

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.

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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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.¹ The second tool, on the other hand, uses another approach:

¹ 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 km² and hosts 6.2 Mio inhabitants, which results in a population density of 459 inhabitants per km². 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.

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 Flanders

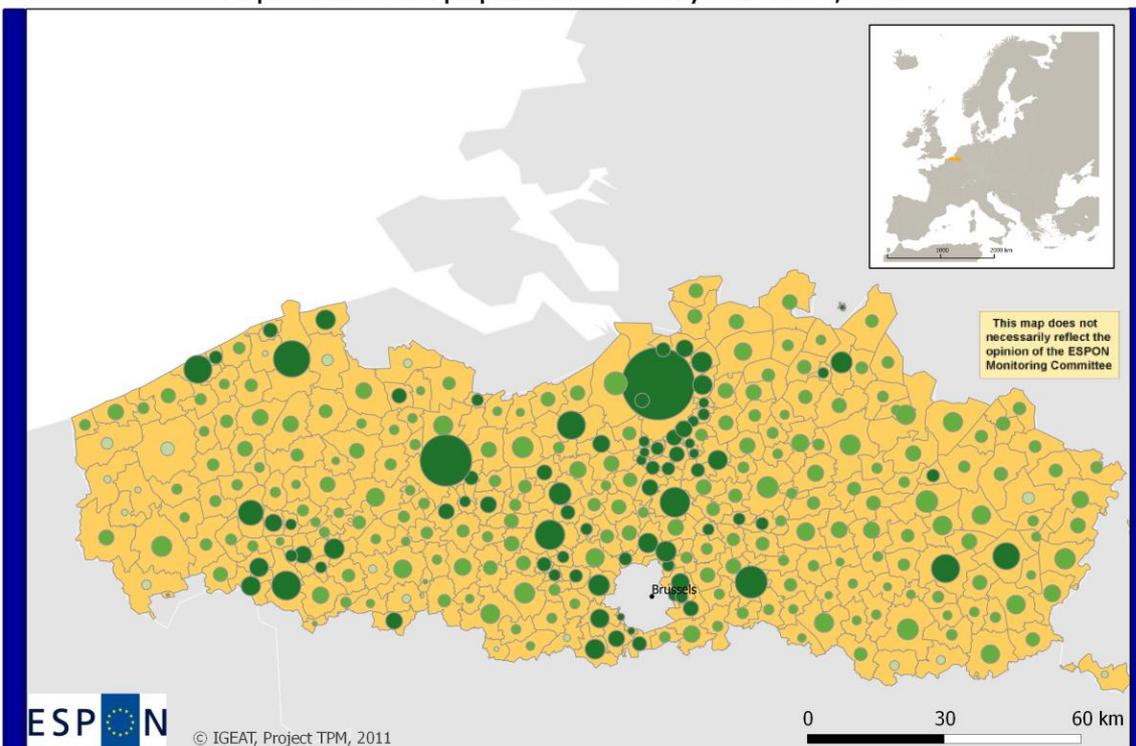


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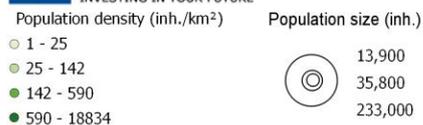
Regional level at NUTS 3
Source: ESPON 2013 Database
Origin of data: Eurostat, 2011
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Population and population density Flanders, 2006



© IGEAT, Project TPM, 2011

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LAU2 regions Flanders
Source: GISCO, Eurostat
Origin of data: Eurostat, 2006
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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

Flander'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										
<i>Indicator</i>	<i>value</i>		<i>EU</i>		<i>National</i>		<i>Neighbourhood</i>		<i>Typology</i>	
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	

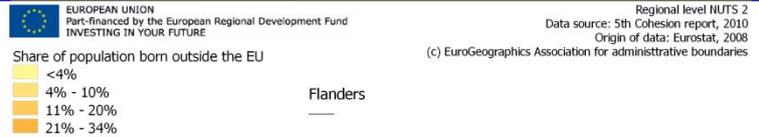
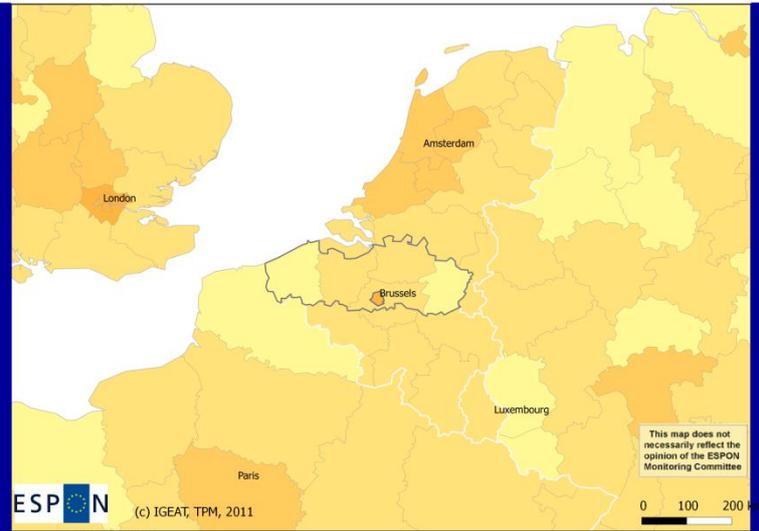
Employment per economic sector, 2008

Manufacturing (C)	Errors have been detected in the data; data will be updated								
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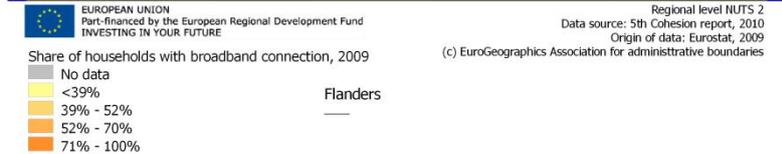
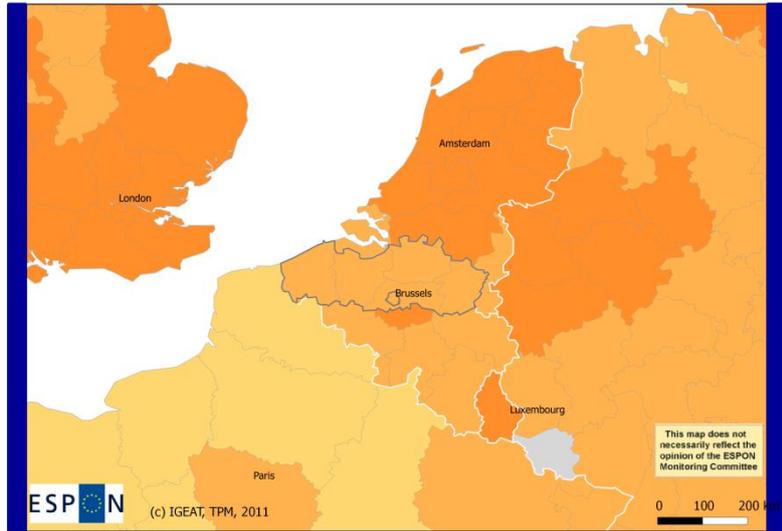
Information, communication (J)	2.20%	40		86		29	
Professional, scientific, technical activities (M)	4.10%	69		100		46	
Tourism occupancy, 2009	22.60%	102		↓ 104		↓ 114	
Tourism non-residents, 2009	46.50%	116		↓ 88		↓ 112	
Daily population accessible by car, 2004	51,334	1.96		-		0.16	
Migration into NUTS 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

