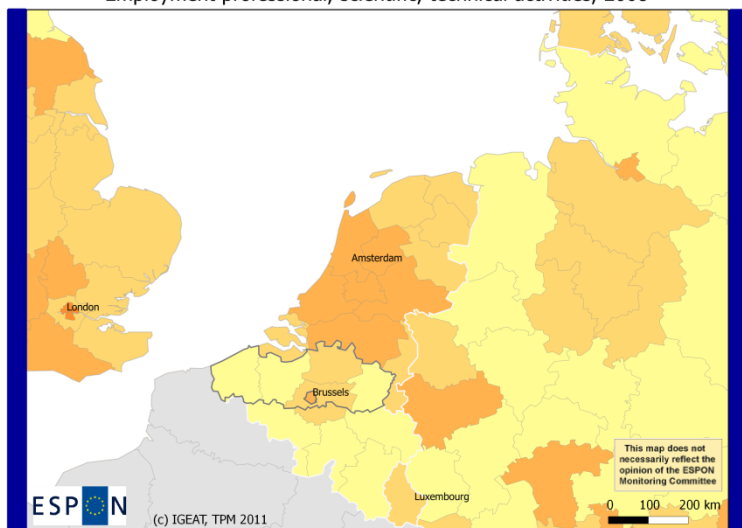
Regional level NUTS 2  
Data source: Eurostat, 2011  
Origin of data: Eurostat, 2008  
(c) EuroGeographics Association for administrative boundaries

Share of employment in information and communication sector

- No data
- < 1.8%
- 1.8% - 5%
- 6% - 11%
- <11%

Flanders

Employment professional, scientific, technical activities, 2008



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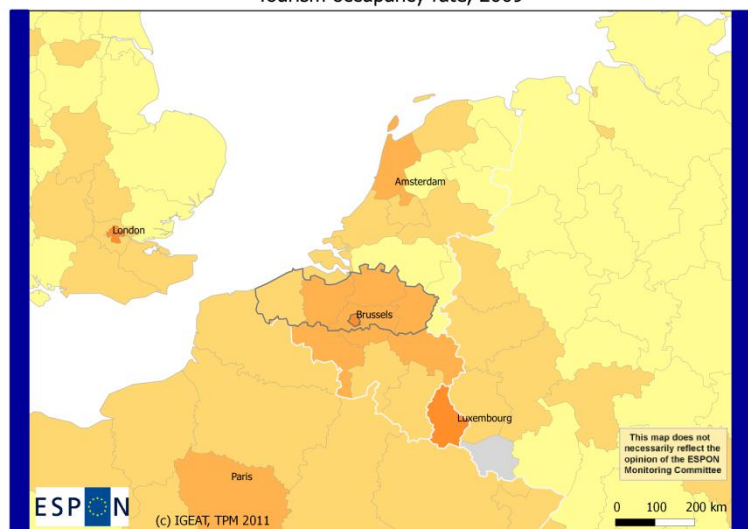
Regional level NUTS 2  
Data source: Eurostat, 2011  
Origin of data: Eurostat, 2008  
(c) EuroGeographics Association for administrative boundaries

Share of employment in professional, scientific, technical activities

- No data
- <3%
- 3% - 5%
- 5.5% - 10%
- 10.5% - 19.5%

Flanders

Tourism occupancy rate, 2009



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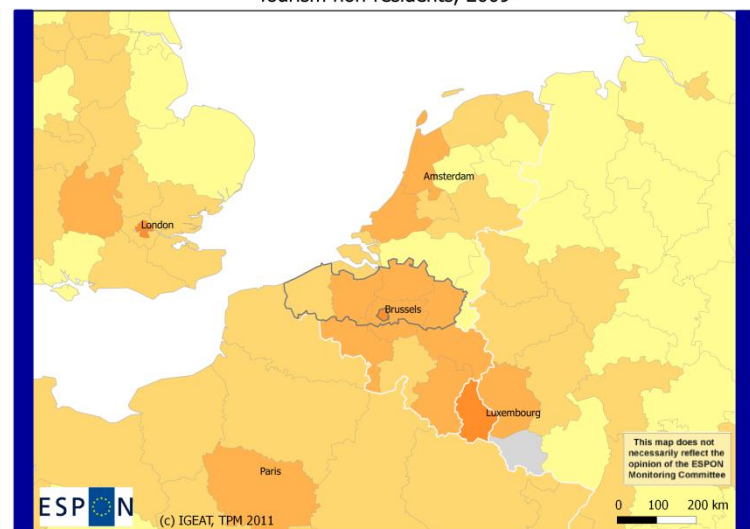
Regional level NUTS 2  
Data source: Eurostat, 2011  
Origin of data: Eurostat, 2009  
(c) EuroGeographics Association for administrative boundaries

Number of nights spent by tourists / yearly available bed places, 2009

- No data
- <23%
- 23% - 45%
- 46% - 60%
- 61% - 95%

Flanders

Tourism non-residents, 2009



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Regional level NUTS 2  
Data source: Eurostat, 2011  
Origin of data: Eurostat, 2009  
(c) EuroGeographics Association for administrative boundaries

