ESPON
EUROPEAN SPATIAL PLANNING OBSERVATION NETWORK

Bundesamt
für Bauwesen
und
Raumordnung

# ESPON project 4.1.3

# Feasibility study on monitoring territorial development based on ESPON key indicators

## Part A

## Tentative
## Spatial Monitoring Report

## Final Report

Co-financed by the European Community through the Interreg III ESPON programme

# ESPON project 4.1.3

## *Feasibility study on monitoring territorial development based on ESPON key indicators*

## Part A

## Tentative
## Spatial Monitoring Report

## Final Report

This report represents the final results of a research project conducted within the framework of the ESPON 2000-2006 programme, partly financed through the INTERREG programme.

The partnership behind the ESPON programme consists of the EU Commission and the Member States of the EU25, plus Norway and Switzerland. Each partner is represented in the ESPON Monitoring Committee.

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

Information on the ESPON programme and projects can be found on www.espon.eu

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

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# Foreword

This is the final report of the ESPON project 4.1.3 “Feasibility study on monitoring territorial development based on ESPON key indicators”.

The project 4.1.3 holds an important position in the ESPON programme, because of the search for and selection of routing indicators which should contribute to a spatial monitoring of the territory covered by the ESPON programme 2002-2006.

The ESPON programme was launched after the preparation of the European Spatial Development Perspective (ESDP) adopted by the Ministers responsible for Spatial Planning of the EU in May 1999 in Potsdam (Germany) calling for a better balanced and polycentric development of the European territory. The Programme is implemented in the framework of the Community Initiative INTERREG III. Under the overall control of Luxembourg, the EU member states elaborated a joint submission with the title "The ESPON 2006 Programme – Research on the Spatial Development of an Enlarging European Union". The European Commission adopted the programme on 3 June 2002.

The project started on June 1st, 2006.

See http://www.espon.eu for more details.

The views expressed in this report do not necessarily reflect the opinion of the ESPON Monitoring Committee.

The project team was composed of eight institutions.

The institutes are listed below, followed by a list of staff involved in the project.

The present Final Report of the ESPON project 4.1.3 is a team effort of all project partners under the leadership of the BBR.[1]


BBR - Bundesamt für Bauwesen und Raumordnung
(Germany)

Contact: Dr. Peter Schön
Bundesamt für Bauwesen und Raumordnung (BBR)
*Federal Office for Building and Regional Planning*
Deichmanns Aue 31 - 37
53179 Bonn
Tel. +49.(0)1888.401-2329
Fax +49.(0)1888.401-2260
E-mail: Peter.Schön@bbr.bund.de
Web-page: www.bbr.bund.de

TAURUS Institut an der Universität Trier
(Germany)

IRS - Institute for Regional Development and Structural Planning
(Germany)

IGEAT - Institut de Gestion de l'Environnement & Aménagement du Territoire Université Libre de Bruxelles
(Belgium)

NORDREGIO - Nordic Centre for Spatial Development (Sweden)


[1] Alphabetic order by names or titles of the institutes or companies

ÖIR - Österreichisches Institut für Raumordnung
(Austria)

DIG - Department of Management, Economics and
Industrial Engineering, Politecnico di Milano
(Italy)


RRG - Büro f. Raumforschung, Raumplanung u. Geoinformation
(Germany)

# Staff involved in the project

The staff involved in the project is listed in alphabetic order, first by country and then by the surnames of the corresponding persons.

### List of persons involved in the ESPON project 4.1.3

#### Austria

- *Schneidewind,* Peter; Österreichisches Institut für Raumplanung, Vienna
- *Schuh*, Bernd; Österreichisches Institut für Raumplanung, Vienna

#### Belgium

- *Lennert,* Moritz; Institut de Gestion de l'Environnement & Aménagement du Territoire, Brussels

#### Germany

- *Braun,* Thomas; TAURUS Institut an der Universität Trier, Trier
- *Gensheimer,* Michaela; TAURUS Institut an der Universität Trier, Trier
- *Heidbrink*, Ingo; Bundesamt für Bauwesen und Raumordnung, Bonn
- *Müller,* Kristine; Institut für Regionalentwicklung und Strukturplanung, Erkner
- *Muschwitz*, Christian; TAURUS Institut an der Universität Trier, Trier
- *Porsche*, Lars; Bundesamt für Bauwesen und Raumordnung, Bonn
- *Pflanz*, Kai; Bundesamt für Bauwesen und Raumordnung, Bonn
- *Schön*, Peter; Bundesamt für Bauwesen und Raumordnung, Bonn
- *Schmidt-Seiwert*, Volker; Bundesamt für Bauwesen und Raumordnung, Bonn
- *Schürmann*, Carsten; Büro f. Raumforschung, Raumplanung u. Geoinformation, Oldenburg i.H.
- *Zillmer,* Sabine; Institut für Regionalentwicklung und Strukturplanung, Erkner

#### Italy

- *Camagni,* Roberto; Department of Management, Economics and Industrial Engineering (DIG)
- *Capello,* Roberta; Department of Management, Economics and Industrial Engineering (DIG)

- *Caragliu,* Andrea*;* Department of Management, Economics and Industrial Engineering (DIG)
- *Fratesi,* Ugo*;* Department of Management, Economics and Industrial Engineering (DIG)

**Sweden**

- *Dubois,* Alexandre; Nordic Centre for Spatial Development, Stockholm
- *Gløersen,* Erik*;* Nordic Centre for Spatial Development, Stockholm
- *Neubauer*, Jörg*;* Nordic Centre for Spatial Development, Stockholm

## Abbreviations used by the project team 4.1.3

### Abbreviations

| Abbreviation | Term |
|---|---|
| AC | accession country |
| BSR | Baltic Sea Region |
| CDCR | Committee for Development and Conversion of Regions |
| CEMAT | Conférence européenne des Ministres responsables de l'Aménagement du Territoire |
| CORINE | Coordination of Information on the Environment |
| CU | Coordination Unit |
| ECP | ESPON Contact Point |
| EEA | European Environmental Agency |
| ESDP | European Spatial Development Perspective |
| ESPON | European Spatial Planning Observation Network |
| et seq | and the following |
| FR | Final Report |
| FUA | Functional Urban Area |
| GDP | gross domestic product |
| GIS | Geographical Information System |
| i.e. | that is |
| ICT | Information and Communication Technology |
| IR | Interim Report |
| LP | Lead Partner |
| MA | Management Authority |
| MAUP | Modifiable Area Unit Problem |
| MC | Monitoring Committee |
| MEGA | Metropolitan European Growth Area |
| MS | Microsoft |
| NUTS | Nomenclature of Territorial Units for Statistics |
| OECD | Organisation for Economic Cooperation and Development |

| Abbreviation | Term |
|---|---|
| PPS | purchasing power standard |
| R&D | research and development |
| RCE | Regional Classification of Europe |
| ToR | Terms of Reference |
| TPG | Transnational Project Group |
| TSP | The Territorial State and Perspectives of the European Union |
| WP | work package |

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## Executive summary

The ESPON project got the task to "… improve, further develop and integrate the current component of a monitoring system within the ESPON programme and gain a first experience from testing in practice the monitoring of the territorial development of Europe.

As one result of this first test phase, the project should propose measures for a further calibration and improvement of the system. The test phase shall also provide a concretel result in terms of a tentative spatial monitoring report based on (key)-indicators…" (Terms of Reference, Scientific Support Action 4.1.3, 20 March 2006).

This report shows the possibilities, potentials and restrictions related to technical and political aspects because spatial monitoring must satisfy both the demand for a sound basis for spatial analysis and the varying political demands for the evaluation of policy strategies and the assessment of the achievement of policy aims.

A first approach is given by discussing the needs and showing examples based on existing data, indicators and typologies.

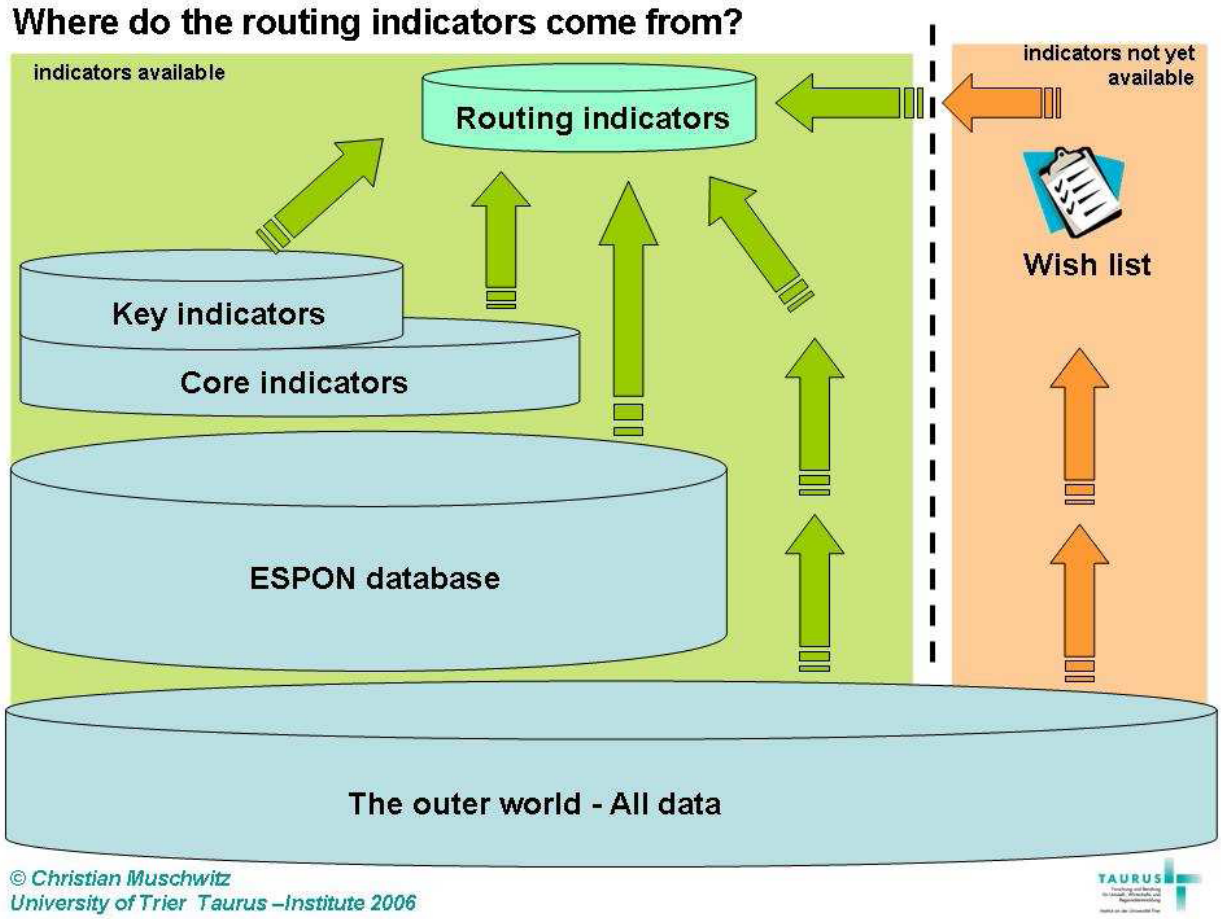
The discussion covers existing experiences in various countries having a regular sequential monitoring report, the aims and objectives of such reports, the policy orientation and the selection of relevant indicators. For the latter, Part B of this report plays a crucial role explaining the selection of core and so called routing indicators in detail.

The report of the project consists of two parts. Part A presents an outline of the elements of a potential future monitoring report. Part B is a scientific working paper dealing with a catalogue of spatial relevant indicators fundamentally necessary to explain territorial phenomena and to give support in the political discussion of spatial relevance.

Part B starts with the reflection of indicators to be applied for that purpose as policy makers cannot be expected to have a profound knowledge of data and indicators, their relevance, related problems and challenges. It summarize a general discussion about indicators and the challenges of availability and homogeneity linked to the quality of existing data. It further examines the questions of complex indicators versus simple indicators and the recurrent debate about qualitative and quantitative indicators.

It defines the framework to form the basis for a continuous European spatial monitoring, necessary to identify and to specify indicators, which can appropriately describe spatial developments of the European territory. The spatial relevant indicators identified in the project have been called 'routing' indicators to explain spatial structures and developments. They have to fulfil a number of requirements in terms of their quality, spatial coverage, spatial level and availability.

**Figure 1 Origin of routing indicators**

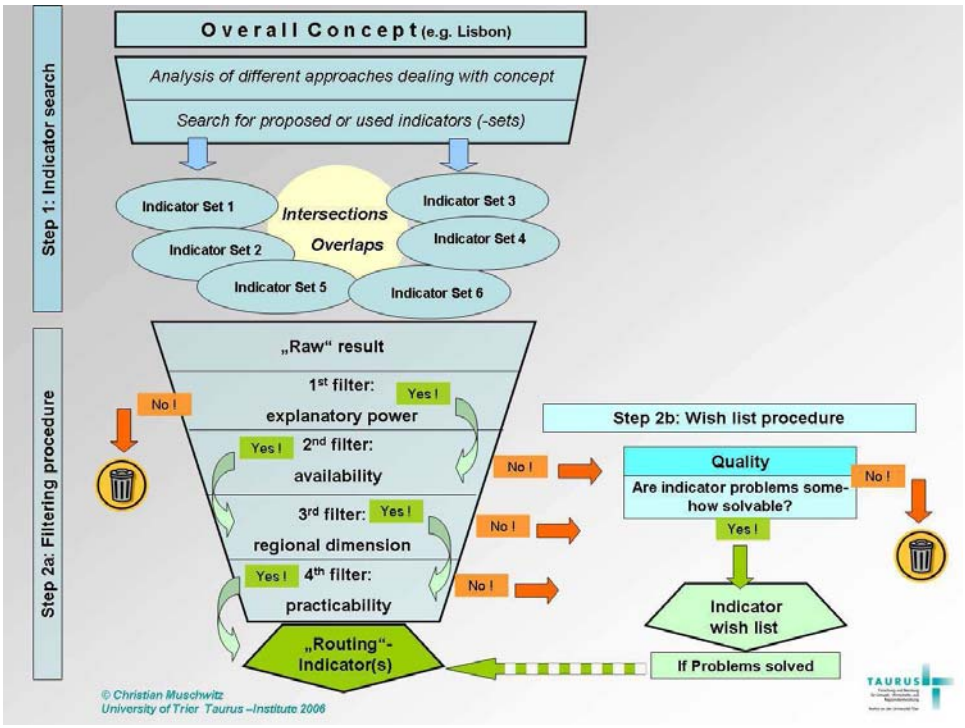



The identified 'routing' indicators are complemented by a wish list of indicators which are not appropriately available yet but of crucial importance for future spatial monitoring.

The way to the routing indicators leads through a so called “multi level filter process”. Two standardised procedures were developed:

- Filtering Procedure for the routing indicators and
- the Wish list Procedure for those indicators that have certain shortcomings but should become part of the list of routing indicators in the future.

**Figure 2 Multi-level filtering process and Wish list procedure**




Routing indicators are distinguished from other indicators by their ability to represent much broader contexts and to show the development tendency of an entire thematic field. Their function is that of a lighthouse, guiding through endless sources of information, or an early-warning-system indicating if and when some unintended development becomes apparent. Routing indicators need to be appropriate in their complexity and expressiveness.

The indicator selection orients on the policy fields of the ESPON key indicator matrix which have been grouped according to policy concepts and ESDP policy options into six thematic fields:

- Territorial cohesion
- Competitiveness (Lisbon)
- Infrastructure and accessibility
- Environment (Gothenburg)
- Socio-cultural issues
- Governance

On this base, the present part A of the final report outlines the components of a potential future spatial monitoring report of the European territory. In a first step, this part of the report provides the overview of the components of territorial development.

As the continuous monitoring of spatial development is a major tool for policy-makers to assess recent development trends, to identify problems and to communicate needs for action, the framework for the selection of indicators reflecting the territorially orientated policy is of crucial importance.

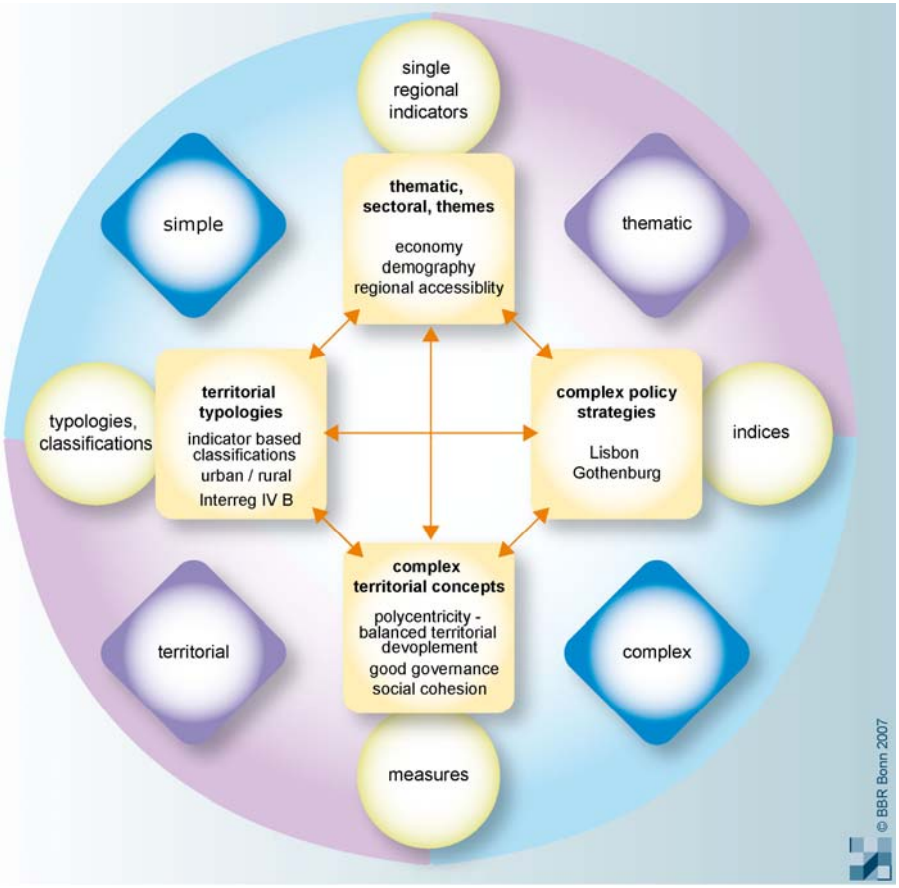
The recommended 'routing' indicators capable to reflect the spatial structure of the ESPON territory are put into relationship to their policy relevance and the orientation in the political discussion. The ESPON typologies which describe the most fundamental spatial patterns are seen in this context as a second important territorial aspect of a continuous spatial monitoring.

Spatial indicator-based information by theme and sector is provided in the part presenting a possible approach on how to monitor structures and developments of the territory in order to combine the territory with an area of knowledge or interest, furthermore with thematic or sectoral fields, policy strategies and territorial concepts. The components of territorial monitoring are built by the combination of indicators and typologies according to their nature ranging from simple single regional indicators to complex indices and the political explanatory power being mainly sectorally or thematically oriented or having more territorial significance.

To outline the main orientation of spatial reporting, four components have been created on the basis of these combinations:

- Thematic sectoral themes
- Indication of complex policy strategies
- Complex territorial concepts
- Territorial typologies

**Figure 3 Components of territorial monitoring**




The first component deals with simple thematic indicators of territorial development. Economic and demographic structures and developments and the situation of regional accessibility are taken as examples to demonstrate how single themes and indicators can build the basis to form a mosaic of territorial development in Europe.

The second component covers the more simple territorial approaches. To assess and monitor territorial development it is often of interest how specific types of regions develop. Based on regional typologies and classifications we can analyse and compare, by statistical breakdowns for these types, how specific types of regions, like urban vs. rural regions, develop. Also for “politically defined” regions, like the transnational cooperation areas under the Interreg programme, it can be interesting to trace their regional characteristics. Another variety of this typological approach is the “inductive” typology: We start from a specific phenomenon that we are interested in, e.g. regional population decline, and explore how the type of depopulating regions can be characterised in more general (statistical) terms.

The third element of monitoring explores more complex thematic approaches. Taking the example of the two currently most important complex policy strategies in the European Union, the Lisbon and the Gothenburg Strategy, we show how a

European spatial monitoring report can contribute to the assessment of these strategies in a regionalised context. Here a crucial point is to define and calculate indices or other more complex indicators to statistically mirror the complex policy strategies.

Finally, the fourth component deals with complex territorial concepts. As examples we take polycentricity and good territorial governance to discuss which types of statistical data and measures could be appropriate to describe such complex territorial concepts.

The presented tentative spatial monitoring report should be seen as a first approach and test for a periodical spatial monitoring report within the ESPON programme. It shows the main elements and approaches that can be used to compose a future periodical spatial monitoring report for Europe. It is not thought to be and in fact cannot be a full prototype. Indeed, a full report cannot be written in the course of this confined low-budget project.

The concentration on a selected range of routing indicators and the choice of core indicators that the ESPON programme presently has at its disposal gives a first indicator-based insight into the regional structure. A first representation of the relevance of thematic, mainly sector policy-related indicators for the interpretation of territorial cohesion was given

At present, the conception of a tentative spatial monitoring report is still handicapped and hampered by the partial non-existence of data and indicators, especially with regard to social and cultural themes.

Before a periodical spatial monitoring report in ESPON 2013 can be implemented, the main goals and contents, but also some contextual conditions and requirements, have to be identified. This should give an input for the ESPON Monitoring Committee to design and decide about an ESPON project that is asked to develop a reporting system and to deliver the specific spatial monitoring reports.

It has been made clear that a spatial monitoring report might consist of different elements of diverse complexity which in turn – to put it into more practical terms – are associated to diverse degrees of work load.

Contents and periodicity of a periodical spatial monitoring report are the two connected core subjects to be decided on. Basically, there is a choice between a larger “full” report with a longer periodicity and shorter update reports with smaller intervals. The periodicity and thematic depths of reports is of course linked to the different speeds or rates of change in different fields of spatial development.

The report in the end suggest an ESPON 2013 project dealing with this challenge and outlines the tasks of the project stretching from the establishing of a concept for a continuous monitoring system and the contents and time frame for several ‘full’ spatial monitoring reports and selected thematic updated ‘interim’ reports

The report also points to the aspects of continuous spatial monitoring which covers for example continuous work on the maintenance of indicators and the physical production of the reports. Involvement in the political discussion to enable an updating of main spatial policy aims, diversified analytical background and technical facilities are prerequisite in this context.

# 1 Introduction

## 1.1 The task of the ESPON programme

The ESPON project 4.1.3 is to "… improve, further develop and integrate the current component of a monitoring system within the ESPON programme and gain a first experience from testing in practice the monitoring of the territorial development of Europe.

As one result of this first test phase, the project should propose measures for a further calibration and improvement of the system. The test phase shall also provide a concretely result in terms of a tentative spatial monitoring report based on (key) indicators…" (Terms of Reference, Scientific Support Action 4.1.3, 20 March 2006).

## 1.2 Defining the task

Spatial monitoring aims to measure and to analyse spatial phenomena in order to interpret the living conditions of people, business conditions and to explain the differences with regard to a equivalent and balanced territorial development. This information is not only needed for the spatial structure, but also for elements that influence and change the spatial reality. Spatial monitoring must satisfy both the demands for an analytical base for sound spatial analysis and also for the varying political demands enabling the evaluation of policy strategies and the assessment of the achievement of policy aims.

A policy-oriented spatial monitoring needs the sound base of indicators to cover a detailed and profound demand for information arising from the need of interpreting different regional levels and also enabling a detailed thematic evidence base.

A more general spatial policy-related process targeting to support the discussion of territorial issues should concentrate on the characterisation of the main challenges and key factors of territorial cohesion and spatial development and requires a smaller number of indicators.

The experience in various countries, which have already conducted a continuous spatial monitoring for a long period of time, shows that the basic information is more or less the same. The selection of topics and thus the selection of indicators is fundamental.

This study tests the capability of current ESPON indicators resulting from the filtering process of routing indicators to support a sequential reporting (see Part B of the final report). In a first tentative step this report provides a selection of recommended indicators capable to reflect the spatial structure of the ESPON territory. It is restricted to already existing indicators. A deeper inside into the indicator selection including those recommended in the wish list for the future should use gives Part B of this report.

It is envisaged that this report should be used to deliberate the development of a model for sequential monitoring reports under the ESPON programme.

A limited list of indicators related to a territorial agenda - comparable to the elaboration of the short list of indicators related to the Lisbon/Gothenburg Agenda - seems appropriate. As the name of this list shows, it should be a short list. In the ideal case - but not necessarily due to the thematic orientations of the ESPON in this programming period – it should represent a subset of the 'core' indicator list. As for national territories, a Europe-wide spatial monitoring is also necessary. It will provide regional and spatial information for researchers, policy- and decision-makers as a tool supporting the orientation and interpretation of spatial relevance. Only with a continuous monitoring it will be possible to easily recognise territorial disparities, trends and to put them in relation to territorial policy objectives as well as to measure whether the objectives have been achieved.

## 1.3 Aims and objectives of the report

This report will contribute to the discussion for the development of a European Spatial Monitoring System for the continuous assessment of territorial development trends in order to set territorial policy objectives. The selection of indicators on the basis of routing indicators coming from the filtering process of spatial relevance and regional and temporal availability is supposed to be a test report on the possibility to provide spatial information in the form of an adequate periodical report.

The philosophy of continuous spatial monitoring is to measure and analyse spatial phenomena and to keep information about regional disparities and their development within the 29 countries participating in ESPON.

## 1.4 A policy-orientated spatial monitoring

In general, spatial monitoring has to pursue two different goals and to address target groups. In providing thematically oriented information, it is a basis for spatial analytical work and serves as an instrument that can be used in order to evaluate the success of politics and to give basic information about the question whether the targets were reached and to spot deviations. Spatial monitoring provides the basis for applied scientific research in universities as well as in research institutes to provide political advice .

Two main aspects have to be differentiated in this respect when thinking about the main purpose of spatial monitoring:

1. The well-elaborated, comprehensive scientific monitoring system which has a broad range of thematically oriented information; within ESPON this includes the list of indicators generated by the TPG and typologies which provide the orientation which is necessary to identify the research focus and the topic-

related data needed. The main use of this range of indicators is to give research and policy-orientated advice. The main task concerning these indicators within a continuous spatial monitoring system is to evaluate their sustainability in the future.

2. A policy-orientated spatial monitoring, which includes the necessary thematic concepts, but only a limited number of routing indicators per concept; such a “slim” monitoring obviously needs a selection of the most important indicators which have to be confronted with the problems and targets of spatial policies. The choice of this set depends on political options and objectives. So these indicators are supposed to support a general monitoring of the European territory, which was one important outcome in the starting phase of the European continuous spatial monitoring, and to monitor territorial development.

For a spatial planning report and not only for this tentative spatial monitoring report, the second option has to be selected. The aim is a more general spatial policy-related process aiming to support the discussion of territorial issues. Therefore the characterisation of main challenges and key factors in the context of territorial cohesion and spatial development needs a selection of a smaller number of indicators. The system has to be flexible and adaptable to revised policy aims and to new knowledge on specific spatially relevant issues.

## 1.5 Selection of relevant indicators

With the list of routing indicators a first proposal of suitable indicators for a spatial observation was introduced which faces the challenge for a potential future ESPON spatial monitoring report.

The list of routing indicators shows, that policy-oriented spatial monitoring could neither be done with the complete spatial information as this would make the data too complex nor would it allow to identify territorial trends in a fast and easy way.

For the tentative spatial monitoring report first ideas for the selection of indicators for policy-orientated spatial monitoring are proposed which cover the necessary thematic concepts, but only include a limited number of routing indicators per concept. In this respect special attention was given to “new” spatial indicators in the now elaborated list of routing indicators. In general, the policy-related selection of indicators has to parallel the problems and targets of spatial policies.

# 2 Dimensions of continuous spatial monitoring and the challenges of a territorial monitoring report

## 2.1 Connecting spatial information with the territory

According to the ToR, this project should develop a monitoring report for the European territory which should concentrate on a limited number of main socio-economic indices and commented maps showing the current structure and situation of the European territory and, whenever possible, their evolution within a reference period.

This basic information on spatial dynamics within Europe and its regions could serve as an introduction and support the understanding to focus on particular policy options or group of options.

In the understanding of spatial monitoring, which is targeted on monitoring, measuring and analysing spatial phenomena which determine space and spatial development, information is needed on the spatial structure as well as on the elements that determine and change the spatial structure.

A spatial observation in this respect must satisfy two demands, it must provide the base for a sound and evidence-based spatial analysis and as well for a policy-oriented monitoring which provides information that enables a targeted description of the main trends related to policy strategies and to the assessment of the achievement of policy aims. Spatial monitoring and evaluation has to go along with a targeted spatial reporting on topically relevant territorial questions.

In this twofold approach one must distinguish between the full range of a mature spatial monitoring and a concentration on a mere politically orientated spatial monitoring. It is quite obvious that the latter could not be done with this complete range of spatial information. A selection of indicators – i.e. a short list of spatial key indicators - is necessary to maintain a continuous spatial monitoring over a short period on the basis of existing ESPON indicators.

## 2.2 Defining the scope of elements

Several parallel and interlinked efforts have been undertaken within the ESPON programme to summarise the research efforts and results aimed at preparing a continuous monitoring considering both orientations demanded.

### 2.2.1 Core indicators as base for spatial information

A first approach in the process of the selection of ESPON indicators was done in the context of the ESPON projects 3.1 and 3.2 in taking the restricted duration of the ESPON projects into account and the continuing and updating the most relevant information. This was done on the basis of project suggestions and resulted in the selection of core indicators from the much larger list of indicators provided in total. It included a selection of indicators with the potentially highest importance for a spatial information system and for the measurement of living conditions in Europe.

Especially when we think of the programming period of ESPON and the successful end of different projects, the list of ESPON core indicators providing the basis for the analysis of spatial structures and trends in Europe plays a crucial role within the European spatial information and regional statistical activities and is one of the fundamental outcomes of ESPON projects.

The definition of this range of indicators will be a valuable input for a potential maintenance and updating in the future. Especially with regard to model calculations these core indicators could be interpreted as both the inital development and further improvement of indicators representing the same thematic evidence – maybe in a slightly different algorithm – but with a comparable spatial policy-related orientation.

As mentioned the TPG-generated core indicators provide the necessary orientation to define the focus of research and the related data acquisition. The main task concerning these indicators will be to evaluate their availability after the end of ESPON projects in order to maintain their spatial relevance beyond the first phase of ESPON. This point of departure defined in ESPON includes to update and consequently enrich as well as to adjust the available information to spatially relevant questions and challenges.

### 2.2.2 Routing indicators - policy-oriented territorial assessment

A policy-orientated spatial monitoring needs a large and sound base of indicators provided by ESPON. The freedom of choice is necessary to cover a detailed and profound demand for information arising from the need to interpret different regional levels and to enable a detailed thematic evidence base.

A more general spatial policy-related process aimed at supporting the discussion of territorial questions could not be carried out with the complete range of spatial information. The characterisation of the main challenges and key factors in the context of territorial cohesion and spatial development requires to select indicators.

The routing indicator set enables a demand-driven selection of territorial indicator sets comparable to the short list of indicators selected in the framework of the Lisbon/Gothenburg Agenda.

Based on the policy debate on intergovernmental processes, particularly on the ESDP and on the state and the perspective of the European Union, and on European policy objectives and priorities, especially territorial cohesion and the Lisbon Strategy, spatial reporting should be oriented towards territorial policies like a balanced distribution of the population, sustainable settlement, structures and city systems, global competitiveness, an innovative knowledge society, diversified regional economies, sustainable transport systems. Furthermore, social issues, environmental protection and hazard prevention, a diversified cultural heritage and identities as well as a territorially oriented governance should be in the centre of investigation.

In order to identify the characterisation of the territory, the elaboration of these indicators for a tentative spatial monitoring report was orientated on the key ideas of policy fields and the thematic orientation of ESPON projects. Fundamental territorial indicators will finally be identified by combining sectoral aspects like economy, innovation, demography, spatial structure (urban, urban-rural, urban hierarchy), energy, transport and ICT, social and cultural aspects and environment and hazards. They are able to support the 'daily' political demand for a fast but profound and sound information on the state and perspective of the European territory.

The wish list of indicators might increase the list of routing indicators very soon. Nevertheless, one needs to be realistic with regard the whole set of indicators proposed so far. Some of them will only be available for a period of several years. If spatial monitoring can be improved, it is logical and obvious that these improvements should concentrate on the wish list of indicators.

The thorough reader will recognise missing data in several of the maps in this report. No data simply refers to the problem of not yet having comparable data available for all ESPON countries in selected fields of investigation.

### 2.2.3 Typologies defining the territorial aspect

Parallel to the elaboration of indicators for the identification of regional structures and trends, the ESPON results also laid ground to a second territorial aspect of continuous spatial monitoring by defining a range of typologies to describe the most fundamental spatial patterns.

ESPON typologies provide a special view of the ESPON area allowing to identify regional characters and to analyse the causes of the their differences. In addition to simple benchmarking the typologies show the regional setting with regard to the selected thematic orientation. They provide the conceptual analytical tool to describe territorial structures on the basis of indicators derived which could be used for further investigations with regard to other spatial structures and developments.

In this respect, the regional types define the base for thematically orientated spatial patterns which enable an investigation of trends, developments and differences between regional types in case they have been constant in time. Using the same definition and method for the regional typology based on periodically updated the data, the development of the typology and the regional composition will be in the centre of investigations showing the changes of spatial types in time.

## 2.3 Monitoring, indicators and perceptions of policy-makers

Concerning the future use of indicators and the envisaged monitoring report it is important to scrutinise what policy-makers need and what they expect.

Continuous monitoring of spatial development, mostly based on the analysis of quantitative indicators, is a major tool for policy-makers to assess recent development trends, identify problems and communicate needs for action. Monitoring is also vital to be able to present the results of "successful policies" and to compare general policy values and concepts with actual states and perspectives of the territory. monitoring reports often are not just "positivistic" mirrors of reality, but also "test grounds" for new policy ideas located somewhere between science and politics.

Existing (mostly national or regional) monitoring reports reveal a variety of possible ways of implementation. They range from comprehensive inventories and thematically focussed studies, annual abstracts of statistics and lyric textbooks to public relations, scientific analysis and assessment. Last but not least, this depends on the author, the intended strategic use of the report, courage and openness of responsible actors to innovation and on available resources.

The project 4.1.3 had to find and present a proposal on how an "ESPON continuous spatial monitoring report" could and should look like. It seemed that the data situation in Europe, the institutional setting (ESPON network), and the restricted available resources suggested to strive for a more standardised, indicator-based, periodically updated sort of report.

There were some problems on the way to such a report:

- Scientists are used to see indicators as a neutral and objective information, whereas politicians often see indicators in a subjective way and interpret the information as benchmarks and thresholds.
- Scientists can explain why indicator values are under- / overestimated (like GDP/cap for Hamburg); users might consider this to be a misrepresentation of reality.
- Results on different scales answer different questions (for instance suburbanisation or counter urbanisation).

- Policy-makers are interested in the future rather than in the past. However, data on the past may be misleading for the future; experts often (but not always) know where are the deficits.

### 2.3.1 Framework for the selection of the indicators

Project 4.1.3 initially dealt with six 'thematic fields' or 'overall spatial concepts': territorial cohesion, Lisbon, infrastructure, Gothenburg, socio-cultural issues and governance. Within each of these concepts a number of also very important sub-concepts can be identified. Literally hundreds of indicators can be defined to measure all these aspects. A first finding of the project was that in reality these hundreds of indictors do exist even if they vary in terms of quality and availability. In total they are not manageable and therefore do neither satisfy the needs of decision-makers nor the needs of scientists who act as consultants for the political level. A framework or a methodology is necessary to select just a relatively small number of indicators from this vast amount which really fits the needs of policy-makers.

In order to come to a manageable set of indicators which really represents all the thematic fields of the project, a multi-level approach was chosen. On each level a certain filter excluded a number of indicators which did not fulfil the pre-defined filtering criteria. Having gone through certain filtering rounds only a very limited number of indicators (currently 34) remained. The broad range of indicators may lead to a hierarchy among the routing indicators. Whether such a hierarchic treatment is feasible or not can only be answered by operating and testing the monitoring for a while and evaluating the practicability afterwards.

For such an approach the function of these filters is extremely important. Therefore, the filtering criteria need to be accurately defined.

### 2.3.2 Dimension of territorial oriented policy

The need to implement a territorial dimension of spatial monitoring was first mentioned in the Second and Third Report on Economic and Social Cohesion, which up to then only focused on economic and social issues. Based on the ESDP, it was one of the main tasks of the ESPON 2006 programme to provide the term "territorial dimension" with a content, in other words, to develop a wide range of territorial indicators and typologies capable of identifying and measuring the structure and development trends and of monitoring the political aim of a well-balanced and polycentric EU territory.

The various ESPON projects made valuable contributions in a large amount of different thematic fields and provided the base for a spatial monitoring system, The

combination of ESPON results from different projects enables a targeted coverage of all policies with a spatial dimension.

Several distinct policies that have been separately analysed might have a similar or even the same spatial relevance. Therefore, initially six "dimensions" or "thematic fields" were identified by ESPON 4.1.3 to cover the wide range of spatially relevant policies. The ten policy fields of the ESPON key indicator proposal were grouped according to policy concepts (Lisbon and Gothenburg Strategies, territorial cohesion) and ESDP policy options. Thus the following list of policy concepts and objectives was identified:

*1: Cohesive spatial structure*

- Balanced distribution of population, wealth, cities, etc.
- Sustainable settlement structures

*2: Competitiveness (Lisbon)*

- Assets for global competitiveness
- Innovative knowledge society
- Diversified regional economies

*3: Infrastructure and accessibility*

- Sustainable transport and energy

*4: Environment (Gothenburg)*

- Healthy environment and hazard prevention

*5: Socio-cultural aspects*

- Socially inclusive society and space
- Diversified cultural heritage and identities

*6: Governance*

- Territorially oriented governance

The themes covered by now are determined by socio-economic, environment and cultural fields of spatial monitoring. The various ESPON projects dealt with this sectoral orientation both with regard to the analysis of fundamental indicators and to territorial policy impacts. The sectoral fields can be grouped according into:

- economy, innovation, agriculture
- demography
- spatial structure (urban, urban-rural, urban hierarchy)
- energy, transport, ICT
- social and cultural aspects, governance
- environment, hazards

## 2.4 Policy orientation and analytical dimensions

Territory is where processes take place. The challenge is that economic or social processes are not inevitably coupled to specific territories. Some territories favour specific activities, but in a globalised world territory and its characteristic features do not play the role as in former centuries. Only if regions can transform them into specific territorial advantages and respond effectively and flexible to new demands they can withstand.

Territorial cohesion together with economic and social cohesion is a fundamental precondition for a well-balanced development of Europe. The term territorial cohesion refers to "… the balanced distribution of human activities across the Union, [which] is complementary to economic and social cohesion. Hence it translates the goal of sustainable and balanced development assigned to the Union … into territorial terms. Territorial cohesion includes fair access for citizens and economic operators to Services of General Economic Interest (SGEI), irrespective of the territory to which they belong ..." (DG Regional Policy, 2003)

"The concept of territorial cohesion builds on the European Spatial Development Perspective (ESDP) and the Guiding Principles for Sustainable Spatial Development of the European Continent. It adds to the concept of economic and social cohesion by translating the fundamental EU goal of a balanced and sustainable development into a territorial setting." (TSP, page 5)

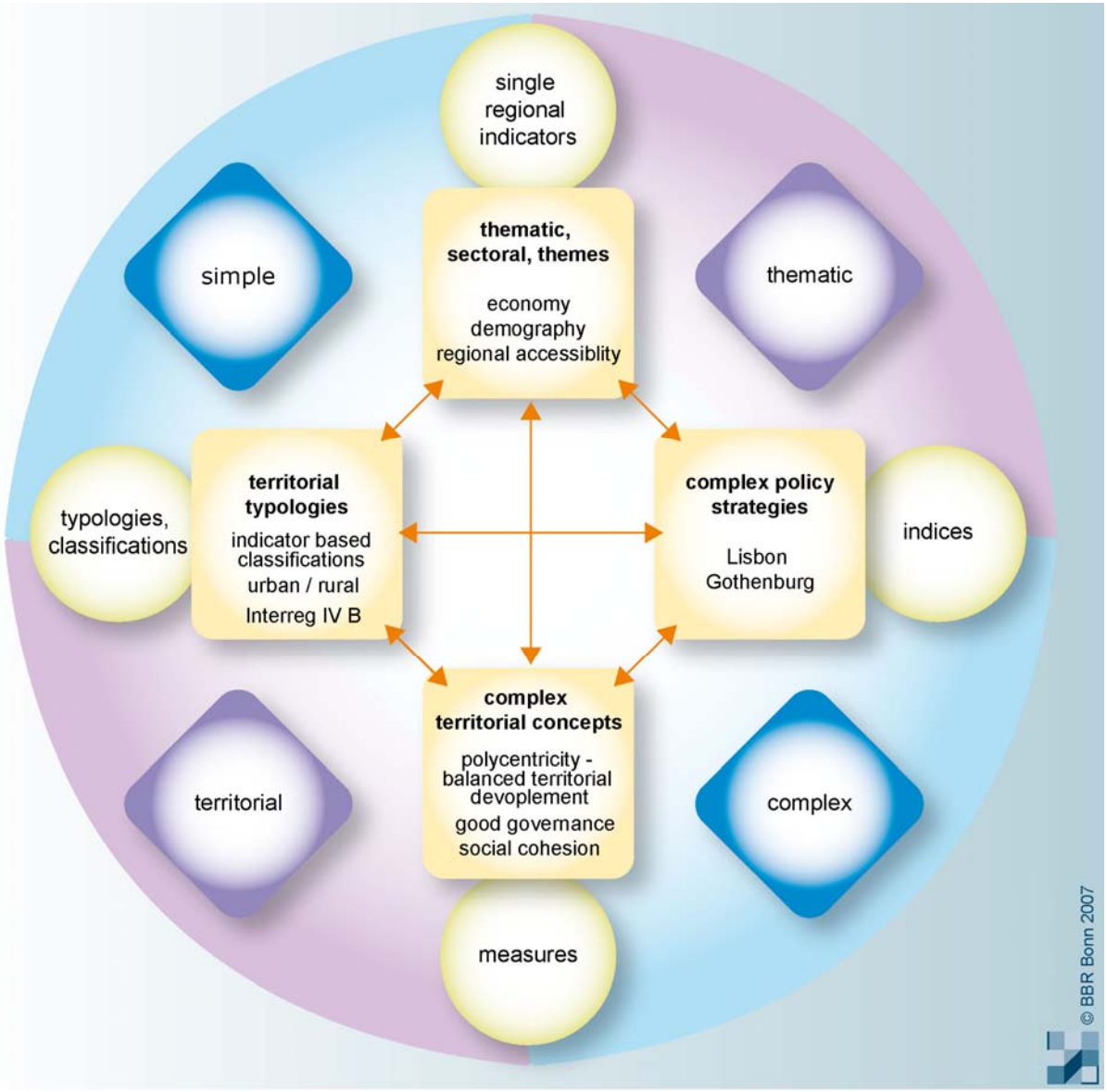
Under the concept of territorial cohesion territorial integration and cooperation between regions should be enforced by reducing existing disparities, avoiding territorial imbalances, achieving a stronger coherence between sectoral policies and regional policy and by making better use of territorial capital.