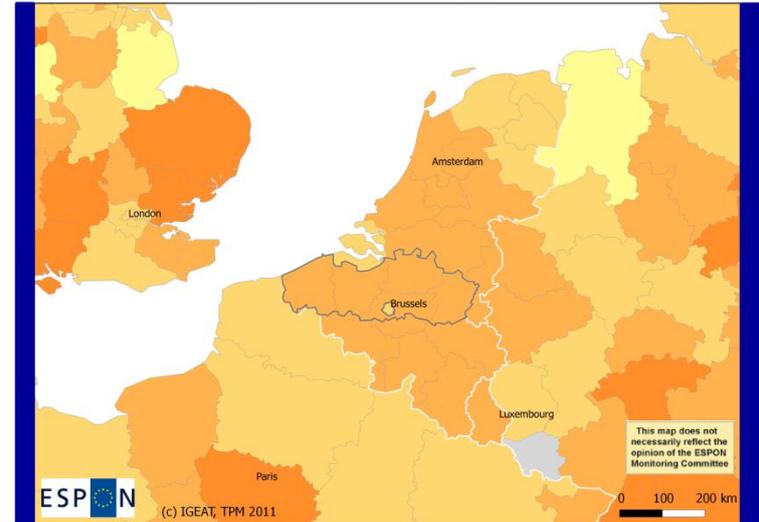
Share of population born outside the EU, 2008



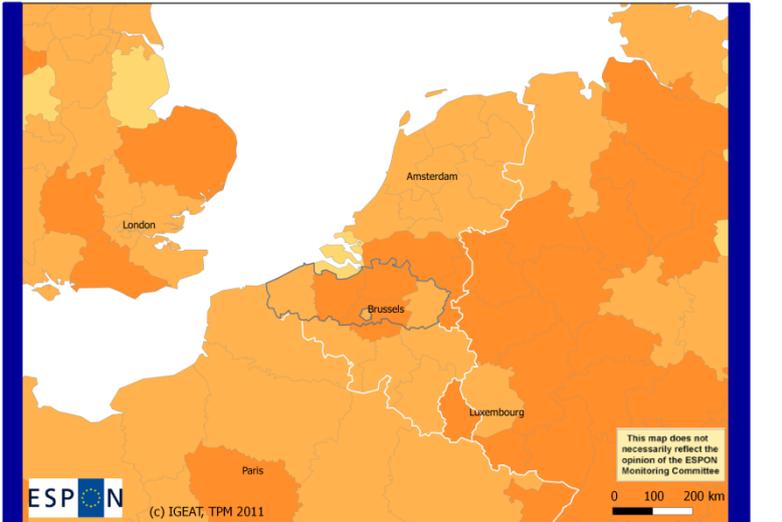
Broadband connection, 2009



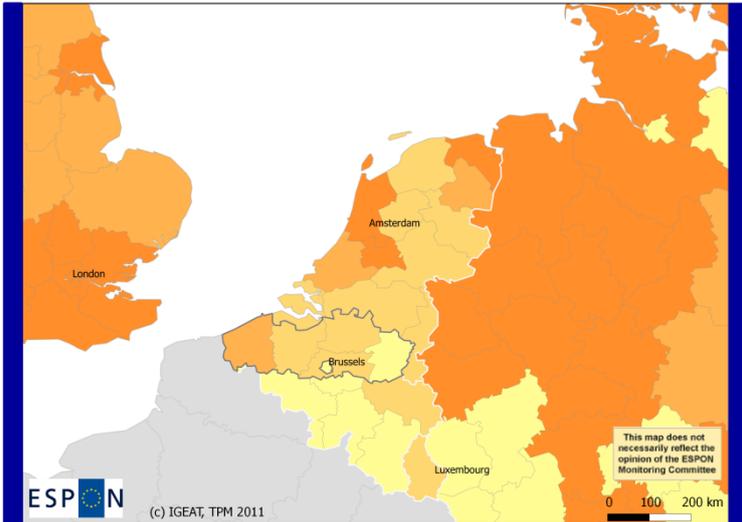
Expenditure in R&D, 2007



Relative number of patents filed, 2005



Average salary in manufacturing sector, 2008



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Regional level NUTS 2
Data source: Eurostat, 2011
Origin of data: Eurostat, 2008

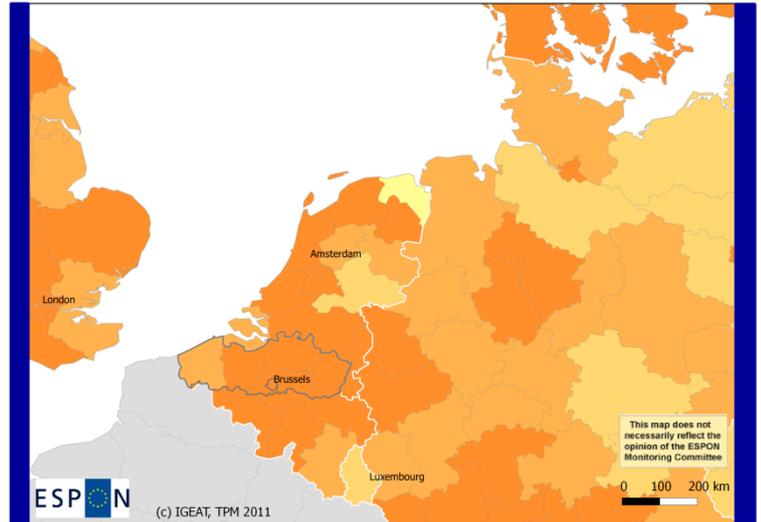
(c) EuroGeographics Association for administrative boundaries

salary manufacturing / number of employed persons in the sector

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

Flanders

Average salary per sector: information and communication, 2008



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Regional level NUTS 2
Data source: Eurostat, 2011
Origin of data: Eurostat, 2008

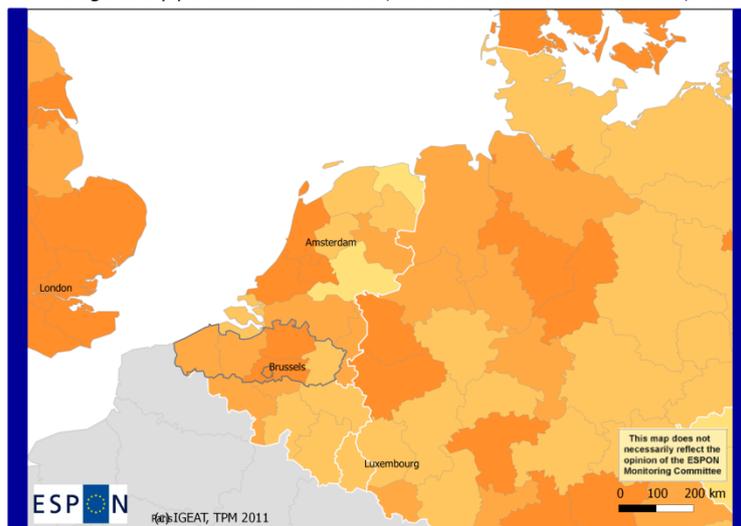
(c) EuroGeographics Association for administrative boundaries

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

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

Flanders

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



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Regional level NUTS 2
Data source: Eurostat, 2011
Origin of data: Eurostat, 2008