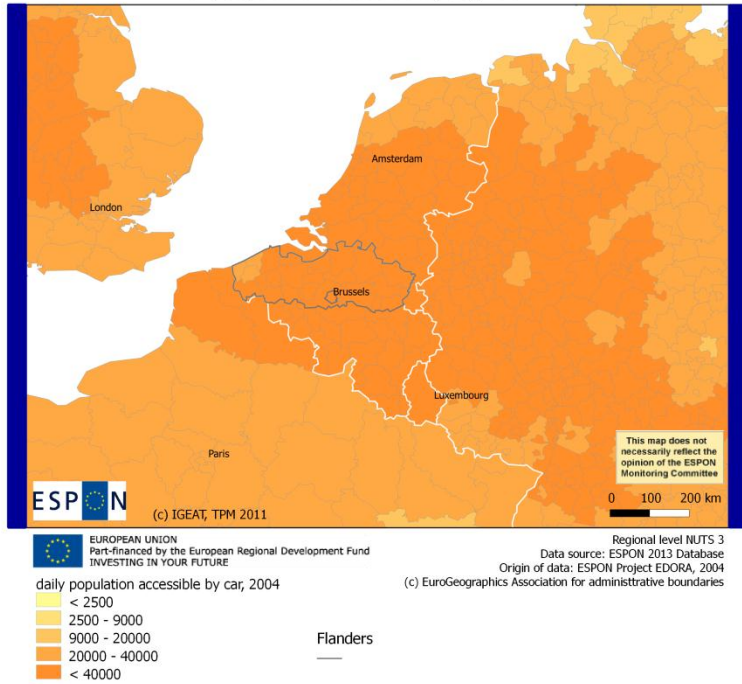
Share of nights spent by non-residents, 2009

- No data
- <20%
- 20% - 40%
- 41% - 60%
- 61% - 95%

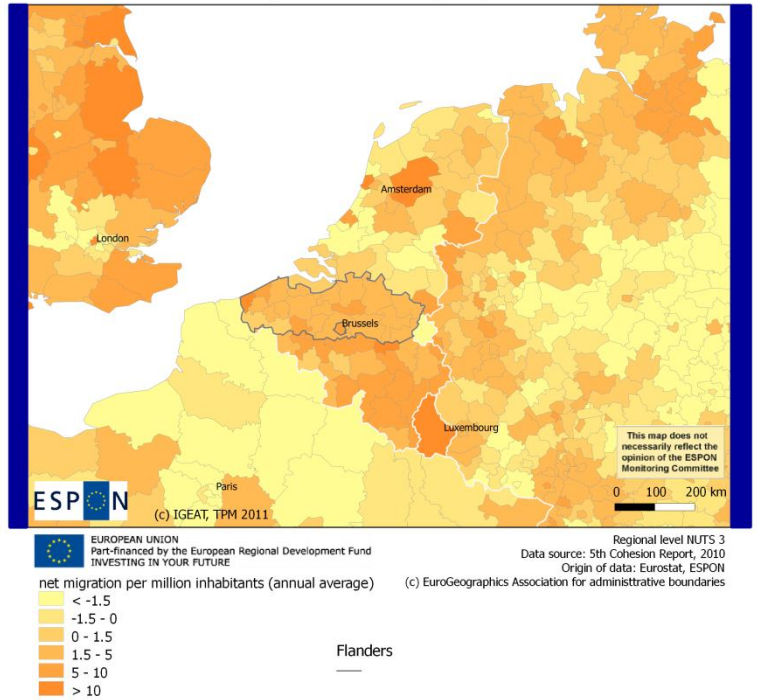
Flanders



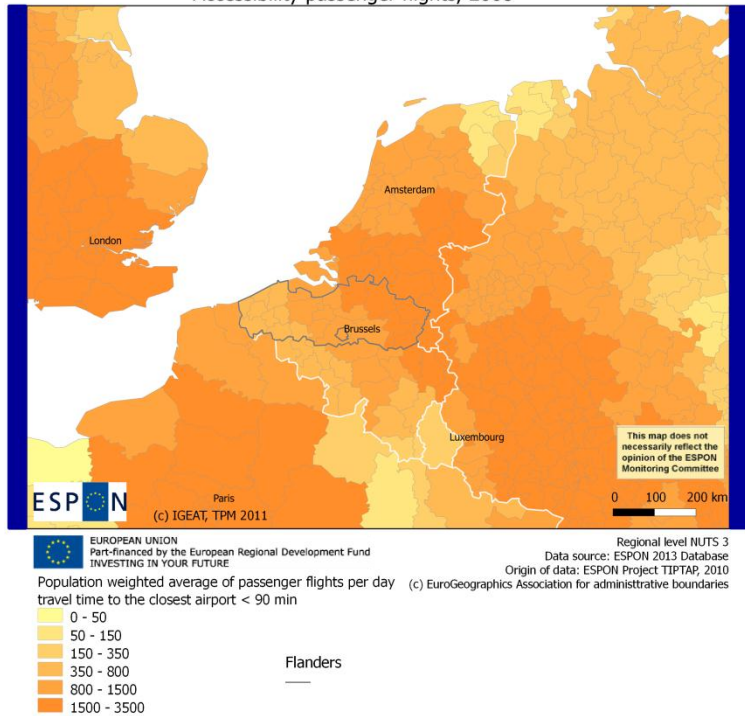
Daily population accessible by car, 2004