Especially concerning the territorial dimension of the Lisbon and Gothenburg Strategy it is envisaged to strengthen the territorial capital of Europe's cities and regions. Making use of the endogenous potentials of a certain area (including natural and cultural values), supporting the integration of an area and its connectivity to other areas that are relevant for a positive development and promoting territorial governance are of special interest in this context.

To monitor spatial development and territorial cohesion is a challenging endeavour that demands dealing with the complex territorial processes and aspects. We suggest that this undertaking should consider the following four components of territorial monitoring (cf. figure 1) that can be characterised along the two dimensions simple vs. complex and thematic vs. territorial. In the following chapter 3 we will explore these four components more thoroughly and illustrate them by examples which are currently feasible on the basis of the existing ESPON data base.

In the first sub-chapter 3.1 we will deal with simple thematic indicators of territorial development. Economic and demographic structures and developments and the situation of regional accessibility are taken as examples to demonstrate how single themes and indicators can build the basis to form a mosaic of territorial development in Europe.

**Figure 4 Components of territorial monitoring**




In the second sub-chapter 3.2 we come to simple territorial approaches. To assess and monitor territorial development it is often of interest how specific types of regions develop. Based on regional typologies and classifications we can analyse and compare, by statistical breakdowns for these types, how specific types of regions, like urban vs. rural regions, develop. Also for “politically defined” regions,

like the transnational cooperation areas under the Interreg programme, it can be interesting to trace their regional characteristics. Another variety of this typological approach is the “inductive” typology: We start from a specific phenomenon that we are interested in, e.g. regional population decline, and explore how the type of depopulating regions can be characterised in more general (statistical) terms.

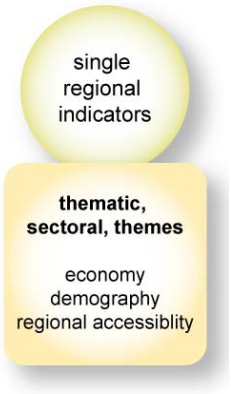
The third sub-chapter 3.3 explores more complex thematic approaches. Taking the example of the two currently most important complex policy strategies in the European Union, the Lisbon and the Gothenburg Strategy, we show how a European spatial monitoring report can contribute to the assessment of these strategies in a regionalised context. Here a crucial point is to define and calculate indices or other more complex indicators to statistically mirror the complex policy strategies.

Finally, the fourth sub-chapter 3.4 deals with complex territorial concepts. As examples we take polycentricity, social cohesion and good territorial governance to discuss which types of statistical data and measures could be appropriate to describe such complex territorial concepts.

The illustration of territorial components follows the policy concepts and objectives as well as the thematic orientation of the 4.1.3 indicator matrix. The indicators used are a subset of the routing indicators list elaborated within the project (for more details please refer to Part B of the Final Report). The same is true for the single indicators used within the more complex indices concerning the Lisbon Strategy.

# 3 Approaching the territory – examples for different aspects of territorial monitoring

## 3.1 Thematic sectoral themes




### 3.1.1 Economic structure and development

Structure and development of the population, economic strength, trends and employment are themes commonly used as single indicators to set the scene for the most important disparities concerning income and economic strength of European regions. The economic performance of spatial processes finally manifests and defines the state of convergence of the territory. Being a measure of coherence, economic strength belongs to the main factors of attraction and is a starting point for spatial processes at the same time.

"Economic, employment and social policies are mutually reinforcing. Economic development must go hand in hand with efforts to reduce poverty and to fight exclusion. Promoting social integration and combating discrimination is crucial to prevent social exclusion and to achieve higher rates of employment and economic growth, notably at regional and local level.

Equally, providing comprehensive support to those most disadvantaged, such as ethnic minorities and early school leavers, can be important in securing economic and social gains throughout the EU." (European Commission, 2004, page xii)

"In the "Revised Strategy for Social Cohesion" the European Committee for Social Cohesion (CDCS) defines social cohesion as *"[…] the capacity of society to ensure the welfare of all its members, minimising disparities and avoiding polarisation. Welfare implies not only equity and non-discrimination in access to human rights but also: (1) the dignity of each person and the recognition of their abilities and their contribution to society, fully respecting the diversity of cultures, opinions and religious beliefs; (2) the freedom of each individual to pursue their personal development throughout their life; (3) the possibility for each person to participate actively as a full member of society*." (ÖIR 2006)

Social cohesion as well as economic cohesion have a clearly territorial component. The "Third Report on Economic and Social Cohesion" (2004) clearly states that "the concept of territorial cohesion extends beyond the notion of economic and social cohesion by both adding to this and reinforcing it."

(ÖIR 2006)

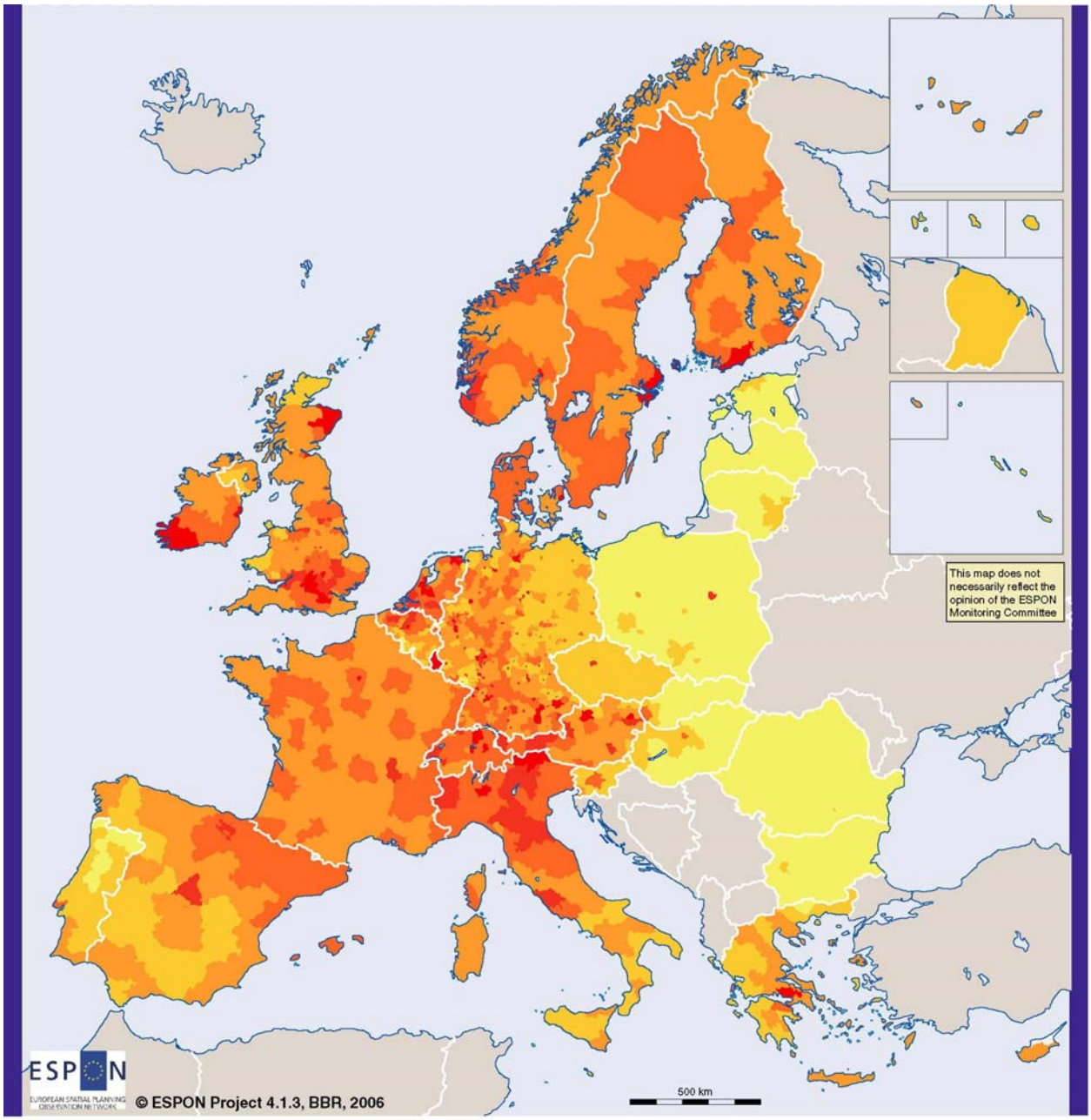
“Economic and social cohesion is, to large extent, a matter for the governments of the Member States; the Structural Funds can only be a complement for achieving social cohesion. Differences in systems of government and the degree of decentralisation of responsibility for policy and its implementation create problems regarding the responsibility on creating social cohesion.” (ÖIR 2006)

The reduction of income differences and disparities in employment are main objectives on the way towards cohesion and competitiveness and the process of convergence of nations and regions of the European territory and towards the establishment of comparable living conditions. In EU policies, the Cohesion and Structural Funds tackle the existing economic and social disparities between regions in Europe. Based on national and regional plans, the Structural Funds are mainly regional development programmes and focus on measures with verifiable European value added. This goes especially for the harmonisation of the prosperity level of the new Member States with the average European level and also for regions within the EUR15 whose development considerably lags behind.

“Disparities in income and employment in the European Union have narrowed over the past decade and, most especially, since the mid-1990s. This is the case in terms of disparities both between countries and between regions. At the same time, productivity in the least prosperous parts of the Union has risen relatively to that elsewhere, implying an improvement in their competitiveness. Large differences in relative level of prosperity and economic performance, however, remain, reflecting continuing structural weaknesses despite the improvements made as a result of Structural fund support.” (European Commission, 2004, page 2)

Main trends in the ESPON countries in respect of the economic development can be summarised as follows: almost all the regions of the eastern countries of the European Union have a GDP in purchasing power standards per capita below the threshold of 75% average of the EU Objective 1 delineation. Most of them do not even pass 50% of the EU 25 value. The metropolitan regions in those countries are the regions with the highest GDP per capita in purchasing power standards. The differences between urban, mainly capital regions and the surrounding regions are distinct. Only the Czech Republic appears homogeneous in the regional representation. In the countries of the former EU 15, eastern Germany, the south of Spain and of Italy, the western and north-eastern regions in Greece as well as the central regions of northern Portugal show values below the 75% threshold in a greater number of NUTS 3 regions. Selected NUTS 3 regions with a GDP in PPS per capita below 75% of the EU 25 average can also be found in the west and south of Northern Ireland, northern Scotland, south-west Wales and for example the city regions of the northern part of the Ruhr area in Germany.

**Map 1 GDP in PPS per capita 2003**



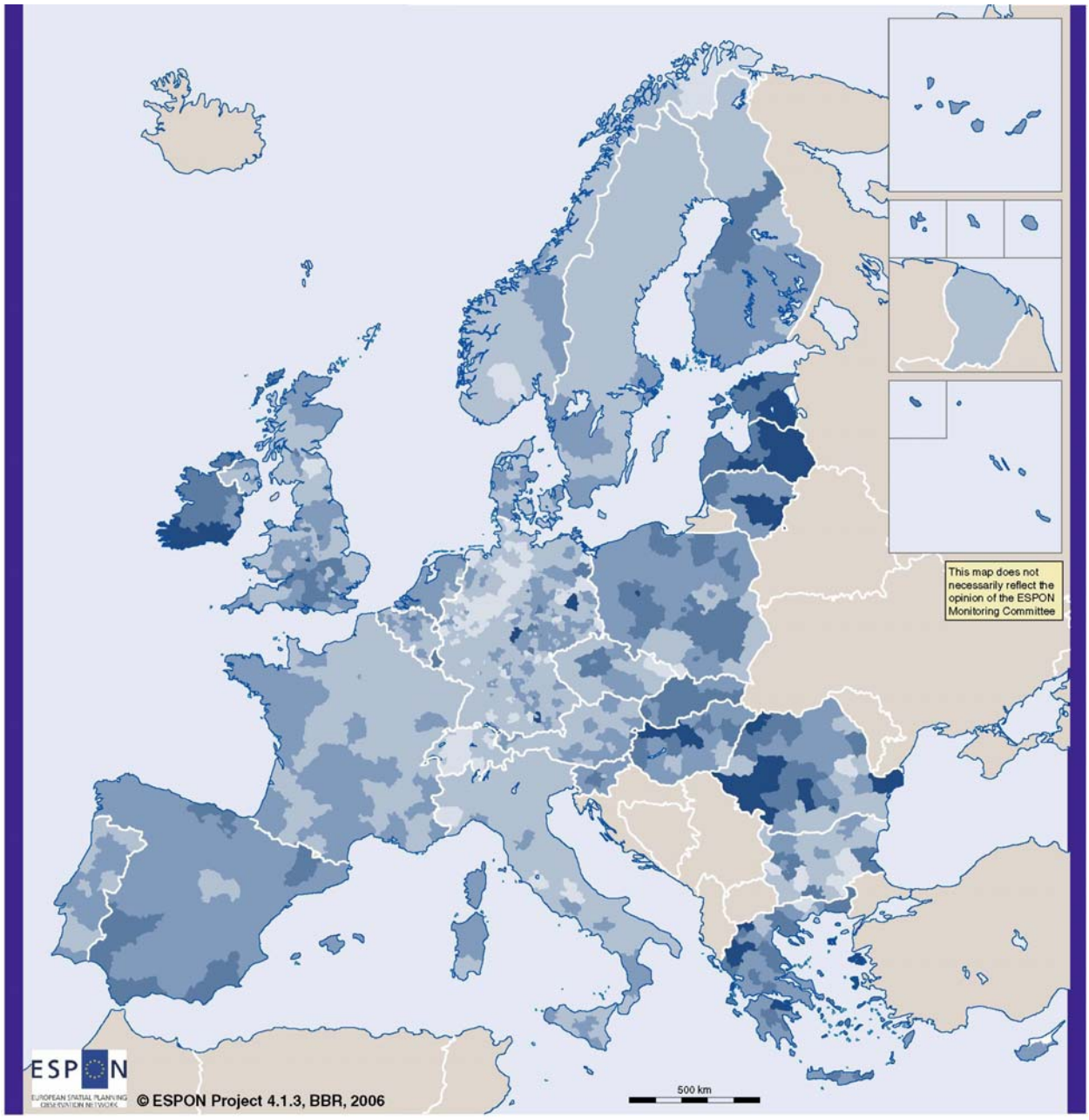

**GDP per capita in PPS 2003**
**(EU25 average = 100)**

- less than 50
- 50 to below 75
- 75 to below 100
- 100 to below 125
- 125 to below 150
- 150 and more
- no data


Regional level: NUTS 3
Origin of data: Eurostat, CH & NO: National Statistical Offices
**Source: ESPON database**

While economic strength shows the largest east-west disparities of the ESPON territory, the development of the GDP per capita between 1995 and 2003 outlines a more balanced growth across the ESPON territory and the whole continent.

**Map 2 Growth of GDP in PPS per capita 1995 - 2003**




**Average yearly growth rate of GDP per capita in PPS from 1995-2003 in %**

- less than 2
- 2 to below 4
- 4 to below 6
- 6 to below 8
- 8 and more
- no data

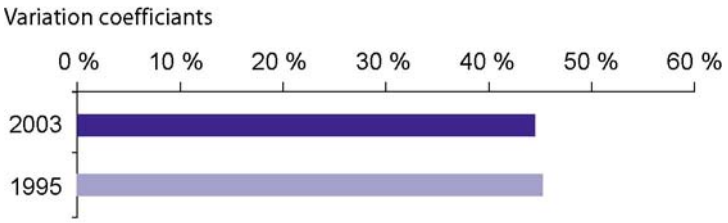

Regional level: NUTS 3
Origin of data: Eurostat, CH & NO: National Statistical Offices
**Source: ESPON database**

With regard to the effects of low GDP per capita values, strong positive developments nevertheless can be found in many regions of eastern countries. The

regions in the ESPON countries with the highest increase are the southern regions of Ireland, regions in the Baltic countries. Eastern European countries as well as the EU 15 Cohesion Fund countries, except Portugal, show a high increase of the GDP per capita. These countries and Ireland are obvious examples for a successful convergence or convergence trends in progress respectively.

These developments show, and that can be seen in the ESPON results, that the disparities between the ESPON countries have slightly decreased in the period 1995 to 2003. The variation coefficient, that means the relative standard deviation (standard deviation divided by the mean value) between the ESPON countries reduced from 45.4% to 43.9%

**Figure 5 Dispersion of GDP per capita in the ESPON area based on NUTS 0**



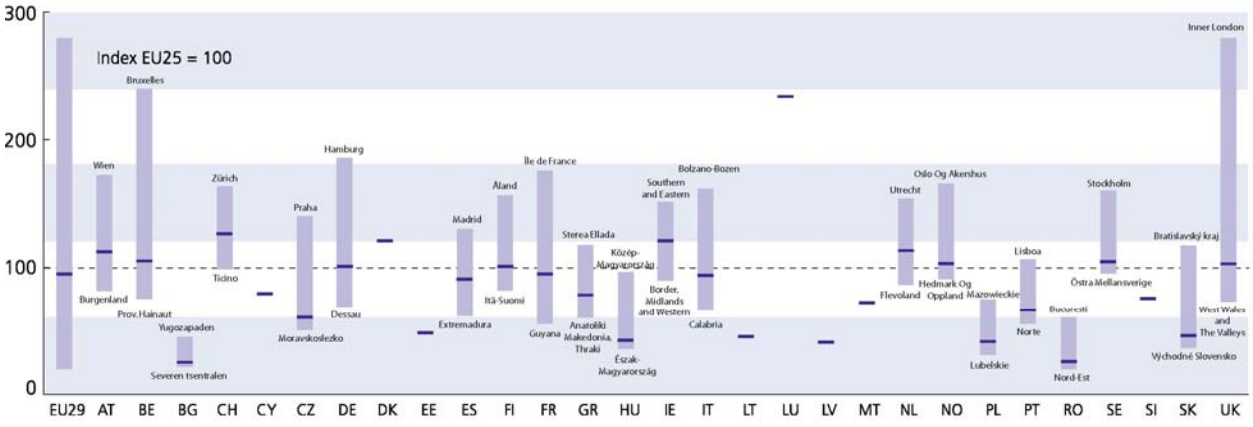

Source: ESPON database

Nevertheless, regional disparities between regions exist. On the NUTS 2 level it becomes apparent, that capital regions in most of the countries along with dominant economic centres in countries like Italy, Switzerland and Germany are the richest regions in terms of GDP per capita in PPS compared to the EU 25 average (statistical effects related to the delineation of administrative regions bias the regional interpretation). The Scandinavian capitals for example are characterised by strong disparities between capital regions and selected neighbouring areas, Île-de-France as well stands out from the rest of France. In Germany the city state of Hamburg dominates the German regions and in Luxemburg there are strong disparities between the capital and the surrounding regions.

Due to the dominating position and the economic concentration of their capital regions, Belgium and the United Kingdom show the highest regional GDP per capita followed by Germany, France and Italy. Switzerland, the Netherlands, Sweden and Norway turn up to be more homogeneous regarding their regional GDP per capita values and therefore to have less regional disparities.

The eastern ESPON countries are characterised by distinct disparities in the GDP per capita on a low level. On the NUTS 2 level the Slovak and the Czech Republic show the highest regional disparities caused by the gap of the GDP per capita between the capital and the other regions.

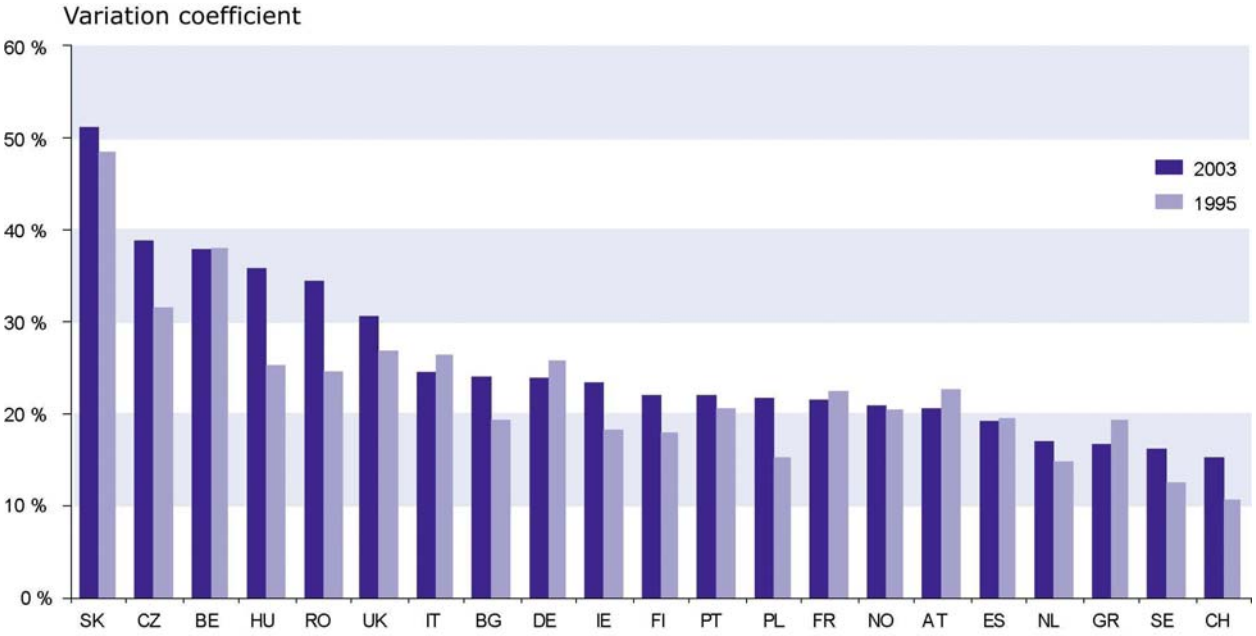
**Figure 6 Regional disparities in GDP in PPS per capita on the NUTS 2 level 2003**




Source: ESPON database

The process of convergence on the NUTS 2 level could not be identified in all countries of the ESPON programme. The general convergence on the national level turns out to be a balance of convergence and divergence on a regional level. Belgium, Italy, Germany, Franc, Austria, Spain and Greece are those ESPON countries in which a regional convergence in the GDP in PPS per capita could be stated in the period 1995 to 2003. The variation coefficient in these countries decreased, especially in Austria and Greece the difference between the regions has become smaller.

**Figure 7 Dispersion of GDP per capita in the ESPON area based on NUTS 2**




Source: ESPON database

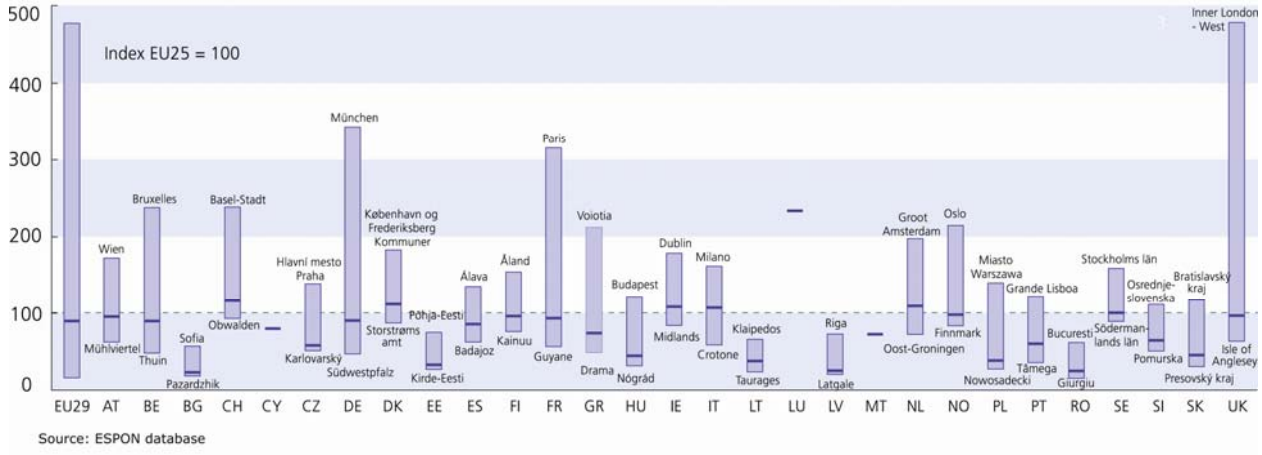
In all other 22 ESPON countries the regional disparities on the NUTS 2 level have increased. The Slovak Republic and the Czech Republic have the greatest

differences in GDP per capita followed by Belgium, Hungary and Romania. In the Eastern European countries, the disparities have intensified in the period of observation, the gap between relative prosperous regions and regions lagging behind is getting bigger. The deviation coefficient furthermore shows the obvious concentration on selected regions. This does not only happen in eastern countries but also in other counties like Ireland. The growth concentration is a main feature of increased regional differences and regional divergence trends can be observed.

On the lower NUTS 3 level, the regional disparities are getting bigger and the divergence trends intensify. On this level, for example the Scandinavian capitals are characterised by strong disparities between capital regions and main economic centres and selected neighbouring areas . Paris stands out from the rest of France and in Germany the regions of Oberbayern with Munich are clearly different.

In 2003, some countries, e.g. Spain, Finland, Sweden and the Netherlands, had quite homogenous income patterns in their NUTS 3 regions. Countries like the United Kingdom, Germany, France and Belgium are characterised by greater regional disparities. The regional GDP per capita in PPS in percent of the EU 25 average of NUTS 3 regions in 2003 ranges from 16.0% in Giurgiu in Romania to 477.1% in Inner London.

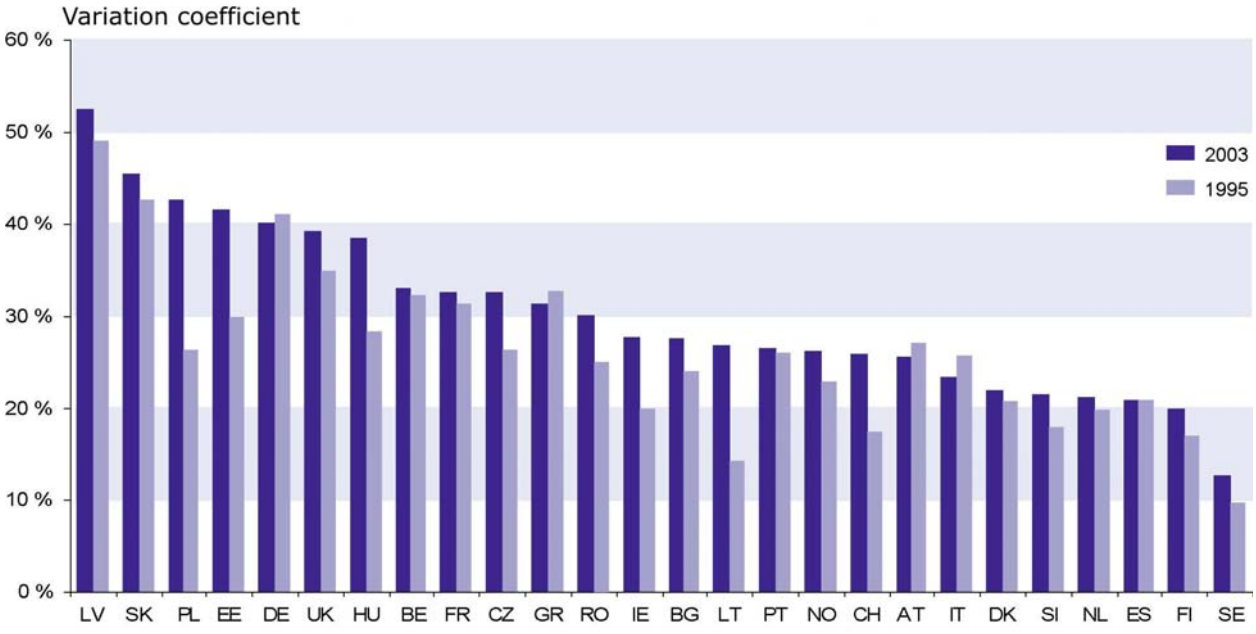
**Figure 8 Regional disparities in GDP in PPS per capita on the NUTS 3 level 2003**




The highest variation coefficient between the NUTS 3 regions in 2003 can be found in Latvia, the Slovak Republic, Poland, Estonia and Germany. Slovenia, the Netherlands, Spain, Finland and Sweden show the lowest dispersion of GDP per capita in purchasing power standards.

Poland, Lithuania, Estonia, Hungary, Switzerland and Ireland are the countries with the highest increase of disparities between 1995 and 2003.

**Figure 9 Dispersion of GDP per capita in the ESPON area based on NUTS 3**




Against the background of hardening disparities within the regions of the ESPON countries, a better balance of the growth potential must be sought especially with regard to the development of the GDP per capita in the eastern countries. The initial growth process and the still ongoing concentration have to be ensured in the regions and their function as a motor for potential development in neighbouring regions has to be supported.

Regional points of growth potentials have been identified especially in the eastern countries and for example in the new German Länder. These nuclei do not show on NUTS 2 but more distinctly on a lower regional level, especially when administrative delineation coincidents with functional relation. Nevertheless, cities situated in regions lagging behind in the context of the EU Structural Funds show to be strong points in economic development.

The European Commission considers the maintenance of social cohesion as fundamental for itself as well as integral support of the economic growth and economic cohesion. Employment and unemployment and opportunities for social participation and integration are key targets for the improvement of living conditions and form the preconditions for social inclusion (see EU Commission, 3rd Report on Economic and Social Cohesion, 2004, page 20).

Economic strength and growth, competitiveness and employment are closely related with the Structural Funds instruments and objectives of the EU. There are main targets in the outline of the Lisbon Strategy as well, four out of 14 indicators of the Lisbon Strategy short list are directly related to employment and unemployment. They cover different aspects of the employment rate, the dispersion of the employment rate and the long-term unemployment rate.

### 3.1.2 Demographic structures and development

Territorial imbalances are rather significant in the European Union and will intensify with the upcoming enlargement. As seen in the findings of the chapters on economic and social cohesion and as already stated in the 3rd Cohesion Report: "..especially but not exclusively in many new EU Member States, there is an over concentration of development towards the largest metropolitan region, usually the national capital region. Here we need more balanced development in the future. It must be avoided that growth and innovation of metropolitan regions are at the cost of smaller and medium sized cities. On the contrary, strengthening metropolitan networks and strengthening urban networks have to go hand in ´hand and reinforce each other." (European Commission, 1999, page 46)

Imbalances derived from the interaction of various historical and geographical factors concern different fields and are relevant in terms of the distribution of the population, production, infrastructure (transport, telecommunication, energy endowment), R&D activities and innovation capacities.

"The urban systems are the engines of regional development and it is in regard to their geographical distribution across the EU that an imbalance between the centre and the periphery is most evident" (European Commission 2004). However, rural areas play an important role as well. Today, they are not only agriculturally productive areas . Clear distinctions between urban and rural areas pale.

The primacy rate, the share of the largest urban area within a region, shows the differences of the city systems. A metropolitan area is polycentric if the primacy rate is low and monocentric if the primacy rate is high.

A look to the share of the largest FUA (Functional Urban Area according to the findings of ESPON project 1.1.1) in the national population gives a first impression of the polycentric orientation of ESPON countries. Belgium, Germany, Italy, Romania ant the United Kingdom reveal population shares of the largest FUAs with less than 12% of the most polycentric countries. Countries like Ireland, Slovenia and the Baltic countries, in which more than a quarter of the whole population lives in the largest national FUA, and Malta with the highest value of almost 98% are rather monocentric. The Scandinavian countries, the Baltic States and the main political and economic centres in Italy also are more monocentric. Some countries like the United Kingdom, France and Germany are rather polycentric: in the U.K. especially the Midlands, in France the regions outside Île-de-France, Brittany and Centre. In Germany the regions of Oberbayern, Leipzig and Dresden are rather monocentric.

**Table 1 Spatial structure indicators on the NUTS 0 level**

| Country | Population older 64 years in %, 2003 | Primacy rate | Change of unemploymentrate 1999-2004 in percentage points |
|---|---|---|---|
| Österreich | 15,5 | 19,1 | 1,2 |
| Belgique-België | 17,0 | 9,3 | -0,2 |
| Bulgaria | 17,0 | 15,0 | -3,7 |
| Schweiz/Suisse/Svizzera | 15,6 | 12,9 | 1,2 |
| Kypros / Kibris | 11,8 | 35,0 | |
| Ceska Republika | 13,9 | 13,1 | -0,5 |
| Deutschland | 17,5 | 5,0 | 1,9 |
| Danmark | 14,8 | 34,9 | -0,1 |
| Eesti | 15,9 | 37,0 | -1,9 |
| España | 16,9 | 12,2 | -4,7 |
| Suomi / Finland | 15,3 | 24,7 | -1,4 |
| France | 16,1 | 18,1 | -2,4 |
| Ellada | 17,5 | 34,2 | -1,6 |
| Magyarorszag | 15,4 | 17,5 | -0,9 |
| Ireland | 11,1 | 25,5 | -1,3 |
| Italia | 19,0 | 5,8 | -3,4 |
| Lietuva | 14,7 | 16,0 | -2,0 |
| Luxembourg (Grand-Duché) | 14,0 | 30,1 | 2,7 |
| Latvija | 15,9 | 51,3 | -3,4 |
| Malta | 12,8 | 97,8 | |
| Nederland | 13,7 | 8,5 | 1,0 |
| Norge | 14,8 | 22,8 | 1,0 |
| Polska | 12,8 | 6,8 | 6,7 |
| Portugal | 16,7 | 24,9 | 2,2 |
| Romania | 14,2 | 8,8 | 1,2 |
| Sverige | 17,2 | 21,1 | -1,1 |
| Slovenija | 16,9 | 26,2 | -1,1 |
| Slovenska Republika | 11,5 | 11,1 | 1,8 |
| United Kingdom | 15,9 | 12,9 | -1,3 |

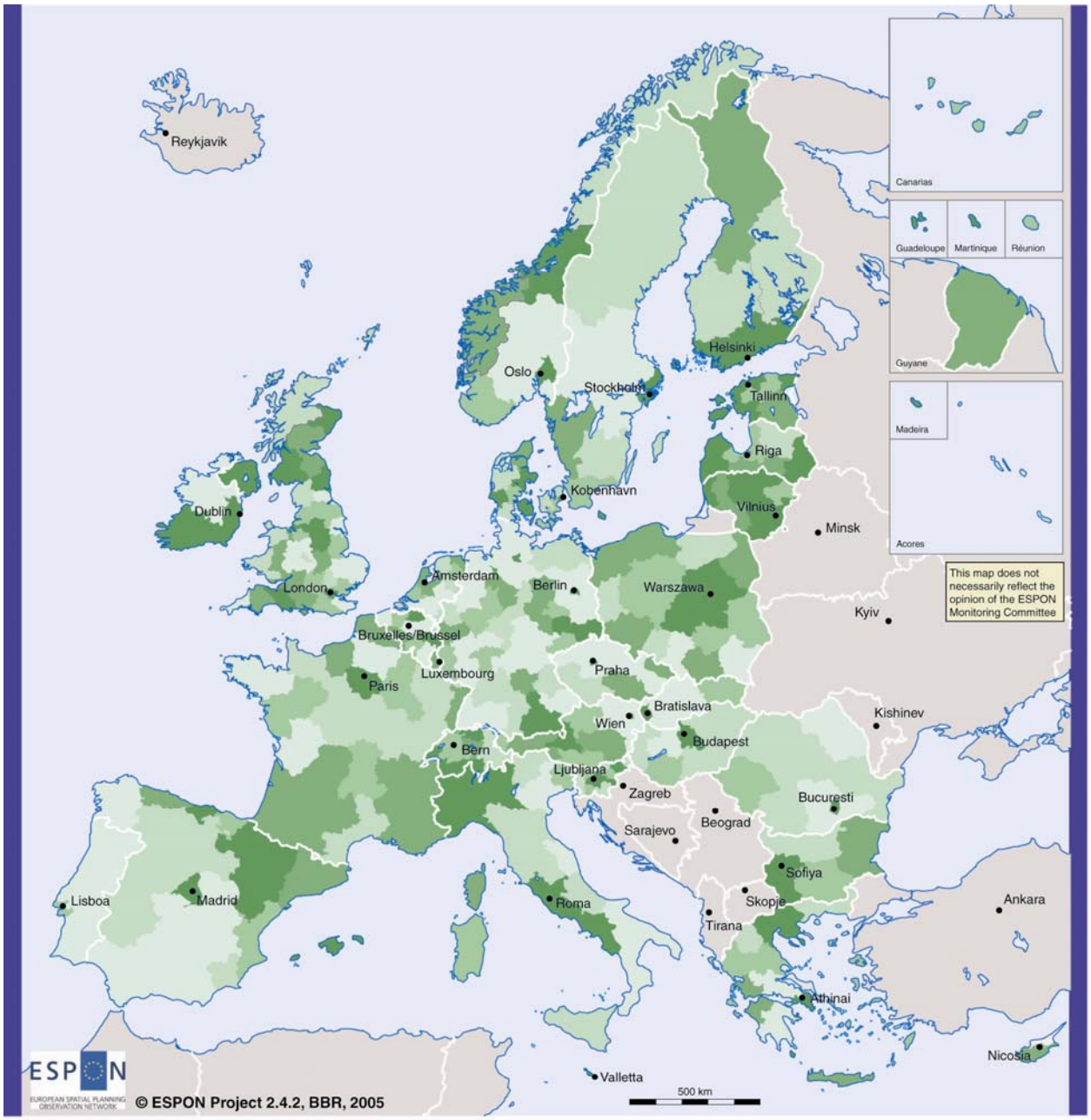
Primacy rate based on the share of the population of the largest FUA (of a country) in the total population.

Source: ESPON database

The structure of the territory is among other things influenced by migration. Even if the picture of Europe gets a bit blurred, a few regions can be clearly identified due to their high or low migratory balance. The regions with the highest positive migratory balance are the main urban centres and the surrounding regions.

In Italy the north-south divide is quite obvious and the Iberian Peninsula shows the old picture with immigration along the coastline. In France there is a clear difference between the north-east and the west and the south. In combination with northern Italy and Cataluna in Spain the “Sunbelt” is defined as a region with a high positive in-migration.