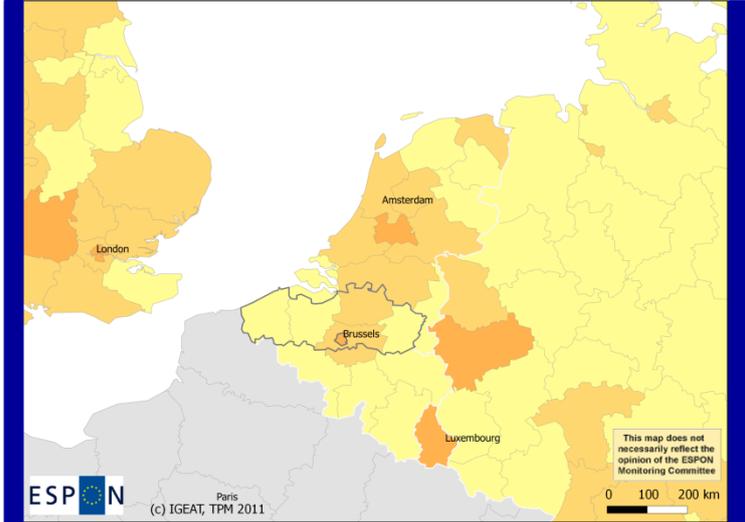
(c) EuroGeographics Association for administrative boundaries

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

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

Flanders

Employment information and communication, 2008



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Regional level NUTS 2
Data source: Eurostat, 2011
Origin of data: Eurostat, 2008

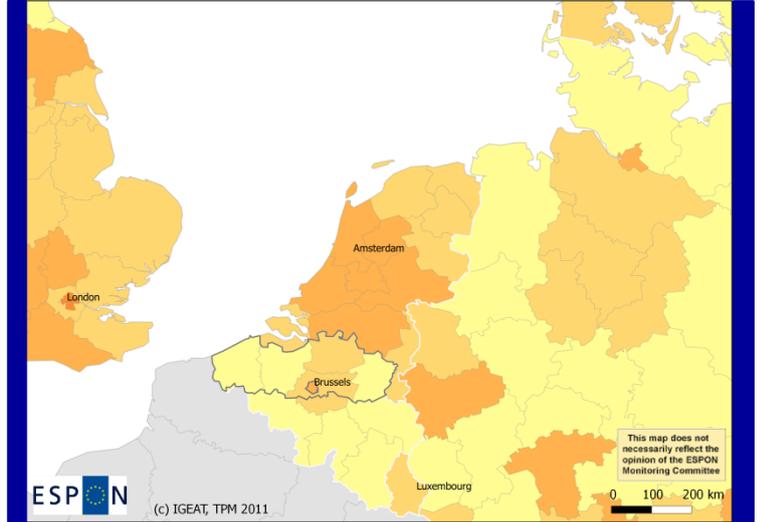
(c) EuroGeographics Association for administrative boundaries

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

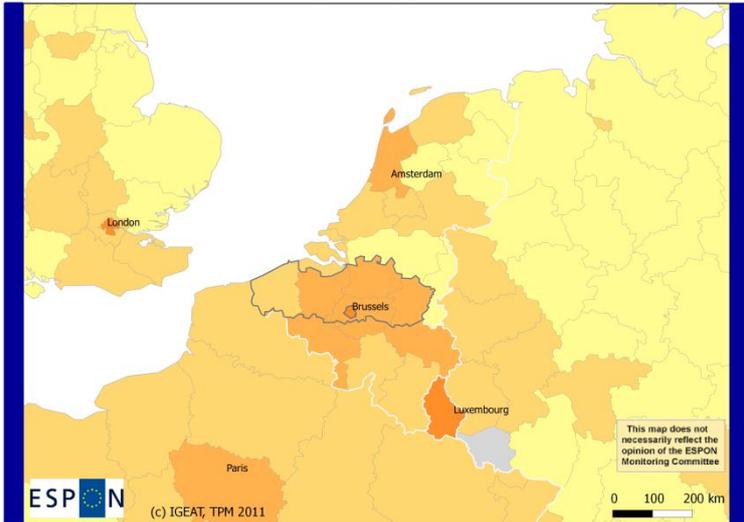
(c) EuroGeographics Association for administrative boundaries

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

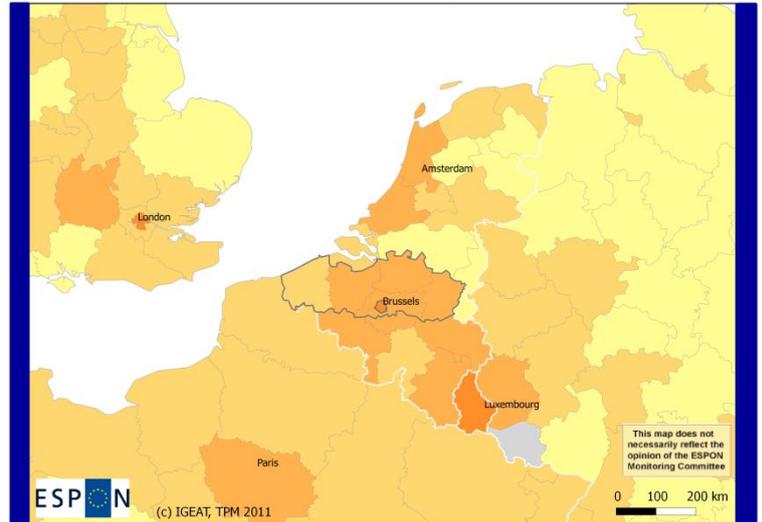
(c) EuroGeographics Association for administrative boundaries

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

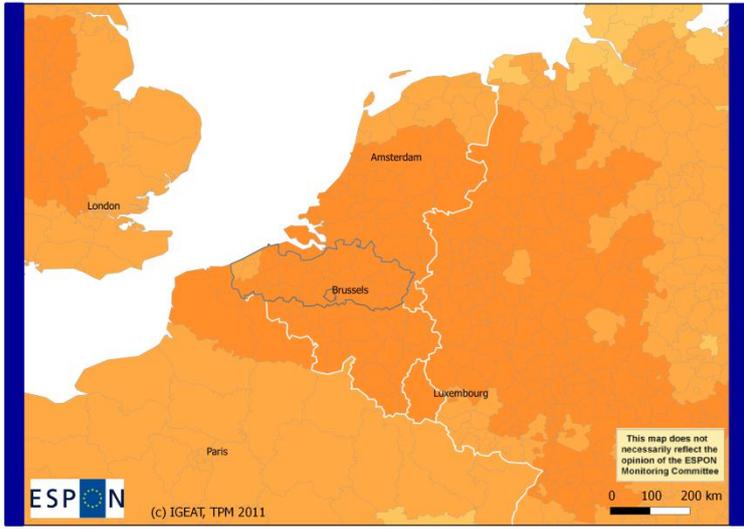
(c) EuroGeographics Association for administrative boundaries

Share of nights spent by non-residents, 2009

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

Flanders

Daily population accessible by car, 2004



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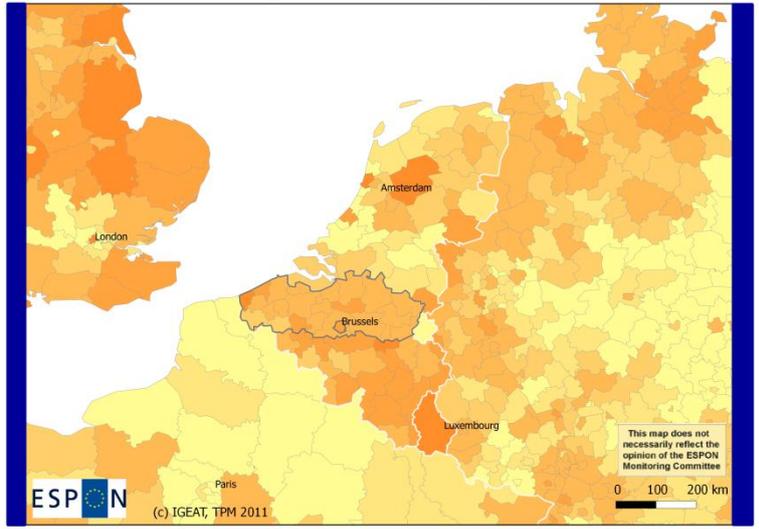
daily population accessible by car, 2004