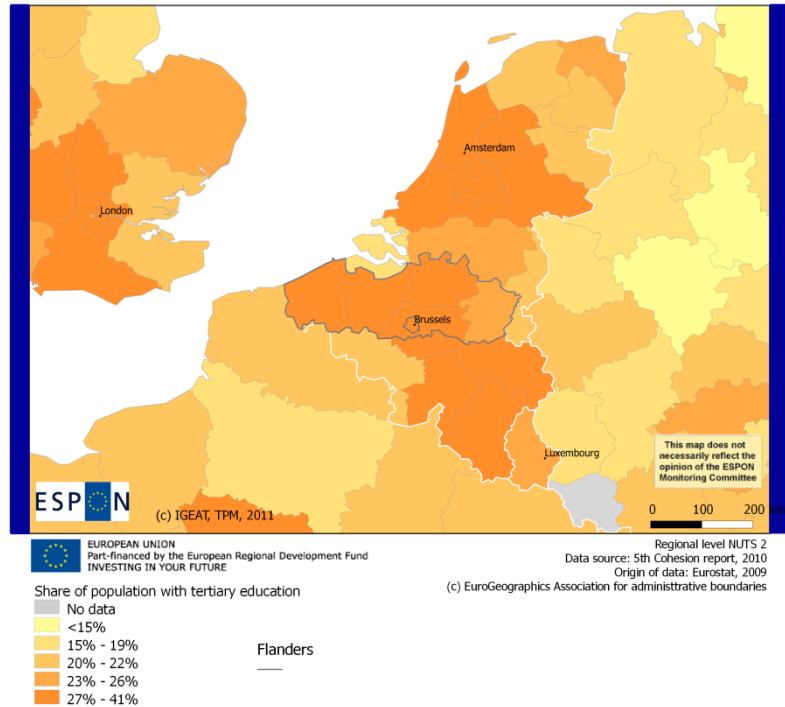
Net migration NUTS 3 regions, 2001-2007



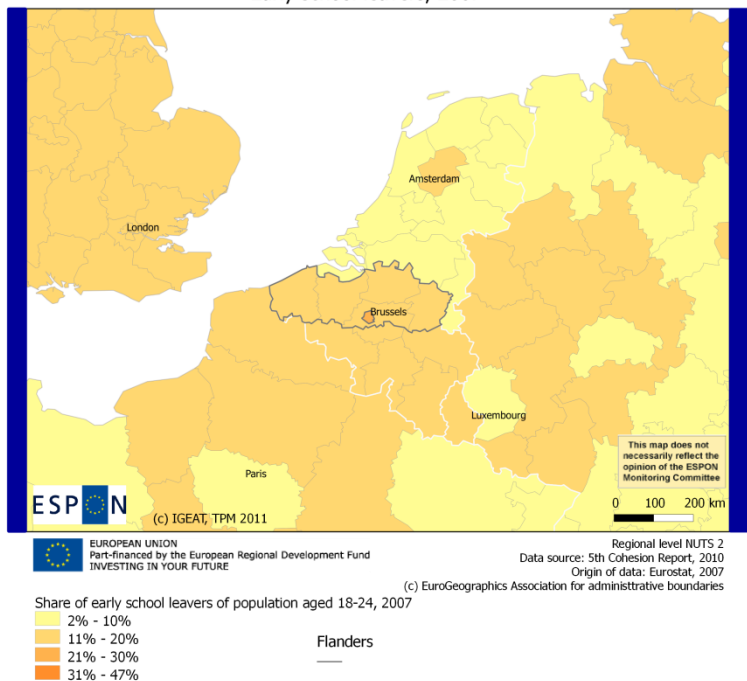
Accessibility passenger flights, 2008



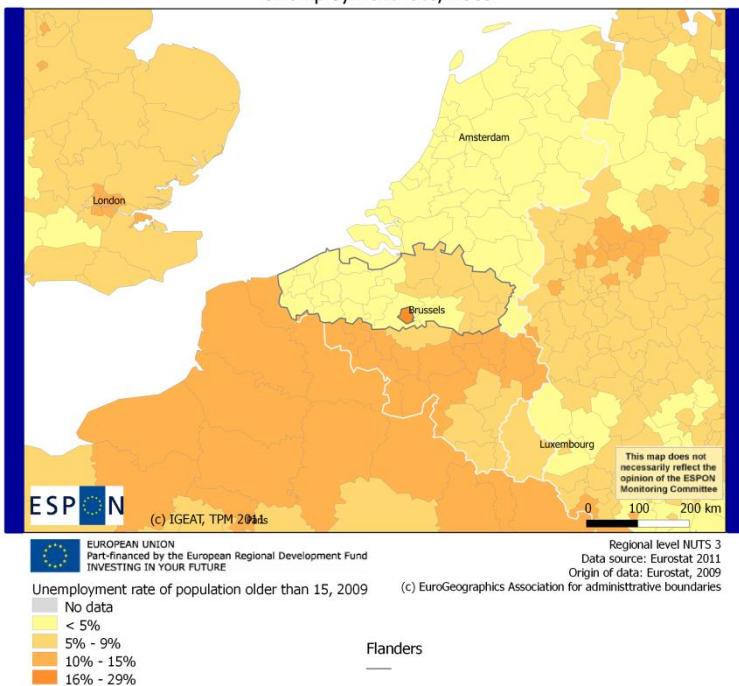
Share of population with tertiary education, 2009