**Map 3 Primacy rate**




**Share of largest city population to total population in % 2002**

- less than 10
- 10 to below 15
- 15 to below 20
- 20 to below 30
- more than 30
- no data

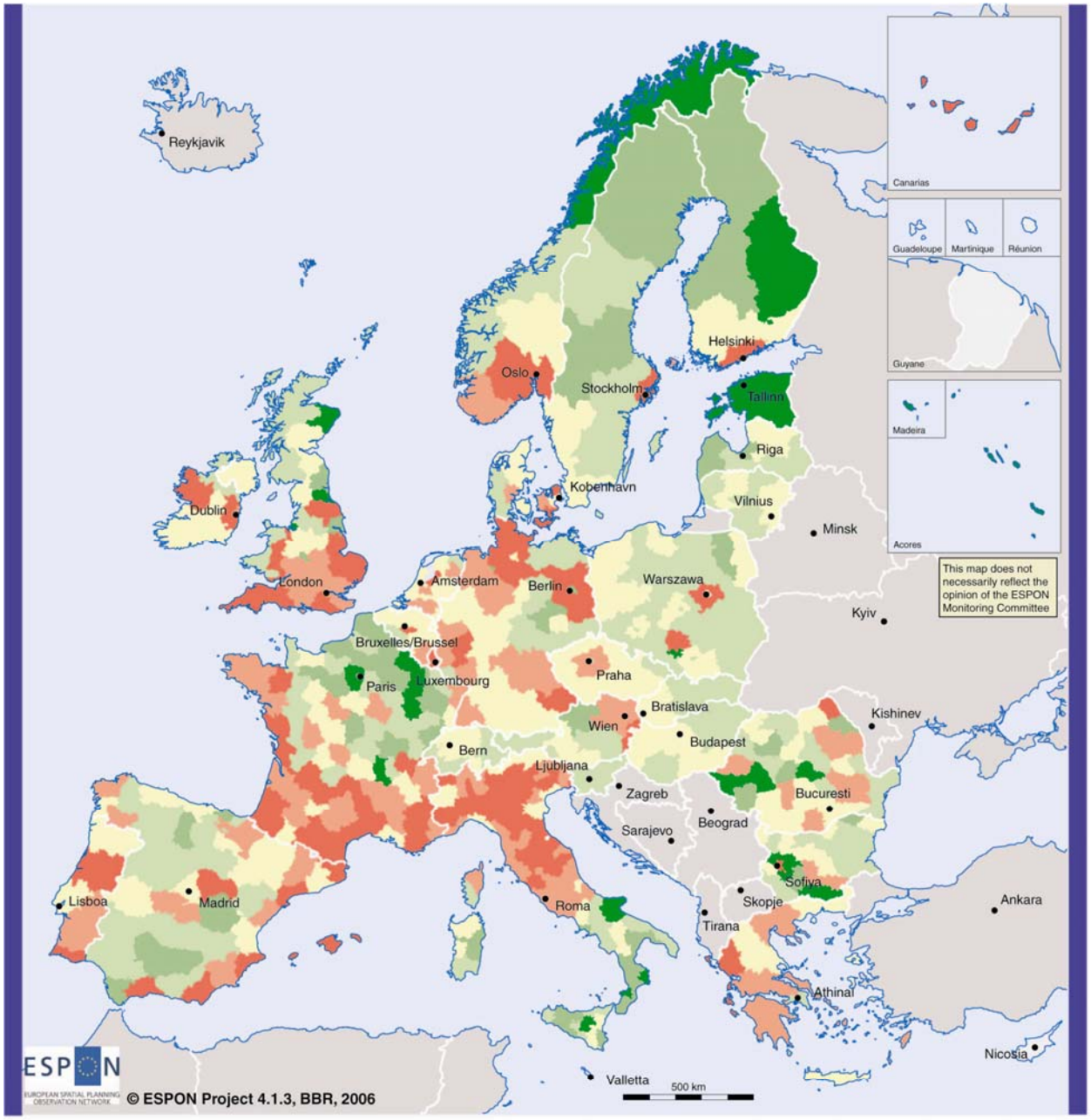


Regional level: NUTS 2/3

Origin of data: BBR

**Source: ESPON database**

## Map 4 Migratory balance




**Migratory balance 1994-1999 per 1000 inhabitants**

- less than -5.0
- -5.0 to below -2.5
- -2.5 to below 0.0
- 0.0 to below 2.5
- 2.5 to below 5.0
- 5.0 and more
- no data



Regional level: NUTS 2/3
Origin of data: IGEAT
**Source: ESPON database**

Whereas in some capital regions like Sofia, Helsinki, Stockholm, Oslo or Dublin migrations concentrate in the city region itself, the so-called “commuter belts” or affluent urban fringe areas gain population through in-migration in other cases like Hamburg, Berlin, Prague, Madrid, Warsaw. Regions which are often considered to be peripheral, rural or old industrialised and which cannot benefit from a nearby capital lose population. Extremes can be found in northern Norway, the east of Finland, Estonia, north-east Scotland or even around Paris.

The age structure of the population progressively affects the regional potentials and challenges. Especially in combination with out-migration and depopulation, the rising age of a region generates needs for infrastructure and capacities depending on the general trends in population development.

The share of the population in retirement older than 64 years is one indication for the spatial relevance of the age structure of the population. The “oldest” ESPON countries of in this respect are represented by Italy with a share of 19%, Germany with 17.5%, Sweden with 17.2%, Belgium and Bulgaria with 17%. The “youngest” countries are Cyprus, the Slovak Republic and Ireland with a share of older people of around 11%. A west-east decline can be identified, the eastern countries, besides Bulgaria, appear to be “younger” than the countries of the former EU 15, except Ireland.

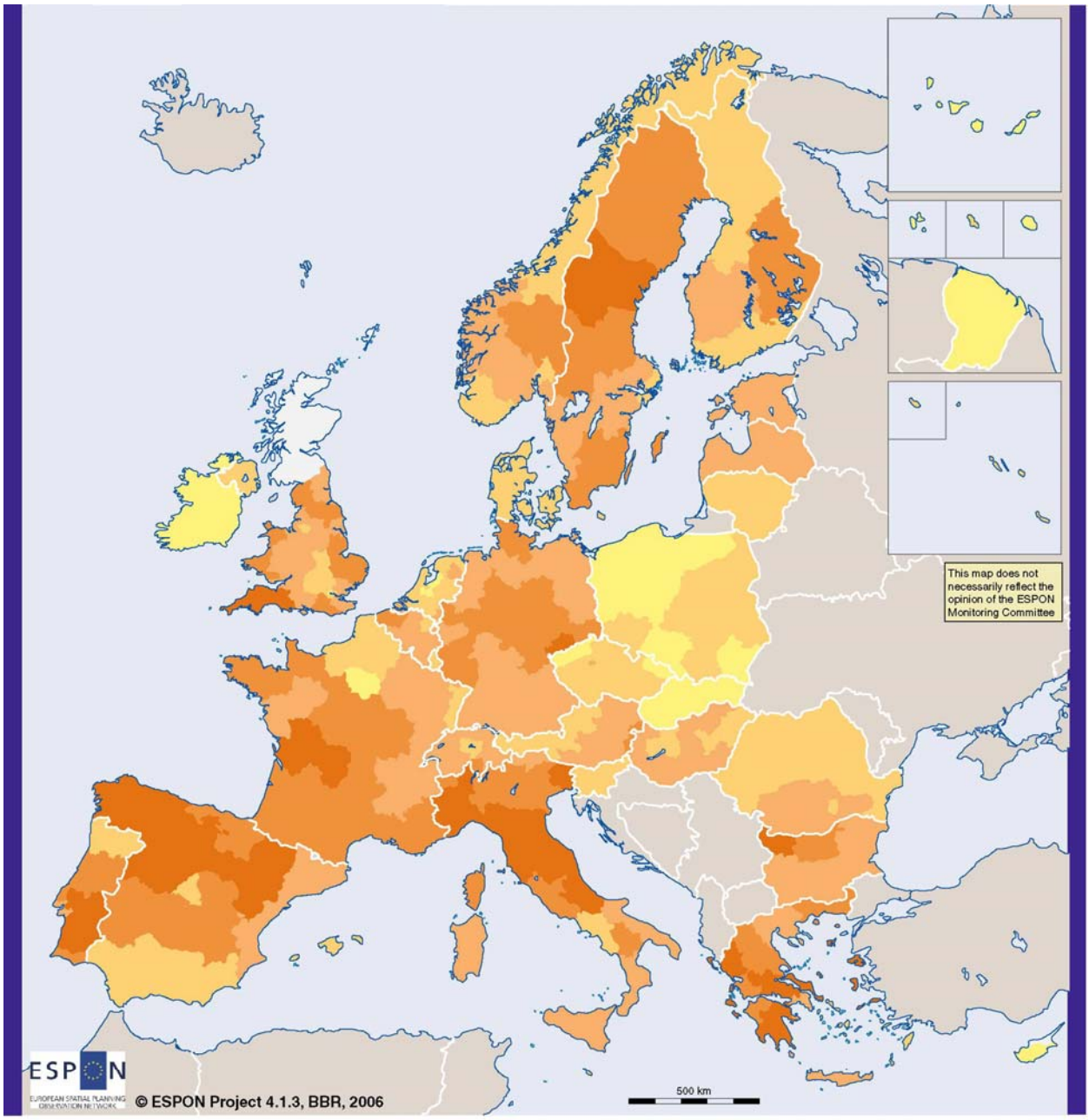
In general, the share of this population group is higher in regions outside the major urban areas. Higher shares are especially to be found in northern Spain, Italy and central France. Whereas the respective regions in France and Spain are regions characterised by out-migration, the region in Italy has a positive migration balance.

Unemployment is an indication for the converging regional base for living. Missing job opportunities cause out-migration and, in combination with age-specific migration, lead to the ageing of regions. This is the reason why unemployment is also included in the group of territorial indicators.

As national figures show, the development of unemployment divides the European territory into a central eastern part with growing unemployment and into a western and southern part with decreasing unemployment rates. The highest increases in the time period between 1999 and 2004 can be observed in Poland with 6.7, Luxemburg with 2.7 and Germany with 1.9 percentage points.

With 4.7 percentage points, Spain has the highest decrease of the unemployment rate followed by Bulgaria with 3.7 and Italy and Latvia with 3.4 percentage points.

## Map 5 Population aged more than 64 years




**Share of population older than 64 years in % - 2003**

- less than 12.5
- 12.5 to below 15.0
- 15.0 to below 17.5
- 17.5 to below 20
- 20 and more
- no data


Regional level: NUTS 2
Origin of data: Eurostat
**Source: ESPON database**

### 3.1.3 Infrastructure and accessibility

Accessibility by terrestrial, air or telecommunication infrastructure is absolutely essential for the development of the economy in the global world. Apart from connecting lines, the nodes are made up by gateways and points of intensive interchanges.

#### Accessibility – terrestrial and aerial transport infrastructure

Indicators of accessibility measure the benefits households and firms in a region enjoy from the existence and use of the transport infrastructure relevant for their region. Accessibility indicators can be defined to reflect both the transport infrastructure within a region and the infrastructure outside a region which affect the region (Schürmann and Talaat, 2000, p. 6).

The important role which transport infrastructure plays within regional development is one of the fundamental principles of regional economics. In its simplest form it implies that regions with a better access to locations of input materials and markets will, ceteris paribus, be more productive, more competitive and hence more successful than more remote and isolated regions. Therefore, the improvement of the transport infrastructure contributes to the (global) economic competitiveness of a region.

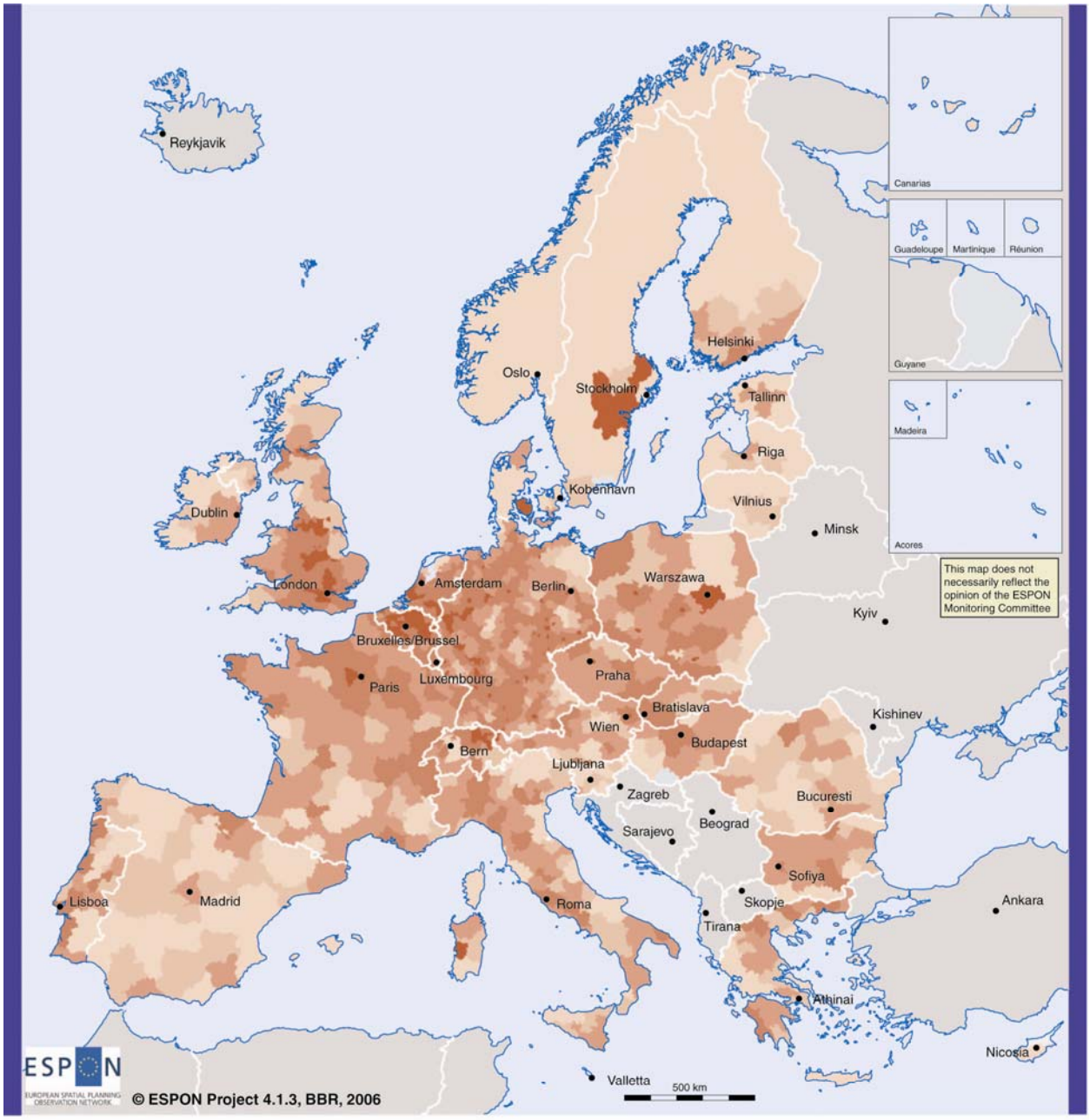
The absence of a high quality transport infrastructure or very distant geographical locations may not always be synonymous with economic backwardness. A central geographical location also is no sufficient guarantee for economic success.

Accessibility at the European level should also be discussed in connection with different transport modes. Generally speaking, accessibility by road can be characterised by a clear distinction between central and peripheral regions, showing the well-known European core-periphery pattern, while accessibility by rail favours central areas but also cities serving as main nodes in the high-speed rail network. Accessibility by air finally shows a patchwork of regions with a high accessibility surrounded by those with low a accessibility. In this context, a low accessibility can also be found in some regions located in the geographical core of Europe. While for road and rail in general there is a core-periphery pattern at the European scale, similar patterns are less distinct at the national level as border regions, coastal regions, islands and mountainous regions within a country very often suffer from relatively poor accessibilities compared to more central parts or even the capital regions within a country. As in the case of the other sub-chapters, for this one as well sufficient data and indicators do currently not exist. Thus, only one indicator is presented: travel time to railway stations in minutes.

Due to congested roads, it becomes more and more important to strengthen public transport and to ensure a high-quality level of mobility not only in rural areas but

also in agglomerations. A good access to railway stations is a prerequisite for this. The present indicator captures this access by calculating the travel time by car from each raster cell to the next railway station.

**Map 6 Travel time to railway stations**



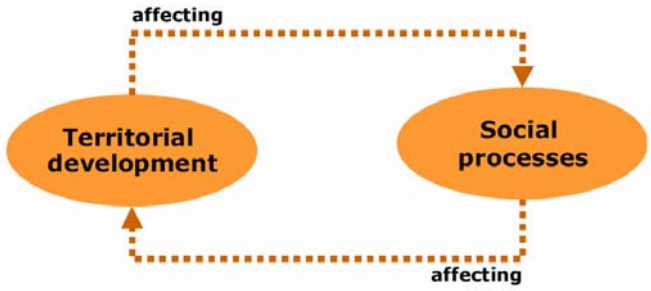
The analysis shows a more or less homogeneous area for the majority of the territory. Exceptions with high (long) travel times to railway stations are to be found in most of the autonomous Spanish regions, the western part of Ireland and Northern Ireland, northern Scotland and south-west England, in southern and central Denmark, Norway, Sweden apart from Östea Mellansverige, Finland apart from the southern regions, in the main parts of Latvia apart from Riga and its surrounding area, in Lithuania, a band in Poland stretching from the Ciechanowsko-plocki and Ostrolecko-siedlecki direction north to the border with Russia, in the majority of Romanian regions, in the south of Bulgaria and western Greece. Although the central part of the analysed territory reveals short travel times, there are some areas with negative values, for example the province of Bolzano or the Swiss region of Bern.

### 3.1.4 The case of territorial aspects of social processes

"Territorial development is closely linked with social aspects, as territorial development equally affects spaces (areas, regions), and the people who live in these spaces, and vice versa. The interdependence and mutual influence of population and spaces is a core factor of territorial development. Therefore, it is essential to integrate social aspects in territorial analyses. Consequently, territorial cohesion is a necessary requirement of and complement to economic and social cohesion within the aim of sustainable development, meaning "the balanced distribution of human activities across the Union" (DG Regional Policy 2004; ESPON 1.4.2 , 2006, page 2).

The social and territorial organisation of people is interdependent and interrelated. Their dynamic process can be formulated as follows: Social processes form and change space and characteristics, while conditions and the infrastructure of space (territorial development) have effects on social processes.

**Figure 10 Relationship of territorial development and social processes**




**Source: Österreichisches Institut für Raumplanung (2006)**

In the "Revised Strategy for Social Cohesion" the European Committee for Social Cohesion (CDCS) defines social cohesion as *"[…] the capacity of society to ensure the welfare of all its members, minimising disparities and avoiding polarisation.*

*Welfare implies not only equity and non-discrimination in access to human rights but also: (1) the dignity of each person and the recognition of their abilities and their contribution to society, fully respecting the diversity of cultures, opinions and religious beliefs; (2) the freedom of each individual to pursue their personal development throughout their life; (3) the possibility for each person to participate actively as a full member of society."*

The share of the population at risk of poverty before receiving social transfers (pensions included) is, in general, very high in all 28 countries covered. The share of the population at risk of poverty after having received social transfers decreases significantly (see the following maps). When using this kind of definition of poverty (i.e. when the equivalent income is below the threshold of 60 percent of the national equivalent median income), income transfers have successfully managed to decrease the share of the population at risk of poverty. Another definition of the share of the population at risk of poverty will lead to another result.

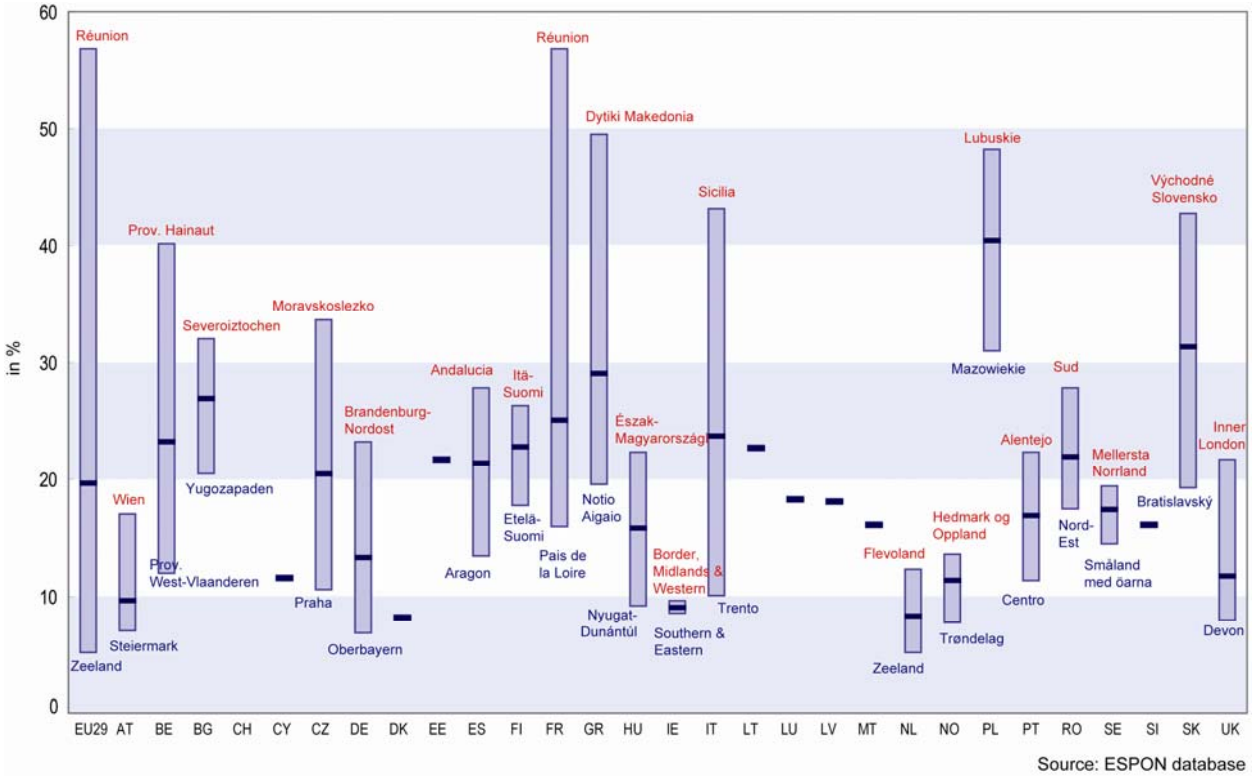
The national specifics in social systems and the difficulties to obtain European-wide harmonised data in this field has up to now limited the regional representation of the social topic quite to a minimum. A substitutional indicator giving an impression of the potential social integration of the youth is provided by the youth unemployment rate which shows the job opportunities and the possibilities of entry into the professional life of the future generation. Especially the eastern and southern countries, but also Belgium, face high unemployment rates of the youth and show the difficulties of an inclusive labour market.

**Table 2 Youth unemployment on the NUTS 0 level**

| Country | Unemployment rate < 25 years 2004 in % | Country | Unemployment rate < 25 years 2004 in % |
|---|---|---|---|
| Österreich | 9,7 | Ireland | 8,9 |
| Belgique-België | 21,2 | Italia | 23,5 |
| Bulgaria | 25,8 | Lietuva | 22,7 |
| Schweiz/Suisse/Svizzera | 7,7 | Luxembourg (Grand-Duché) | 18,3 |
| Kypros / Kibris | 11,6 | Latvija | 18,1 |
| Ceska Republika | 21,0 | Malta | 16,1 |
| Deutschland | 12,6 | Nederland | 8,0 |
| Danmark | 8,2 | Norge | 11,4 |
| Eesti | 21,7 | Polska | 39,6 |
| España | 22,0 | Portugal | 15,3 |
| Suomi / Finland | 20,7 | Romania | 21,9 |
| France | 21,9 | Sverige | 17,0 |
| Ellada | 26,9 | Slovenija | 16,1 |
| Magyarorszag | 15,5 | Slovenska Republika | 33,1 |
| | | United Kingdom | 12,0 |

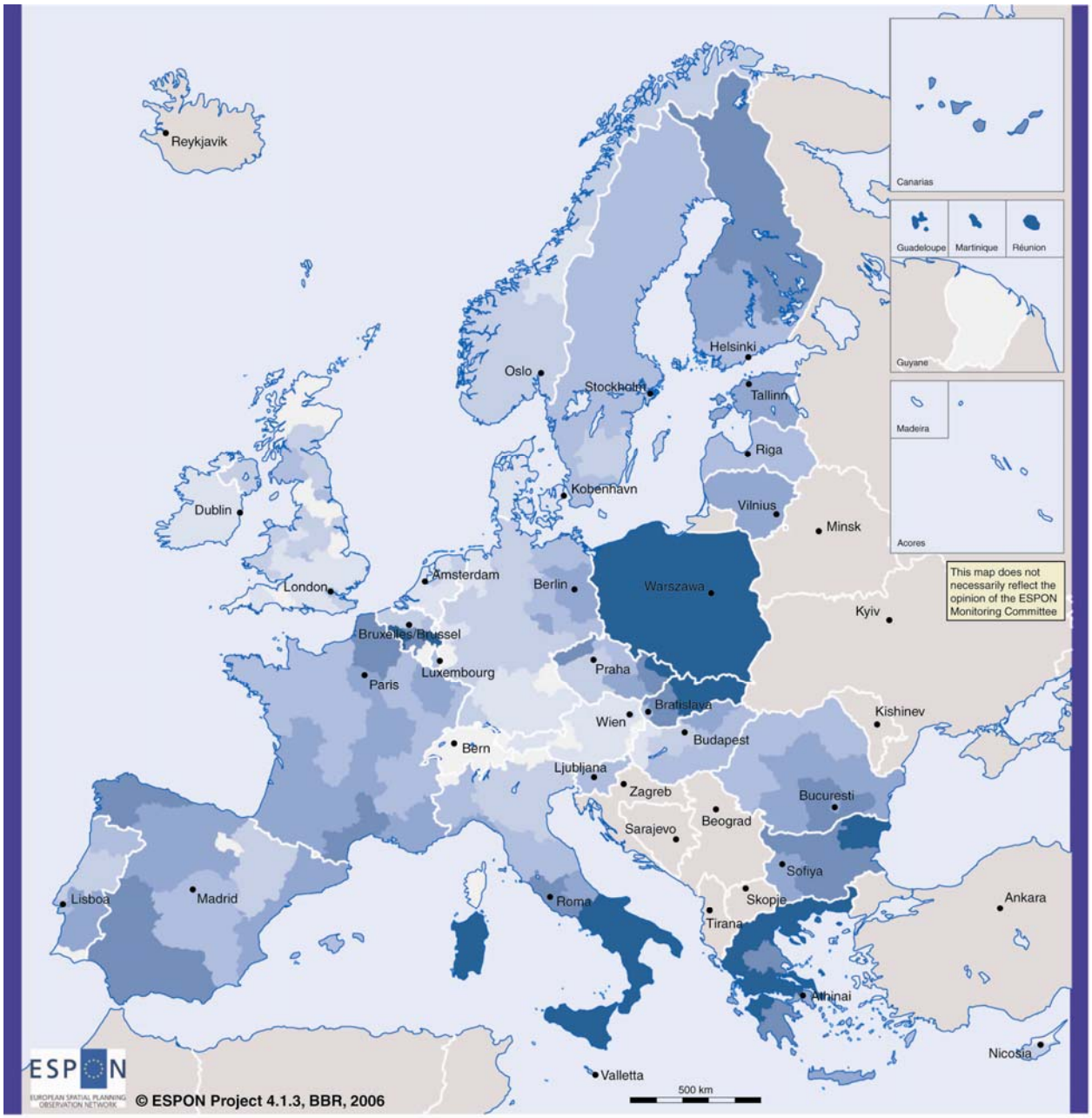
Source: ESPON database

**Figure 11 Regional disparities in the youth unemployment rate 2004 on the NUTS 2 level**




The regional disparities are distinct, only a few countries, which are the Netherlands, Sweden, Norway and Austria, can be characterised as rather homogenous in themselves.

## Map 7 Youth unemployment




**Unemployment rate of persons from 15 to 24 years 2004**

- up to 10
- 10 up to 15
- 15 up to 20
- 20 up to 25
- 25 up to 30
- more than 30
- no data

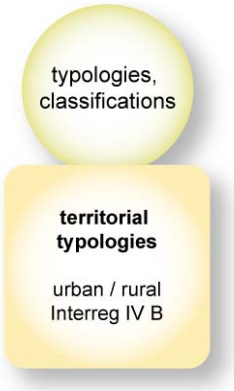


Regional level: NUTS 2

Origin of data: Eurostat

**Source: ESPON database**

## 3.2 Territorial typologies and territorial assignments




Typologies and classifications of regions are territorial tools to identify regional specifications of comparable spatial structures and development taking specific thematic orientations and/or belongings to a larger territorial structure or group of regions into account. The identification of structural compliances of European regions with the help of spatial typologies and regional classifications was one of the main efforts of the ESPON 2006 projects.

Thinking in territorial dimensions beyond single regional representations and comparisons, territorial typologies open the view to regional embedding into larger territorial contexts and open for example the opportunity for communication and exchange between similar regions. In doing so, typologies will become important for political participants and for territorially oriented research activities.

Typologies offer the opportunity to structure the territory, to explain the differences between different types of regions and to look at the development of thematically oriented territorial structures in time by updating typologies to show territorial processes within changing structures.

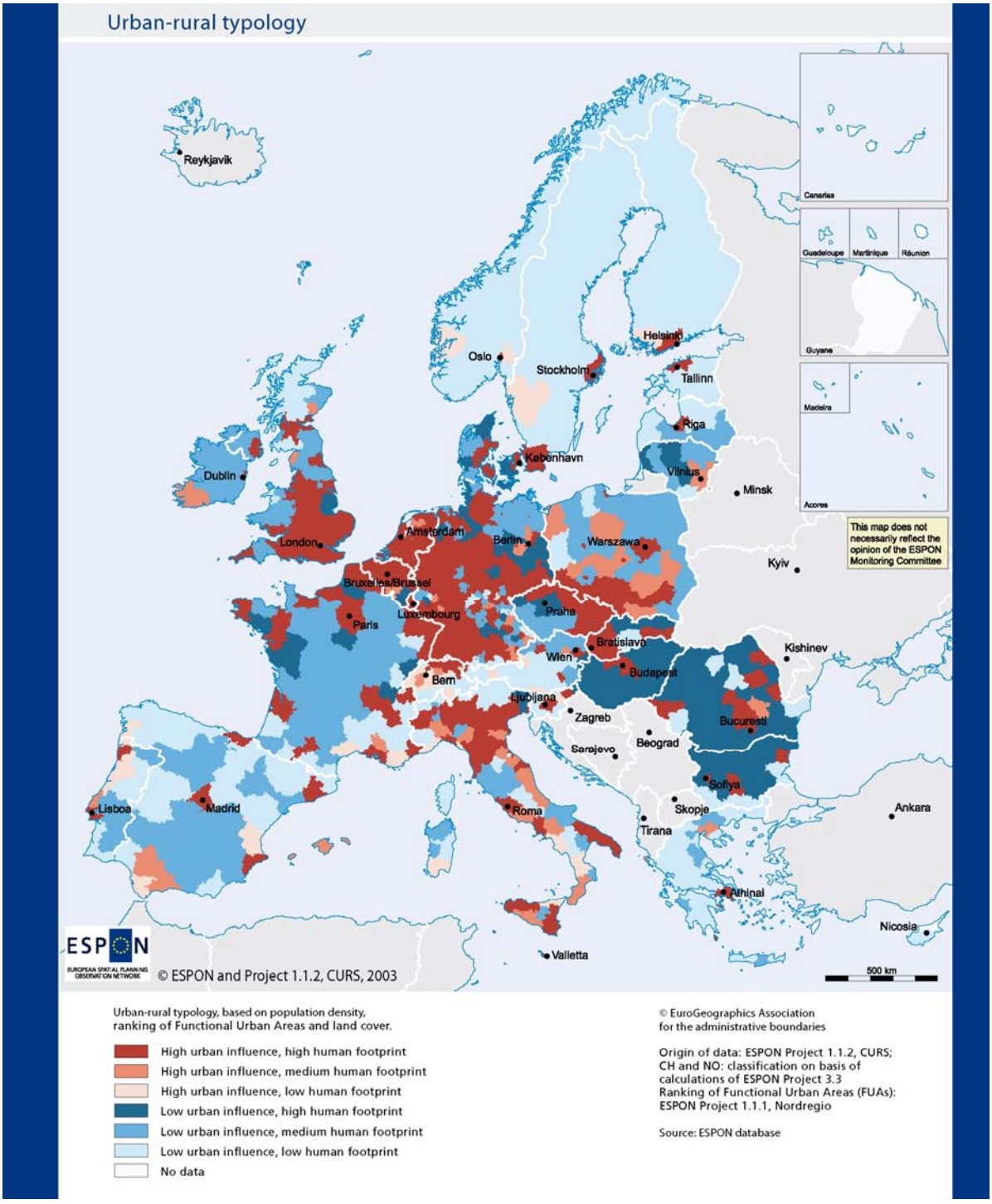
Regional typologies in general characterise regions with common regional features. These might be the result of empirical constructions or thematically oriented, discrete indicator values like for example the definition of urban and rural regions or a regional classification according to the Lisbon Strategy. The regional classification on the basis of indicator values enables a larger territorial view with a focus on different aspects of territorial diversity and processes.

A territorial characterisation can also be done with groups of regions by means of a specific common historic or geographic representation, like border regions or coastal areas, or according to larger regional functional contexts or regional eligibility, for example areas of transnational cooperation.

### 3.2.1 Urban-rural typology

A typology of urban and rural regions provides the base for the interpretation of territorial structures between metropolitan areas, city regions and the more rural areas with their related functional cities.

**Map 8 Urban-rural typology**



The urban-rural characterisation of the European territory shows the concentration of the population, suburbanisation structures and the quality of rural potentials in a fast way and indicates the need for regional development, functional restructuring and economic expansion.

**Figure 12 Benchmark figures of urban and rural regions**

| | High urban influence | Low urban influence | EU27+2 |
|---|---|---|---|
| Population in Million 2004 | 340.6 | 159.8 | 500.4 |
| Population change 1981-2004 in % | 6.9 | 5.6 | 6.5 |
| Population change 1991-2004 in % | 1.5 | 1.5 | 1.5 |
| GDP in PPS per capita 2003* | 22,484 | 17,749 | 20,595 |
| Anually growth rate of GDP in PPS per capita 1998-2003 in %* | 4.1 | 4.9 | 4.4 |
| Unemployment rate 2004 in %* | 8.6 | 9.5 | 9.2 |
| Development of unemployment rate 1999-2004 in pp* | 0.0 | -1.2 | 0.0 |
| Activity Rate 2004* | 57.7 | 56.2 | 57.0 |
| Unemployment rate < 25 years 2004 in %* | 17.4 | 23.0 | 19.7 |
| Primacy rate 2004* | 27.9 | 18.4 | 23.8 |

Source: ESPON database
* based on regional average

A look at basic statistical values for regional aggregations with high and low urban influence underlines the differences between urban and rural regions. With 340.5m inhabitants, urban regions host 68% of the EU 27 plus Norway and Switzerland population. The per capita GDP in 2003 is higher compared to rural regions but increases a bit more slowly. The activity rates of the two regional types are comparable, the unemployment rate in rural regions is higher, especially those of younger peoples, but in total decreasing compared to the stability in urban areas. The number of inhabitants in urban areas grows faster over a longer time perspective than in rural regions, whereas the development in recent times was the same.

Internal differences within the urban and rural categories are visible based on the urban-rural typology categorised into six types. The regions with a high urban influence and high human interventions alone are the living space of one third of the population of all ESPON countries. Being a rural area does not necessarily mean to lose population or higher unemployment rates. Differences in the population development are not a matter of the urban or rural character of a region.

**Figure 13 Benchmark figures of regions according to the urban-rural typology**

| | High urban influence, high human intervention | High urban influence, medium human intervention | High urban influence, low human intervention | Low urban influence, high human intervention | Low urban influence, medium human intervention | Low urban influence, low human intervention | EU27+2 |
|---|---|---|---|---|---|---|---|
| Population in Million 2004 | 189.4 | 82.9 | 68.2 | 70.5 | 56.6 | 32.7 | 500.4 |
| Population change 1981-2004 in % | 7.8 | 5.9 | 5.6 | 3.8 | 6.2 | 8.7 | 6.5 |
| Population change 1991-2004 in % | 1.4 | 1.3 | 2.0 | 0.4 | 2.3 | 2.2 | 1.5 |
| GDP in PPS per capita 2003* | 24,599 | 19,848 | 19,408 | 13,877 | 17,781 | 20,765 | 20,595 |
| Anually growth rate of GDP in PPS per capita 1998-2003 in %* | 4.3 | 3.9 | 3.5 | 5.1 | 4.7 | 4.9 | 4.4 |
| Unemployment rate 2004 in %* | 7.7 | 10.0 | 9.5 | 9.8 | 9.9 | 9.0 | 9.2 |
| Development of unemployment rate 1999-2004 in pp* | 0.4 | 0.3 | -1.4 | -0.9 | -1.6 | -1.1 | 0.0 |
| Activity Rate 2004* | 58.9 | 56.6 | 55.1 | 54.2 | 56.4 | 57.6 | 57.0 |
| Unemployment rate < 25 years 2004 in %* | 15.5 | 19.3 | 21.3 | 22.7 | 22.0 | 24.0 | 19.7 |
| Primacy rate 2004* | 33.0 | 18.8 | 23.7 | 17.3 | 16.1 | 20.6 | 23.8 |

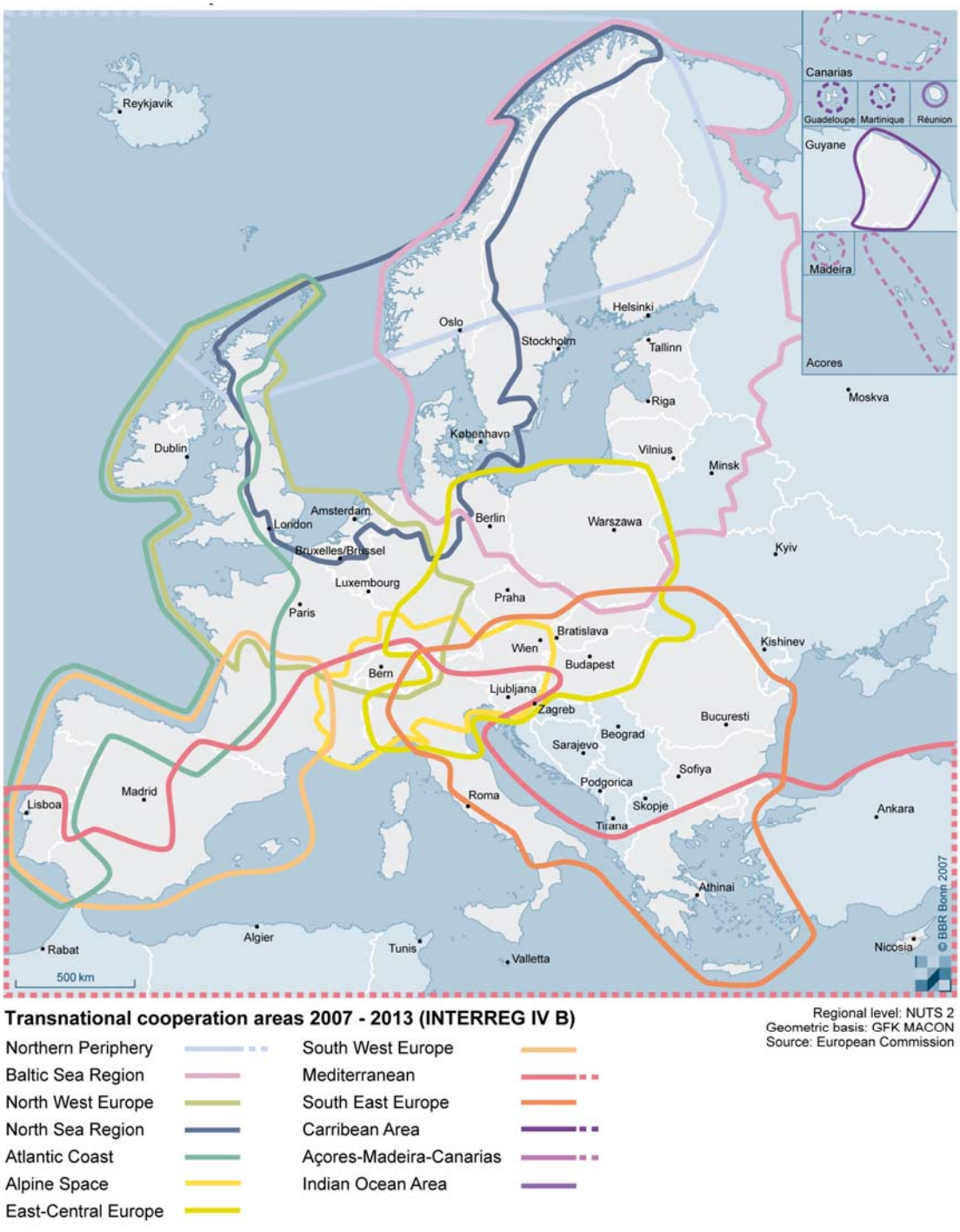
Source: ESPON database
* based on regional average

The unemployment rate for example is the highest in regions with a high urban influence and medium human footprints or interventions. Regions with the lowest urban influence and low human footprints show the highest increase of the population in a longer time perspective and have the highest GDP growth rate from 1998 to 2003 but face the highest rate in youth unemployment at the same time. The regional average of the GDP per capita is the second highest after that one in the more metropolitan regions.