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

Flanders

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



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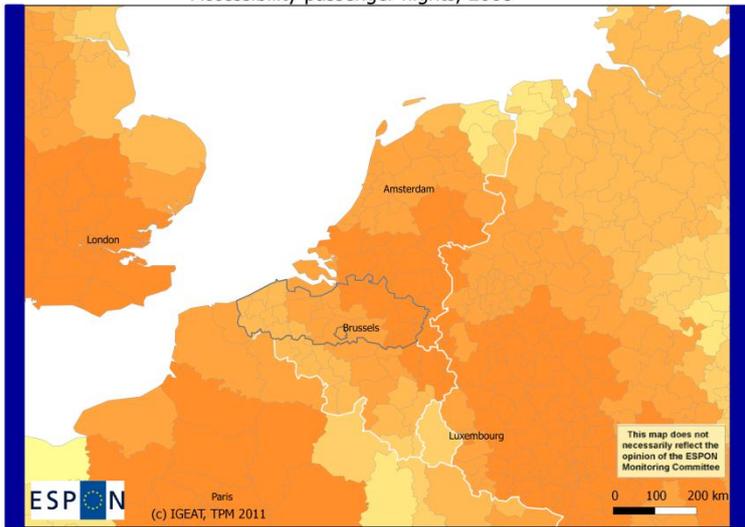
net migration per million inhabitants (annual average)

- < -1.5
- 1.5 - 0
- 0 - 1.5
- 1.5 - 5
- 5 - 10
- > 10

Flanders

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



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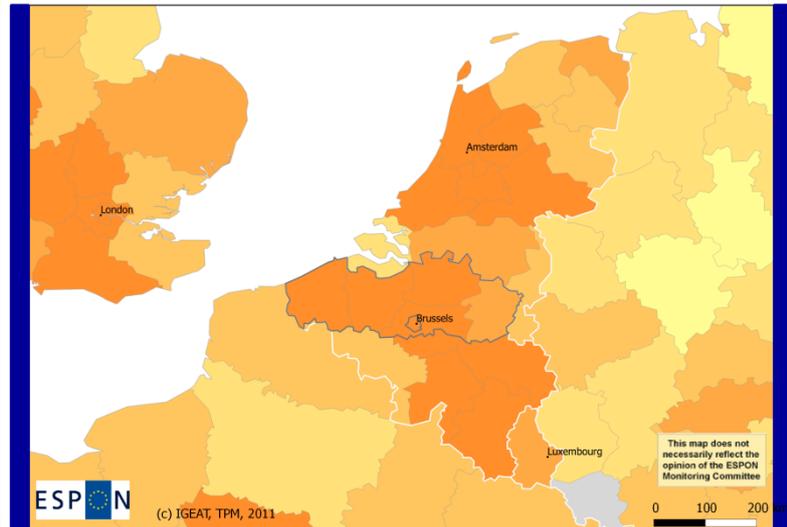
Population weighted average of passenger flights per day
travel time to the closest airport < 90 min

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

Flanders

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



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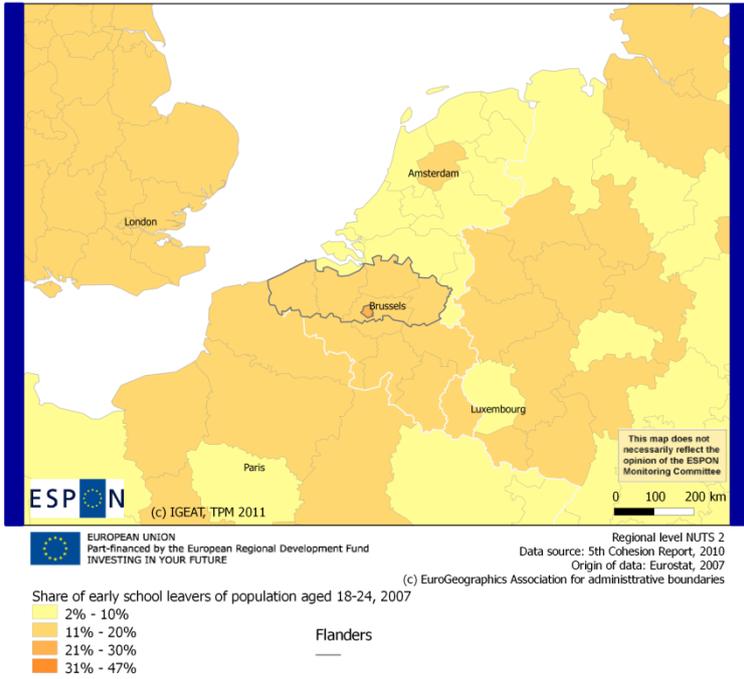
Share of population with tertiary education

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

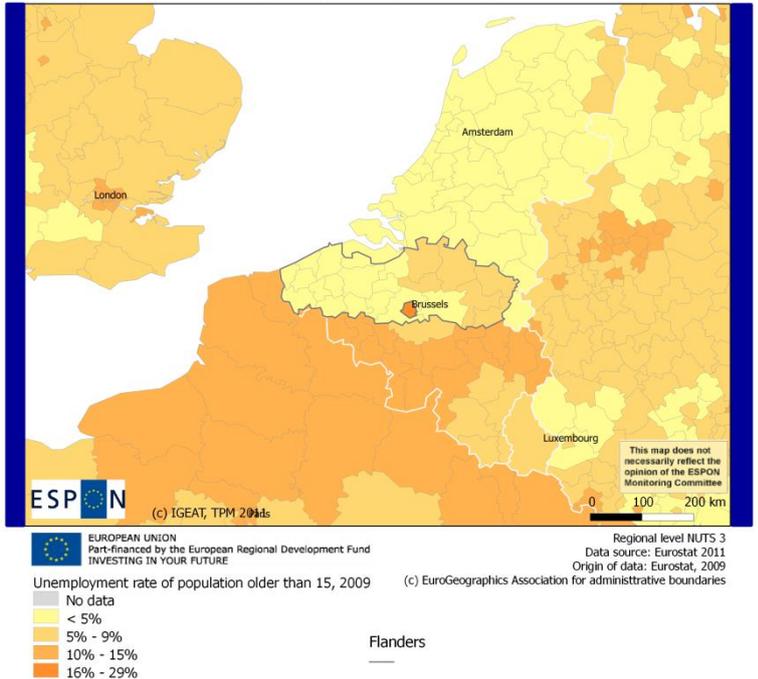
Flanders

Regional level NUTS 2
Data source: 5th Cohesion report, 2010
Origin of data: Eurostat, 2009
(c) EuroGeographics Association for administrative boundaries