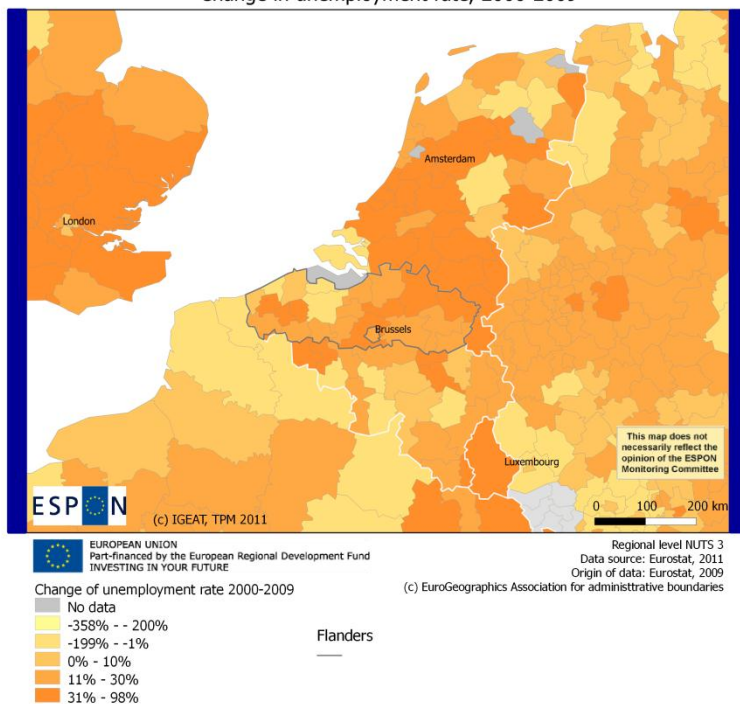
Early school leavers, 2007



Unemployment rate, 2009



Change in unemployment rate, 2000-2009





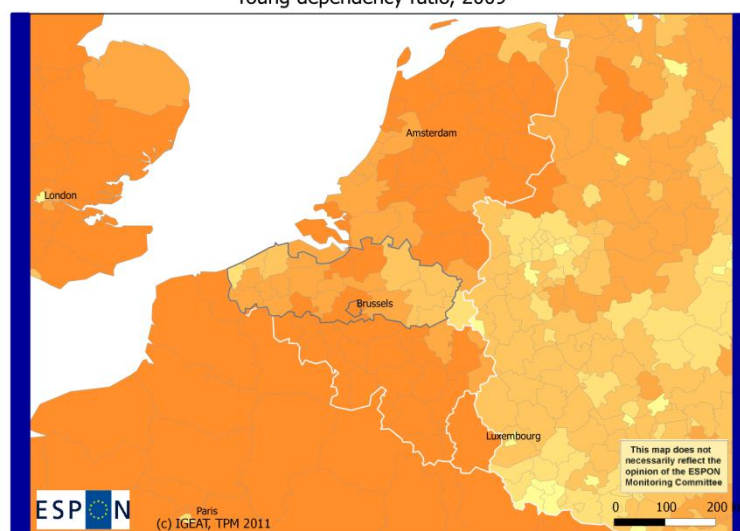
## 4.2 Demography

### a) Comparative analysis

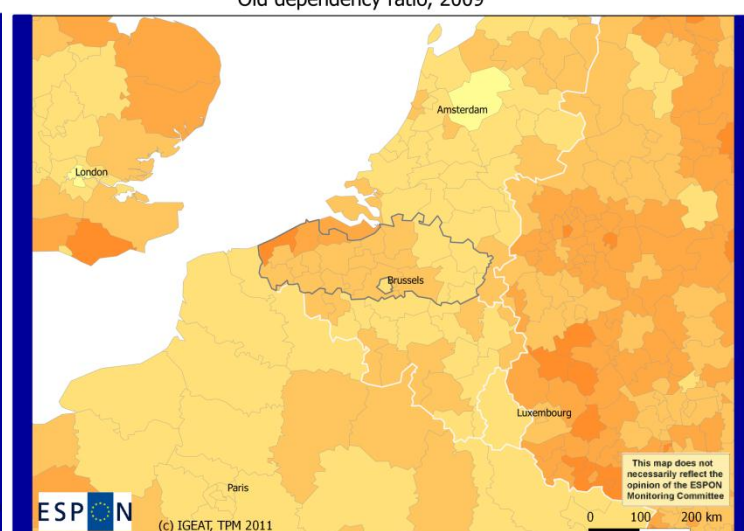
Demography										
Indicator	value		EU		National		Neighbourhood		Typology	
Young age dependency ratio, 2009	24%	105			96		91		106	
Old age dependency ratio	27%	106			105		121		97	
Life expectancy, 2004	80.4	0.96			0.04				0.08	
Median age, 2008	40.6	- 0.62			- 0.44				- 0.43	
Population growth, 1999-2009	+5%	101			96		101		100	

### b) Regional maps demography

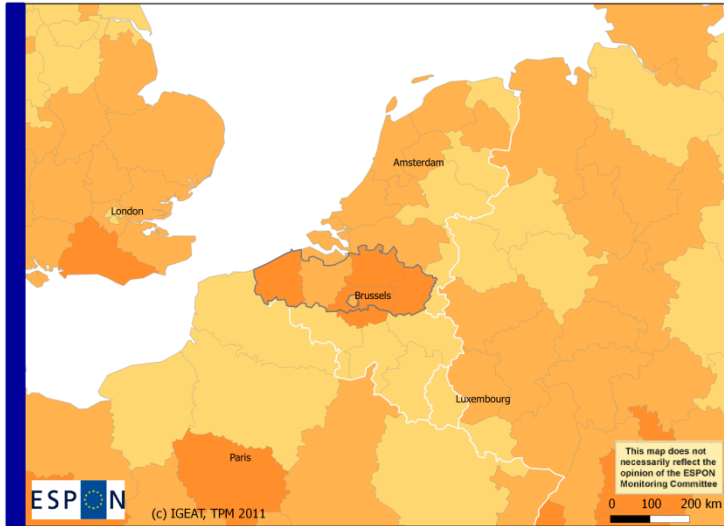
Young dependency ratio, 2009



Old dependency ratio, 2009



Life expectancy at birth, 2004



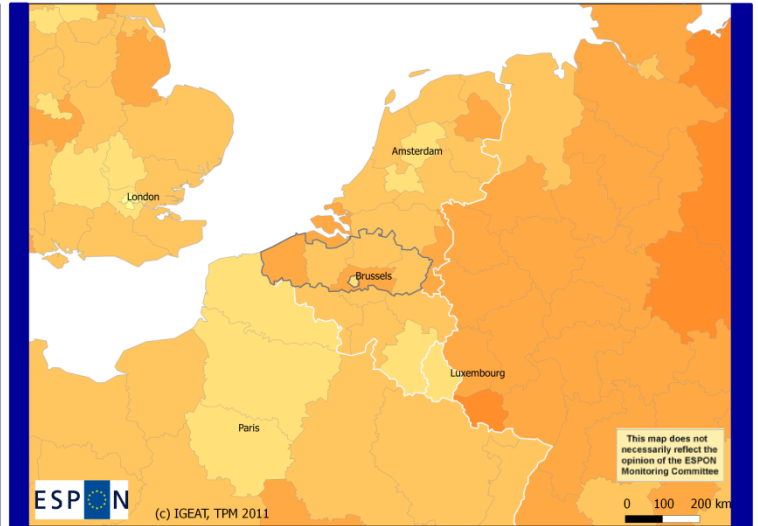
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number of years that a newborn is expected to live