### 3.2.2 Transnational cooperation areas

Transnational cooperation areas more and more determine the European regional identity and see themselves as macro regions in the light of territorial divisions of the European continent. Acting together in a transnational context and also across borders is the bottom up approach practised in European integration.

**Map 9 Transnational cooperation areas 2007-2013 (Interreg IV B)**



Areas of transnational cooperation by this are good examples of thinking in a greater territorial context by representing an essential platform in territorial cohesion-oriented policies. Territorial monitoring shows the structural differences between and provides indications for a more focused orientation of projects.

Monitoring structures and developments in these areas and elaborating differences and common grounds could be starting points in the description of the European territory, the search for regional cohesion and the evidence-based territorial assessment of the continent.

A look at basic indicators of selected transnational cooperation areas already shows the differences between the areas. In a longer time perspective North-West Europe for example shows the highest increase in the population, whereas the increase in East-Central Europe lags behind the general EU27+2 growth in the population. This comparison of data over a long term must be wisely handled, The analysis of population development only by a pure comparison of two dates in time neglects fundamental breaks within the development which are necessary to explain for example the demographic challenges in European dimensions caused by political changes and the integration processes starting at the end of the 1980ties.

**Figure 14 Benchmark figures for selected transnational cooperation areas**

| | North West Europe | Baltic Sea | East Central Europe | EU27+2 |
|---|---|---|---|---|
| Population in Million 2004 | 172.4 | 82.7 | 140.1 | 500.4 |
| Population change 1981-2004 in % | 8.4 | 7.5 | 4.3 | 6.5 |
| Population change 1991-2004 in % | 1.6 | -0.3 | 0.2 | 1.5 |
| GDP in PPS per capita 2003* | 24,338 | 18,182 | 18,156 | 20,595 |
| Anually growth rate of GDP in PPS per capita 1998-2003 in %* | 4.3 | 4.5 | 4.0 | 4.4 |
| Unemployment rate 2004 in %* | 6.3 | 12.2 | 11.4 | 9.2 |
| Development of unemployment rate 1999-2004 in pp* | -0.6 | 2.1 | 1.9 | 0.0 |
| Activity Rate 2004* | 58.9 | 60.7 | 56.5 | 57.0 |
| Unemployment rate < 25 years 2004 in %* | 13.9 | 25.0 | 21.6 | 19.7 |
| Primacy rate 2004* | 23.1 | 25.1 | 21.8 | 23.8 |

Source: ESPON database
* based on regional average

Within the selected group of transnational cooperation areas only North-West Europe has a growing number of inhabitants, the territory of East-Central Europe more or less keeps its population, the Baltic Sea Region shows a slight decrease in the population.

The highest GDP per capita can be found in North-West Europe, the fastest growth in GDP in the Baltic Sea Region. Nevertheless, the unemployment rate of these areas is the highest compared to the regions selected and to the average of regions of the ESPON territory and has the largest increase in the early 2000s.

### 3.2.3 Indicator classification as structural territories

Territorial typologies are constructs of the territory based on thematic indicators to register territorial phenomena by space and time. They form the base for an evidenced based assessment of territorial diversity and territorial cohesion. With the help of typologies, development processes and strategies can be put into a territorial dimension.

Policy-oriented territorial divisions like the areas of transnational cooperation often combined with a geographic extension and orientation are the second path for territorial monitoring.

The third path of monitoring could be done with the “territorialisation” of single indicators findings by regional groupings of classified values. This quickly provides empirical evidence especially in those cases which are directly related to policy measures like in the case of the GDP per capita relation up to now for the delineation for regions related to convergence in the EU structural funds. Just to mention another example, building territories in this respect will allow a view and the structures developments of regions loosing population.

#### 3.2.3.1 The territorial dimension of backwardness

The EU Commission defines regions with less than 75% of the EU 27+2 average value of the GDP per capita in purchasing power standards (PPS) to be eligible for Structural Funds according to the convergence and competitiveness objective. Considering these regions as a group forming the European territory which is lagging behind, the territorial dimension is already visible by the number of inhabitants living in this area. Based on the NUTS 2 regions, about 27% of the EU 27 + 2 population lives in regions being under this 75% threshold. Altogether 256m inhabitants live in regions below the EU average of GDP per capita in PPS which, with 51%, form more than half of the population of the ESPON countries.

What in brief are the features of a European territory lagging behind? This area combines a lot of territorial challenges which might be interpreted as cause, result or interfering processes of economic weakness. First of all the average value of the GDP per capita with 53% reaches just a bit more than half of the EU 27+2 average. The highest growth rate compared to the other regions at least gives some

evidence for a supposed catching up process in this respect. These areas have the lowest growth rate of the long-term population development and have lost population in the short term during the last years.

The group of regions lagging behind has the highest unemployment rate, with a slight increase between 1999 and 2004, and the highest youth unemployment rate.

The step to the next territory with GDP values between 75% and 100% of the EU average is tremendous and underlines the gap to the territory lagging behind. The average GDP value of this area is almost 93% of the EU average. So is the unemployment rate which in this territorial category decreased the most.

The economically strongest regions show the biggest increase in the population both in the long and in the short term. The unemployment rate in total and as well as that one of the youth is the lowest in regional comparison, whereas the total rate increased in the time period considered.

**Figure 15 Benchmark figures for territories according to economic strength**

**Share of regional GDP per capita in PPS in % of the EU 27 average 2003 – regional base NUTS 2**

| | less than 75% | 75 to below 100% | 100 to below 125% | 125% and more | EU27+2 |
|---|---|---|---|---|---|
| Population in Million 2004 | 136.4 | 119.5 | 150.5 | 93.9 | 500.4 |
| Population change 1981-2004 in % | 2.1 | 6.3 | 7.9 | 11.2 | 6.5 |
| Population change 1991-2004 in % | -0.6 | 1.5 | 2.1 | 3.5 | 1.5 |
| GDP in PPS per capita 2003* | 10,860 | 19,129 | 23,820 | 32,623 | 20,595 |
| Anually growth rate of GDP in PPS per capita 1998-2003 in %* | 5.3 | 4.4 | 4.1 | 4.2 | 4.4 |
| Unemployment rate 2004 in %* | 14.0 | 9.1 | 6.3 | 5.6 | 9.2 |
| Development of unemployment rate 1999-2004 in pp* | 0.5 | -1.5 | -0.7 | 0.4 | 0.0 |
| Activity Rate 2004* | 53.8 | 56.2 | 59.1 | 60.7 | 57.0 |
| Unemployment rate < 25 years 2004 in %* | 29.3 | 19.3 | 14.3 | 12.5 | 19.7 |
| Primacy rate 2004* | 17.5 | 21.1 | 22.6 | 41.3 | 23.8 |

Source: ESPON database
* based on regional average

### 3.2.3.2 The territorial dimension of demographic change

About 145m people in Europe live in regions which have lost population in a longer time perspective from 1991 to 2004, which almost makes 29% of the EU 27+ 2 population. In 2004, about 40m inhabitants live on a territory which has lost almost one-fifth of its population since 1991.

This area indeed is characterised by economic weakness measured in GDP per capita, high unemployment and a low activity rate, a context between the decreasing population and the degree of territorial challenges could be identified on the basis of this territorial division.

**Figure 16 Benchmark figures for territories according to population development**

**Population development 1981 to 2004 – regional base NUTS 2**

| | high decrease | medium decrease | low decrease | low increase | medium increase | high increase | EU27+2 |
|---|---|---|---|---|---|---|---|
| Population in Million 2004 | 39.3 | 39.1 | 65.9 | 143.7 | 140.3 | 113.4 | 500.4 |
| Population change 1981-2004 in % | -19.1 | -9.7 | -3.1 | 3.7 | 10.2 | 21.3 | 6.5 |
| Population change 1991-2004 in % | -3.9 | -2.7 | -0.5 | 0.5 | 2.2 | 4.7 | 1.5 |
| GDP in PPS per capita 2003* | 12,702 | 13,180 | 17,952 | 20,252 | 22,346 | 22,954 | 20,595 |
| Anually growth rate of GDP in PPS per capita 1998-2003 in %* | 5.1 | 5.3 | 4.8 | 4.2 | 4.1 | 4.4 | 4.4 |
| Unemployment rate 2004 in %* | 16.0 | 11.4 | 8.5 | 9.5 | 8.0 | 8.3 | 9.2 |
| Development of unemployment rate 1999-2004 in pp* | -0.4 | -1.0 | -1.6 | -0.2 | 0.1 | -0.6 | 0.0 |
| Activity Rate 2004* | 54.3 | 54.5 | 54.7 | 55.9 | 58.8 | 59.0 | 57.0 |
| Unemployment rate < 25 years 2004 in %* | 21.8 | 20.9 | 20.3 | 21.9 | 17.7 | 17.9 | 19.7 |
| Primacy rate 2004* | 22.2 | 23.2 | 24.9 | 24.1 | 21.1 | 26.1 | 23.8 |

Source: ESPON database
* based on regional average

The fact that regions with an increasing population also have the best performance in terms of economic strength and labour market potentials underlines the territorial differences which lead to a population loss on the one hand and to a gain on the other.

## 3.3 Indication of complex policy strategies

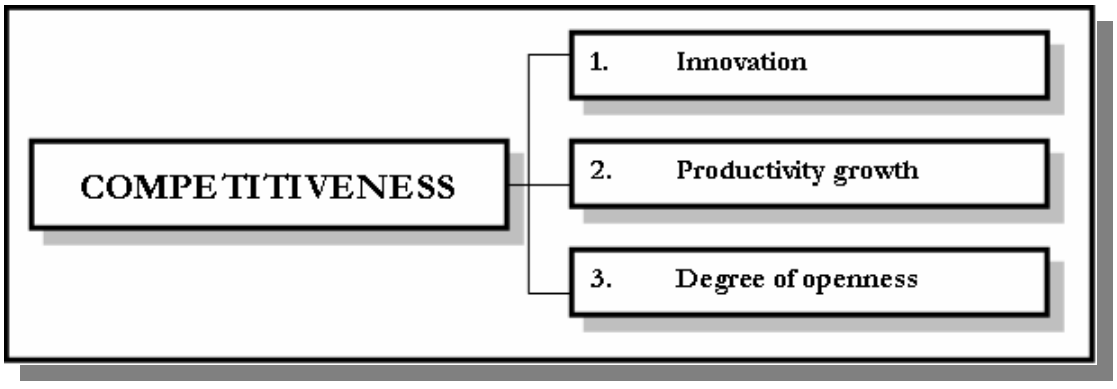

"The territorial dimension is essential for the implementation of the Lisbon and Gothenburg strategy as most important and dynamic forces in terms of economic development are increasingly both localised and territorial specific." (TSP, page 4)

### 3.3.1 Lisbon Strategy

The Lisbon Strategy is a comprehensive concept, addressing economic, social as well as environmental renewal. It is currently the most important source for policy aim on the EU level. This also concerns territorial cohesion. While translating the aims and objectives into a spatial dimension, two main points appear. The first is the enhancement of the territorial capital and potentials of all EU regions. The promotion of territorial integration is the second. Competitiveness can be fostered e.g. through trans-European synergies or clusters of competitiveness and economic activities. In this respect, potentials are provided by the territorial and cultural diversity, but also by trans-European cooperation or the coherence of EU policies with a territorial impact.

Interpreting the Lisbon Strategy from a territorial point of view, two further conditions need to be satisfied. These are a suitable basic infrastructure and a good skilled labour force. Regional competitiveness very much depends on the interrelation between the economic strength, the innovation potential of the regional economy and the qualification and productivity of labour forces.

**Figure 17 Definitions of competitiveness**




**Source: Politecnico di Milano, Department of Management, Economics and Industrial Engineering (DIG)**

For the present report six indicators were chosen to illustrate the Lisbon orientation. Four indicators are directly related to the short list of Lisbon indicators, the indicators for the representation of labour participation, the female and male

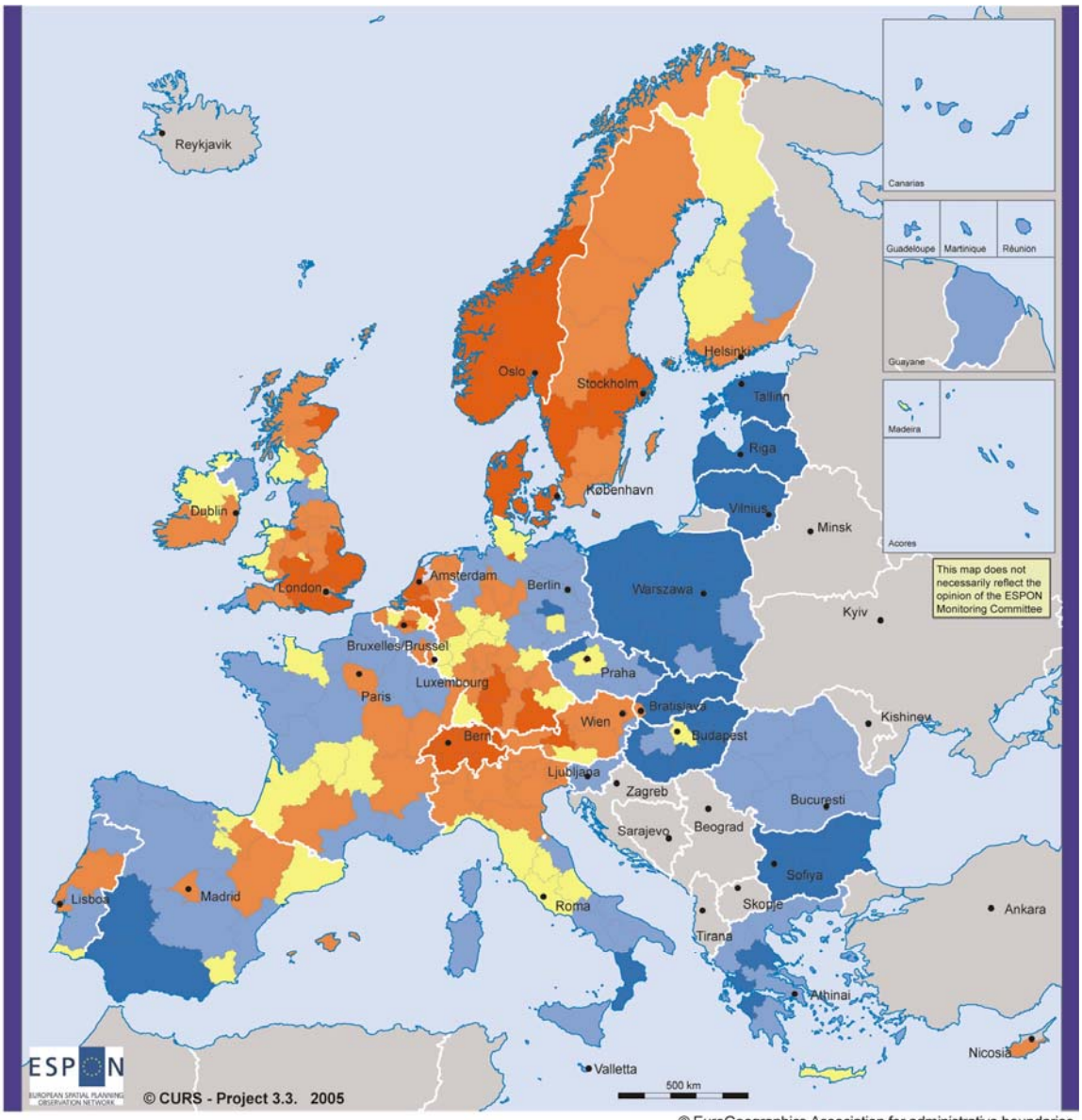
activity rate and the expenditure for research and development in relation to the gross domestic product. The renewal potential according the Lisbon Strategy is demonstrated by the help of the investment rate, the share of the gross fixed capital formation of businesses in the regional GDP. Furthermore the employment in high tech gives evidence of the regional endogenous potential and the position in the competitiveness of regions. The spectrum finishes with the share of utilised agricultural areas indicating the importance of the primary sector for the regional economy.

**Table 3 Indicators of the Lisbon orientation on the NUTS 0 level**

| Country | Investment rate 2003 in % | R&D expenditure 2001 in % of GDP | Activity rate male 2004 in % | Activity rate female 2004 in % | Employment in high technology sectors 2005 in % | Labour costs - average income per employee in 1.000 Euro 2003 | Utilised agricultural area in % of total area 2003 |
|---|---|---|---|---|---|---|---|
| Österreich | 21,4 | 2,03 | 67,0 | 50,8 | 9,16 | 34,9 | 40,2 |
| Belgique-België | 17,2 | 2,08 | 61,1 | 44,5 | 10,24 | 41,2 | 45,6 |
| Bulgaria | | 0,47 | 55,3 | 44,6 | 7,51 | 2,6 | 48,0 |
| Schweiz/Suisse/Svizzera | | | 76,0 | 59,1 | 11,06 | | |
| Kypros / Kibris | 17,8 | 0,26 | 73,5 | 53,4 | 3,23 | 21,5 | 14,7 |
| Ceska Republika | 26,8 | 1,22 | 68,3 | 50,5 | 12,52 | 9,1 | 46,5 |
| Deutschland | 18,4 | 2,46 | 64,7 | 49,4 | 13,80 | 35,6 | |
| Danmark | 19,5 | 2,39 | 71,6 | 60,7 | 10,98 | 41,7 | 61,3 |
| Eesti | 28,9 | 0,73 | 66,3 | 52,5 | 7,57 | 7,1 | 15,4 |
| España | 27,1 | 0,92 | 67,2 | 44,7 | 7,43 | 26,8 | 49,8 |
| Suomi / Finland | 18,0 | 3,38 | 65,1 | 56,2 | 11,27 | 34,4 | 6,6 |
| France | | 2,20 | 62,5 | 50,0 | 10,26 | 38,0 | 53,7 |
| Ellada | 25,3 | 0,64 | 64,8 | 42,1 | 3,86 | 19,6 | |
| Magyarorszag | 19,8 | 0,94 | 57,9 | 42,5 | 11,22 | 9,9 | 63,0 |
| Ireland | 23,0 | 1,10 | 71,7 | 50,2 | 9,55 | 36,2 | 62,2 |
| Italia | 18,7 | 1,09 | 61,6 | 38,3 | 10,26 | 33,9 | 49,0 |
| Lietuva | 21,2 | 0,67 | 63,7 | 51,7 | 4,69 | 5,7 | 38,8 |
| Luxembourg (Grand-Duché) | | | 64,1 | 44,1 | 4,71 | 71,3 | 49,2 |
| Latvija | 24,4 | 0,41 | 65,8 | 51,4 | 4,16 | 4,5 | 24,5 |
| Malta | 20,0 | 0,27 | 70,4 | 29,9 | 9,33 | 16,2 | 34,2 |
| Nederland | 19,4 | 1,80 | 72,9 | 56,9 | 7,34 | 34,3 | 51,5 |
| Norge | | 1,60 | 75,9 | 68,6 | 7,91 | | |
| Polska | 18,3 | 0,62 | 62,3 | 47,7 | 7,23 | 7,6 | 51,7 |
| Portugal | 21,4 | 0,80 | 69,8 | 54,8 | 5,08 | 17,6 | 41,5 |
| Romania | 21,4 | 0,39 | 62,1 | 47,8 | 6,76 | 3,5 | 61,7 |
| Sverige | 15,9 | 4,25 | 66,0 | 58,3 | 11,66 | 39,4 | 7,6 |
| Slovenija | 17,5 | 1,55 | 65,9 | 52,5 | 12,57 | 16,9 | 25,1 |
| Slovenska Republika | 25,0 | 0,64 | 68,4 | 52,5 | 12,11 | 5,9 | 45,6 |
| United Kingdom | | 1,87 | 69,3 | 55,0 | 9,89 | 36,9 | |

Source: ESPON database

## Map 10 Economic Lisbon indicators




**Number of indicators in the upper quartile minus number of indicators in the lower quartile**

| | |
|---|---|
| > 3 | Primarily high performance |
| 1- 3 | |
| 0 | Medium performance |
| -3- -1 | |
| < -3 | Primarily low performance |


Regional level: NUTS 2
Origin of data: Eurostat, national statistical offices

**Source: ESPON database**

with use of the following indicators:
1. Gross Domestic Product in purchasing power standards per inhabitant in 2000.
2. Labour productivity: Gross domestic product as purchasing power parities person employed in 2000 *
3. Employment rate: employed persons aged 15-64 as a share of total population of the same age Group in 2000 *
4. Employment rate of older workers: employed persons aged 55-64 as a share of total population of the same age group in 2000 *
5. GERD: gross domestic expenditure on research and development as a share of GDP in 2000 **
6. Dispersion of regional unemployment rates: coefficient of variation of NUTS 3 level unemployment rates within each NUTS 2 region 2003 ***
7. Long-term unemployment rate: persons unemployed for more than 12 months as a share of the total labour force in 2000 ****

* NUTS1 for FR Département d'Outre Mer and DE Brandenburg
** NUTS1 for FR Département d'Outre Mer and DE Brandenburg; IT Bolzano-Bozen, Trento disaggregated from old NUTS2 regions; UK disaggregated from NUTS1; BE, CH, IE, NO, SE on the national level; no data for Ceuta & Melilla
*** GR and PT: regional variations on NUTS0 level
**** NUTS1 for FR Département d'Outre Mer and DE Brandenburg; CH & NO on the national level; no data for Ceuta & Melilla

When we transfer the regions classified according to the Lisbon economic indicators into Lisbon-oriented territories, the areas with high and primarily high Lisbon performance are for example those with the highest increase of the population whereas especially those areas with a primarily low Lisbon performance have lost population within the last decade.

**Figure 18 Benchmark indicators of areas according to regionalised Lisbon indicators**

| | primarily high performance | high performance | medium performance | low performance | primarily low performance | EU27+2 |
|---|---|---|---|---|---|---|
| Population in Million 2004 | 68.3 | 146.5 | 66.0 | 145.9 | 73.6 | 500.4 |
| Population change 1981-2004 in % | 11.9 | 8.6 | 4.2 | 5.3 | 2.2 | 6.5 |
| Population change 1991-2004 in % | 2.5 | 2.6 | 1.8 | 1.0 | -1.2 | 1.5 |
| GDP in PPS per capita 2003* | 27,677 | 25,511 | 21,453 | 16,354 | 10,026 | 20,595 |
| Anually growth rate of GDP in PPS per capita 1998-2003 in %* | 4.2 | 4.1 | 4.3 | 4.5 | 5.8 | 4.4 |
| Unemployment rate 2004 in %* | 4.6 | 6.1 | 7.5 | 11.6 | 15.5 | 9.2 |
| Development of unemployment rate 1999-2004 in pp* | 0.6 | -0.5 | -0.9 | -1.4 | 0.6 | 0.0 |
| Activity Rate 2004* | 65.0 | 59.3 | 55.6 | 54.0 | 53.0 | 57.0 |
| Unemployment rate < 25 years 2004 in %* | 10.5 | 13.6 | 16.4 | 24.7 | 31.2 | 19.7 |
| Primacy rate 2004* | 29.3 | 27.6 | 21.8 | 21.4 | 16.9 | 23.8 |

Source: ESPON database
* based on regional average

Concerning the construction of indicator-based indices, the ESPON programme already prepared different approaches and models. The degree of complexity in the indicator aggregation depends on the informal needs and could be oriented to the particular needs and the use of different approaches. Such approaches might vary from a statistical multivariable analysis and a combination of indicators by additive methods, like in the case of the Regional Classification of Europe (RCE), to the combination of classified single indicators, e.g. the combination of the seven economic indicators of the Lisbon Strategy.

**Map 11 Regional Classification of Europe (RCE) – Lisbon performance**

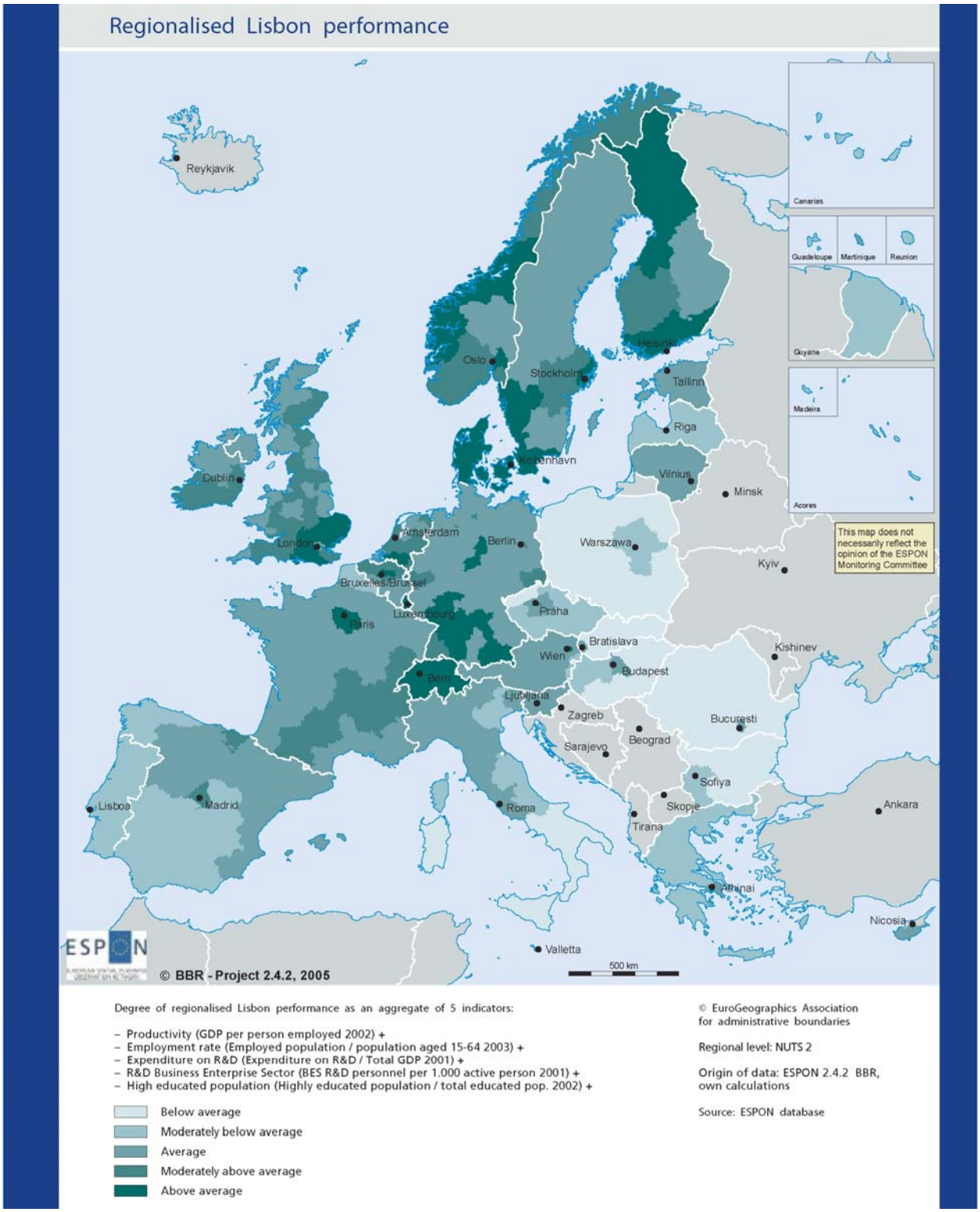


**Table 4 Development of GDP, employment and unemployment 1999 - 2003**

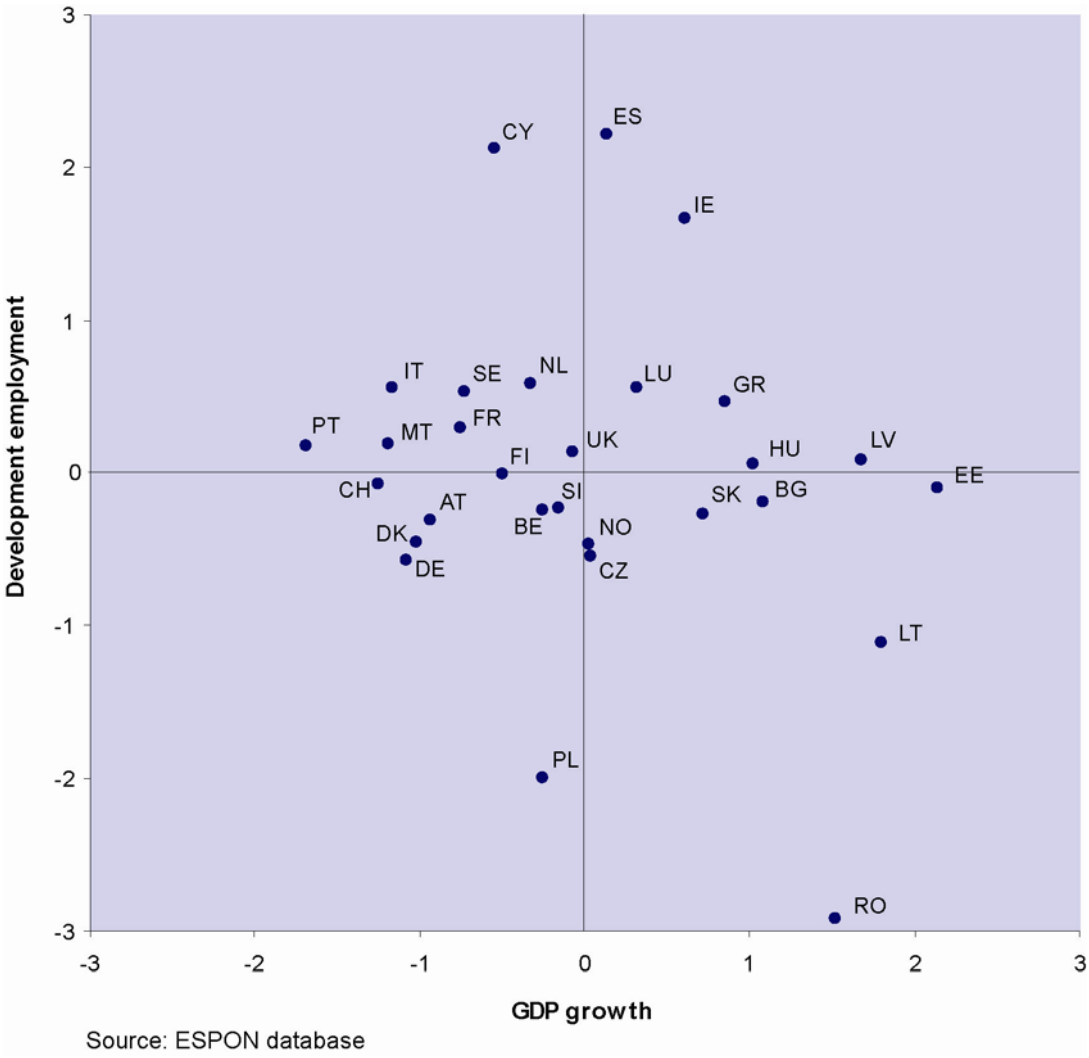
| Country | | Annually growth rate of GDP per capita in PPS | Development of unemploy-ment rate in percentage points | Annually growth rate of unemploy-ment rate in percent | Annually growth rate of employed people | Correlation of growth of GDP and employment within a ESPON country based on NUTS 2 regions |
|---|---|---|---|---|---|---|
| | | Development 1999-2003 | | | | |
| AT | Österreich | 2,8 | 0,5 | 3,2 | 0,29 | 0,08 |
| BE | Belgique-België | 4,3 | -0,4 | -1,2 | 0,39 | -0,11 |
| BG | Balgarija | 7,2 | -3,2 | -6,8 | 0,48 | -0,90 |
| CH | Suisse | 2,1 | 1,0 | 7,2 | 0,64 | |
| CY | Kypros | 3,7 | -0,9 | -6,4 | 4,03 | |
| CZ | Ceská Republika | 4,9 | -1,0 | -3,0 | -0,07 | -0,51 |
| DE | Deutschland | 2,5 | 1,5 | 4,2 | -0,11 | -0,43 |
| DK | Danmark | 2,6 | -0,2 | -0,9 | 0,07 | |
| EE | Eesti | 9,5 | -1,6 | -3,6 | 0,62 | |
| ES | España | 5,2 | -4,2 | -7,5 | 4,17 | -0,10 |
| FI | Suomi/ Finland | 3,8 | -1,2 | -3,1 | 0,74 | -0,23 |
| FR | France | 3,2 | 0,2 | 1,1 | 1,22 | 0,14 |
| GR | Ellada | 6,7 | -2,4 | -5,4 | 1,47 | -0,01 |
| HU | Magyarország | 7,1 | -1,1 | -4,2 | 0,85 | 0,58 |
| IE | Ireland | 6,2 | -1,1 | -5,1 | 3,32 | |
| IT | Italia | 2,3 | -2,7 | -6,5 | 1,61 | 0,61 |
| LT | Lietuva | 8,8 | -1,0 | -1,9 | -0,94 | |
| LU | Luxembourg | 5,6 | 1,3 | 11,4 | 1,62 | |
| LV | Latvija | 8,5 | -3,3 | -6,6 | 0,89 | |
| MT | Malta | 2,3 | 7,6 | 6,5 | 1,06 | |
| NL | Nederland | 4,1 | 0,1 | 0,7 | 1,66 | -0,26 |
| NO | Norge | 4,9 | 0,8 | 5,7 | 0,06 | 0,18 |
| PI | Polska | 4,3 | 3,5 | 6,8 | -2,29 | 0,16 |
| PT | Portugal | 1,2 | 1,8 | 8,8 | 1,04 | 0,17 |
| RO | România | 8,2 | 0,1 | 0,4 | -3,71 | 0,14 |
| SE | Sverige | 3,3 | -1,9 | -6,9 | 1,57 | -0,03 |
| SI | Slovenija | 4,5 | -0,7 | -2,5 | 0,41 | |
| SK | Slovenska Republika | 6,4 | 1,2 | 1,8 | 0,35 | -0,96 |
| UK | United Kingdom | 4,7 | -1,0 | -4,5 | 0,98 | -0,03 |

Source: ESPON database

Employment national level: Balgarija, Malta 2000 - 2003; France 2001 - 2003
Unemployment: Balgarija, Malta, Polska, Kypros 2000 - 2003; France 2001 - 2003

Having a look to the interconnection of economic development and the development of employment and unemployment, the outlook of job creation and economic growth is blurred with regard to the statistical findings. A significant correlation between growth in GDP and employment within the ESPON countries on the NUTS 2 level in the period 1999 to 2003 could not be stated. Within the ESPON countries no general patterns can be identified.

**Figure 19 Relation between GDP growth and development of employment on the NUTS 0 level 1999 - 2003 – scattergram of standardised values**




None of the ESPON countries significantly fits into the basic economic assumption that 1.5% of economic growth are necessary to create jobs in phases of economic revival.

The countries with the highest growth rate compared to the regional average of ESPON countries, mainly the Eastern European countries, only show a small above-average growth in employment, e.g. Latvia and Hungary, or even an above-average loss of jobs.

Four countries of the EU, Spain, Ireland, Luxembourg and Greece registered an above-average employment growth following an economic growth between 1999 and 2003.

The employment rate is one of the key indicators for the assessment of the labour market state and for the development of employment . In the context of the Lisbon Strategy this indicator is used to reflect the total regional capacities of the labour market , but also gender-related differences and the employment of elderly

persons. The Lisbon target aims at an employment rate of 70% in total, of 60% for women and of 50% for employed persons aged between 55 and 64 years. In 2001, the employment rate was rated to be 67% in total and 57% for women in medium term in 2005.

In 2005, this aim was reached with a total employment rate of 77.2% (2004: 77.4%) in Switzerland, 75.9% (2004: 75.7%) in Denmark, 74.8% (75.1) in Norway, 67.6% (66.3%) in Ireland, 73.3% (73.1%) in the Netherlands, 68.4% (67.6%) in Finland, 68.6% (67.8%) in Cyprus and Austria, 67.5% (67.8%) in Portugal, 72.5% (72.1%) in Sweden and 71.7% (71.6%) in the United Kingdom. Most of the other countries had rates between 63% and 65% in total, whereas with 61.1% the rate in Belgium %was a bit lower. Romania, Italy, Hungary and the Slovak Republic have around 57%. Bulgaria with 56% and Malta with 54% form the end of this ranking.

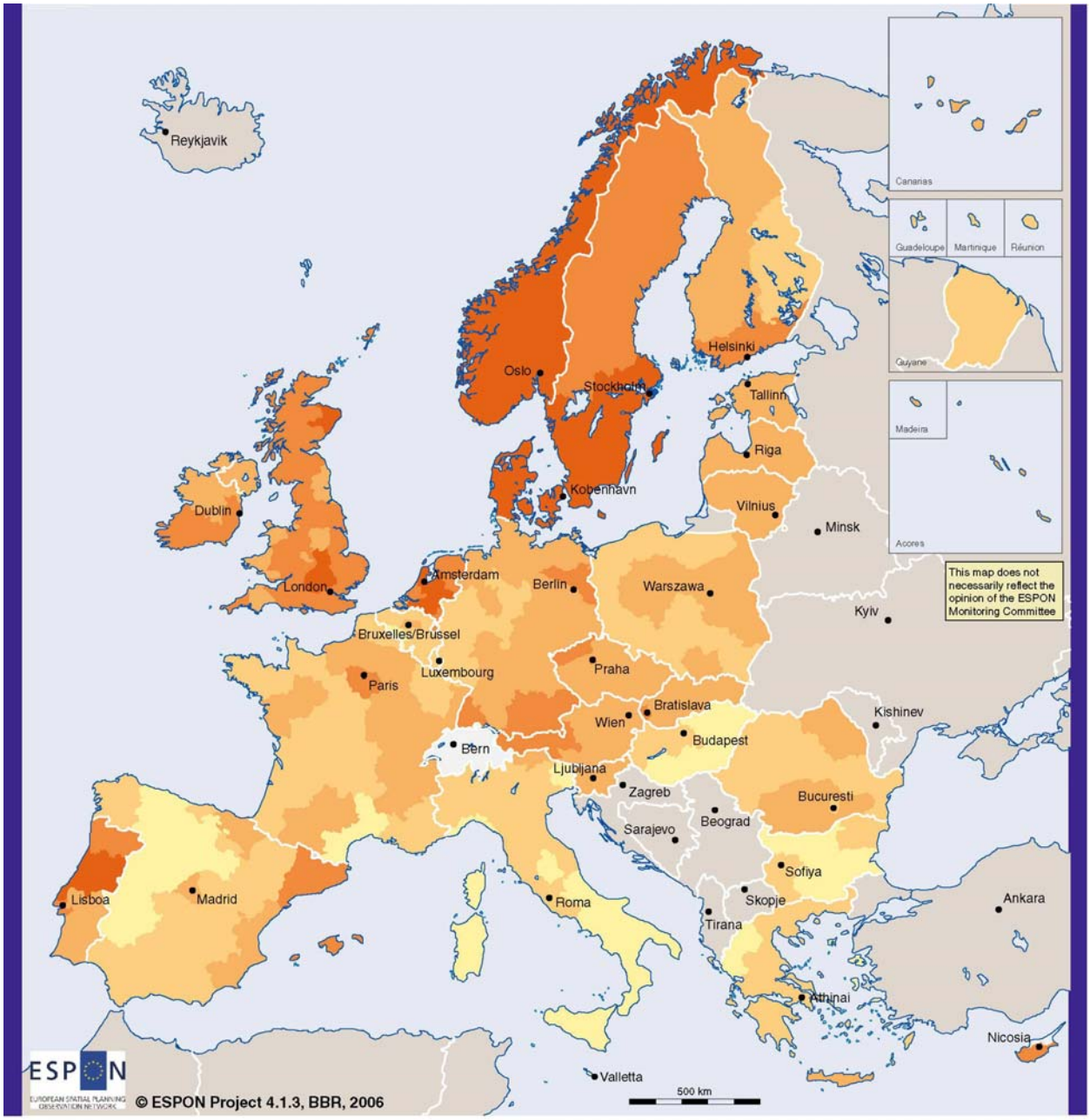
Of the 29 ESPON countries these eleven fulfilled the 2005 threshold and six countries already fulfilled the 2010 Lisbon criteria.

The aim for an employment rate of 57% for women in 2005 is already reached in 18 of the ESPON countries. Switzerland, Norway, Denmark and Sweden have values of around 71% and the Netherlands and the United Kingdom have rates of around 66%. The Czech Republic with 65.5% is close to this threshold. The following countries lag behind the aim of gender-specific employment: Bulgaria and Romania with 51.7 and 51,5%, the Slovak Republic with 50.9%, Poland and Greece with around 46% and Italy with 54.3%.

The aim to raise the employment rate and to create jobs for older workers seems to be the most ambiguous. It directly conflicts with national policies and different national orientations of the social system and the age limits of old age pension. Ten ESPON countries pass the threshold set in the Lisbon Strategy in 2005. Sweden has an employment rate of old workers of 69.4% in 2005, Norway 65.5% and Switzerland 65.0%. They are followed by Denmark with 59.5%, the United Kingdom with 56.6% and Finland with 52.7% before Cyprus and Portugal with 50.5%, which is just above the value to be reached. Lithuania and Latvia with 49.2% and 49.5 almost reach the threshold. Belgium, Austria and Luxemburg with around 31% and Slovenia and the Slovak Republic with 30.7 and 30.3% have the lowest labour participation in this age group.