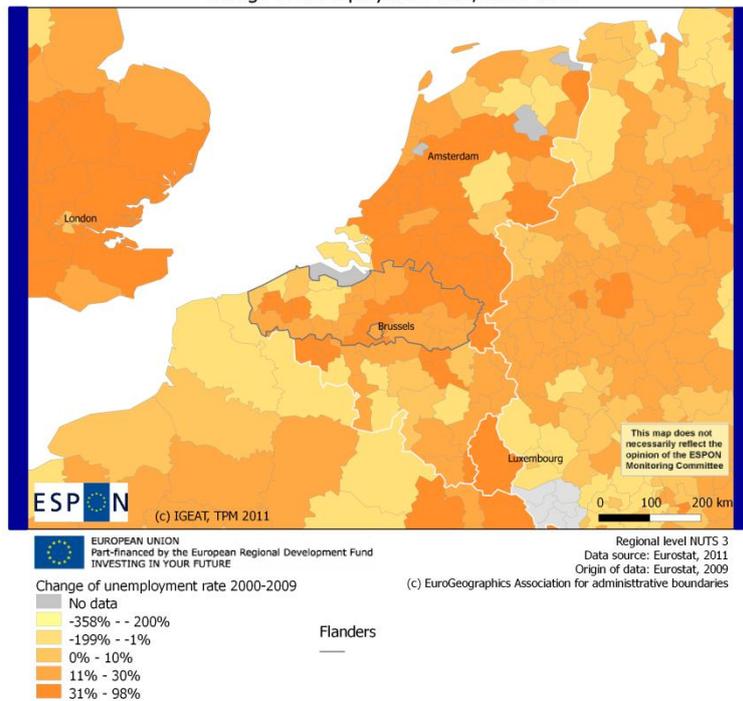
Early school leavers, 2007



Unemployment rate, 2009



Change in unemployment rate, 2000-2009



4.2 Demography

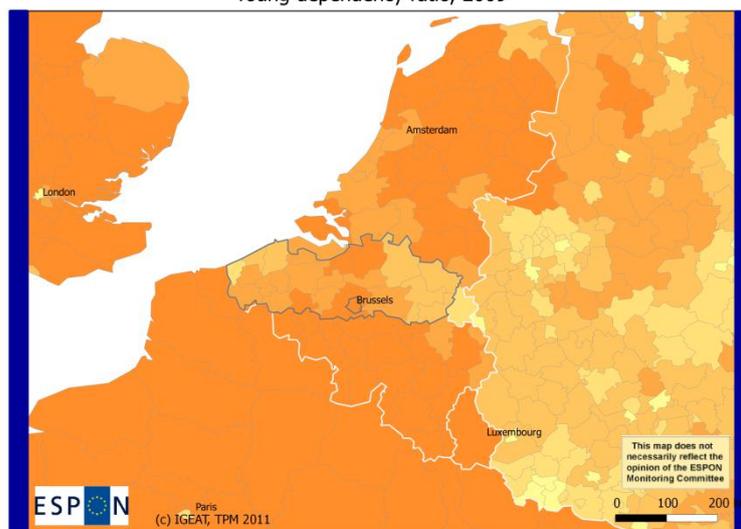
a) Comparative analysis

Demography

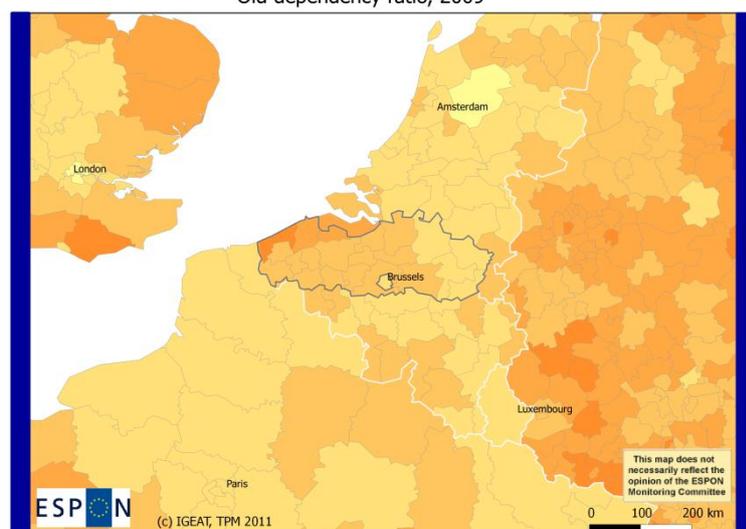
Indicator	value	EU	National	Neighbourhood	Typology
Young age dependency ratio, 2009	24% 105		96	91	106
Old age dependency ratio	27% 106		105	121	97
Life expectancy, 2004	80.4 0.96		0.04		0.08
Median age, 2008	40.6 - 0.62		- 0.44		- 0.43
Population growth, 1999-2009	+5% 101		96	101	100

b) Regional maps demography

Young dependency ratio, 2009



Old dependency ratio, 2009



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Population younger than 15 / potential active population

- 12% - 19%
- 19% - 21%
- 21% - 23%
- 23% - 26%
- 26% - 35%

Flanders

Regional level NUTS 3
Data source: Eurostat, 2011
Origin of data: Eurostat, 2009

(c) EuroGeographics Association for administrative boundaries

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Population older than 64 / potential active population

- 9% - 15%
- 15% - 25%
- 25% - 30%
- 30% - 35%
- < 35%

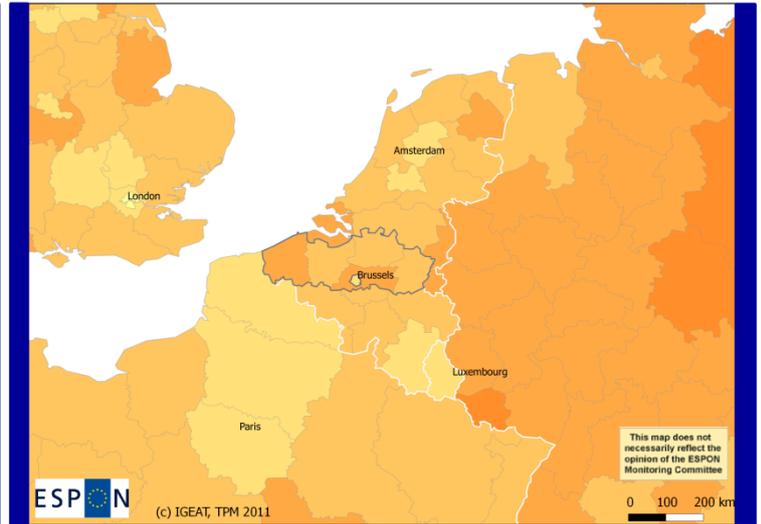
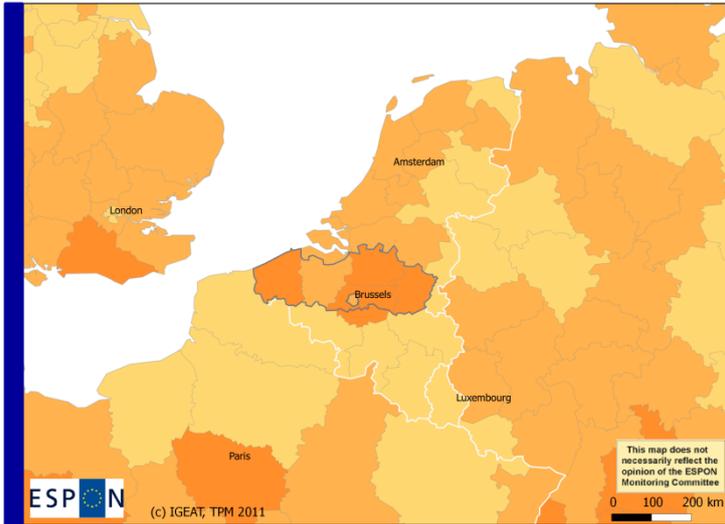
Flanders