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

Flanders

Median Age, 2008



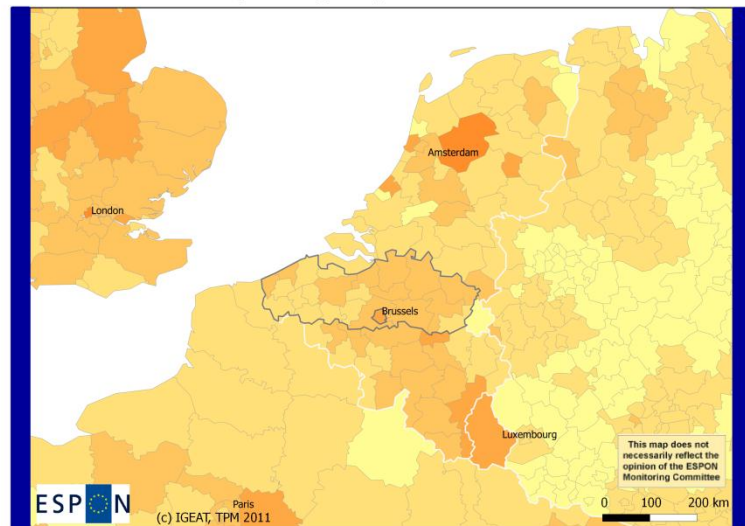
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age that divides a population into two numerically equal groups

- 31 - 34
- 34 - 37
- 37 - 39
- 39 - 43
- 43 - 46

Flanders

Population growth, 1999-2009



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change in population 2009/1999

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

Flanders

## 4.3 Climate Change

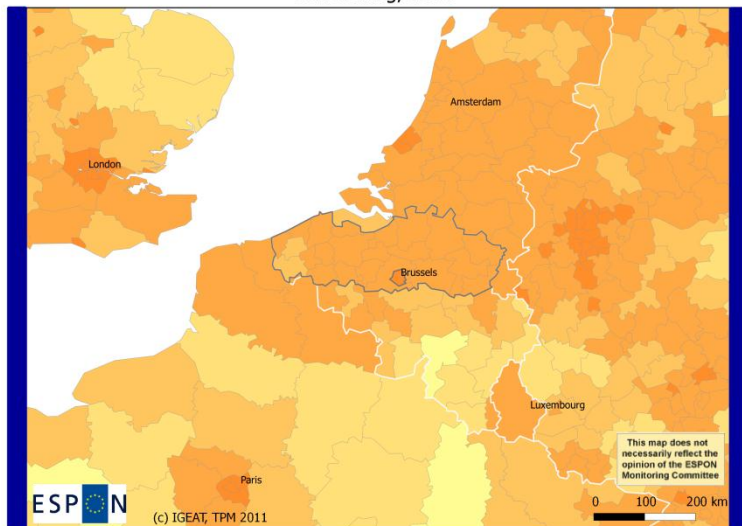
### a) Comparative analysis

Climate Change												
Indicator		value		EU	National		Neighbourhood		Typology			
Soil sealing, 2006		10%	475		145			135			123	
NATURA 2000 areas, 2009		12.50%	72		96			146			106	
Concentration of particulate matter on surface level, 2009		23.32µg /m³	- 1.73		- 0.15						- 1.68	
Ozone exceedance days, 2008		10.5 days	- 0.05		0.02						- 0.20	
Potential energy consumption for heating, 1981-2009		-13%	100		100			99			100	
Change in minimum temperature Januray, 1994 - 2008		+3.4°C	- 0.39		- 0.07						- 0.62	
Change in maximum temperature July, 1994 - 2008		-0.08°C	0.13		0.06						0.52	



## b) Regional maps climate change

Soil sealing, 2006



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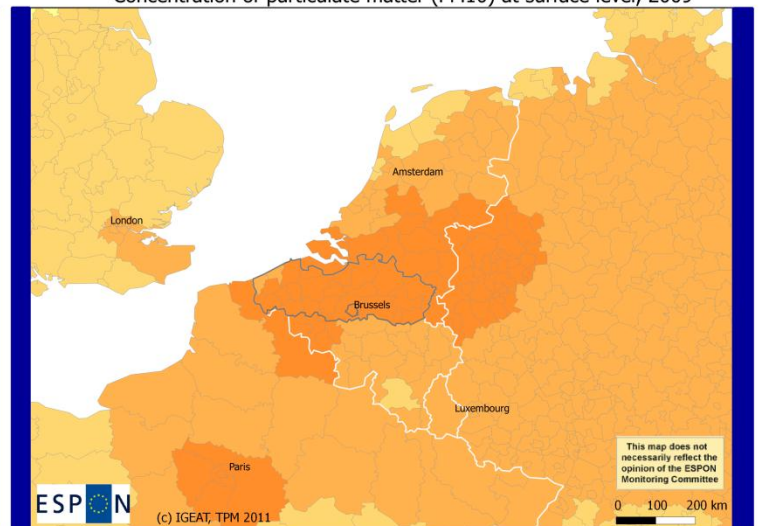
% of total NUTS 3 surface