The national differences in the employment rate are reflected in the regional disparities. A distinct north-south decline characterises the activity rates in Italy and in Spain there is a gap in employment between the east and the west with the highest value in Catalonia.

**Map 12 Activity rate**




**Activity rate 2004 in %**

- less than 50
- 50 to below 55
- 55 to below 60
- 60 to below 65
- 65 and more
- no data


Regional level: NUTS 2
Origin of data: Eurostat
**Source: ESPON database**

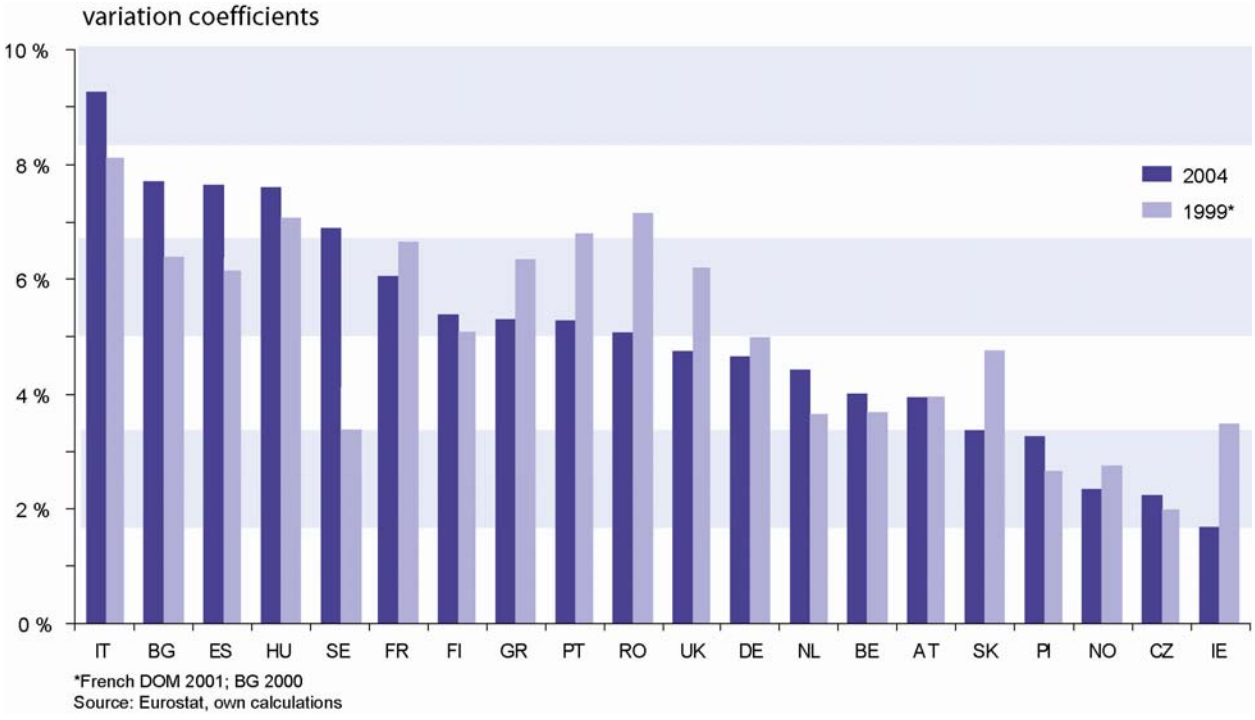
In Finland and Sweden a concentration of high rates in the capital region and in the south can be stated.

The employment rate has been rising from 61.9% to 63.8% between 1999 and 2005 in the countries of the EU 25. This positive trend can be seen in many countries, but it is not the general development. Especially Eastern European countries like the Czech Republic, Poland, the Slovak Republic and Romania, but also Norway and Switzerland faced decreases in the national employment rate over the last five years. While the rate decreased by about 2% in the latter countries, it was around 5% in Poland and Romania. In countries like Lithuania, Malta, Austria, Portugal or Finland and the United Kingdom, the total employment rate has remained more or less stable in the last few years.

The differences between the regions within countries have also increased in some countries between 1999 and 2004. In Sweden the variation coefficient of the employment rate has tremendously increased in this period. The increase in Stockholm and the southern regions and the decrease in the other regions of the country deepened the north-south divide. Spain and Italy, which belong to the former EU 15 countries, and Bulgaria and Hungary show increased regional disparities with regard to the employment rate.

A regional convergence of activity rates can be found in Greece, Portugal, the Slovak Republic and Romania. In the latter, the convergence is based on a general decline of the employment rate.

**Figure 20 Dispersion of the activity rate in ESPON states based on NUTS 2 regions**



The unemployment rate is the classic indicator for the condition of a regional labour market. The level of unemployment reflects the region's shortfall in jobs although it may also indicate a mismatch between the skills of the labour force and those needed by the market. Unemployment trends to some extent follow economic cycles, but also indicate how well a region deals with structural challenges and tackles labour supply and demands.

Furthermore, the long-term unemployment statistics indicate the seriousness of problems and the extent to which people or territories have been decoupled from economic trends. The higher the long-term unemployment rate, the more serious are the structural economic problems.

The unemployment trends between 1999 and 2004 show a clear distinction between countries like Poland, Germany, Switzerland, Austria, the Slovak Republic and Portugal with rising unemployment rates in general and countries like France, Spain, Italy, Finland and Bulgaria with a falling rate in all regions. The Baltic states are also characterised by falling rates of unemployment on the national (NUTS 2) level.

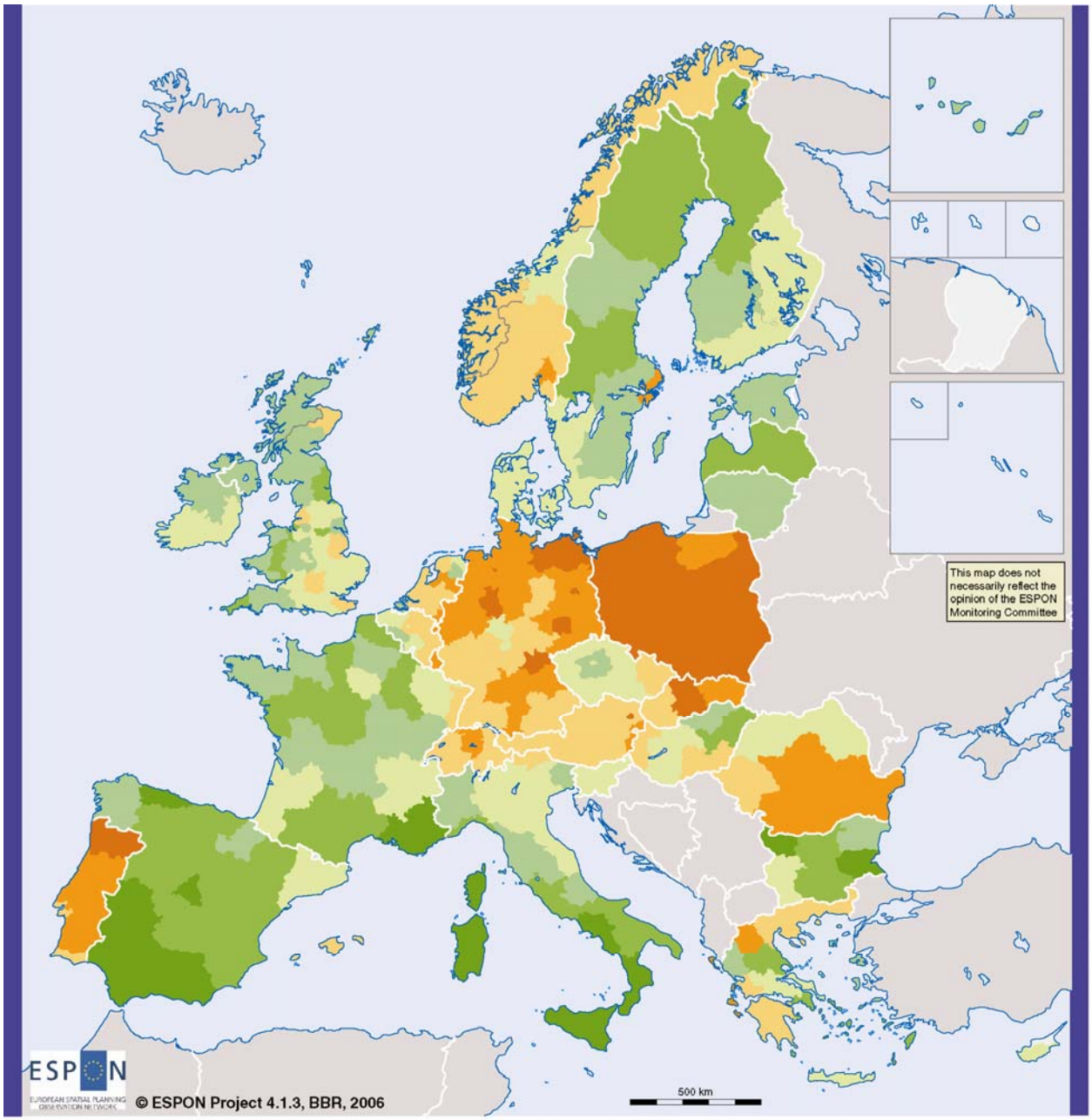
A third group of countries include those with a growth of the unemployment rate in some regions like the Stockholm area in Sweden or the areas outside the main economic regions in Greece, Hungary and the Czech Republic. .

The French outermost areas, Poland, the eastern part of Germany and the eastern regions of the Slovak Republic are the parts of the ESPON territory which are the most affected by unemployment in terms of the extent and its increase in the time period considered. Unemployment rates in these regions range from 32% in Réunion, 25% in Guyane and in Dolnoslaskie region in Poland to 23% in the Dessau region of Germany and 22% in Stredné Slovensko region in the Slovak Republic.

Norway, Switzerland, Austria and Luxemburg show a strong increase of the unemployment rate, but still belong to those countries with the lowest unemployment rate. The rate of unemployed persons is e.g. 2.9% in Oslo, 3.3% in the Ostschweiz, Switzerland and in Tirol, Austria and 4,8% in Luxembourg. Here the rate increased by 2.4 percentage points between 1999 and 2004.

Poland and eastern Germany show the highest increase and high rates of unemployment at the same time. In Mecklenburg-Vorpommern in Germany the rate increased by 4.5% between 1999 and 2004 to 21.2%, in Dolnoslaskie in Poland the rate rose by 10.5 percentage points.

**Map 13 Development of the unemployment rate**

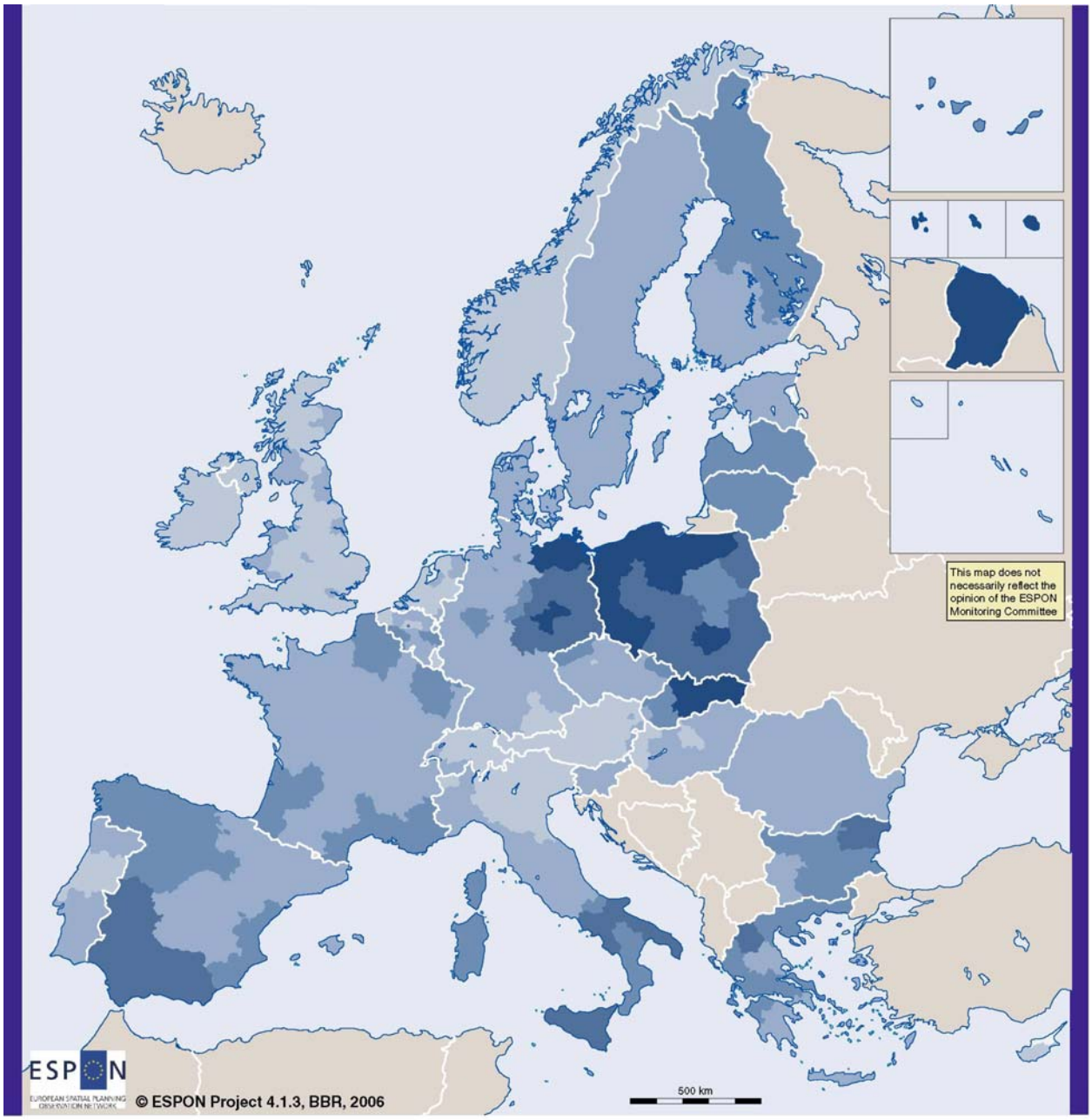



**Change of the unemployment rate in percentage points 1999-2004**

- up to -6,0
- -6,0 up to -3,0
- -3,0 up to -1,5
- -1,5 up to 0,0
- 0,0 up to 1,5
- 1,5 up to 3,0
- more than 3,0
- no data


Regional level: NUTS 2
Origin of data: Eurostat
**Source: ESPON database**

**Map 14 Unemployment rate**

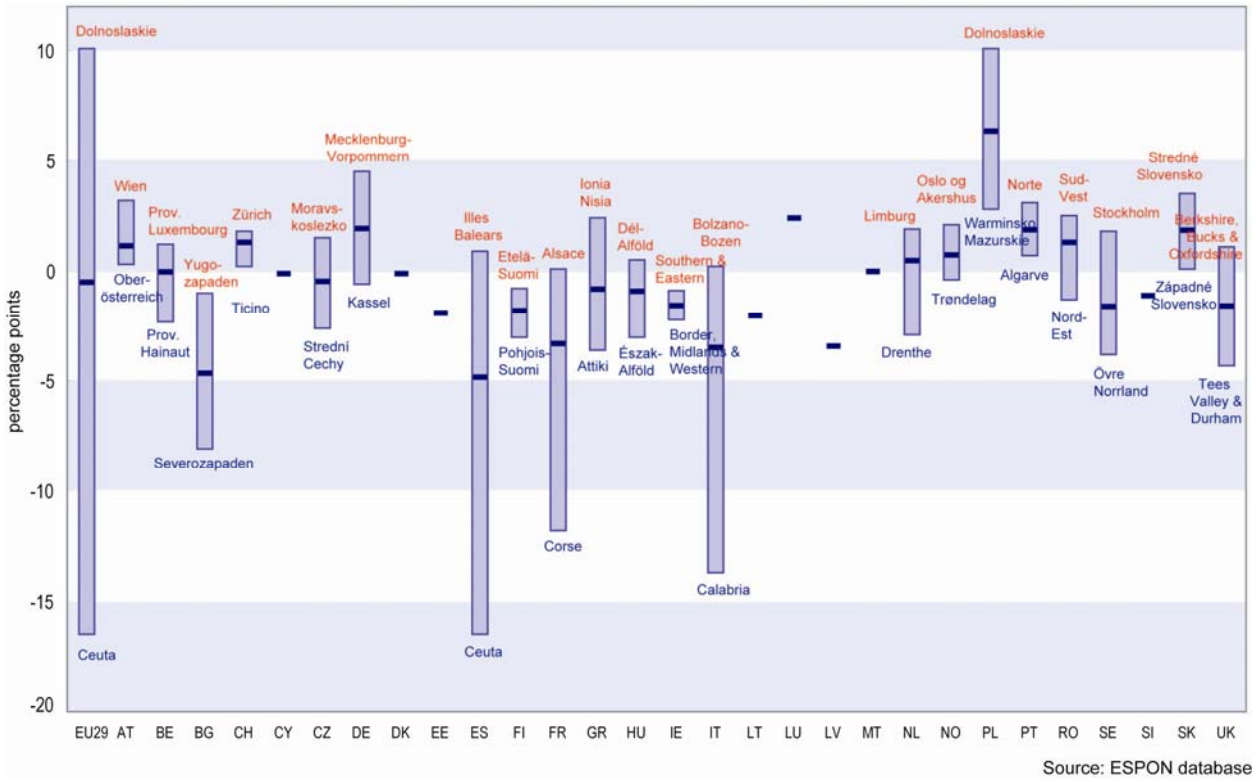



**Regional unemployment rate 2004**

- up to 5,0
- 5,0 up to 10,0
- 10,0 up to 15,0
- 15,0 up to 20,0
- 20,0 and more
- no data


Regional level: NUTS 2
Origin of data: Eurostat
**Source: ESPON database**

**Figure 21 Disparities in the development of the unemployment rates on the NUTS 2 level**

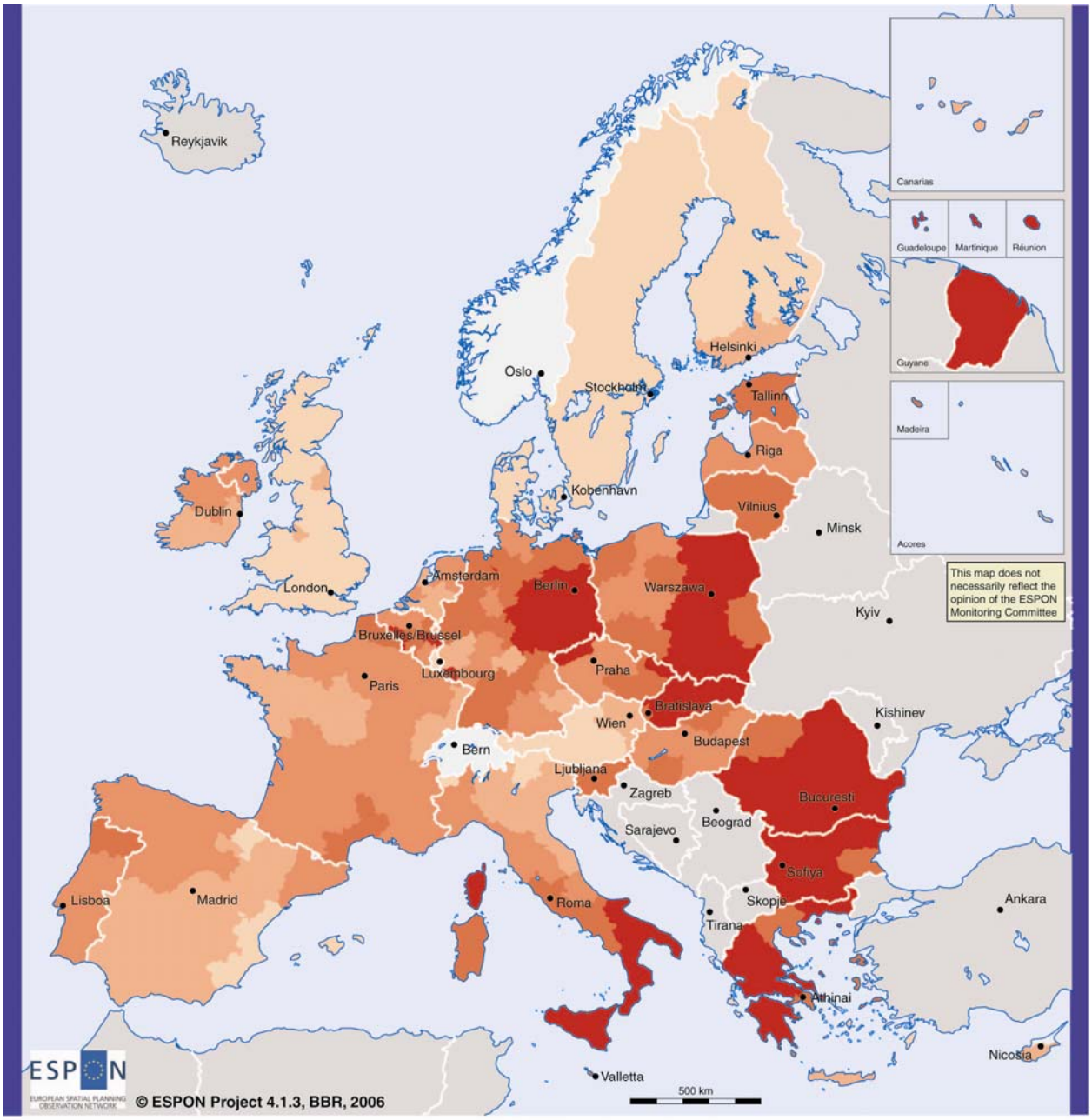



A look to the regional development shows the disparities within countries. In the countries with decreasing unemployment rates, the main centres show lower decreases or even increases compared to the less urban or rural areas. This is the case in the Nordic countries but also in the United Kingdom and France.

Countries with increasing total unemployment rates like Portugal and Germany show great differences between the regions. In Portugal a lower increase can be observed only in the capital city of Lisbon and on the Algarve, the southern tourist area. Germany shows a distinct north east and south decline. The rising unemployment in Poland comparably affects the whole territory.

In general, regions with high unemployment rates in 2004 and a strong increase of unemployed persons in the period 1999 to 2004 also have higher long-term unemployment rates.

**Map 15 Long-term unemployment rate**




But the regional distribution of long-term unemployment shows a slightly different pattern. Bulgaria, Slovakia, Greece, the Baltic countries, the south of Italy and northern Germany are the places where long-term unemployment rates belong to

highest in the European comparison although only average total unemployment rates or decreases of the total unemployment rate can be stated.

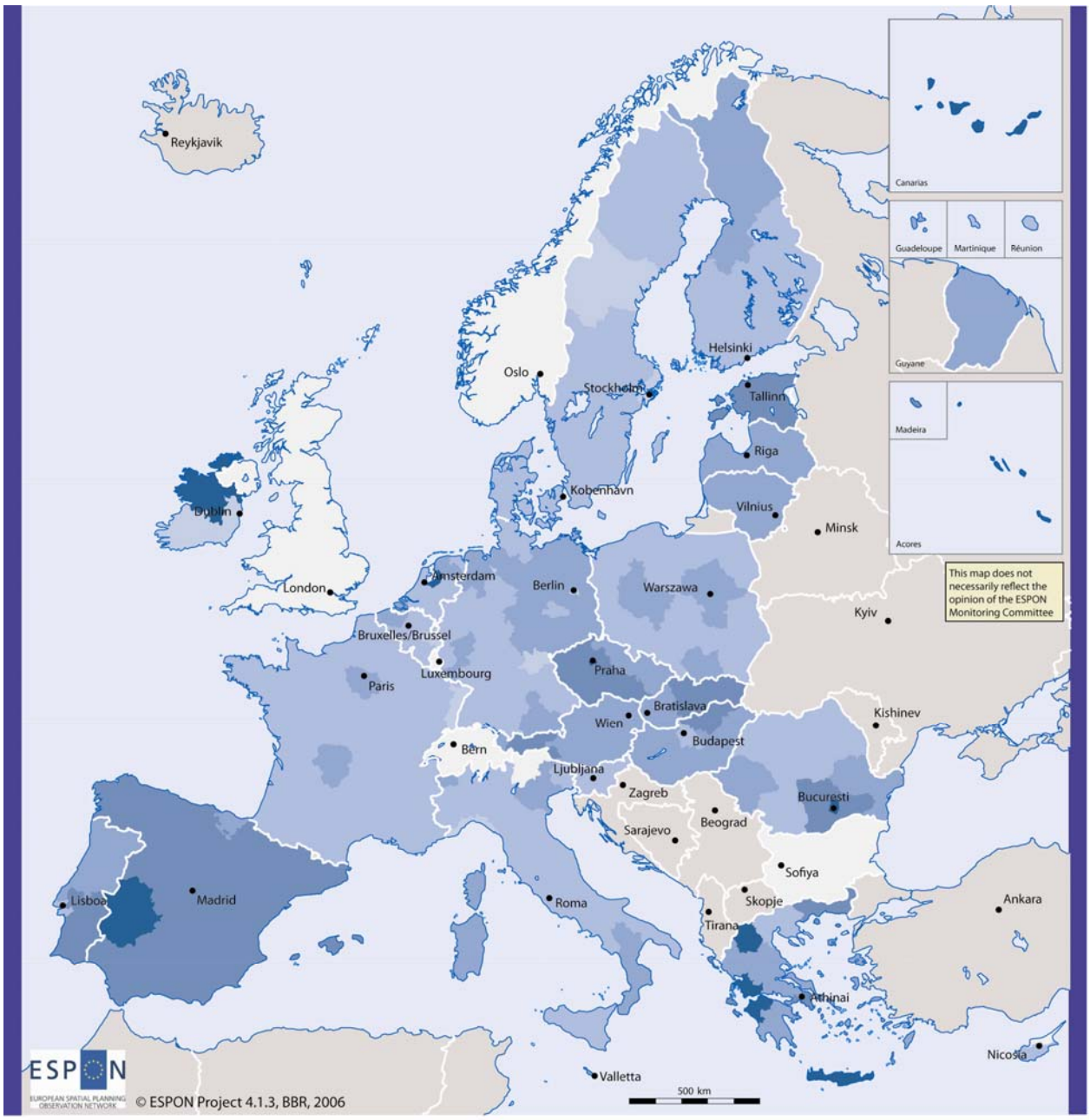
The long-term unemployment rate accounts for 80% in Guadeloupe, 71% in Bulgaria, 68% in Greek, Romanian and Slovak regions and 67% in Polish regions. In roughly a third of the NUTS 2 regions (79 regions out of 268 without Switzerland and Norway for which no data was available) more than half of the people have been unemployed for more than a year. In half of the NUTS 2 regions the long-term unemployment rate accounts for more than 40%, which is the average in the ESPON countries.

A partial decoupling or an at least distinct delay, the less articulated occurrence of economic development and the creation of jobs in phases of economic revival in may regions of the ESPON countries are the main socio-economic challenges for a more competitive and prosperous European territory. Special emphasis and a more targeted support is needed in those regions with increasing regional and intraregional disparities on a European level. Growing unemployment which is especially expressed by the long term unemployment determines the amount of persons no longer socially integrated. At the same time, development within a phase of the concentration of growth and growth potentials has resulted in the establishment of regional decentralised strengths. The valorisation of the potentials and dynamics of these so-called development motors for the neighbouring regions and by the help of networks for a larger territory as well reflects the joint effort to improve economic and social cohesion as well as territorial cohesion.

Gross fixed capital formations indicate the investments in economic expansion and the potential of restructuring production cycles and future-oriented economic activities. In 2003 in the European comparison, Estonia, Spain, the Czech Republic, Latvia and Ireland are the countries with the highest share of investments in the regional GDP. Belgium, Sweden and Slovenia show the lowest rates in this respect.

This is also visible in the regional distribution of investments. In Sweden with the lowest national value, the capital regions belong to the regions with the lowest value. In Germany, higher regional investments can be found e.g. in Oberbayern (the Munich region) and in the eastern part of the county. The Czech Republic and the Slovak Republic denote east-west disparities.

## Map 16 Investment rate 2003




Investment rate 2003*
Gross fixed capital formation in GDP,
all NACE branches

- less than 15
- 15 to below 20
- 20 to below 25
- 25 to below 30
- 30 and more
- no data

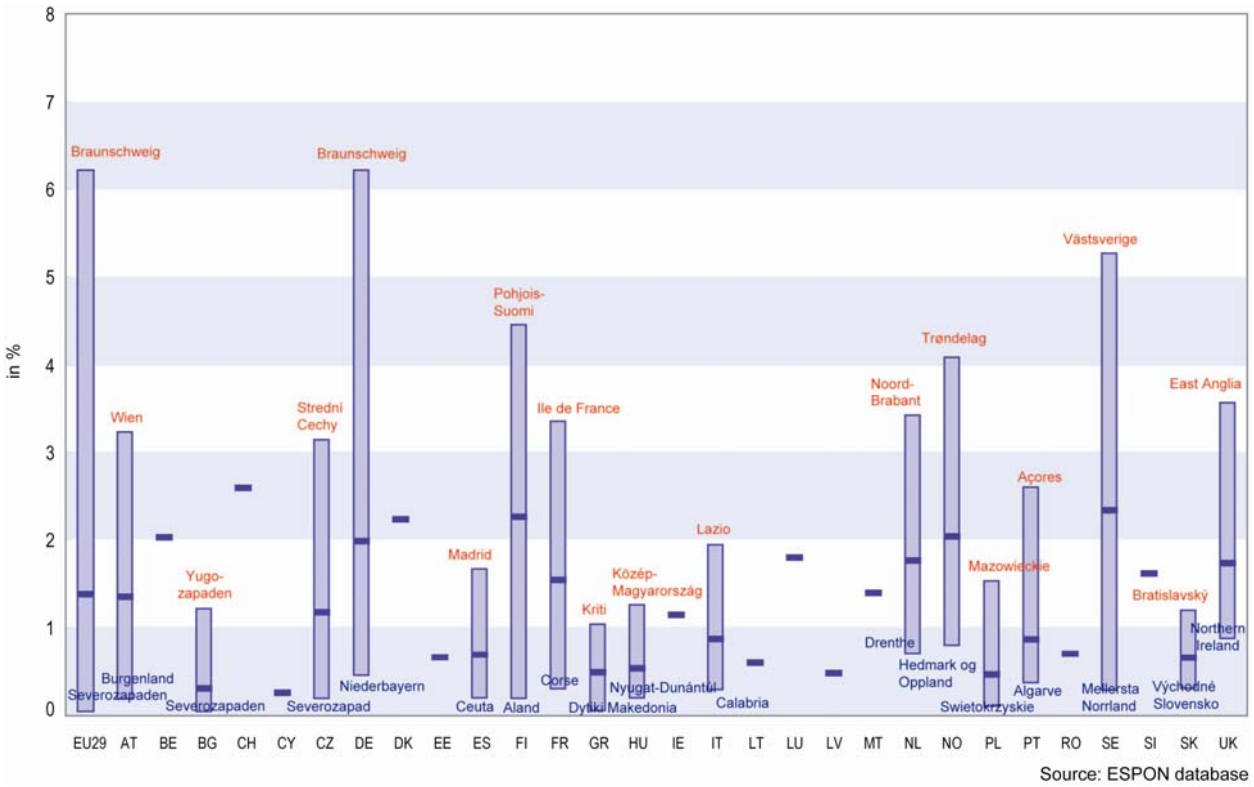
*France: 2002


Regional level: NUTS 2
Origin of data: Eurostat
Source: ESPON database

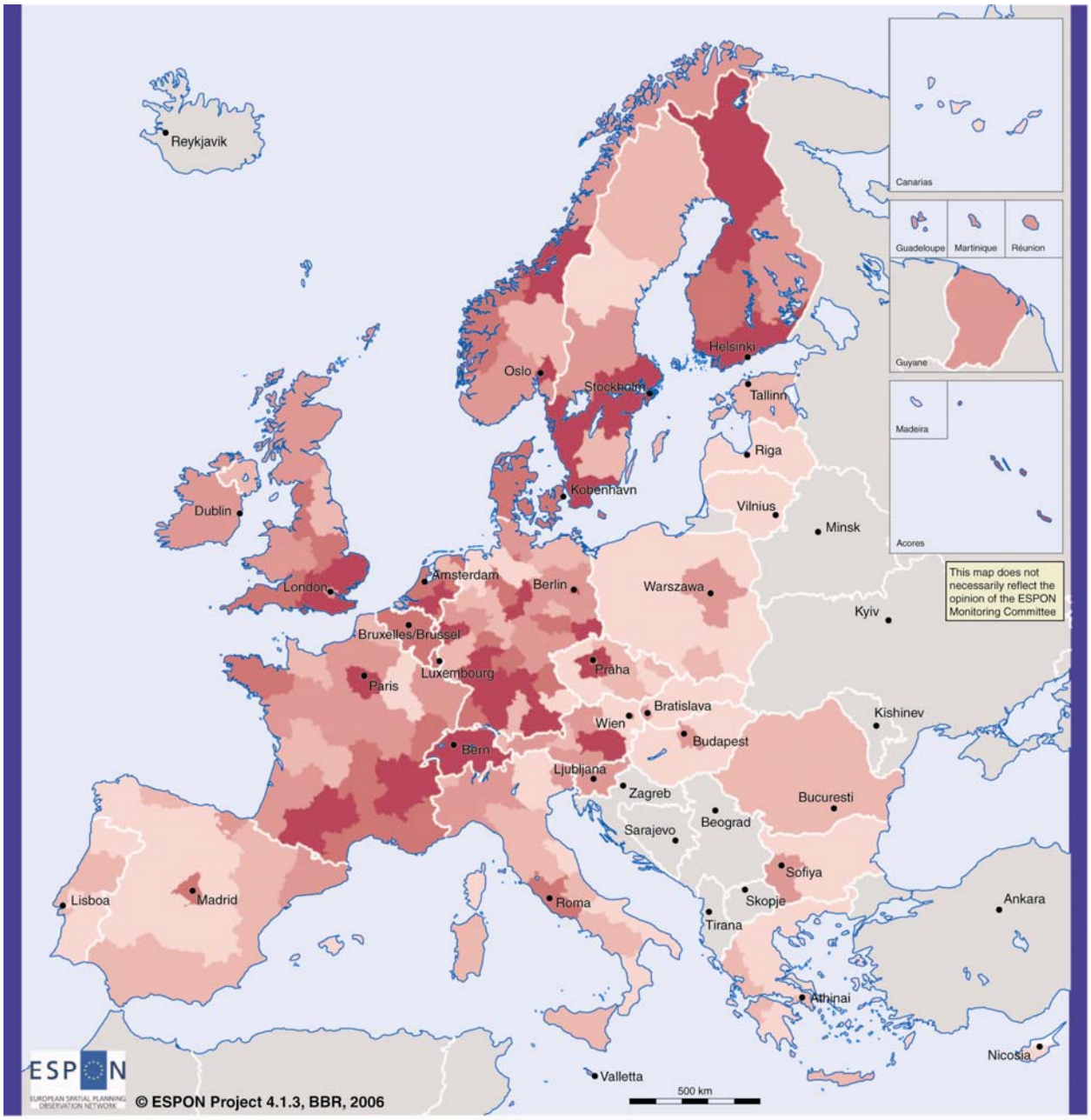
Expenditures in R&D are direct investments in the future economy and are based on technological renewal and knowledge transfer capacities. Here Sweden, Finland, Germany, Denmark and France have leading positions. Slovenia and the Czech Republic are the leading countries of Eastern Europe having higher R&D expenditures compared with the GDP than e.g. Spain or Ireland. A distinct backlog is shown by Bulgaria and Malta.

Even if there is no clear homogeneous distribution within Europe, a structure is visible. In the eastern countries, apart from the central Czech Republic, the Střední Cechy region, which belongs to the main economic centres of Europe, has a comparably low expenditure level.. Further exceptions with a generally low level of expenditure, are the capital regions of Poland, Bulgaria and Estonia. The southern Mediterranean countries, with the exception of Madrid and Rome, have a low expenditure in R&D. The remaining countries, all part of EU 15 including Switzerland and Norway, show a very scattered picture, but compared with the above-mentioned territories have a higher expenditure. Areas with a low expenditure level do also exist here, e.g. Seine-et-Mame and Aisne in France, Merlersta Norrland in Sweden or Bozen, Trento and Vento in Italy.

**Figure 22 Disparities in regional R&D expenditures on the NUTS 2 level**



## Map 17 R&D expenditures




**R&D expenditure as percentage of regional GDP 2001**

- less than 0.7
- 0.7 to below 1.1
- 1.1 to below 1.7
- 1.7 to below 2.3
- more than 2.3
- no data



Regional level: NUTS 1/2

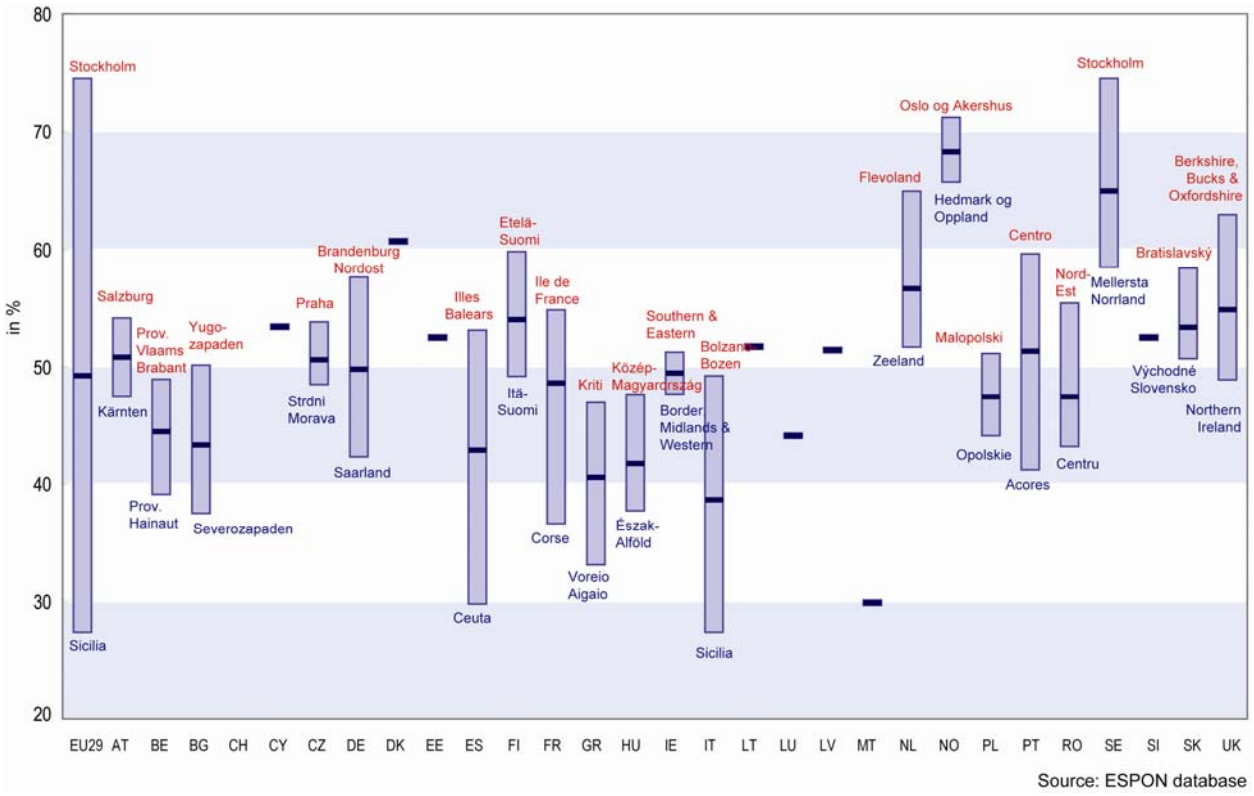
Origin of data: Eurostat, CH & NO: National Statistical Officies

**Source: ESPON database**

One of the Lisbon priorities is the creation of employment. Besides global economic integration and competitiveness the Lisbon Strategy is more socially oriented. A higher gender-oriented labour market participation is a key target of the Lisbon Strategy. A large policy framework drawn up by the European Council in March 2000 aimed at enhancing competitiveness and achieving full employment. The target of the EU is to increase its overall employment rate to 70 percent and that of women to at least 60 percent by 2010.