Regional level NUTS 3
Data source: Eurostat, 2011
Origin of data: Eurostat, 2009

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Life expectancy at birth, 2004

Median Age, 2008



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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

Flanders

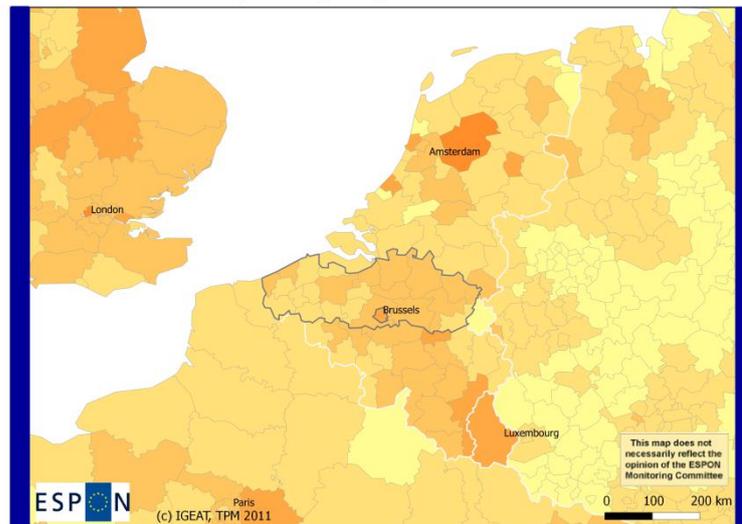
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age that divides a population into two numerically equal groups
31 - 34
34 - 37
37 - 39
39 - 43
43 - 46

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

Flanders

Population growth, 1999-2009



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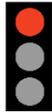
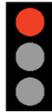
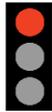
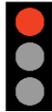
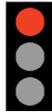
change in population 2009/1999
< 0 %
0 - 5 %
5 - 10 %
10 - 15 %
>15 %

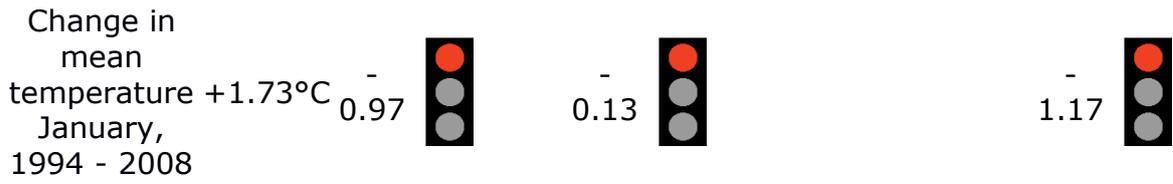
Regional level NUTS 3
Data source: Eurostat, 2011
Origin of data: Eurostat, 1999, 2009
(c) EuroGeographics Association for administrative boundaries

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4.3 Climate Change

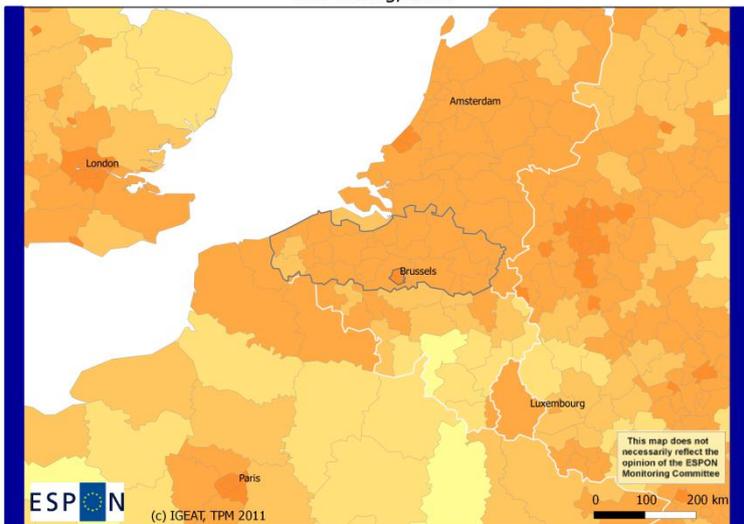
a) Comparative analysis

Climate Change									
<i>Indicator</i>	<i>value</i>	<i>EU</i>	<i>National</i>	<i>Neighbourhood</i>	<i>Typology</i>				
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 /m ³	- 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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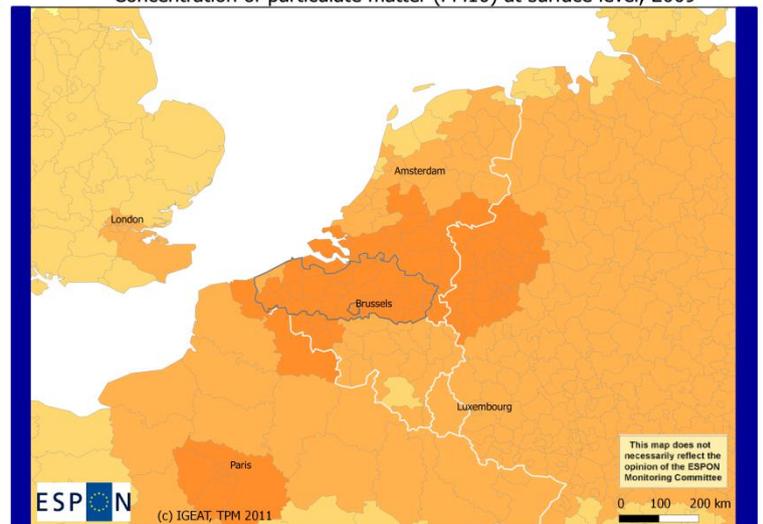
Regional level NUTS 3
Data source: 5th Cohesion Report, 2010
Origin of data: AEE, REGIO-GIS
(c) EuroGeographics Association for administrative boundaries

% of total NUTS 3 surface

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

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



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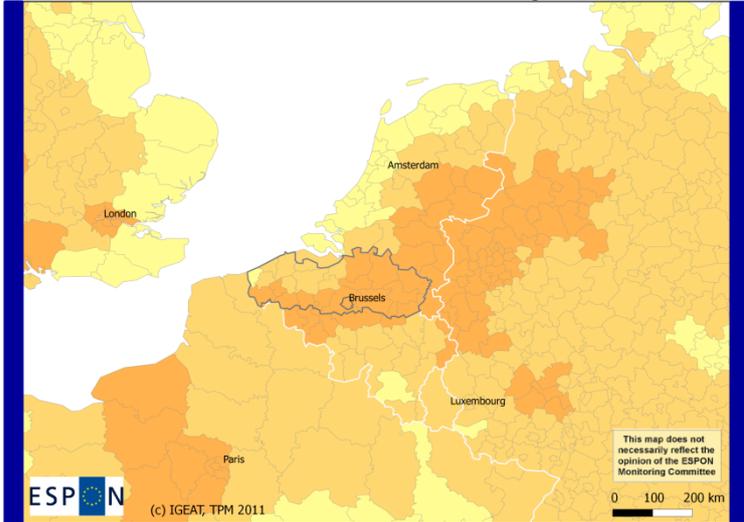
Regional level NUTS 3
Data source: 5th Cohesion Report, 2010
Origin of data: GMES-Promote, CCR, EFGS, REGIO-GIS
(c) EuroGeographics Association for administrative boundaries

annual average (µg/m³)