- < 1
- 1 - 2
- 2 - 4
- 4 - 20
- 20 - 67

Flanders

Regional level NUTS 3  
Data source: 5th Cohesion Report, 2010  
Origin of data: AEE, REGIO-GIS  
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Concentration of particulate matter (PM10) at surface level, 2009



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annual average (µg/m³)

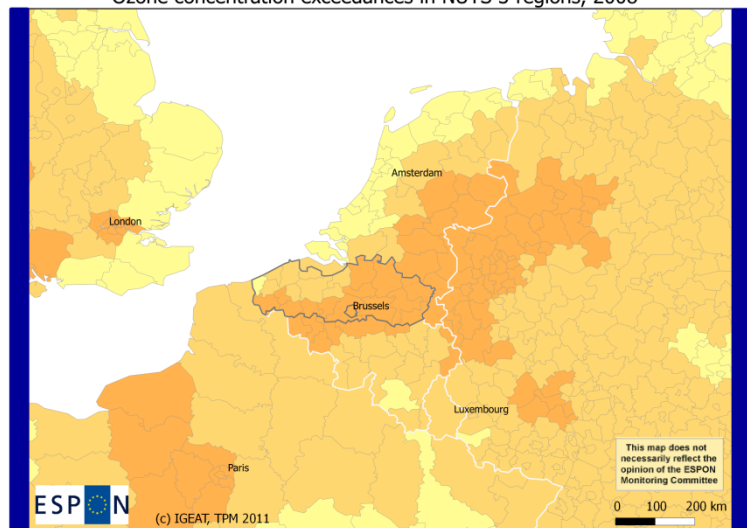
- <10
- 10 - 15
- 15 - 20
- > 20

Flanders

Regional level NUTS 3  
Data source: 5th Cohesion Report, 2010  
Origin of data: GMES-Promote, CCR, EFGS, REGIO-GIS  
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Ozone concentration exceedances in NUTS 3 regions, 2008



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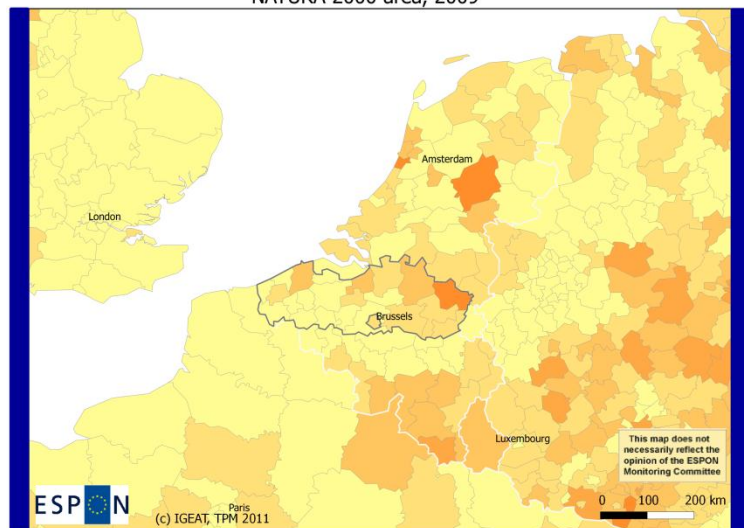
days exceeding 120µg/m<sup>3</sup>

- < 5
- 5 - 10
- 10 - 30
- > 30

Flanders

Regional level NUTS 3  
Data source: 5th Cohesion Report, 2010  
Origin of data: GMES-Promote, CCR, Eurostat, REGIO-GIS  
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NATURA 2000 area, 2009



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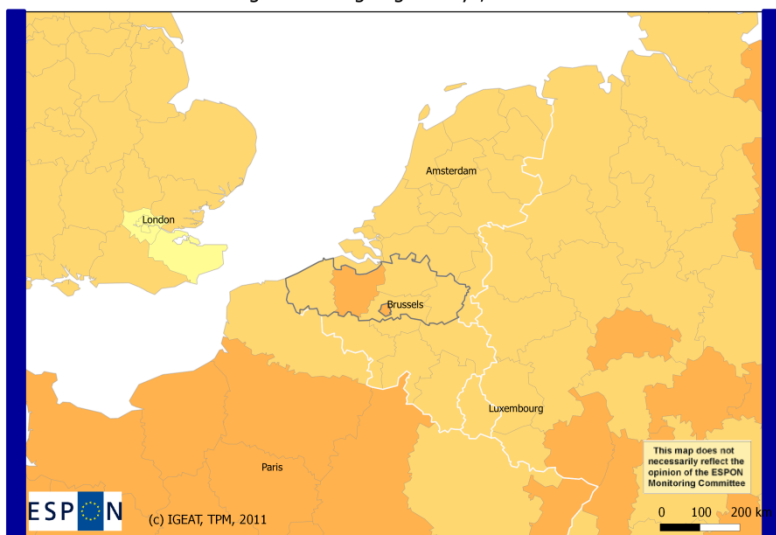
% of total NUTS 3 surface