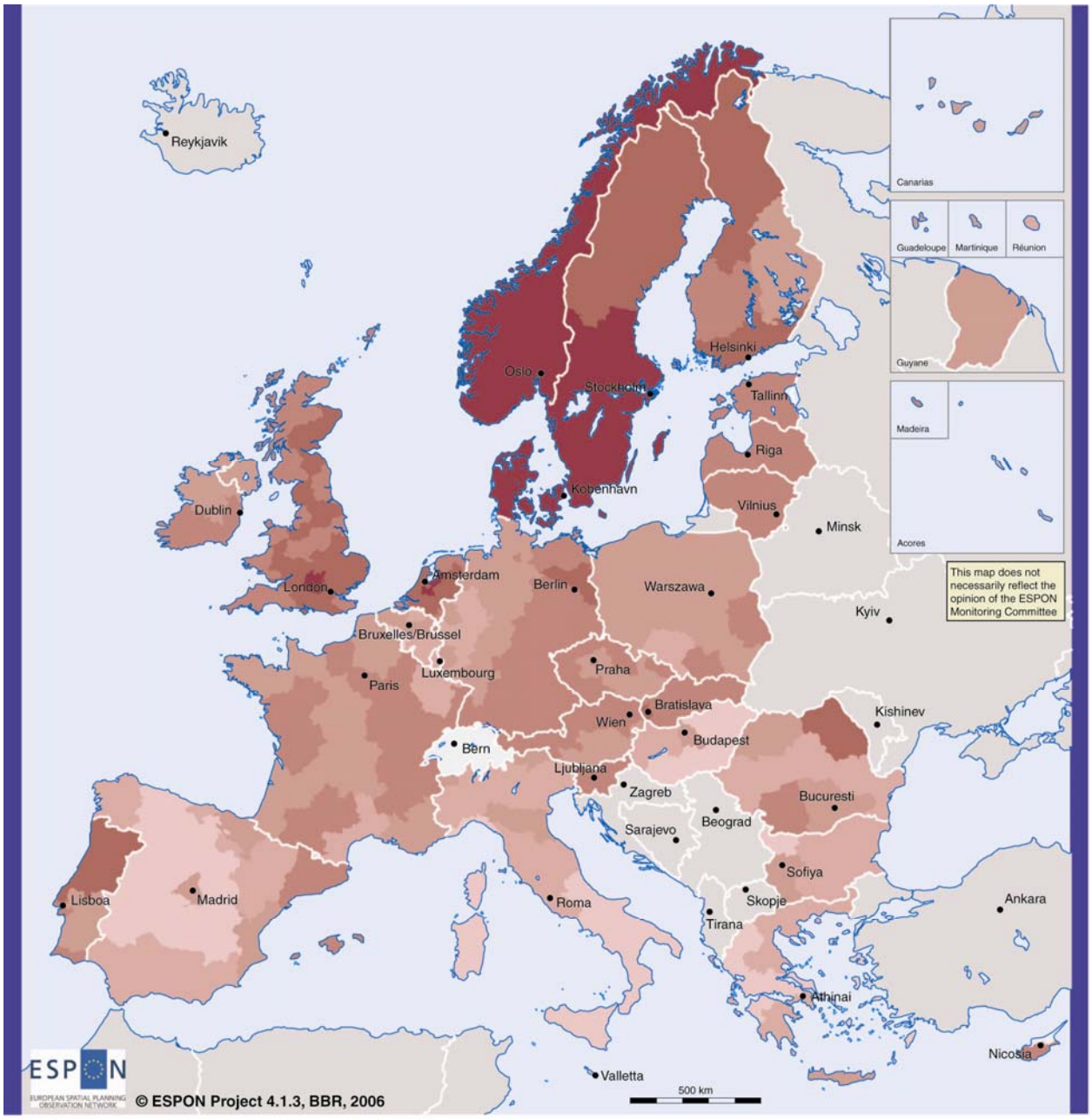
Compared to the total activity rate (see Chapter 3.2) the threshold set for the female activity rate is far from being reached in many countries. Only Norway and Denmark have female activity rates in the targeted scope.

**Figure 23 Regional disparities in female activity rates on the NUTS 2 level**




Norway, Denmark and the southern part of Sweden show the highest activity female rates with values over 74%. Scandinavia as a whole shows a very positive picture apart from Itä-Suomi in Finland. Centro region in Portugal, Berkshire, Bucks and Oxfordshire in England and Flevoland in the Netherlands are further areas with high rates. Shares of less than 58% can be found on the Iberian Peninsula, the islands of Corsica and Sardinia, in the Italian regions south of Abruzzo, in parts of Hungary, Greece and Belgium.

## Map 18 Female activity rate




**Activity rate 2004 in % - female**

- less than 58
- 58 to below 62
- 62 to below 66
- 66 to below 70
- 70 to below 74
- 74 and more
- no data



Regional level: NUTS 2

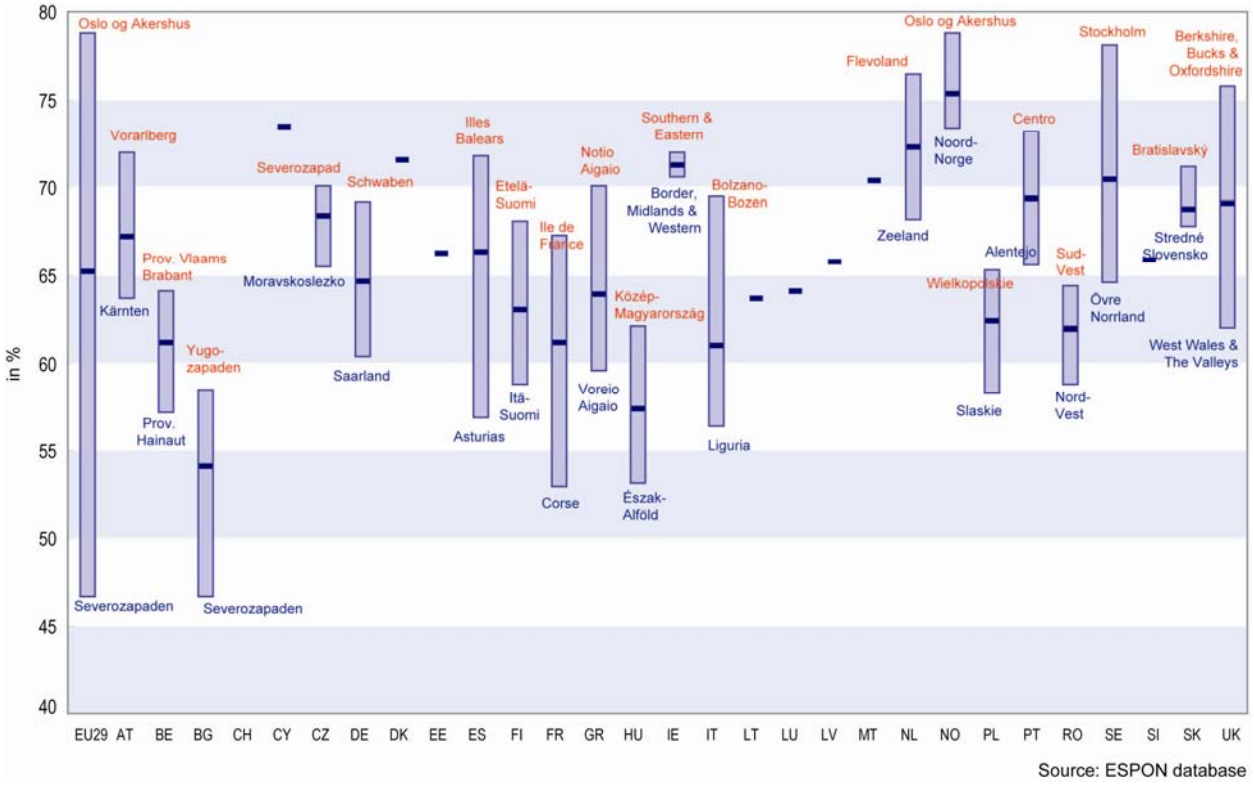
Origin of data: Eurostat

**Source: ESPON database**

In many countries the activity rate of man is still very low compared to the total rate and the Lisbon threshold set. Bulgaria, Romania and Poland have the lowest national values. In Bulgaria 55% and in the other countries around 63% of the male labour force areemployed.

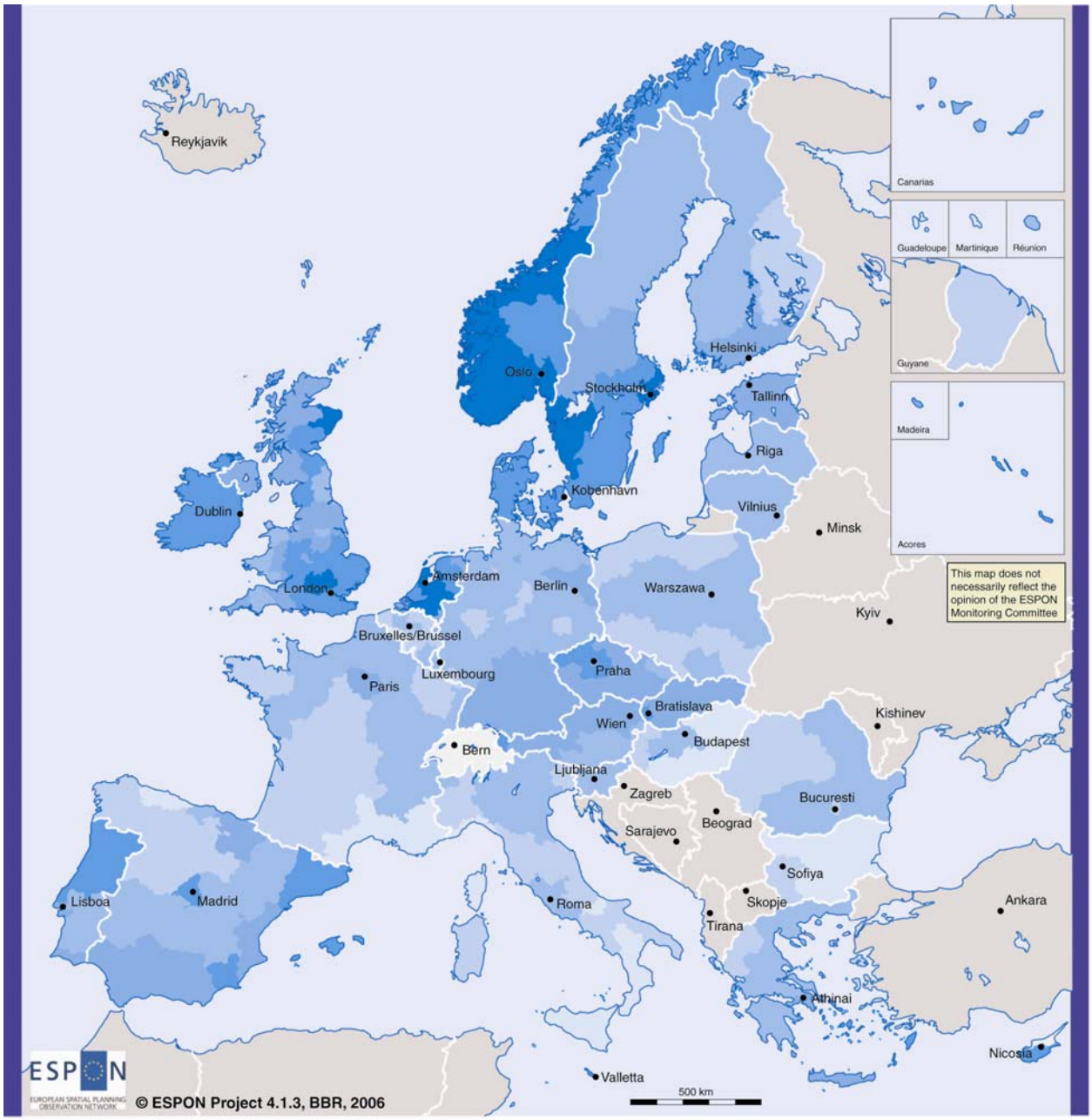
The disparities between the ESPON regions are huge. The male activity rate ranges from 46.7% in Severozapaden in Bulgaria to 78.8% in Oslo.

**Figure 24 Regional disparities in male activity rates on the NUTS 2 level**




Generally, a relatively homogeneous high activity share can be seen in Ireland, the UK, the Netherlands, Denmark, Norway and Sweden. In Norway, the capital as well as the southern and western regions are clearly visible. In Sweden, Västverige and the capital show high shares. Inner London and its surrounding regions, North Eastern Scotland as well as the central and southern Netherlands can be identified at the same level. High rates on a lower level can be found in Ireland, the UK, Denmark, the region around Prague, Strední Cechy bordering on Germany in the north-west, Centro region in Portugal, Madrid, the region of Murcia, Catalonia and the Balearic Islands in Spain and Cyprus. Shares Ibelow 58% can be found in Asturias in Spain, the southern Mediterranean regions of France, in southern Italy, south and east Hungary and in Bulgaria apart from Yugozapaden.

## Map 19 Male activity rate




**Activity rate 2004 in % - male**

- less than 58
- 58 to below 62
- 62 to below 66
- 66 to below 70
- 70 to below 74
- 74 and more
- no data



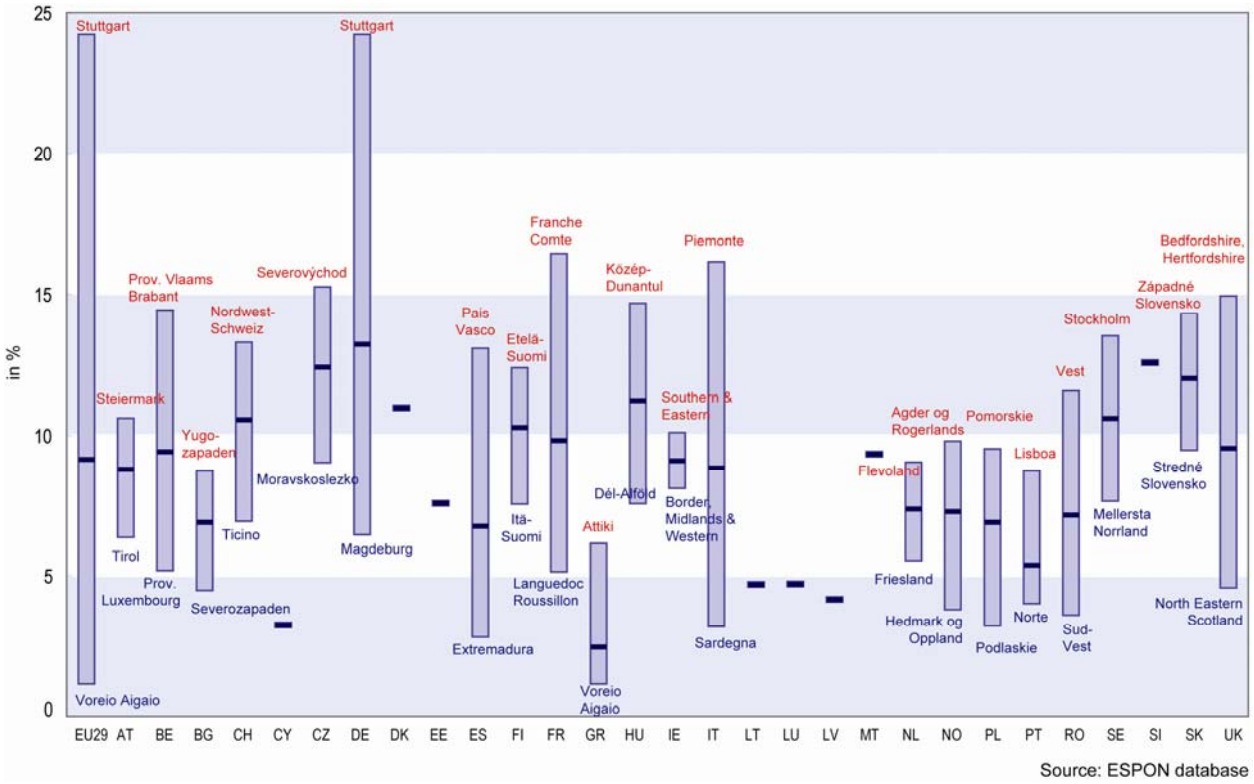
Regional level: NUTS 2

Origin of data: Eurostat

**Source: ESPON database**

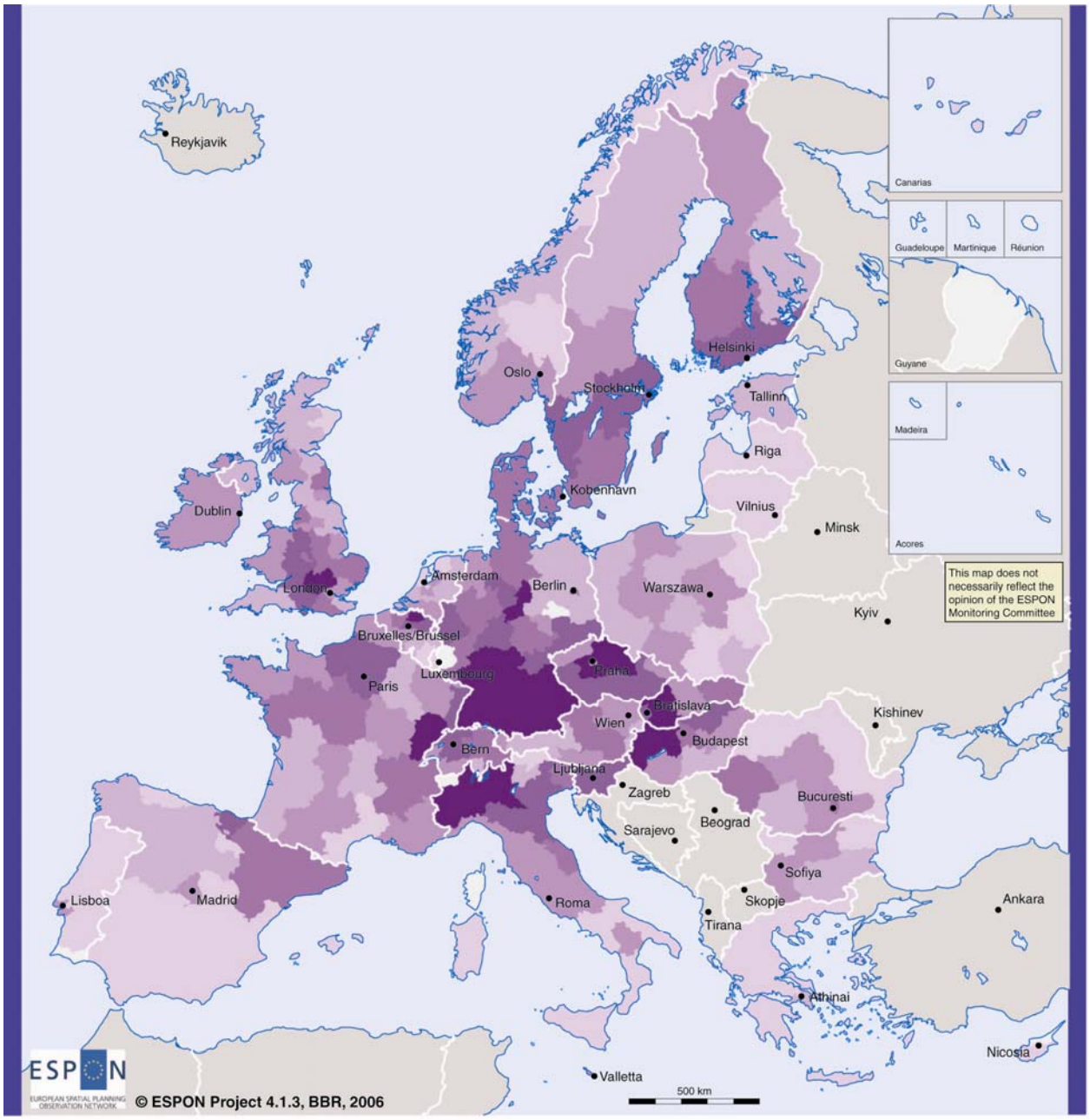
According the Lisbon Agenda knowledge as well as high technology are means to reach the specified objectives. The share of employment in high and medium high technology manufacturing and knowledge-intensive high-technology services are considered to adequately represent this orientation. Surprisingly, on the national level, Slovenia and the Czech Republic after Germany have the highest regional average value. Low values in Lithuania, Latvia and Luxembourg characterise these countries as less technology-oriented.

**Figure 25 Regional disparities in high-tech employment on the NUTS 2 level**




The regional picture shows a clear scattered concentration with high employment shares in a central region. This region covers Franche-Comté in France, the Länder of Baden-Württemberg and Bayern in Germany, Stredoceský, Liberecký, Královenhradecký and Pardubický in the Czech Republic, Západné Slovensko in Slovakia, Köpéz-Dunátúl and Nyugat-Dunátúl in Hungary and Piemonte and Valle d'Aosta in Italy. Furthermore, the regions of Berkshire, Bucks, Oxfordshire, Bedforshire and Hertfordshire in England, Braunschweig and Göttingen in Germany and the province of Antwerpen in Belgium show high shares. The southern Mediterranean regions, the eastern border regions of the EU, Lithuania and Latvia as well as the north of Norway and the region of Hedmark Og Oppland have the lowest shares of employment in high-tech industries.

## Map 20 Employment in the high-tech industry




**Share of employment in high and medium high technology manufacturing and knowledge-intensive high-technology services in % of total employment 2005**

- up to 6
- 6 up to 8
- 8 up to 10
- 10 up to 12
- 12 up to 14
- more than 14
- no data



Regional level: NUTS 2
Origin of data: Eurostat

**Source: ESPON database**

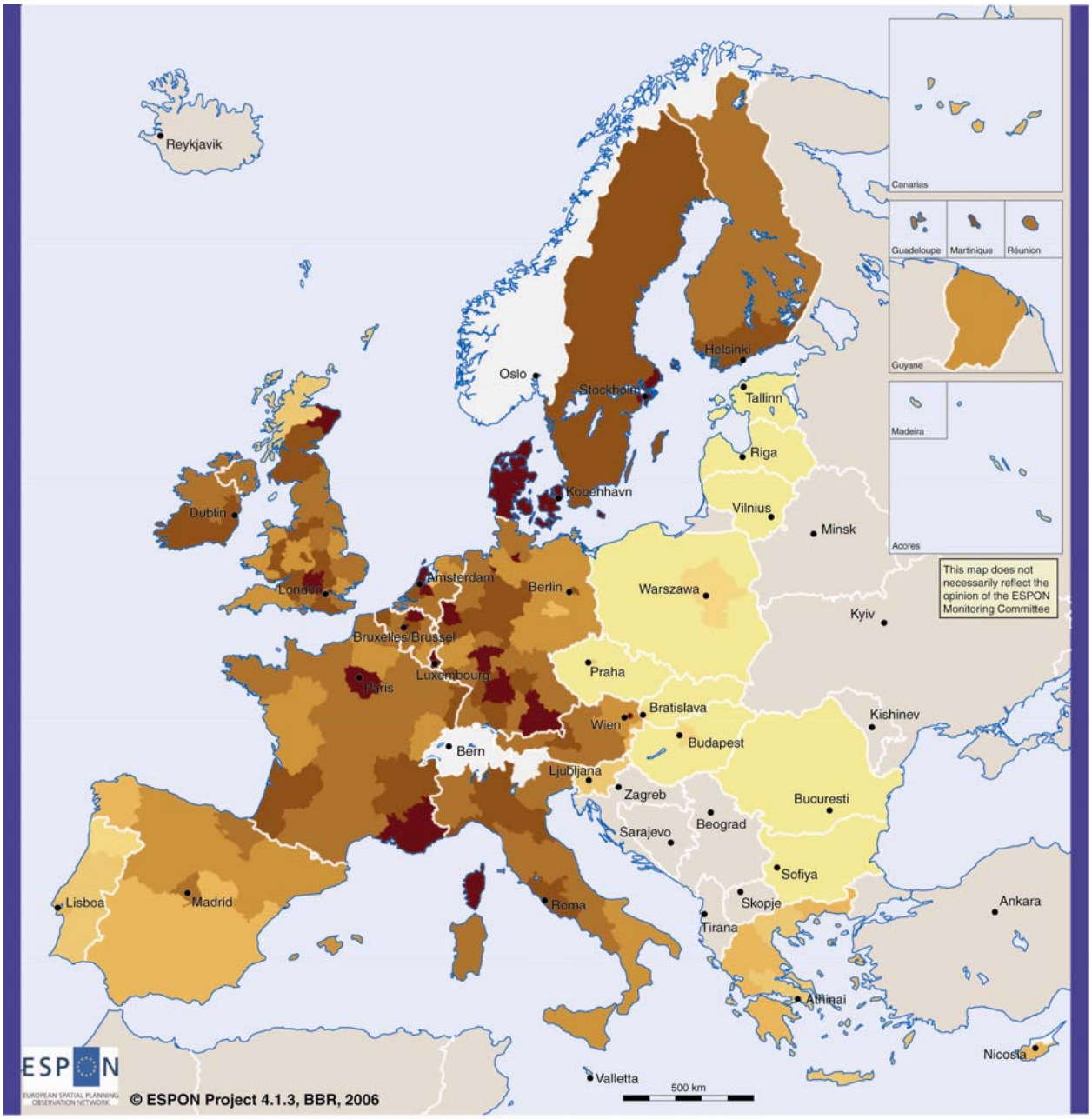
### Labour costs

An issue related to employment shares by gender or sector are the labour costs. They differ within the ESPON countries. But in contrast to other indicators, the income distribution shows a common picture with a higher income in the old EU 15. The only two countries which joined the EU in 2004 and in which an average income of more than €15,000 is reached are Cyprus and Slovenia. The same applies to Northern Scotland or Norte region in Portugal. On the next level, the southern Mediterranean regions, the northern UK and regions like Dessau in Germany can be identified. Compared to the rest of the old EU 15, the income here is relatively low. Furthermore, the old picture of islands of high income recurs. In the north of Europe these islands of high income are formed by Stockholm, the whole of Denmark, Aberdeen City, Aberdeenshire and North Moray in Scotland. The Mediterranean Corsica and the region of Provence-Alpes-Côte d'Azur in France reach average incomes higher than €40,000. In the central western part of the EU, Paris, London, the regions of Noord-Holland and Flevoland in the Netherlands, the province of Antwerpen in Belgium and the German regions of Düsseldorf, Darmstadt, Stuttgart and Oberbayern are high income regions.

### Utilised agricultural areas

A look at utilised agricultural areas in% of the total area reveals a scattered picture. A difference between the former EU 15 and today's EU 25 cannot be identified. High rates are to be found on the Iberian Peninsula, e.g. Castilla-La Mancha in Spain or Alentejo in Portugal. The western and central parts of France as well as Ireland, Denmark, Rumania and Hungary show a high percentage. In Poland most of the country shows a high rate of agricultural activities. This is also true for the Czech Republic, northern parts of Germany or the north-western part of the Netherlands. Furthermore, smaller islands appear with the Leipzig region in Germany, the region of Puglia in Italy, Sardinia and Sicily. Very low shares can be found in Finland, Estonia, Latvia, the Spanish autonomous region of Galicia, Centro and Lisbon in Portugal, Provence-Alpes-Côte d'Azur in France, Provincia Autonoma Trento in Italy, Kärnten and the Steiermark in Austria, Severozapaden and Severen tsentralen in Bulgaria, Lubuskie in Poland.

## Map 21 Labour costs




**Labour Costs - Regional wages and salaries per employee in 1000 Euro 2003**

- up to 10
- 10 up to 15
- 15 up to 20
- 25 up to 30
- 30 up to 35
- 35 up to 40
- more than 40
- no data



Regional level: NUTS 2

Origin of data: Eurostat

**Source: ESPON database**

### 3.3.2 Gothenburg Strategy

The Gothenburg Strategy provides a policy framework for sustainable development. It adds a third, environmental dimension to the Lisbon Strategy which has a main focus on economic renewal and social issues. The Strategy is based on three separate - economic, social and environmental - pillars which need to reinforce each other to ensure sustainable development. It is intrinsically multi-sectoral.

The Gothenburg Strategy identifies six unsustainable trends for which action needs to be taken: poverty and social exclusion, the implications of an ageing society (already covered by the Lisbon Strategy), climate change, health, natural resources, transport. The long-term objectives accordingly include (among other things) to limit climate change, to reduce major threats to public health, to ensure food safety and quality, to remove threats to the environment caused by chemicals, to manage natural resources in a more responsible way, to limit the adverse effects of transport and to reduce regional disparities. These objectives are mostly in line with the overall goals of the European Spatial Development Perspective (ESDP).

Corresponding to these trends and objectives, the Gothenburg Strategy's aim is to cover a wide range of topics which can add up to altogether 10 thematic fields (European Commission, 2001a, page 264). Furthermore, in order to be able to monitor the implementation of the political priorities incorporated in the Gothenburg Strategy, a comprehensive list of indicators was drawn up by a group of national experts. Based on these indicators the EU Commission reviews the progress in implementing the Gothenburg Strategy every year. In addition, an assessment of the achievements has to be made each spring by the European Council. Against this background, the Commission's system of indicators and their regular analysis can be understood as a monitoring system for sustainable development in the EU.

The ten Gothenburg themes of the 2001 revision of the Strategy (European Commission 2001a) were renamed in the revised Gothenburg Strategy (Council of the European Union, 2006) of 9 June 2006. While the majority of themes is retained, some of them were just renamed or amended with some sub-themes, two themes were taken off the list ("economic development" and "good governance"). The review thus incorporates the following seven themes:

1. Climate change and clean energy (previously "Climate change and energy")
2. Sustainable transport (previously "Transport")
3. Sustainable consumption and production (previously "Production and consumption patterns")
4. Conservation and management of natural resources (previously "Management of natural resources")
5. Public health (unchanged)

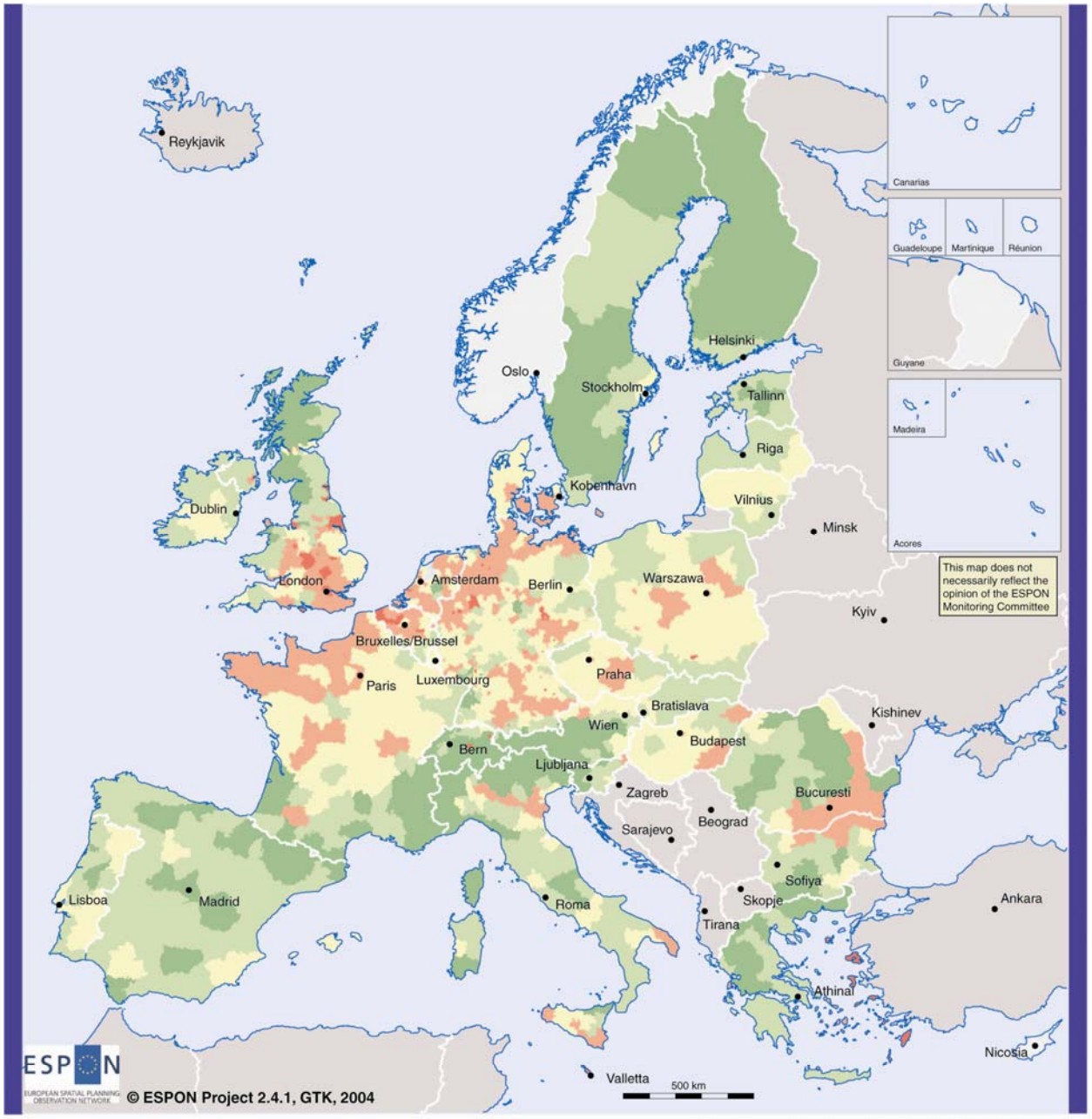
6. Social inclusion, demography and migration (previously “Poverty and social exclusion” and "Ageing society")
7. Global poverty and sustainable development challenges (previously “Global partnership”)

For the work on the presented tentative spatial monitoring report three indicators can be used which are complete and available within the ESPON. These are:

- fragmentation
- land consumption by transport infrastructure
- flood in urban areas

The indicator of fragmentation of natural areas can be used to depict the environmentally 'sensitive' areas. Even if the situation of fragmentation is heterogeneous within the analysed territory, one can identify three larger areas. In the northern part, the degree of fragmentation is relatively low. This area includes Ireland, Scotland, Wales and Northern Ireland, Sweden, Finland, Estonia, Latvia and Lithuania. An area with a middle to high fragmentation rate appears in the form of a slight curve in the south of the before-mentioned areas. It covers England, great parts of western, northern and central France, Belgium, Luxemburg, the Netherlands, Germany, the Czech Republic and Poland. Smaller and bigger islands of high fragmentation are furthermore to be found in France, a band in northern Italy stretches from Como and Milano to Padova, Rovigo and Ferrara. In Italy three more patterns can be found in the south. These are the southern part of Puglia, the northern and southern part of Sicily. Somogy, Békés and Csongrádin in Hungary, the southern and partly the western part of Bulgaria as well as the northern part of Rumania show rates of fragmentation in the upper level. Extremes of high fragmentation also exist in the eastern part of the Aegean Islands.

## Map 22 Fragmentation




**Fragmentation index**

- 5
- 4
- 3
- 2
- 1
- no data



Regional level: NUTS 3

Origin of data: GTK

**Source: ESPON database**

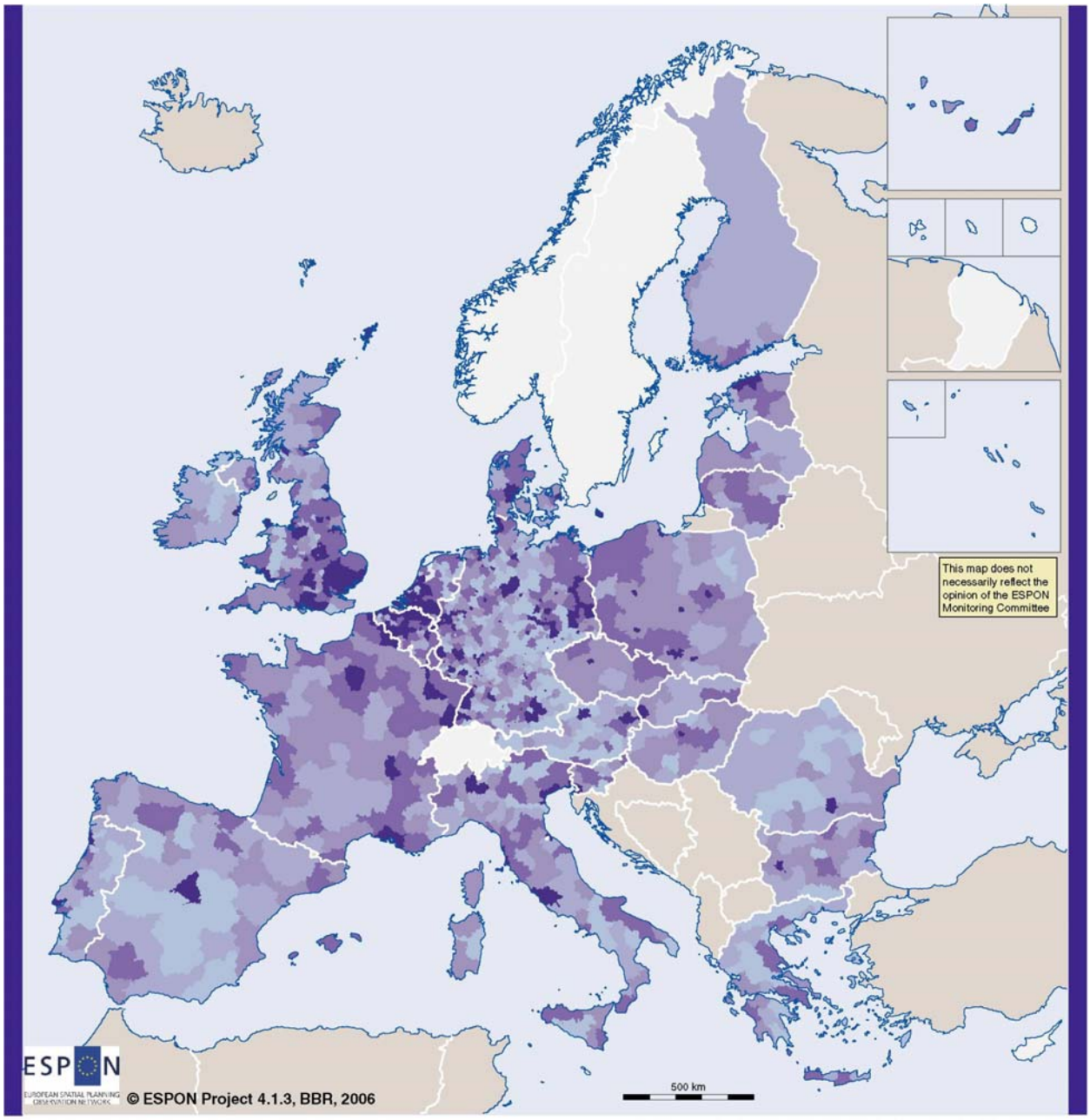
There is a very scattered picture concerning land consumption by transport infrastructure but with a concentration of these patterns in central and west England, northern and southern Belgium, the south of the Netherlands stretching to to the Rhine-Ruhr area. Other areas with a high land consumption are very dispersed within the 29 countries analysed. High shares can be found e.g. in Pöhja-Eesti in Estonia, Miasto Warszawa, Miasto Lódz, Miasto Wrolawand and Miasto Poznan in Poland, Rome in Italy or Madrid in Spain. Mainly prospering urban areas have a high degree of land consumption by transport infrastructure.

The stereotype of the peripheries does no longer exist in the northern or southern part of Europe. In Finland, as well as in Spain, Portugal Bulgaria and Rumania or the western part of Poland huge areas with a low share can be identified.

In some countries like Germany the situation is striking. Areas with very low shares co-exist with areas with high shares. The situation here is different to other countries like Spain, Poland or Bulgaria.

The last intensive floods of the early 2000s showed the vulnerability of artificial surfaces and expensive damages especially in settlement areas. The picture for this indicator is not as scattered as for other indicators. The northern areas of the analysed territory show low or very low risks. Exceptions are the Scottish areas around the Firth of Forth bay, the areas of Belfast and the east of Northern Ireland, the Irish area of Mid-East, Hamburg and Pinneberg in Germany. A band of areas with a high flood risk stretches from Yorkshire and Humber and the North-West across England, the north-eastern part of France, northern Switzerland, Belgium, the southern Netherlands, Luxembourg, the German Ruhr-Rhine-Main area, Baden-Württemberg and the eastern parts of Bayern and Nürnberg to the south-eastern German areas. The band directly continues from the northern Czech areas vía Prague and the south-eastern areas of the country to the Polish regions of Opolskie, Slaski, Swietokrzyskie and Lódzki. The rest of this band stretches towards the south-east across the southern region of Východné-Slovensko in Slovakia, Észak-Magyarország and Észak-Alföld in Hungary, to Romania, where only the southern part of the country and Alba as well as Sibiu are not highly affected. Another band covers the north of Italy and parts of western France, especially Bouches-du-Rhône and Rhône. Further patterns of high risk are identified for Barcelona, Lérida and Tarragona, Alicante in Spain, Grande Porto and Grande Lisbon in Portugal, Roma and Napoli in Italy, Atiiki in Greece.