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

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Ozone concentration exceedances in NUTS 3 regions, 2008



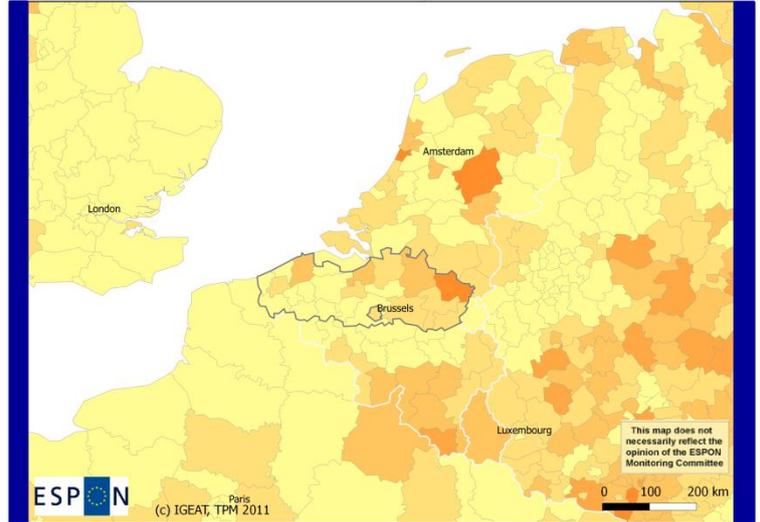
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days exceeding 120µg/m³
 < 5
 5 - 10
 10 - 30
 > 30

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

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NATURA 2000 area, 2009



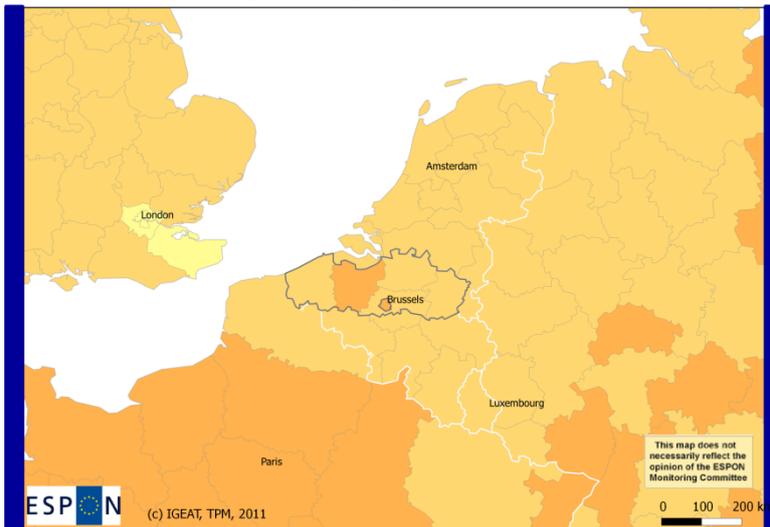
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% of total NUTS 3 surface
 < 7
 7 - 16
 16 - 27
 27 - 39
 39 - 74

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

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Change in heating degree days, 1981 - 2009



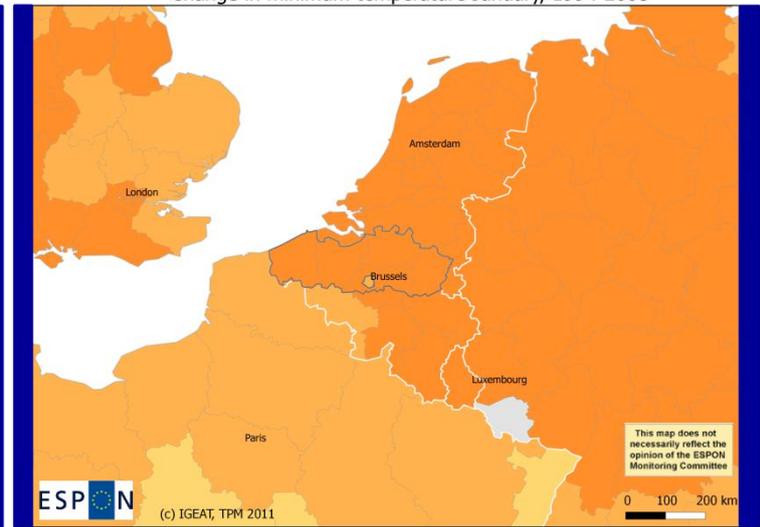
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Change in Heating Degree Days, 1981-2009
 No data
 -70% - -21%
 -20% - -11%
 -10% - -1%
 0% - 11%

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

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Change in minimum temperature January, 1994-2008



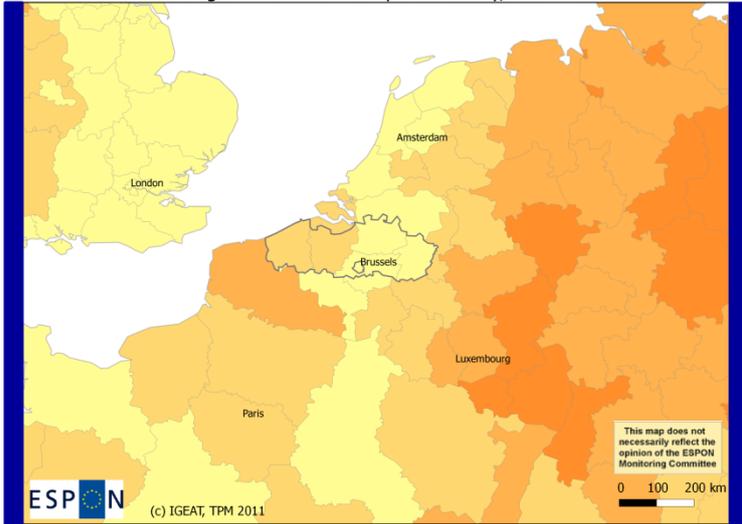
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Change in minimum temperature January (°C)
 < -1.4 °C
 -1.4°C - +0.4°C
 +0.4°C - +2.9°C
 > +2.9°C
 No data

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 maximum temperature July, 1994-2008



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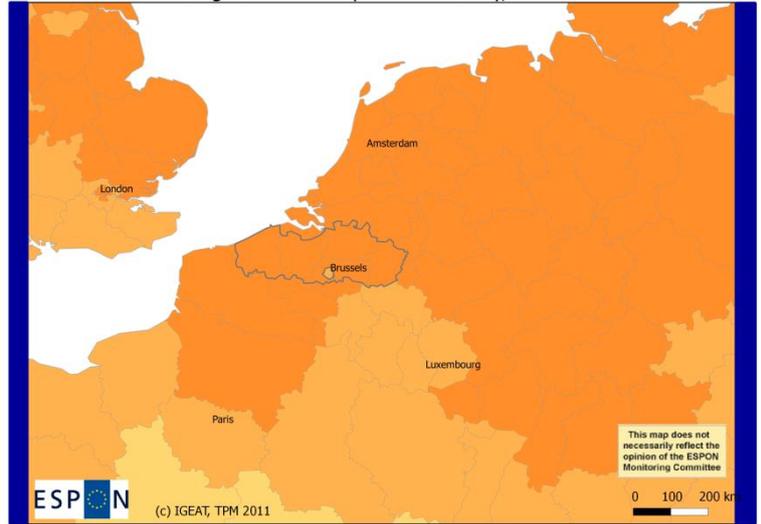
Change in maximum temperature July (°C)

- 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

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Change in mean temperature January, 1994-2008