- < 7
- 7 - 16
- 16 - 27
- 27 - 39
- 39 - 74

Flanders

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

Change in heating degree days, 1981 - 2009



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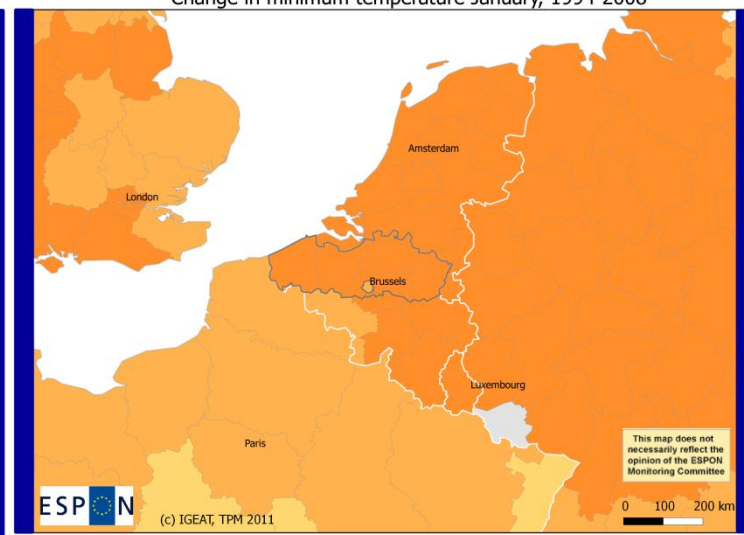
Change in Heating Degree Days, 1981-2009

- No data
- 70% - -21%
- 20% - -11%
- 10% - -1%
- 0% - 11%

Flanders

Regional level NUTS 2  
Data source: Espo 2013 Database  
Origin of data: Eurostat, 2009  
(c) EuroGeographics Association for administrative boundaries

Change in minimum temperature January, 1994-2008



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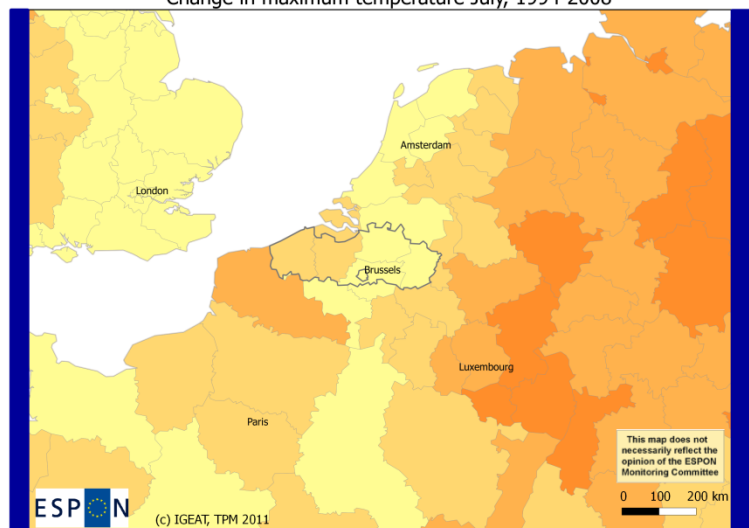
Change in minimum temperature January (°C)

- < -1.4 °C
- 1.4°C - +0.4°C
- +0.4°C - +2.9°C
- > +2.9°C
- No data

Flanders

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

Change in maximum temperature July, 1994-2008



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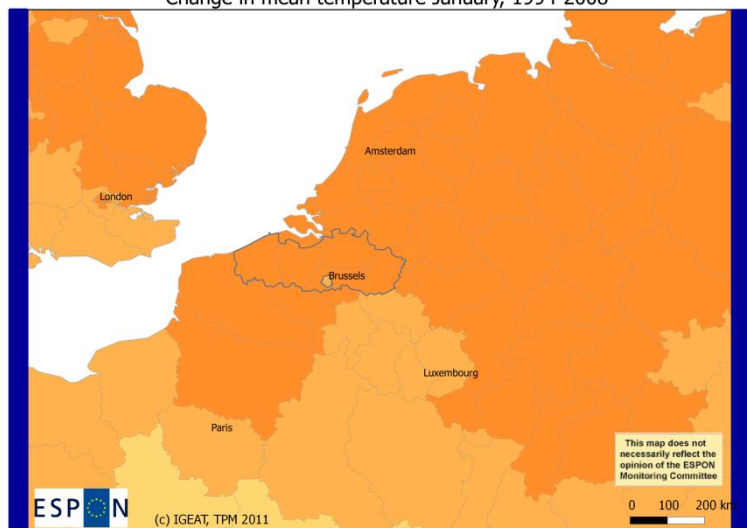
Change in maximum temperature July (°C)

- 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

Flanders

Change in mean temperature January, 1994-2008



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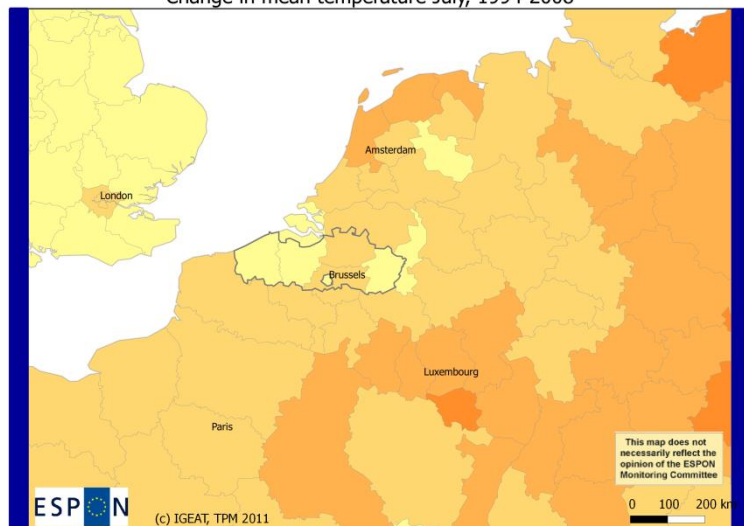
Change in mean temperature January (°C)