**Map 23 Land consumption by transport infrastructure**

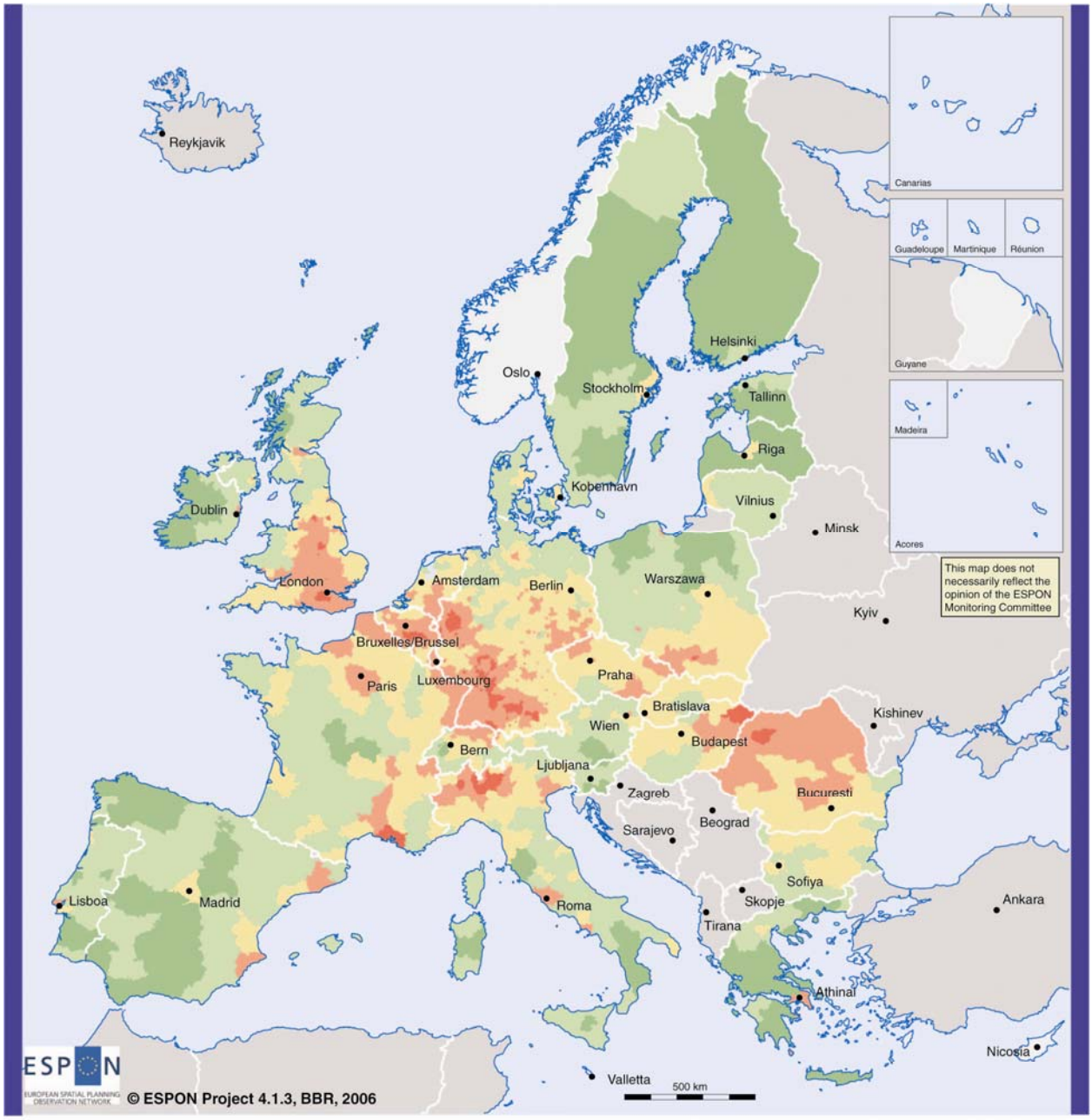



**Land consumption by transport infrastructure in % of total area**

- less than 0.005
- 0.005 to below 0.052
- 0.052 to below 0.135
- 0.136 to below 0.362
- more than 0.363
- no data

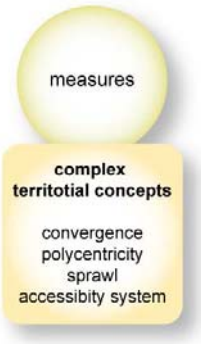

Regional level: NUTS 3
Origin of data: CORINE
**Source: ESPON database**

## Map 24 Floods in urban areas



## 3.4 Complex territorial concepts

Complex territorial concepts are related to policy objectives and spatial strategies. Besides spatial phenomena and processes and development strategies, the assessment of territorial processes is focused on development and comprises a recommendation for measures. Territorial concepts define the view on territorial processes, in the case of territorial monitoring what is monitored and how to measure territorial questions.




### 3.4.1 Polycentricity - balanced spatial development

The ESDP identifies polycentricity as key element of territorial policy. Polycentric orientation of the European territory and balanced territorial development are seen as spatial frameworks for the motors of economic development of Europe, especially to achieve a more competitive Europe in the light of the Lisbon strategy and the diversity of the regions. In this respect the concept is more than the opposite to monocentricity, dispersal or sprawl in a morphological sense.

Polycentricity has two complementary aspects. In its morphological aspect it includes the distribution of urban areas within a specific territory and is related to e.g. the number of cities or the hierarchy of cities and the city system. The second aspect of polycentricity concerns the relations between urban areas, the networks of urban centres related to flows and cooperation and the relationship of centres and city regions and cities outside major agglomerated areas.

In this respect The ESPON programme sees polycentricity at different spatial levels and with a clear distinction of different functional ideas. In a European wide context, polycentricity targets to integrated spatial economic development in a larger territorial context to overcome concentration processes in the European central area known as “European Pentagon”. The promoting of so-called larger zones of global economic integration in the EU is thought to counterbalance the territorial concentration and to open development perspectives outside the core area. Especially the metropolitan areas outside the core of Europe should be strengthened to better utilise their territorial potential and counter act current imbalances. A more macro-regional orientation of polycentricity refers to the more polycentric and more balanced systems of metropolitan regions, city clusters and city networks. The intra-regional application of polycentricity focuses on integrated spatial development strategies for city clusters.

Polycentric spatial development is a conceptual integrative territorial approach on the basis of a cohesive spatial structure within global competition, sustainable development, infrastructural needs and conditions of accessibility. This functional

polycentricity is a highly complex and difficult concept, that is obviously only measurable on a higher territorial level than regional.

The morphology of the urban system in Europe and the degree of the polycentricity of national urban systems have been elaborated in first aspects within ESPON. The definition of functional urban areas (FUAs) as potential building blocks of polycentric development sets ground for research on the role of cities, city regions and metropolitan areas within a future territorial diversified development. The degree of polycentricity of the national city system within Europe on the basis of size, location and connectivity furthermore shows potential fields of investigation to approach the question of balanced distribution of population, cities etc.

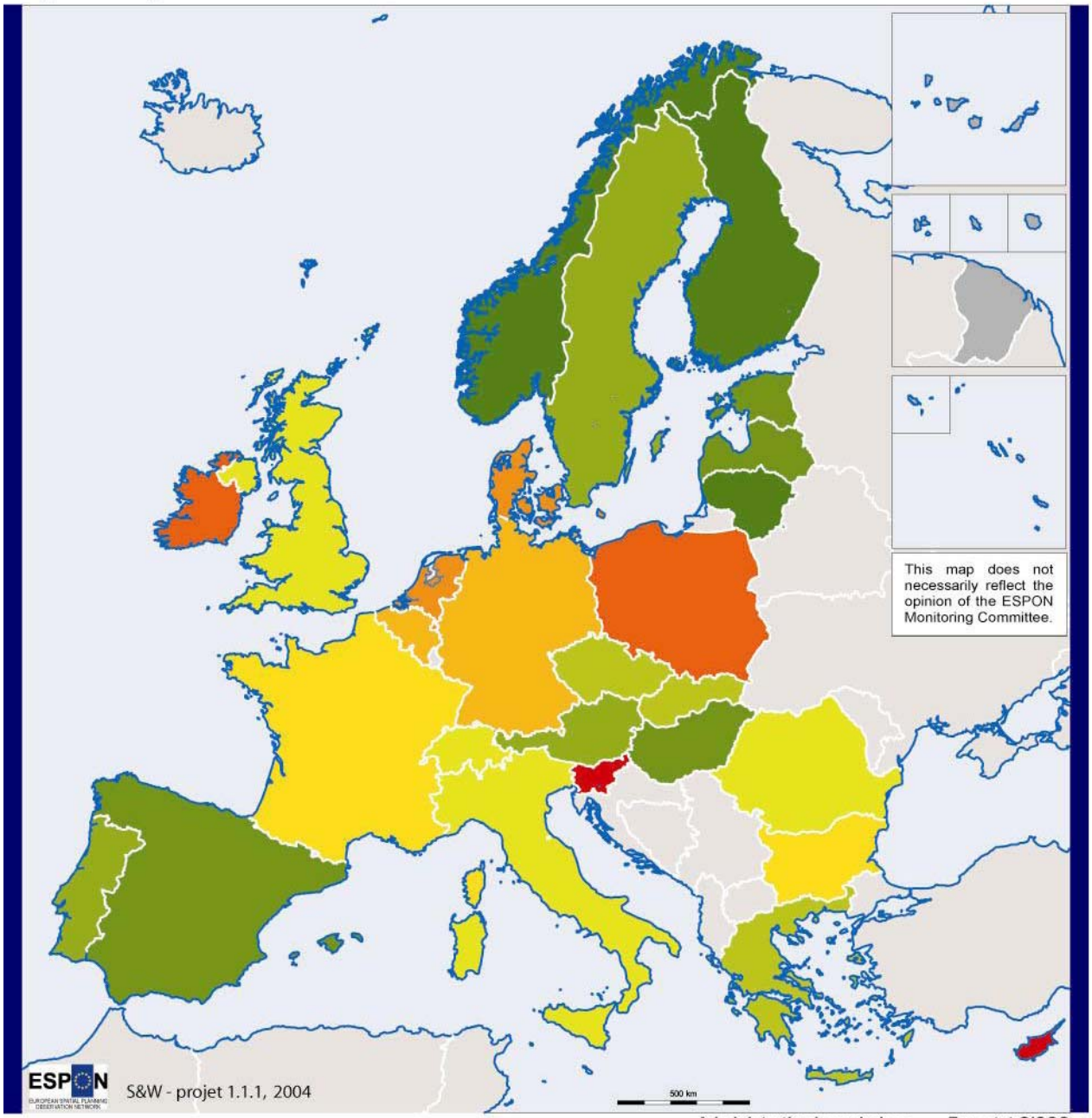
The ESPON programme also presented first results in respect of in integrated view of the functional importance of metropolitan areas and their accessibility and connectivity. The spatial sketch of potential European global integration zones in a transnational context on the basis of inner regional accessibility and the connectivity between the main European centres in combination with the functional importance of European metropolitan areas laid ground for further analysis in this respect.

The first step to an integrated approach of polycentric development of the European territory nevertheless has do deal with the analysis of the cohesive spatial structure, covering the aspects of the balanced distribution of population, cities, wealth etc. and the sustainability of settlement structures.

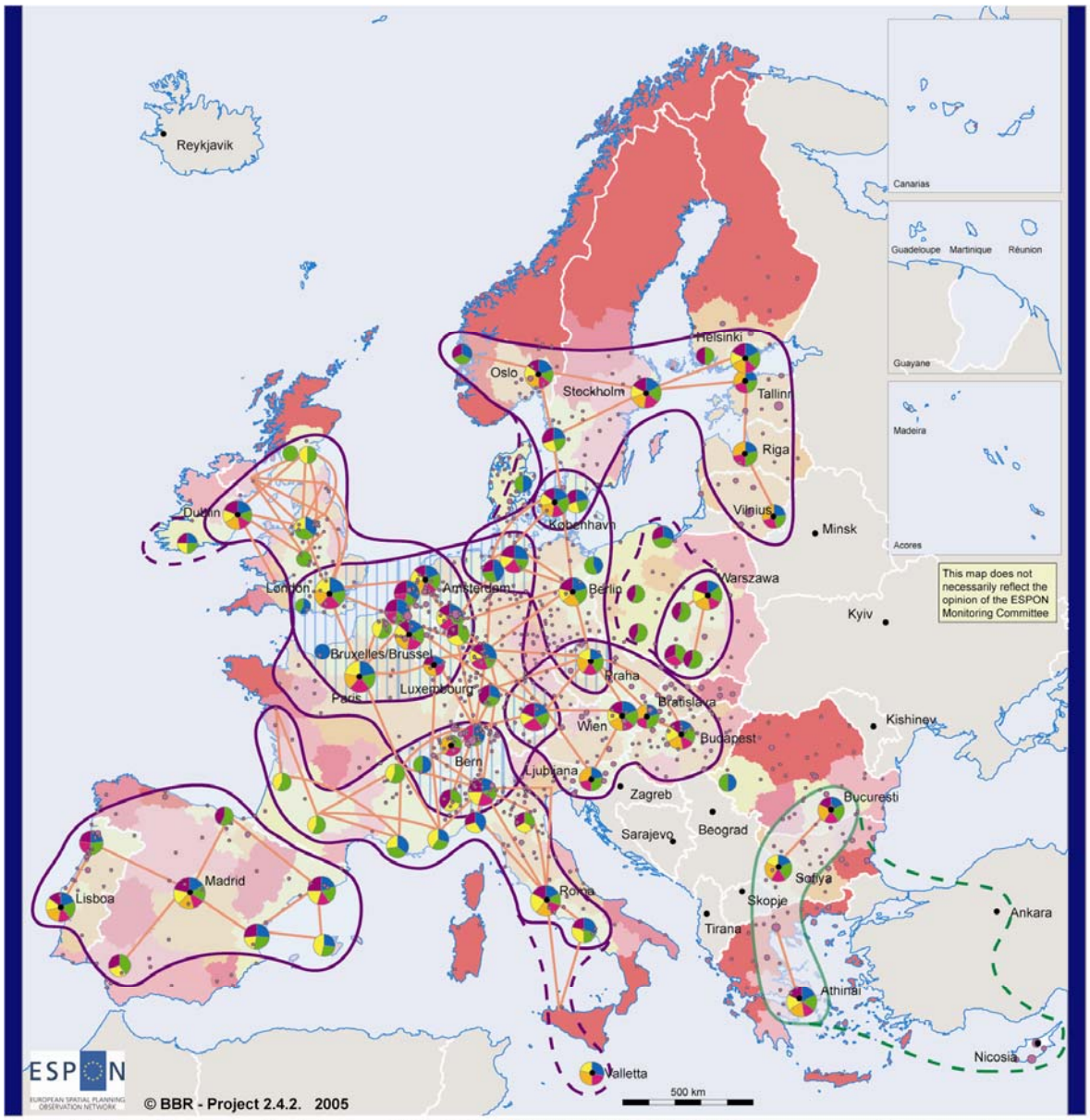
The primacy rate, an indicator that provides a good impression of the weight of the city system of a region (see map 3 on page 30) is the starting point of the morphological analysis of balanced settlement structures and the only one that is available as routing indicator at the very moment (see part B pages 83ff).

Further information needed in this respect should cover aspects of urban growth and the relation of demographic trends in urban-rural comparison and the expansion and the development of urban fabric to indicate e.g. urban sprawl. Access to services of general interest and the identification of economic linkages in a regional and more territorial context with for example the balance of commuters supplement the analytical approach of the spatial structure.

**Map 25 Degree of polycentricity in national urban systems**



## Map 26 Potential European global integration zones




**Accessibility to the nearest MEGA by truck - travel time to reach the nearest MEGA in minutes**

- up to 120
- 120 to below 180
- 180 to below 240
- 24o to below 300
- 300 and more

**Travel times of one hour or less by air or rail between 71 MEGAs in 2003**

**Decision-making functions outside MEGA's by significance**

- Global significance
- European significance
- National/transnational significance
- Regional significance
- Local significance

**Metropolitan European Growth Areas (MEGA) by functional importance of global, European, national and trans-national significance**


Size according to average value of related significance of functions

**Potential European Global Integration Zones (EGIZ)***

- Strong Potential European Integration Zone
- Potential extension with improved accessiblity
- Future Potential European Integration Zone
- Potential extension with improved accessiblity
- Global integration hinge region



Regional level: NUTS 2

Origin of data: ESPON 1.1.1 Nordregio
ESPON 1.2.1 INRETS

Cyprus: data for government controlled areas only; no data on accessibilty for remote areas

**Source: ESPON database**

*The Potential European Integration Zones (EGIZ) were delineated on the basis of accessiblity to the nearest MEGA (regional chesion) and the travel time connections. The nucleus consists of at least one MEGA covering all functions of European significance

The combination of the findings of the spatial structure with aspects of other dimensions of territorial oriented policies like the Lisbon strategy, the field of accessibility or social issues is a potential starting point to evidence based approach to territorial cohesion for greater European areas or the European territory as such. It is obvious, that this can only be a very first approach in a broad and as known difficult territorial policy context. Scientific analysis in this field has to be well prepared by the policy demands.

### 3.4.2 Territorially oriented governance

Good governance is widely considered to be fundamental for economic growth and political stability. Here the theme of territorially oriented governance touches a relatively new scientific field, in which the attempts to measure or monitor the related development in space have been very limited so far. In addition, empirical approaches to the measurement of governance show the difficulty in developing appropriate indicators and gaining valid data.

Governance can be understood as 'an emerging political strategy' for nation states (or territories) in order to adapt to changes by supplementing formal authority by an increasing reliance on informal authority (see Pierre 2000, p.2). This process or transition has entailed the emergence of new forms of participation and cooperation within different political fields as well as on different spatial levels. Within this tendency, the state's (or official territory's) representatives are considered to be one group of actors among others, who, at the most, will take on a management role. It primarily focuses on problem-solving procedures, conflict mediation and decision-making.

Governance is not in opposition to government but is related to it in a complementary way. While the term *government* refers to the formally and hierarchically organized procedures and structures of a country, *governance* incorporates the relevance of 'new actors' and their procedures of being involved in the political scene (see also ESPON 2.3.2 FR, p.23). Government can rather act as a catalyst operating within this newly emerging multi-level structure of cooperation and relations among actors.

The territorially oriented governance consists of those procedures applied to political activities with a strong territorial focus like spatial planning or regional policy. It presents the way in which roles and responsibilities are distributed among the different government levels and other involved actors and describes the related processes of negotiation and consensus-building within the territorially oriented political fields.

In addition to this definition, territorially oriented governance can be considered as having a very specific character based on the object itself, the territory (see 2.3.2,

FR, p.32). Two territorial aspects can be depicted, the type or level of a territory (e.g. a country, a region within a country, a specific city or a transnational area) and the considered territory itself, the specific nation, region or locality that endows territorial governance with an individual character. The histories of political culture, the traditions of the society, but most of all the underlying structures of the national political systems themselves strongly affect the governance structures and processes.

In the context of the relation between governance and spatial objectives, the EU territorial governance constitutes a special case, since it focuses on the impact of EU policies with their declared aim of strengthening spatial cohesion within the EU (see 'The Territorial State and Perspectives of the EU', draft, p.5). At the same time, EU territorial governance as the whole complex of interactions among different actors and different interests on a territorial level can be considered as part of the territorial cohesion process (also see ESPON 2.3.2, Exec. Summary, p.11).

Besides the broad aim of spatial cohesion, other objectives of European spatial policy, such as supporting sustainable spatial development or stimulating innovative economic activity, are also pursued by territorial governance processes.

For the perspective, the already existent material on the reflection of governance can be used. Questions tackling the perception of governance structures, the participation in governance processes etc. have been included in surveys like e.g. the European Social Survey (ESS), the answers of which offer a tentative impression on a few aspects of governance structures and processes themselves.

Trust in the legal system is reflected in the accountability of legal and political system and therefore allows for a partial assessment of the *accountability* of governance structures. The principle of *transparency* can be touched by asking respondents in different countries whether they consider politics to be too complicated to understand. A more specific participation could be analysed with the question whether they have contacted a politician or government official as well as worked in an organisation or association (other than a party) in the last twelve months.

**Table 5 Governance-oriented indicators on the NUTS 0 level**

| Country | Trust in the legal system | | Politics too complicated to understand | | Worked in an organisation or assosiation (other than partly), last 12 months |
|---|---|---|---|---|---|
| | Complete trust | No trust at all | Regularly, frequently | Never, seldom | |
| Österreich | 4,9 | 3,0 | 28,5 | 34,2 | 23,5 |
| Belgique-België | 1,1 | 7,7 | 37,0 | 27,3 | 15,2 |
| Schweiz/Suisse/Svizzera | 2,7 | 1,3 | 30,8 | 27,7 | 13,3 |
| Ceska Republika | 1,0 | 12,1 | 41,2 | 20,0 | 8,1 |
| Deutschland | 2,7 | 3,7 | 32,1 | 27,5 | 20,5 |
| Danmark | 10,8 | 0,8 | 29,2 | 34,5 | 23,7 |
| Eesti | 2,3 | 6,3 | 38,1 | 24,1 | 3,0 |
| España | 1,5 | 7,9 | 43,2 | 26,4 | 17,7 |
| Suomi/ Finland | 4,4 | 1,1 | 46,9 | 20,1 | 31,2 |
| France | 1,5 | 6,3 | 45,2 | 20,9 | 16,9 |
| Ellada | 3,9 | 6,2 | 44,5 | 29,7 | 5,3 |
| Magyarország | 1,8 | 7,7 | 37,0 | 33,9 | 1,9 |
| Ireland | 3,3 | 5,1 | 31,5 | 35,9 | 12,8 |
| Luxembourg | 8,0 | 2,1 | 36,1 | 31,0 | 24,4 |
| Nederland | 0,4 | 3,0 | 36,5 | 29,1 | 17,2 |
| Norge | 4,9 | 1,5 | 21,9 | 31,0 | 25,2 |
| Polska | 0,9 | 18,7 | 47,0 | 23,9 | 5,7 |
| Portugal | 0,9 | 9,6 | 44,7 | 21,6 | 2,6 |
| Sverige | 2,8 | 2,4 | 29,8 | 33,0 | 24,3 |
| Slovenija | 1,0 | 11,0 | 37,5 | 25,5 | 1,7 |
| Slovenska Republika | 1,2 | 12,4 | 28,4 | 28,2 | 8,4 |
| United Kingdom | 1,4 | 4,3 | 42,5 | 21,0 | 8,0 |

Origin of data: ESS Round 2, 2004 Source: ESPON database

# 4 Further improvements and recommendations

The presented tentative spatial monitoring report should be seen as a first approach and test for a periodical spatial monitoring report within the ESPON programme. It is not thought to be and in fact cannot be a full prototype. This could not be done in the course of this very concise project. The conception and elaboration of a spatial monitoring report which is a mid-term project in a member state report and the definition of a first concept for the content, the indicators of a potential policy oriented spatial policy oriented indicator base cannot be done in a 5 month project life time.

Indeed, the restriction to a selected range of routing indicators in a first approach and the choice of in many cases not yet that present indicators of ESPON gives a first indicator-based insight into the regional structure. A first representation of the relevance of thematic, at first view mainly sector policy-related indicators for the interpretation of territorial cohesion was given. The use of a broader range of routing indicators could be a point of discussion in future approaches.

Like the whole project, the conception of a tentative spatial monitoring report was handicapped and hampered by the non-existence of data and therefore indicators, especially with regard to the social and cultural orientation.

### Next steps in ESPON 2007-2013

Taking the above-mentioned points into consideration, it is obvious that they should be the starting point for further work on the outline and content of a European spatial monitoring report and the relationship to existing reports on the European level. The periodicity of such a spatial reporting should also be part of further clarification. The question is if a short report presenting main trends and structures should be published every two years or a larger, more “classical” spatial monitoring report published every four years.

Further investigation should also be done towards a limited list of indicators related to a territorial agenda - comparable to the elaboration of the short list of indicators developed in the framework of the Lisbon/Gothenburg Agenda - which especially analyses the spatial types in more detail. An integrated analysis on the basis of ESPON typologies and the long-term data provided by ESPON will the in the short-term approach in this respect.

On the basis of the indicator selection for the territorial cohesion-oriented analysis the elaboration and inclusion of an index of territorial cohesion could be addressed as well. Experiences in this direction have been made in different ESPON projects. Ideas that could be used in a mid-term perspective to find appropriate short indications of territorial cohesion and also get to the point of economic and social cohesion within their territorial dimension. The introduction of measures for

deviation in the present tentative spatial monitoring report might show directions for further investigations.

One of the most important preconditions is the fact that the indicators of the monitoring system cover the whole ESPON area and that statistical data have to be updated in short periods, mostly annually. Furthermore, the selection of indicators for a continuous spatial monitoring of the European territory has to be done in a cautious and gentle way. They have to be subject to revision and adaptation. When policy aims are revised and/or new knowledge on specific issues is produced the question whether changes are really necessary and useful has to be decided.

The indicators so far proposed by the thematic WPs within this project have the possibilities for update in mind. Up to now, they in many cases refer only to one date and explain the structure but not yet the regional dynamics. This is the reason why a continuous spatial monitoring must be developed over the years. Facing the ESPON 2013 programme and taking the possibilities for updates used in ESPON 2006 into account, the new programme may refer to a time horizon the old one could only dream of. The establishment of a monitoring system for national purposes in some ESPON countries has taken more time. The further production of long-term data on sound topic- and context-related estimation procedures concerning time and space will also be an important input to improve the data basis in this respect.

For the work on one edition various aspects have to be considered:

- a continuous work on the content related to main spatial policy aims in close contact to actors involved in the political discussion
- knowledge and preferable engagement in the continuous work on and maintenance of indicators
- a diversified analytical background and technical facilities
- physical production and preparation of paper copies, including analysis and interpretation, writing, layout, etc.

In terms of money, the continuous work without edition of a report is calculated to €25,000 per year. The work on an edition including the print of 3500 paper copies is calculated to €115,000.

It is recommended to contract a TPG or a single institute or person for the time of two editions minimum. This is important to secure and guarantee the continuity and a high level of quality.

# Annex

## Indicators for the monitoring of European territorial development

### Description of selected routing indicators

#### Male activity rate 15-64 years

Informational value

Male activity rates, on the one hand, reflect social behaviour in the labour market and, on the other hand, economic obstacles such as the unemployment rate which could discourage to enter the labour market. In political terms, it indicates the share of the potentially active population on the labour market which subsequently is able to support the non-active population.

Calculation:
Numbers of males between 15 and 64 years on the labour market/all males between 15 and 64 years

#### Female Activity rate 15-64 years

Informational value

Women activity rates, on one hand, reflect the social behaviour in the labour market and, on the other hand, economic obstacles such as the unemployment rate. In political terms, it indicates the share of the potentially active population on the labour market which consequently is able to support the non-active population.

Calculation:
Numbers of females between 15 and 64 years on the labour market/all females between 15 and 64 years

#### Unemployment rate < 25 years

Informational value

The acquisition of data on unemployed persons and their comparative analysis across the territory is highly relevant for gaining a thorough impression on social inclusion within a certain territory. Especially the employment and thus integration of young people is essential for the functioning of social inclusion of a society. The continuous measurement of this indicator therefore reveals an important facet of the status and progress of social inclusion within the ESPON area.

Calculation:
Share of unemployed persons of the labour force below 25 years

**Employed in high-tech sector**

Informational value

The percentages of persons employed in the high-tech sector show an important aspect of the economic structure and innovativeness of different regions. This indicator therefore provides information on the spatial balance of the development of the knowledge economy and the knowledge society across the ESPON territory in general.

Calculation:
Persons employed in the medium-high and high-tech sector of manufacturing as a share of total employment in %

**Unemployment rate**

Informational value

The acquisition of data on unemployed persons and their comparative analysis across space is highly relevant for gaining a thorough impression on social inclusion within a certain territory. Especially employment and thus the integration of young people is essential for the functioning of social inclusion of a society. The continuous measurement of this indicator therefore reveals an important facet of the status and progress of social inclusion within the ESPON area.

Calculation:
Unemployment rate represents unemployed persons as a percentage of the economically active population

**Development of the unemployment rate**

Informational value

The development of the unemployment rate provides a dynamic picture of the demand for labour within the economy over time. Unlike the static point of view of single unemployment rates, the development may provide information on tendencies, improvements and deteriorations. If mirrored with other economic structural data (e.g. efficiency indicators, economic output indicators) it may also provide some insight into structural qualities of regional economies. Furthermore, the indicator - as an early warning indicator - provides some information on the share of the population at risk of social exclusion.

Calculation:
Variation of unemployment rates over time

**Migratory balance**

Informational value

To a certain point, this indicator shows attractive and repulsive regions in Europe. It may help to indicate depopulation areas, even if out-migration is combined with low fertility rates and unfavourable age structures to explain this depopulating process.

Calculation:
((Population at the end of the period - population at the beginning of the period) - (births - deaths))/total population at the beginning of the period

**Share of the population younger than 15**

Informational value

The indicator shows the population in school age and consequently the potential cost for the commonality and also the share of the population which will enter the employment market in the near future, that is to say the possible evolution of age unbalances on the labour market.

Calculation:
(Population younger than 15/total population)*100

**Population in the age of 15 to 64 years**

Informational value

The population in the age of 15 to 64 years is an essential variable since it indicates the potential population which is old enough to enter the labour market. The active population can be obtained by the multiplication of the activity rate and the volume of the population aged 15 to 64, that is to say by the combination between a social behaviour and the age structure. The share of 15 to 64 years thus has important implications in political terms since it shows the relative weight of inactive people by contrast and consequently the social costs of this age structure, all others things being equal.

Calculation:
(Population in the age of 15 to 64 years/total population)*100

**Population older than 64 years**

Informational value

The share of the population older than 64 years is an important indicator since it is nearly entirely dependent upon the collectivity. The political implications are thus very different than the share of population younger than 15 which represents the future active population and which remains mainly dependent upon the family.

Calculation:
(Population older than 64 years/total population)*100

**Primacy Rate**

Informational value

The indicator provides a good impression of the polycentricity of a region. A metropolitan area is polycentric if the primacy rate is low and mono-centric if the primacy rate is high. The indicator allows for the construction of categories for metropolitan areas (see BBR(ed.): Study Programme on European Spatial Planning. Final Report. Issue 103.2. Bonn 2001) where seven categories were defined.

Calculation:
The share of the region's total population that is found in the largest city in the region

**Potential multimodal accessibility to population**

Informational value

Accessibility indicators of the potential type belong to the most common and most extensively tested accessibility indicators as they best describe the relationship between transport systems and the regional economic development. The accessibility of the population is seen as an indicator for the size of market areas for suppliers of goods and services while, alternatively, the accessibility to GDP is considered as an indicator of the size of market areas for suppliers of high-level business services. The indicator combines two elements, which are usually seen as individual indicators: travel time (i.e. the quality of the transport infrastructure) and destination activities (i.e. the level of regional development). The indicator thus describes assets (or potentials) of the global (economic) competitiveness of a region. As the indicator also takes the destination activities and their spatial distribution into account, it goes far beyond pure travel time indicators.

This indicator represents one of the prominent indicators to monitor the Lisbon Strategy particularly addressing the assets for global competitiveness. To some

degree this indicator must be seen in contrast to the political goal of territorial cohesion as the potential accessibility indicator highlights economic centres rather than promotes a balanced distribution of population and wealth or sustainable settlement structures.

Calculation:
Activities (here: population) weighted by a function of travel time. For each origin, the destination activities are summed up based on the assumption that the attraction of a destination increases with the size and declines with increasing travel times. For this indicator travel time is represented as the minimum travel time of the modes road, rail and air. The indicator values are then standardised to the average of the ESPON area (ESPON area = 100).

**Fragmentation index**

Informational value

Landscape indicators, such as fragmentation, are gaining more and more political and scientific attention as they help to understand the complexity of the European landscape. The indicator of fragmentation of natural areas can be used to depict environmentally 'sensitive' areas. For example the survival of threatened species requires populations which are large enough to maintain genetic diversity. A reduction or fragmentation of the habitats of these species by human activities (e.g. transport infrastructures, built-up areas, noise propagation) may result in the isolation of individuals and groups from the main population. In the most extreme case, a species is forced to leave a region due to unfavourable living conditions. The fragmentation index is considered to be superior compared to similar indicators such as the 'proportion of forest areas', because indicators of the latter type do not inform about the spatial distribution and patch sizes although both are important for the quality of any habitat. As the forest area of a region may in the extreme cases either be constituted by one big overall forest patch or by hundreds of small patches, the impacts of the patch size and distance and their spatial distribution on habitats and on the species is significant. As the fragmentation index is taking both the patch size and their relative location to each other into account, this type of indicator is considered to be more useful than a simple ‘proportion of area on territory’ indicator and thus is proposed as a routing indicator for healthy environment and hazard prevention.

Therefore, empirically, one has to distinguish between ‘proportion indicators’ and ‘fragmentation indicators’. Regions with a high proportion of forests (or natural areas) are not necessarily less fragmented and vice versa. The different types of proportion and fragmentation indicators thus represent different perspectives (on the same issue): while the proportion of built-up areas on a territory is related with from the perspective of human activities (how is the space shaped?), the

fragmentation indicator by contrast is related with the perspective of species (how is the habitat affected by human activities), with a view to preserve natural areas. In other words, this indicator addresses environmental sustainability (Gothenburg objectives) rather than economic or social sustainability.

Calculation:
Calculated as a proportion of fragmented areas in homogeneous areas

**Settlements endangered by flood and artifical areas (Corine)**

Informational value

This indicator identifies flood endangered settlements. Areas with a high number of flood events and a large share of artificial surface (i.e. settlement areas) are considered to be most vulnerable. Since a multiplication by 0 always results in 0, areas with either no flood events (no matter how high the share of artificial area is) or no/only very little artificial area (no matter how many flood events take place) show values of 0 or close to 0 and are therefore mapped as least vulnerable. However, this indicator does not reflect protective measures implemented (e.g. river dikes) that might limit the adverse effects of flood events in densely populated areas.

Calculation:
Total number of flood events from 1987 to 2002 multiplied by the share of the artificial surface

**R&D expenditure as a percentage of regional GDP**

Informational value

The indicator's relevance in quality research on innovation is similar to that of "R&D personnel/total employment". However, wider data gaps worsen this indicator's availability thus requiring to improve the data collection as soon as possible given the indicator's relevance. Like the previously listed indicator, this one also is a good measure for input innovation, while it does not guarantee to capture the real innovative output.

Calculation:
Gross expenditure for research activities in percent of gross domestic product

**GDP in PPS per inhabitant**

Informational value

Similarly to what was explained about its absolute counterpart, the GDP in PPS is a useful tool to compare the living standards across countries and regions. Its per capita value offers a portrait of relative purchasing powers across countries and an average within them. It's therefore a rough but significant instrument to compare countries and regions, to remove differences in exchange rates (whereas needed) and price levels.

Calculation:
Gross domestic product in PPS/number of regional inhabitants

**Change of GDP in PPS per inhabitant**

Informational value

The usual caveats expressed for other measures of gross product exist. Being a measure of change, this indicator's widest use is for dynamic analyses. As a measure of percentage change, nominal values are naturally transformed into their real counterparts, thus making it easier for the scholar to use it for studies.

Calculation:
[[(Gross domestic product in 2002/number of regional inhabitants in 2002)-(gross domestic product in 2001/number of region's inhabitants in 2001)]/(gross domestic product in 2001/number of region's inhabitants in 2001)]*100

**Labour costs**

Informational value

As already mentioned, this indicator as an absolute value is of no particular use. However, it is a base for calculating more efficient and relevant indicators.

Calculation:
Raw data: compensation of employees in million euros at current market prices

**Connectivity to railway stations**

Informational value:

Despite the increasing car usage in all European countries, access to and accessibility by public transport has received growing awareness over the last decade both due to environmental concerns and to ensure a best level of mobility for those people that cannot drive a car or cannot use a car for whatever reason (kids and young people without driving permission, elderly people, handicapped people, unemployed people who cannot afford a car, low-income households with no or only one car that is used by another household member, etc.). Based on recent demographic trends in many EU member states (over aging, migration, long-time unemployment) but also due to heavily congested road networks, it becomes more and more important to strengthen public transport and so to ensure a high-quality level of mobility, not only in rural areas but also in agglomerations. A good access to the respective railway stations is a prerequisite for this in order to allow people from disadvantaged social groups to take part on daily life. In areas with poor or no railway connectivity households often are forced to keep more than one car in order to ensure mobility for all the household members although this leads to additional budget constraints. The present indicator captures the quality of railway supply by calculating the travel time by car from each raster cell to the next railway station. Afterwards, the raster results were aggregated as weighted averages to the NUTS 3 level. Areas with a long travel time become immediately visible in the map. However, this indicator does not relate the travel time to the population distribution, i.e. nothing is said about whether or not areas with a good accessibility comply with areas where people live. Such a composite indicator, in which the travel times are overlayed by the population, is not yet available in ESPON. This is the reason why the present indicator 'connectivity to rail stations' is considered to be the second best indicator, while another indicator 'proportion of the population living within 30 minutes of the next railway station' is proposed to be an indicator for the wish list. In any case, the present analysis at raster level also provides a lot of information, as it reveals transport corridors with good accessibilities differentiated from other parts of a NUTS region with poor rail connectivities, while at the same time different transport planning strategies become visible (for instance, a strategy of the development of HSL to connect agglomeration centres with each other with stops in the city centres compared to another strategy where the HSL stops are located in the middle between two towns (as it is the case in France) because large scale accessibility is given privilege over regional considerations, compared to another strategy to strengthen regional train systems on the dispense of HSL.

Calculation:

Calculation of the travel time by car from each raster cell to the nearest railway station. Afterwards, aggregation of raster travel times to the NUTS 3 level weighted by surface. The resolution of the raster system may be 1x1 km or 2x2 km.

## Description of selected wish list indicators

### Investment rate

Informational value

This indicator reveals a country's intensity of economic activity. In a way, it is capable of gauging the country's propensity to postpone today's for future consumption. Along with savings it is also a measure of how postponing today's consumption can be allocated internally or externally. Whatever is the absolute dimension of the two raw indicators by which it is calculated (gross fixed capital formation and GDP), it gauges the country's (or region's) economic liveliness.

Calculation:
From 1.1.1999: gross fixed capital formation/Gross domestic product in millions of euro. Until 31.12.1998: gross fixed capital formation/gross domestic product in millions of ECU.. The gross domestic product is calculated in current market prices.

### Utilised agricultural area (UAA)

Informational value

Calculation:
% of total area

### Trust in the legal system

Informational value

The legal system of a country represents a main framework and precondition for all governance processes. Therefore, the degree of trust the people have in this legal system is of high value for the monitoring and assessment of governance structures and processes and expresses the accountability of the legal system, which is a necessary precondition for a good territorially oriented governance, to a great extent. A solid and trusted legal system also provides a necessary basis for the development of consistent policies and for a stable coordination among authorities and other actors. Trust in a legal system therefore also reflects the possibility of coherence in all governance structures and processes. The available so far data originate from survey results (European Social Survey) of a limited scope and might therefore rather reflect individual opinions. The measurement is done on a scale

from ‘no trust at all’ via nine different levels to ‘complete trust’ thus allowing for a highly differentiated monitoring of trust in the legal system.

Calculation:
Share of persons having complete trust/no trust at all in the legal system of a country

**Politics too complicated to understand**

Informational value

This indicator allows for a measurement of the transparency of governance. The related data show how often interviewed persons find politics too complicated to understand (with the categories “never”, “seldom”, “occasionally”, “regularly” and “frequently”). Although the level of understanding of politics is linked to the educational level of the interviewee, the indicator still reflects the clearness and transparency of politics and can therefore give an indication for the possible necessity to improve the transparency of politics, which would also improve the openness of territorially oriented governance structures

Calculation:
Share of persons finding politics too complicated to understand (never+seldom/regularly+frequently)

**Work in an organisation or association (other than party) last 12 months**

Informational value

Participation is one of the main pillars of governance. Without a high number of actors being involved good governance would not be possible. The degree to which the public gets involved in political decision-making processes does not only express criteria for participation but also openness for governance structures.

A very active form of political involvement or participation is represented by the regular participation of a group of people in the work of an organisation or association. It indicates a high motivation to get involved with various issues of the society. This sort of participation can be a rather important aspect for territorially oriented governance processes of an area.

Calculation:
Share of persons working in an organisation or association (other than a political party) within the last 12 months

**Land consumption by transport infrastructure**

Informational value

As transport demand constantly grows year by year, the land occupied by transport infrastructure also constantly grows. For some regions the (annual) increase of the transport infrastructure is significant, so it is a matter of concern to analyse in which region and to which degree transport developments take place. Furthermore, it is interesting to analyse the relation between the increase of the settlement areas (or built-up areas) as a whole and the transport areas in particular. Land take is one of the major human-made causes for floods and other hazards which may lead to severe damages with transport infrastructure being one of its main driving forces. So from an environmental point of view, monitoring and controlling the land take as a whole and the land take for transport infrastructure in particular is seen to be crucial for achieving sustainability.

The advantage of the CORINE data set is that it is able to provide land-use indicators for almost all European regions based on a harmonised definition using the rich set of 44 land use classes. CORINE makes sure that the same definition of land-use classes are applied for all countries thus making results comparable across all regions. Besides the PELCOM database, CORINE represents the only pan-European land use and land cover data source while PELCOM focuses on different land coverage categories for open space (without further differentiating built-up areas), CORINE also provides several classes for built-up areas. Currently, CORINE is available for two points in time (1990 and 2000) enabling the analysis of land use changes over this period and using the same definitions. Since the CORINE data were derived from satellite images, the database also entails some drawbacks with regard to the resolution of base images, which has some implications for the explanatory power of this indicator: the basic scale of CORINE is 1:100 000 with a minimum area of 25 ha for polygon objects to be recognised and a minimum width of 100 m for linear objects to be recognised. So by applying these thresholds, several areas consumed by smaller transport infrastructures such as roads or railways are removed and not taken into account. Consequently, basing this indicator on CORINE results in underestimated proportions of transport infrastructures on the region area.