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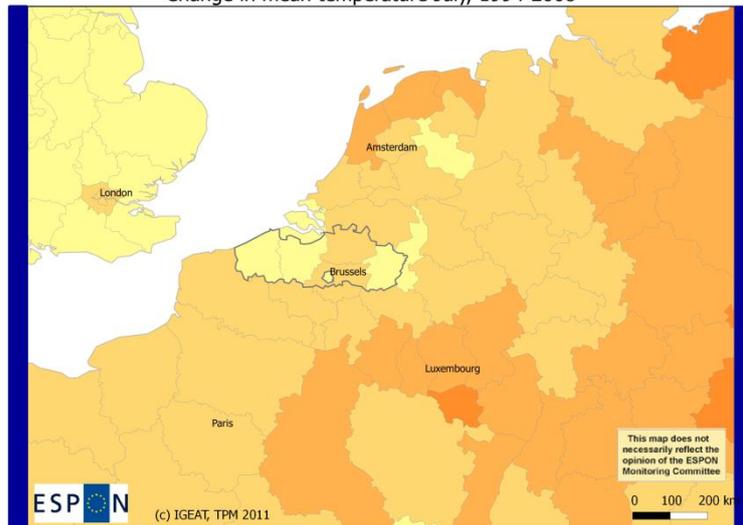
Change in mean temperature January (°C)

- 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

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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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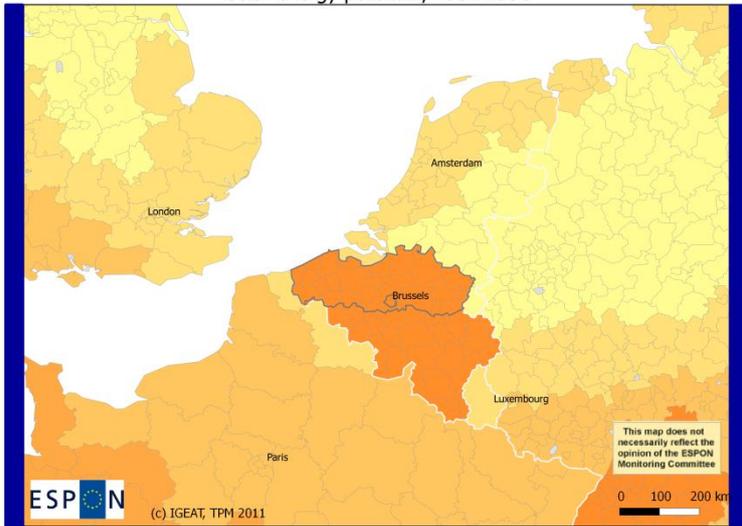
4.4 Energy

a) Comparative analysis

Energy									
<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/m ²	-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



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

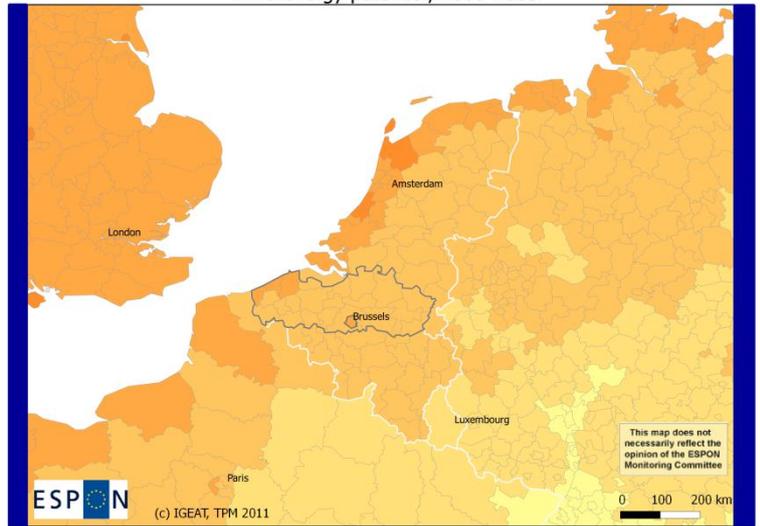
Solar energy potential NUTS 3 regions (kWh per year)

< 1100
1100 - 1160
1160 - 1312
1312 - 1571
> 1571

— Flanders

— No data

Wind energy potential, 2000-2005



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

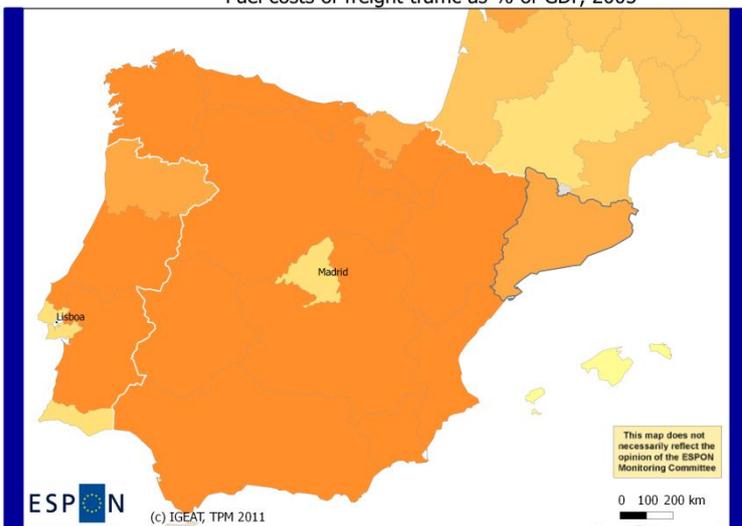
Wind energy potential NUTS 3 regions (h per year)

< 1000
1000 - 1500
1500 - 2000
2000 - 3000
> 3000

— Flanders

— No data

Fuel costs of freight traffic as % of GDP, 2005



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

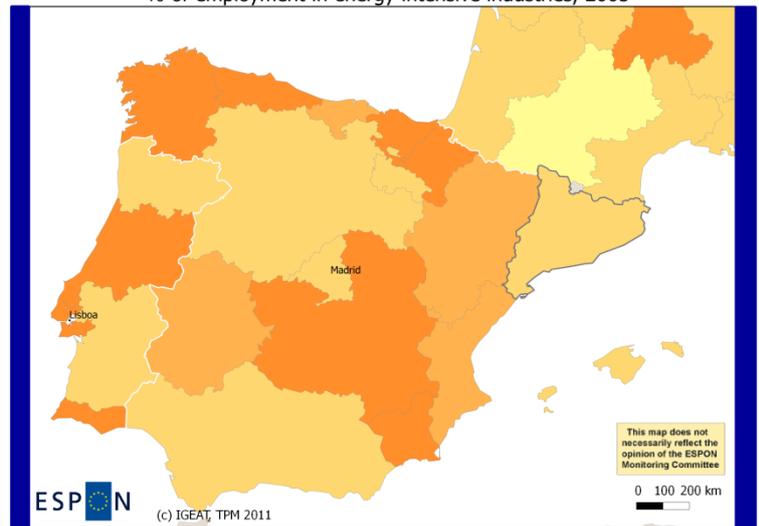
Fuel costs of freight traffic as % of GDP

< 0.8%
0.8% - 1.8%
1.8% - 2.3%
2.3% - 3.5%
3.5% - 14%

— Catalunya

— No data

% of employment in energy intensive industries, 2005



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 Regional level NUTS 2
 Data source: ESPON 2013 Database
 Origin of data: ESPON Project ReRisk, 2010
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% of employment in energy intensive industries

< 0.2
0.2 - 0.3
0.3 - 0.4
0.4 - 0.7

— Catalunya

— No data

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