- 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

Flanders

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

Flanders

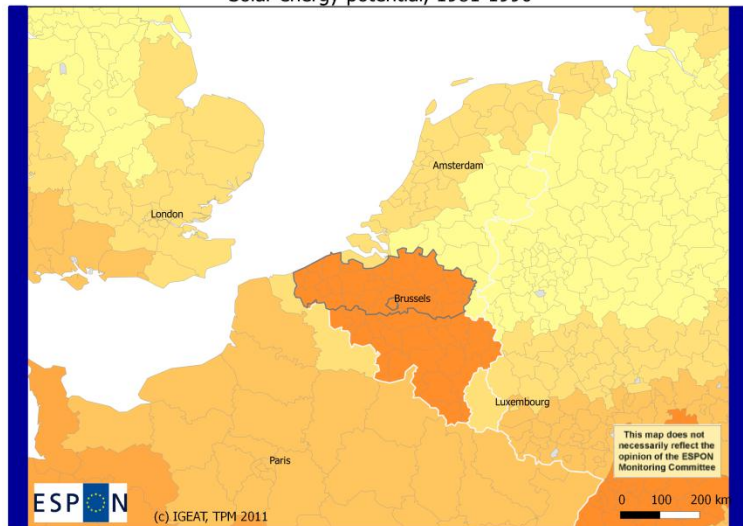
## 4.4 Energy

### a) Comparative analysis

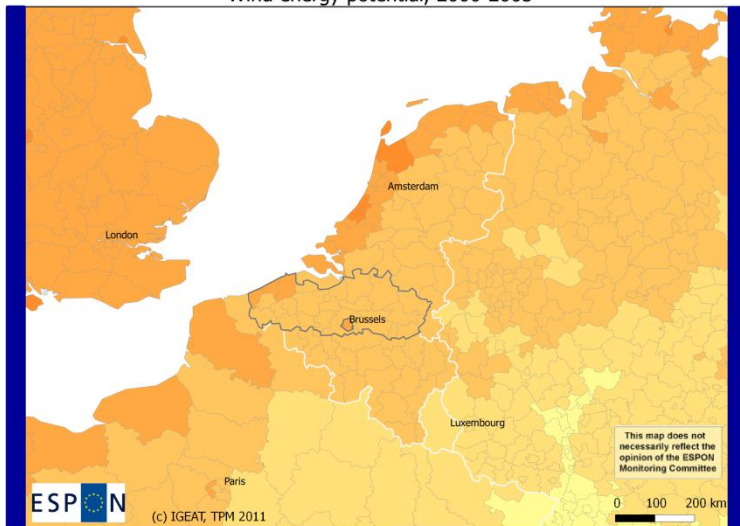
<b>Energy</b>						
<i>Indicator</i>	<i>value</i>	<i>EU</i>	<i>National</i>	<i>Neighbourhood</i>	<i>Typology</i>	
Solar energy resources, 1981-1990	1110 kWh/m2	-0.36	0.01		-0.83	
						
Wind energy potential, 2005	1838h	0.53	-0.06		0.75	
						
Fuel costs of freight traffic as % of GDP, 2005	2.54%	-0.11	-0.62		-0.48	
						
Employment in energy intensive industries, 2005	0.35%	-0.49	-0.19		-0.49	
						

## b) Regional maps energy

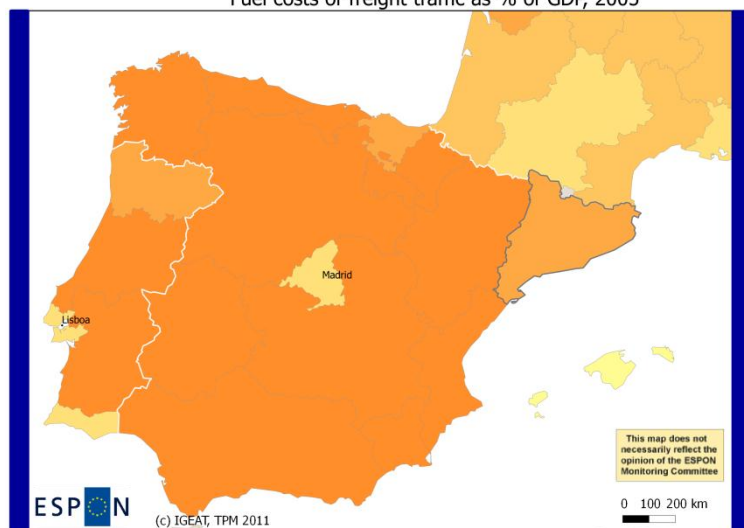
Solar energy potential, 1981-1990



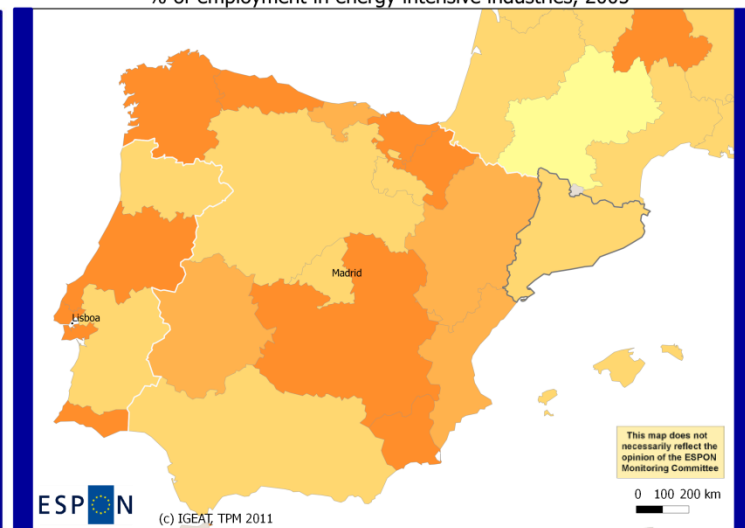
Wind energy potential, 2000-2005



Fuel costs of freight traffic as % of GDP, 2005



% of employment in energy intensive industries, 2005





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