Calculation:

Proportion of regional area consumed by transport infrastructure (road and railways, ports, airports) in percent of total regional area

## Table of routing indicators by NUTS 2 regions

| Code | Region | GDP per capita in PPS 2003 | Annually growth rate of GDP per capita in PPS 1995 - 2003 in % | Activity rate - total 2004 in % | Activity rate - male 2004 in % | Activity rate - female 2004 in % | Unemployment rate 2004 in % | Development of unemployment rate 1999 - 2004 in % | Unemployment rate < 25 years 2004 in % | Lomg-term unemployment rate 2004 in % |
|---|---|---|---|---|---|---|---|---|---|---|
| AT11 | Burgenland | 18.420 | 5,0 | 56,0 | 64,5 | 48,0 | 5,6 | 2,0 | | 34,3 |
| AT12 | Niederösterreich | 21.045 | 3,4 | 58,8 | 66,4 | 51,7 | 4,2 | 0,9 | 8,8 | 30,4 |
| AT13 | Wien | 37.158 | 3,4 | 58,0 | 66,7 | 50,3 | 8,9 | 3,2 | 16,8 | 38,0 |
| AT21 | Kärnten | 22.192 | 3,7 | 55,3 | 63,7 | 47,7 | 4,6 | 1,1 | 9,1 | 22,6 |
| AT22 | Steiermark | 22.352 | 4,1 | 56,5 | 65,3 | 48,3 | 3,7 | 0,5 | 7,3 | 21,0 |
| AT31 | Oberösterreich | 24.530 | 3,8 | 59,9 | 68,5 | 51,8 | 3,7 | 0,3 | 8,4 | 15,2 |
| AT32 | Salzburg | 28.973 | 3,3 | 61,2 | 69,2 | 53,9 | 3,7 | 1,0 | | 15,4 |
| AT33 | Tirol | 27.002 | 3,6 | 60,4 | 69,0 | 52,4 | 3,3 | 0,8 | 7,6 | 9,8 |
| AT34 | Vorarlberg | 27.691 | 4,0 | 62,4 | 72,0 | 53,2 | 4,1 | 0,6 | | 19,5 |
| BE10 | Région de Bruxelles-Capitale / Brussels Hoofdstedelijk Gewest | 51.658 | 3,8 | 52,5 | 61,9 | 44,0 | 15,7 | -0,1 | 33,5 | 53,0 |
| BE21 | Prov. Antwerpen | 29.788 | 3,8 | 52,8 | 61,4 | 44,5 | 6,0 | 0,1 | 12,8 | 43,7 |
| BE22 | Prov. Limburg (B) | 21.435 | 3,7 | 53,5 | 61,3 | 45,8 | 6,5 | 0,4 | 17,2 | 47,8 |
| BE23 | Prov. Oost-Vlaanderen | 22.907 | 4,3 | 54,6 | 62,8 | 46,7 | 5,2 | -0,6 | 13,2 | 37,7 |
| BE24 | Prov. Vlaams Brabant | 26.312 | 4,6 | 56,1 | 64,1 | 48,7 | 5,0 | 0,6 | 13,7 | 37,4 |
| BE25 | Prov. West-Vlaanderen | 24.012 | 4,1 | 53,2 | 60,9 | 45,9 | 4,5 | 0,0 | 12,2 | 35,5 |
| BE31 | Prov. Brabant Wallon | 23.937 | 5,0 | 53,7 | 61,6 | 46,4 | 7,7 | 0,6 | 28,6 | 46,3 |
| BE32 | Prov. Hainaut | 16.860 | 3,4 | 47,8 | 57,2 | 39,3 | 13,8 | -2,3 | 39,9 | 57,3 |
| BE33 | Prov. Liège | 19.008 | 3,2 | 50,3 | 59,3 | 42,0 | 13,3 | 0,9 | 31,3 | 55,3 |
| BE34 | Prov. Luxembourg (B) | 17.868 | 3,4 | 52,6 | 62,2 | 43,4 | 8,1 | 1,2 | | 43,4 |
| BE35 | Prov. Namur | 17.899 | 4,2 | 51,2 | 60,6 | 42,4 | 9,7 | -1,1 | 30,0 | 54,3 |
| BG11 | Severozapaden | 5.674 | 4,3 | 42,0 | 46,7 | 37,7 | 14,8 | -8,1 | 29,5 | 58,4 |
| BG12 | Severen tsentralen | 5.255 | 3,3 | 46,2 | 51,4 | 41,4 | 11,7 | -5,4 | 27,8 | 60,3 |
| BG13 | Severoiztochen | 5.505 | 3,4 | 50,7 | 57,4 | 44,5 | 17,6 | -2,9 | 31,8 | 59,8 |
| BG21 | Yugozapaden | 9.358 | 4,7 | 54,0 | 58,5 | 49,9 | 9,4 | -1,0 | 20,7 | 59,1 |
| BG22 | Yuzhen tsentralen | 5.355 | 2,6 | 48,6 | 54,3 | 43,4 | 10,5 | -3,4 | 25,8 | 63,9 |
| BG23 | Yugoiztochen | 5.404 | 3,7 | 49,7 | 56,8 | 43,0 | 13,4 | -7,0 | 26,0 | 51,2 |
| CH01 | Région lémanique | 27.920 | 2,5 | | | | 6,2 | 1,4 | | |
| CH02 | Espace Mittelland | 23.871 | 1,8 | | | | 3,8 | 1,3 | | |
| CH03 | Nordwestschweiz | 31.772 | 3,1 | | | | 4,0 | 1,7 | | |
| CH04 | Zürich | 35.248 | 3,0 | | | | 5,0 | 1,8 | | |
| CH05 | Ostschweiz | 25.118 | 2,1 | | | | 3,3 | 1,1 | | |
| CH06 | Zentralschweiz | 27.534 | 2,0 | | | | 3,5 | 1,6 | | |
| CH07 | Ticino | 22.066 | 1,0 | | | | 5,0 | 0,2 | | |
| CY00 | Kypros / Kibris | 17.377 | 4,1 | 63,0 | 73,5 | 53,4 | 4,9 | -0,1 | 11,6 | 26,2 |
| CZ01 | Praha | 30.053 | 5,5 | 61,3 | 69,9 | 53,6 | 3,9 | -0,1 | 10,8 | 44,2 |
| CZ02 | Strední Cechy | 13.960 | 6,8 | 59,6 | 70,0 | 50,0 | 5,4 | -2,6 | 11,8 | 38,9 |
| CZ03 | Jihozápad | 13.485 | 3,6 | 59,5 | 68,8 | 50,7 | 5,8 | -0,7 | 12,2 | 38,3 |
| CZ04 | Severozápad | 12.170 | 2,3 | 60,9 | 70,1 | 52,2 | 13,1 | -0,4 | 28,3 | 62,2 |
| CZ05 | Severovýchod | 12.817 | 4,2 | 58,7 | 67,7 | 50,3 | 6,7 | -1,0 | 18,2 | 38,3 |
| CZ06 | Jihovýchod | 13.466 | 4,4 | 58,2 | 67,8 | 49,3 | 7,9 | -0,4 | 22,1 | 48,4 |
| CZ07 | Strední Morava | 11.829 | 3,4 | 57,7 | 67,5 | 48,7 | 9,8 | 0,1 | 27,1 | 53,1 |
| CZ08 | Moravskoslezko | 11.604 | 1,8 | 57,5 | 65,5 | 50,1 | 14,6 | 1,5 | 33,4 | 59,8 |
| DE11 | Stuttgart | 28.975 | 3,2 | 59,9 | 68,0 | 52,0 | 6,5 | 1,6 | 8,5 | 46,5 |
| DE12 | Karlsruhe | 27.297 | 3,0 | 57,9 | 66,6 | 49,8 | 6,8 | 1,0 | 8,9 | 45,9 |
| DE13 | Freiburg | 23.487 | 3,1 | 60,1 | 67,6 | 53,1 | 6,1 | 1,1 | 10,5 | 48,5 |

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|---|---|---|---|---|---|---|---|---|---|---|
| DE14 | Tübingen | 24.605 | 3,1 | 60,0 | 67,8 | 52,5 | 6,0 | 1,5 | 9,3 | 48,0 |
| DE21 | Oberbayern | 34.334 | 4,0 | 60,7 | 68,9 | 52,9 | 4,9 | 1,1 | 7,1 | 35,8 |
| DE22 | Niederbayern | 23.033 | 3,1 | 60,5 | 68,8 | 52,4 | 5,4 | 0,8 | 7,5 | 31,9 |
| DE23 | Oberpfalz | 24.293 | 3,6 | 59,9 | 68,7 | 51,4 | 6,2 | 1,6 |  | 37,2 |
| DE24 | Oberfranken | 22.867 | 2,5 | 57,9 | 66,1 | 50,2 | 9,2 | 3,2 | 12,2 | 49,7 |
| DE25 | Mittelfranken | 27.433 | 3,4 | 58,9 | 66,9 | 51,3 | 8,1 | 1,8 | 7,3 | 46,4 |
| DE26 | Unterfranken | 23.847 | 3,5 | 58,3 | 66,6 | 50,6 | 7,1 | 1,2 | 11,8 | 34,4 |
| DE27 | Schwaben | 24.627 | 3,0 | 60,8 | 69,2 | 52,7 | 6,4 | 2,0 | 7,7 | 38,7 |
| DE30 | Berlin | 20.862 | 1,2 | 58,7 | 64,6 | 53,1 | 18,4 | 3,6 | 20,7 | 59,1 |
| DE41 | Brandenburg - Nordost | 15.690 | 3,8 | 61,9 | 66,5 | 57,4 | 18,4 | 2,7 | 23,0 | 59,8 |
| DE42 | Brandenburg - Südwest | 17.140 | 3,5 | 58,9 | 64,1 | 53,9 | 18,4 | 2,7 | 23,0 | 62,3 |
| DE50 | Bremen | 31.909 | 3,3 | 53,3 | 61,9 | 45,6 | 14,3 | 3,3 | 19,5 | 59,5 |
| DE60 | Hamburg | 40.011 | 3,1 | 58,5 | 66,0 | 51,4 | 10,3 | 2,2 | 13,9 | 51,0 |
| DE71 | Darmstadt | 32.251 | 3,0 | 57,5 | 65,6 | 49,9 | 7,7 | 1,3 | 11,9 | 44,7 |
| DE72 | Gießen | 21.286 | 3,0 | 56,9 | 64,3 | 49,9 | 8,3 | 1,1 | 12,5 | 42,1 |
| DE73 | Kassel | 23.087 | 3,2 | 54,5 | 62,8 | 46,7 | 7,3 | -0,6 | 11,0 | 51,9 |
| DE80 | Mecklenburg-Vorpommern | 15.979 | 3,3 | 58,7 | 63,7 | 53,9 | 21,2 | 4,5 | 18,9 | 53,8 |
| DE91 | Braunschweig | 22.339 | 3,1 | 53,1 | 61,0 | 45,5 | 10,2 | 1,9 | 10,8 | 59,0 |
| DE92 | Hannover | 22.489 | 1,9 | 54,5 | 62,9 | 46,6 | 9,6 | 1,9 | 13,3 | 51,8 |
| DE93 | Lüneburg | 17.182 | 1,7 | 55,7 | 64,0 | 47,7 | 8,5 | 2,2 | 12,3 | 47,8 |
| DE94 | Weser-Ems | 20.180 | 2,5 | 55,3 | 64,6 | 46,4 | 8,6 | 2,5 | 9,6 | 46,7 |
| DEA1 | Düsseldorf | 26.187 | 2,5 | 53,6 | 62,6 | 45,2 | 9,7 | 2,4 | 11,8 | 52,5 |
| DEA2 | Köln | 24.583 | 1,6 | 53,2 | 62,1 | 44,8 | 8,1 | 1,6 | 9,0 | 51,2 |
| DEA3 | Münster | 19.452 | 2,3 | 53,3 | 62,3 | 44,7 | 8,6 | 1,7 | 12,8 | 54,7 |
| DEA4 | Detmold | 22.191 | 1,3 | 56,3 | 64,9 | 48,0 | 9,2 | 3,1 | 13,5 | 44,0 |
| DEA5 | Arnsberg | 21.398 | 1,9 | 52,6 | 61,6 | 44,1 | 10,6 | 2,6 | 12,2 | 48,8 |
| DEB1 | Koblenz | 19.673 | 2,4 | 54,1 | 63,9 | 44,8 | 7,2 | 1,4 | 12,5 | 33,2 |
| DEB2 | Trier | 19.488 | 2,7 | 54,6 | 64,4 | 45,3 | 5,7 | 0,4 |  | 34,1 |
| DEB3 | Rheinhessen-Pfalz | 22.000 | 2,3 | 54,5 | 62,6 | 46,9 | 6,8 | 0,7 | 11,7 | 40,9 |
| DEC0 | Saarland | 21.468 | 2,4 | 51,2 | 60,4 | 42,5 | 8,5 | 1,4 | 12,4 | 58,3 |
| DED1 | Chemnitz | 16.265 | 4,3 | 57,1 | 62,9 | 51,7 | 18,2 | 2,8 | 13,3 | 59,2 |
| DED2 | Dresden | 18.038 | 4,5 | 58,2 | 64,1 | 52,6 | 17,7 | 2,3 | 17,6 | 56,2 |
| DED3 | Leipzig | 17.720 | 3,0 | 57,3 | 61,9 | 53,0 | 19,3 | 3,9 | 19,5 | 62,2 |
| DEE1 | Dessau | 15.413 | 4,2 | 57,3 | 62,7 | 52,4 | 22,9 | 2,7 | 18,3 | 61,7 |
| DEE2 | Halle | 16.865 | 4,2 | 57,2 | 63,3 | 51,5 | 23,4 | 2,3 | 20,2 | 64,2 |
| DEE3 | Magdeburg | 16.405 | 4,6 | 59,6 | 64,8 | 54,7 | 19,9 | 1,0 | 16,6 | 60,9 |
| DEF0 | Schleswig-Holstein | 21.369 | 2,2 | 57,1 | 65,7 | 49,2 | 8,9 | 1,6 | 14,1 | 42,8 |
| DEG0 | Thüringen | 16.359 | 4,5 | 58,3 | 64,1 | 52,8 | 15,3 | 1,4 | 13,8 | 55,8 |
| DK00 | Danmark | 26.315 | 4,0 | 66,0 | 71,6 | 60,7 | 5,5 | -0,1 | 8,2 | 21,5 |
| EE00 | Eesti | 10.489 | 9,1 | 58,7 | 66,3 | 52,5 | 9,7 | -1,9 | 21,7 | 52,2 |
| ES11 | Galicia | 16.658 | 5,3 | 52,6 | 61,9 | 44,2 | 13,6 | -2,6 | 25,6 | 42,8 |
| ES12 | Principado de Asturias | 18.052 | 5,3 | 46,0 | 56,9 | 36,0 | 10,4 | -7,5 | 27,1 | 42,9 |
| ES13 | Cantabria | 20.494 | 6,2 | 52,6 | 65,3 | 40,7 | 10,5 | -4,9 | 22,3 | 41,5 |
| ES21 | Pais Vasco | 26.240 | 6,2 | 55,8 | 67,0 | 45,3 | 9,7 | -4,2 | 24,5 | 38,6 |
| ES22 | Comunidad Foral de Navarra | 26.756 | 5,7 | 56,7 | 68,0 | 45,5 | 5,5 | -2,7 | 13,8 | 19,6 |
| ES23 | La Rioja | 23.318 | 5,2 | 54,3 | 67,0 | 41,6 | 5,6 | -2,5 |  | 26,7 |
| ES24 | Aragón | 22.609 | 5,6 | 53,7 | 65,3 | 42,4 | 5,6 | -3,7 | 13,7 | 25,8 |
| ES30 | Comunidad de Madrid | 28.013 | 5,8 | 59,4 | 70,5 | 49,3 | 6,7 | -6,3 | 15,9 | 31,5 |

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|---|---|---|---|---|---|---|---|---|---|---|
| ES41 | Castilla y León | 19.618 | 5,3 | 50,0 | 61,7 | 38,5 | 10,7 | -4,6 | 22,9 | 36,7 |
| ES42 | Castilla-la Mancha | 16.537 | 5,1 | 51,4 | 65,6 | 37,2 | 9,5 | -5,5 | 16,8 | 31,6 |
| ES43 | Extremadura | 13.871 | 6,1 | 50,0 | 63,0 | 37,4 | 17,2 | -7,9 | 26,8 | 28,7 |
| ES51 | Cataluña | 25.541 | 5,6 | 60,1 | 70,4 | 50,3 | 9,7 | -1,1 | 21,2 | 37,0 |
| ES52 | Comunidad Valenciana | 19.960 | 5,6 | 57,6 | 68,7 | 46,9 | 10,4 | -3,4 | 20,6 | 23,1 |
| ES53 | Illes Balears | 24.260 | 5,0 | 62,3 | 71,8 | 52,9 | 9,1 | 0,9 | 18,7 | 15,7 |
| ES61 | Andalucia | 16.107 | 6,1 | 52,9 | 66,2 | 40,1 | 17,1 | -9,4 | 27,6 | 30,1 |
| ES62 | Región de Murcia | 17.883 | 6,1 | 57,5 | 70,9 | 44,2 | 10,7 | -3,2 | 18,8 | 23,6 |
| ES63 | Ciudad Autónoma de Ceuta (ES) | 18.651 | 5,7 | 48,0 | 65,6 | 30,0 | 10,7 | -16,5 |  | 20,4 |
| ES64 | Ciudad Autónoma de Melilla (ES) | 18.102 | 5,0 | 55,0 | 66,4 | 44,6 | 17,0 | -4,0 |  | 57,7 |
| ES70 | Canarias (ES) | 19.794 | 5,4 | 58,0 | 68,5 | 47,6 | 12,0 | -2,3 | 26,0 | 28,4 |
| FI13 | Itä-Suomi | 18.281 | 4,7 | 54,0 | 58,8 | 49,4 | 12,5 | -1,4 | 26,1 | 21,4 |
| FI18 | Etelä-Suomi | 28.222 | 5,4 | 63,6 | 68,1 | 59,6 | 7,3 | -0,8 | 18,0 | 25,9 |
| FI19 | Länsi-Suomi | 21.593 | 5,1 | 58,6 | 64,1 | 53,5 | 9,2 | -2,0 | 21,3 | 24,4 |
| FI1A | Pohjois-Suomi | 22.015 | 5,4 | 58,8 | 62,4 | 55,2 | 11,1 | -3,0 | 25,8 | 20,9 |
| FI20 | Åland | 33.542 | 6,4 | 56,9 | 61,9 | 52,4 |  |  |  | 13,4 |
| FR10 | Île de France | 37.687 | 4,1 | 60,7 | 67,3 | 54,6 | 9,3 | -1,2 | 20,1 | 44,5 |
| FR21 | Champagne-Ardenne | 21.964 | 3,8 | 57,9 | 65,2 | 51,3 | 10,0 | -3,2 | 19,7 | 39,0 |
| FR22 | Picardie | 19.753 | 3,5 | 56,6 | 64,3 | 49,4 | 10,5 | -2,9 | 26,3 | 42,0 |
| FR23 | Haute-Normandie | 21.930 | 3,5 | 58,4 | 64,7 | 52,4 | 8,5 | -5,6 | 19,3 | 40,2 |
| FR24 | Centre | 21.738 | 3,5 | 55,0 | 60,5 | 49,9 | 7,4 | -3,4 | 19,4 | 34,7 |
| FR25 | Basse-Normandie | 20.162 | 3,6 | 55,0 | 62,3 | 48,1 | 7,6 | -2,4 | 20,0 | 40,2 |
| FR26 | Bourgogne | 21.049 | 3,4 | 56,2 | 62,1 | 50,6 | 8,5 | -1,9 | 23,6 | 37,5 |
| FR30 | Nord - Pas-de-Calais | 19.117 | 3,9 | 54,6 | 64,6 | 45,3 | 12,6 | -5,5 | 28,1 | 46,3 |
| FR41 | Lorraine | 20.005 | 3,4 | 52,1 | 60,7 | 44,1 | 11,1 | 0,0 | 22,7 | 39,6 |
| FR42 | Alsace | 23.311 | 2,8 | 58,5 | 65,3 | 52,1 | 7,6 | 0,1 | 18,7 | 26,4 |
| FR43 | Franche-Comté | 21.354 | 3,9 | 57,0 | 63,8 | 50,5 | 8,2 | -1,5 | 18,3 | 33,0 |
| FR51 | Pays de la Loire | 22.219 | 4,5 | 58,6 | 64,4 | 53,2 | 7,8 | -4,4 | 16,2 | 34,8 |
| FR52 | Bretagne | 21.013 | 4,4 | 54,3 | 59,5 | 49,6 | 7,1 | -2,4 | 18,2 | 26,2 |
| FR53 | Poitou-Charentes | 20.418 | 4,2 | 54,8 | 59,2 | 50,5 | 8,4 | -2,5 | 21,5 | 38,2 |
| FR61 | Aquitaine | 22.045 | 4,3 | 53,8 | 60,0 | 48,3 | 10,5 | -1,4 | 20,8 | 40,4 |
| FR62 | Midi-Pyrénées | 21.696 | 4,2 | 56,4 | 61,1 | 51,9 | 7,2 | -3,9 | 21,0 | 44,0 |
| FR63 | Limousin | 20.408 | 4,5 | 54,0 | 60,4 | 48,1 | 7,9 | -1,6 | 18,4 | 40,8 |
| FR71 | Rhône-Alpes | 24.055 | 3,8 | 57,3 | 63,1 | 51,9 | 8,5 | -1,4 | 18,9 | 36,2 |
| FR72 | Auvergne | 20.242 | 4,0 | 54,8 | 61,1 | 49,0 | 7,8 | -2,8 | 21,5 | 39,5 |
| FR81 | Languedoc-Roussillon | 19.127 | 4,3 | 49,0 | 55,1 | 43,4 | 11,5 | -5,9 | 26,6 | 47,4 |
| FR82 | Provence-Alpes-Côte d'Azur | 22.727 | 4,2 | 51,0 | 57,4 | 45,4 | 10,3 | -6,6 | 21,3 | 42,5 |
| FR83 | Corse | 19.013 | 5,0 | 44,6 | 53,0 | 36,8 | 14,2 | -11,8 |  | 65,5 |
| FR91 | Guadeloupe (FR) | 14.296 | 5,2 | 52,8 | 57,7 | 48,5 | 25,1 |  | 55,9 | 77,4 |
| FR92 | Martinique (FR) | 15.963 | 5,0 | 51,5 | 55,3 | 48,3 | 21,5 |  | 49,3 | 78,3 |
| FR93 | Guyana (FR) | 12.516 | 2,7 | 53,8 | 61,4 | 46,6 | 25,7 |  |  | 66,2 |
| FR94 | Réunion (FR) | 13.093 | 4,7 | 53,1 | 62,3 | 44,5 | 32,8 |  | 56,6 | 72,5 |
| GR11 | Anatoliki Makedonia, Thraki | 13.560 | 5,0 | 53,4 | 63,5 | 44,0 | 13,2 | 0,6 | 30,4 | 55,7 |
| GR12 | Kentriki Makedonia | 17.110 | 5,8 | 51,9 | 63,9 | 40,6 | 12,2 | 0,3 | 31,6 | 53,0 |
| GR13 | Dytiki Makedonia | 17.557 | 5,7 | 50,0 | 60,8 | 39,4 | 16,6 | 2,0 | 49,3 | 64,4 |
| GR14 | Thessalia | 15.912 | 6,1 | 53,9 | 65,5 | 42,8 | 9,8 | -3,6 | 25,4 | 66,1 |
| GR21 | Ipeiros | 14.439 | 7,4 | 49,3 | 61,0 | 38,2 | 11,2 | -2,9 | 33,1 | 62,1 |
| GR22 | Ionia Nisia | 16.218 | 6,9 | 52,9 | 64,3 | 42,1 | 11,4 | 2,4 | 23,8 | 19,0 |

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|---|---|---|---|---|---|---|---|---|---|---|
| GR23 | Dytiki Ellada | 13.628 | 4,9 | 50,1 | 62,0 | 38,1 | 12,5 | 0,8 | 30,2 | 61,6 |
| GR24 | Sterea Ellada | 25.159 | 5,2 | 50,4 | 63,2 | 37,5 | 12,8 | -1,4 | 33,7 | 56,5 |
| GR25 | Peloponnisos | 16.839 | 6,6 | 52,0 | 63,3 | 40,6 | 9,2 | 1,0 | 28,4 | 59,9 |
| GR30 | Attiki | 18.840 | 5,7 | 55,0 | 66,6 | 44,5 | 9,1 | -3,6 | 22,0 | 51,6 |
| GR41 | Voreio Aigaio | 17.648 | 8,3 | 46,3 | 59,6 | 33,3 | 9,3 | -2,3 | | 54,0 |
| GR42 | Notio Aigaio | 19.461 | 6,1 | 54,9 | 70,1 | 39,4 | 8,7 | -3,0 | 19,8 | 22,3 |
| GR43 | Kriti | 17.712 | 6,1 | 57,0 | 67,3 | 46,7 | 7,7 | -0,8 | 20,9 | 28,6 |
| HU10 | Közép-Magyarország | 20.628 | 8,1 | 54,1 | 62,1 | 47,4 | 4,5 | -0,7 | 13,1 | 44,1 |
| HU21 | Közép-Dunántúl | 12.027 | 7,1 | 53,1 | 62,1 | 45,0 | 5,6 | -0,5 | 13,1 | 38,6 |
| HU22 | Nyugat-Dunántúl | 14.012 | 7,5 | 52,8 | 61,4 | 45,0 | 4,6 | 0,2 | 9,4 | 38,3 |
| HU23 | Dél-Dunántúl | 9.243 | 5,0 | 46,4 | 54,9 | 38,8 | 7,3 | -1,0 | 19,0 | 47,6 |
| HU31 | Észak-Magyarország | 8.287 | 5,1 | 45,7 | 53,5 | 38,8 | 9,7 | -1,9 | 22,1 | 51,2 |
| HU32 | Észak-Alföld | 8.476 | 5,7 | 45,1 | 53,2 | 37,9 | 7,2 | -3,0 | 18,5 | 39,3 |
| HU33 | Dél-Alföld | 8.768 | 4,1 | 46,4 | 54,7 | 39,2 | 6,3 | 0,5 | 15,9 | 44,1 |
| IE01 | Border, Midlands and Western | 20.102 | 7,2 | 59,3 | 70,6 | 47,9 | 4,7 | -2,2 | 9,4 | 38,4 |
| IE02 | Southern and Eastern | 32.446 | 8,7 | 61,3 | 72,0 | 51,0 | 4,5 | -0,9 | 8,8 | 33,7 |
| ITC1 | Piemonte | 26.522 | 2,7 | 51,2 | 61,2 | 41,9 | 5,3 | -1,9 | 15,8 | 44,7 |
| ITC2 | Valle d'Aosta/Vallée d'Aoste | 29.588 | 2,1 | 54,6 | 63,9 | 45,8 | 3,0 | -2,3 | | 13,2 |
| ITC3 | Liguria | 25.924 | 4,0 | 46,2 | 56,4 | 37,2 | 5,8 | -4,1 | 20,5 | 44,3 |
| ITC4 | Lombardia | 29.865 | 2,8 | 54,5 | 65,4 | 44,3 | 4,0 | -0,8 | 12,7 | 34,9 |
| ITD1 | Provincia Autonoma Bolzano-Bozen | 34.792 | 3,9 | 59,0 | 69,5 | 49,0 | 2,7 | 0,2 | | 12,0 |
| ITD2 | Provincia Autonoma Trento | 28.202 | 2,7 | 54,4 | 64,8 | 44,7 | 3,2 | -1,2 | 10,3 | 22,6 |
| ITD3 | Veneto | 26.413 | 2,7 | 53,9 | 65,7 | 42,7 | 4,2 | -0,3 | 10,6 | 28,7 |
| ITD4 | Friuli-Venezia Giulia | 27.195 | 3,3 | 49,9 | 60,4 | 40,3 | 3,9 | -1,7 | 11,9 | 34,1 |
| ITD5 | Emilia-Romagna | 29.059 | 2,8 | 53,9 | 62,7 | 45,7 | 3,7 | -0,9 | 11,4 | 27,3 |
| ITE1 | Toscana | 25.650 | 3,3 | 50,5 | 60,8 | 41,0 | 5,2 | -2,0 | 16,0 | 36,0 |
| ITE2 | Umbria | 22.453 | 2,8 | 49,0 | 58,2 | 40,4 | 5,7 | -1,9 | 15,3 | 40,8 |
| ITE3 | Marche | 23.529 | 3,3 | 51,5 | 61,0 | 42,7 | 5,3 | -0,8 | 16,5 | 30,1 |
| ITE4 | Lazio | 27.017 | 3,5 | 50,9 | 62,3 | 40,6 | 7,9 | -3,8 | 27,6 | 51,5 |
| ITF1 | Abruzzo | 19.730 | 3,0 | 47,2 | 58,6 | 36,7 | 7,9 | -2,2 | 22,8 | 44,3 |
| ITF2 | Molise | 18.142 | 3,5 | 44,8 | 57,4 | 33,1 | 11,3 | -4,9 | 31,9 | 53,1 |
| ITF3 | Campania | 15.677 | 3,9 | 44,5 | 60,3 | 30,0 | 15,6 | -8,1 | 37,7 | 54,9 |
| ITF4 | Puglia | 15.576 | 3,5 | 43,5 | 59,3 | 29,0 | 15,5 | -3,5 | 35,4 | 60,0 |
| ITF5 | Basilicata | 16.295 | 3,5 | 44,2 | 57,3 | 32,0 | 12,8 | -4,3 | 35,6 | 57,2 |
| ITF6 | Calabria | 14.898 | 4,1 | 43,1 | 57,0 | 30,2 | 14,3 | -13,7 | 40,5 | 57,8 |
| ITG1 | Sicilia | 15.888 | 3,8 | 42,1 | 57,9 | 27,6 | 17,2 | -7,3 | 42,9 | 61,4 |
| ITG2 | Sardegna | 18.133 | 3,8 | 48,8 | 61,7 | 36,5 | 13,9 | -7,1 | 35,5 | 51,1 |
| LT00 | Lietuva | 9.846 | 8,1 | 57,2 | 63,7 | 51,7 | 11,4 | -2,0 | 22,7 | 51,2 |
| LU00 | Luxembourg (Grand-Duché) | 50.844 | 6,3 | 53,9 | 64,1 | 44,1 | 4,8 | 2,4 | 18,3 | 22,6 |
| LV00 | Latvija | 8.882 | 8,6 | 57,9 | 65,8 | 51,4 | 10,4 | -3,4 | 18,1 | 43,8 |
| MT00 | Malta | 15.797 | 2,7 | 49,7 | 70,4 | 29,9 | 7,2 | | 16,1 | 47,0 |
| NL11 | Groningen | 32.245 | 4,9 | 61,6 | 69,0 | 54,1 | 6,4 | -0,2 | 10,2 | 36,5 |
| NL12 | Friesland | 21.830 | 4,4 | 62,9 | 71,4 | 54,5 | 5,0 | 0,9 | 7,3 | 37,0 |
| NL13 | Drenthe | 21.427 | 4,1 | 62,9 | 70,2 | 55,6 | 5,5 | -2,9 | 10,4 | 39,1 |
| NL21 | Overijssel | 23.441 | 5,0 | 64,2 | 72,3 | 56,1 | 4,7 | 1,6 | 9,3 | 35,9 |
| NL22 | Gelderland | 22.942 | 4,4 | 65,2 | 74,1 | 56,6 | 4,3 | 0,9 | 7,7 | 34,8 |
| NL23 | Flevoland | 19.439 | 4,1 | 70,7 | 76,5 | 64,7 | 5,7 | 1,7 | 12,1 | 36,9 |
| NL31 | Utrecht | 33.148 | 5,2 | 67,8 | 76,0 | 60,1 | 3,7 | 1,1 | 7,2 | 26,5 |

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|---|---|---|---|---|---|---|---|---|---|---|
| NL32 | Noord-Holland | 32.032 | 5,2 | 66,3 | 74,0 | 58,8 | 4,4 | 0,7 | 8,1 | 33,5 |
| NL33 | Zuid-Holland | 27.825 | 4,7 | 64,4 | 72,6 | 56,4 | 4,7 | 1,2 | 8,1 | 35,7 |
| NL34 | Zeeland | 24.706 | 4,1 | 60,0 | 68,2 | 51,9 | 3,4 | -2,6 | 5,4 | 33,3 |
| NL41 | Noord-Brabant | 27.169 | 5,2 | 65,8 | 74,1 | 57,7 | 4,2 | 1,4 | 6,5 | 31,0 |
| NL42 | Limburg (NL) | 24.585 | 5,3 | 61,4 | 69,4 | 53,5 | 5,1 | 1,9 | 8,0 | 34,8 |
| NO01 | Oslo og Akershus | 35.659 | 3,4 | 74,8 | 78,8 | 71,0 | 4,4 | 2,1 | 10,6 | |
| NO02 | Hedmark og Oppland | 20.220 | 3,9 | 70,0 | 73,4 | 66,6 | 3,9 | 0,7 | 13,4 | |
| NO03 | Sør-Østlandet | 20.804 | 2,3 | 70,2 | 74,4 | 65,9 | 3,9 | 0,3 | 12,0 | |
| NO04 | Agder og Rogaland | 24.817 | 3,0 | 72,4 | 76,1 | 68,7 | 4,8 | 1,4 | 12,0 | |
| NO05 | Vestlandet | 24.484 | 3,1 | 73,5 | 76,6 | 70,2 | 4,0 | 0,9 | 10,8 | |
| NO06 | Trøndelag | 22.502 | 3,9 | 70,9 | 75,1 | 66,7 | 3,4 | -0,4 | 8,0 | |
| NO07 | Nord-Norge | 20.244 | 2,9 | 71,1 | 73,4 | 68,7 | 4,6 | 0,1 | 12,9 | |
| PL11 | Lódzkie | 9.427 | 6,4 | 55,0 | 62,9 | 48,0 | 18,8 | 6,6 | 35,0 | 61,1 |
| PL12 | Mazowieckie | 15.833 | 8,8 | 55,8 | 63,5 | 49,1 | 14,6 | 4,4 | 31,2 | 58,4 |
| PL21 | Malopolskie | 8.781 | 5,9 | 56,8 | 63,3 | 50,9 | 17,3 | 8,0 | 40,5 | 64,4 |
| PL22 | Slaskie | 11.131 | 5,1 | 51,2 | 58,3 | 44,9 | 19,3 | 8,2 | 42,4 | 61,4 |
| PL31 | Lubelskie | 7.211 | 4,8 | 57,2 | 63,8 | 50,9 | 16,7 | 5,7 | 35,6 | 47,2 |
| PL32 | Podkarpackie | 7.217 | 5,2 | 53,8 | 61,1 | 47,1 | 16,6 | 4,0 | 40,0 | 56,5 |
| PL33 | Swietokrzyskie | 7.978 | 6,1 | 52,8 | 60,8 | 45,3 | 20,6 | 7,4 | 42,9 | 58,1 |
| PL34 | Podlaskie | 7.752 | 6,0 | 55,9 | 65,2 | 47,1 | 15,6 | 3,3 | 36,4 | 59,8 |
| PL41 | Wielkopolskie | 10.711 | 7,1 | 57,2 | 65,3 | 49,6 | 18,2 | 8,4 | 37,0 | 43,9 |
| PL42 | Zachodniopomorskie | 9.692 | 5,1 | 54,3 | 61,3 | 47,8 | 23,8 | 4,0 | 45,5 | 49,9 |
| PL43 | Lubuskie | 8.833 | 4,5 | 54,8 | 62,9 | 47,0 | 23,2 | 6,9 | 48,0 | 40,2 |
| PL51 | Dolnoslaskie | 10.471 | 5,9 | 53,5 | 60,8 | 46,8 | 24,9 | 10,1 | 47,9 | 49,4 |
| PL52 | Opolskie | 8.112 | 3,5 | 52,3 | 61,4 | 44,3 | 17,8 | 3,7 | 37,2 | 48,5 |
| PL61 | Kujawsko-Pomorskie | 9.159 | 4,8 | 56,3 | 64,9 | 48,6 | 22,1 | 8,9 | 42,1 | 51,3 |
| PL62 | Warminsko-Mazurskie | 8.048 | 6,0 | 53,5 | 61,8 | 46,0 | 22,3 | 2,8 | 46,7 | 59,2 |
| PL63 | Pomorskie | 10.058 | 5,8 | 53,2 | 61,5 | 45,4 | 20,2 | 9,1 | 38,4 | 42,5 |
| PT11 | Norte | 12.477 | 2,9 | 62,6 | 70,7 | 55,1 | 7,7 | 3,1 | 15,3 | 47,5 |
| PT15 | Algarve | 17.106 | 4,4 | 59,8 | 69,2 | 50,6 | 5,5 | 0,7 | | 38,1 |
| PT16 | Centro (PT) | 13.336 | 3,9 | 66,0 | 73,2 | 59,4 | 4,3 | 1,8 | 11,6 | 41,4 |
| PT17 | Lisboa | 22.670 | 4,0 | 60,2 | 66,7 | 54,4 | 7,6 | 1,5 | 18,7 | 43,8 |
| PT18 | Alentejo | 14.441 | 4,1 | 56,5 | 65,6 | 48,0 | 8,8 | 2,3 | 22,1 | 40,4 |
| PT20 | Região Autónoma dos Açores | 13.275 | 5,0 | 56,3 | 71,7 | 41,4 | | | | 32,0 |
| PT30 | Região Autónoma da Madeira | 19.659 | 7,0 | 59,0 | 68,8 | 50,5 | | | | 50,4 |
| RO01 | Nord-Est | 4.721 | 4,7 | 59,7 | 64,3 | 55,2 | 6,2 | -1,3 | 17,7 | 57,6 |
| RO02 | Sud-Est | 5.576 | 3,5 | 53,0 | 62,7 | 43,9 | 9,9 | 2,2 | 24,3 | 59,9 |
| RO03 | Sud | 5.297 | 5,7 | 55,4 | 63,6 | 47,7 | 9,6 | 2,3 | 27,6 | 60,5 |
| RO04 | Sud-Vest | 5.554 | 5,5 | 57,5 | 64,4 | 51,0 | 7,5 | 2,5 | 21,2 | 61,5 |
| RO05 | Vest | 7.389 | 9,0 | 52,6 | 61,3 | 44,7 | 8,0 | 1,2 | 19,7 | 57,5 |
| RO06 | Nord-Vest | 6.333 | 7,0 | 52,3 | 58,8 | 46,2 | 6,5 | -0,6 | 18,3 | 54,2 |
| RO07 | Centru | 7.013 | 7,0 | 50,9 | 58,9 | 43,4 | 9,6 | 2,2 | 24,7 | 61,8 |
| RO08 | Bucuresti | 12.592 | 10,3 | 53,9 | 61,7 | 47,3 | 7,6 | 2,0 | 22,2 | 55,8 |
| SE01 | Stockholm | 34.331 | 4,8 | 76,2 | 78,1 | 74,3 | 5,7 | 1,8 | 16,8 | 17,8 |
| SE02 | Östra Mellansverige | 21.342 | 3,6 | 67,4 | 70,4 | 64,3 | 6,8 | -1,6 | 18,0 | 22,2 |
| SE04 | Sydsverige | 23.284 | 4,3 | 67,8 | 71,0 | 64,7 | 7,5 | -1,3 | 17,7 | 21,3 |
| SE06 | Norra Mellansverige | 21.621 | 3,1 | 64,4 | 67,7 | 61,1 | 7,9 | -3,1 | 19,0 | 18,4 |
| SE07 | Mellersta Norrland | 22.938 | 2,9 | 61,8 | 64,8 | 58,7 | 6,7 | -1,6 | 19,2 | 17,8 |

| Code | Region | GDP per capita in PPS 2003 | Annually growth rate of GDP per capita in PPS 1995 - 2003 in % | Activity rate - total 2004 in % | Activity rate - male 2004 in % | Activity rate - female 2004 in % | Unemployment rate 2004 in % | Development of unemployment rate 1999 - 2004 in % | Unemployment rate < 25 years 2004 in % | Lomg-term unemployment rate 2004 in % |
|---|---|---|---|---|---|---|---|---|---|---|
| SE08 | Övre Norrland | 22.737 | 3,2 | 62,2 | 64,6 | 59,7 | 7,7 | -3,8 | 18,9 | 16,0 |
| SE09 | Småland med öarna | 22.659 | 3,8 | 69,7 | 73,2 | 66,2 | 5,2 | -2,2 | 14,7 | 16,2 |
| SE0A | Västsverige | 24.294 | 4,3 | 72,3 | 74,0 | 70,5 | 6,1 | -0,9 | 15,3 | 19,4 |
| SI00 | Slovenija | 16.527 | 5,7 | 59,0 | 65,9 | 52,5 | 6,3 | -1,1 | 16,1 | 51,5 |
| SK01 | Bratislavský | 25.190 | 7,0 | 64,3 | 71,2 | 58,2 | 8,3 | 0,9 | 19,5 | 46,7 |
| SK02 | Západné Slovensko | 10.611 | 6,2 | 59,8 | 67,9 | 52,3 | 14,3 | 0,1 | 25,1 | 68,5 |
| SK03 | Stredné Slovensko | 9.400 | 6,6 | 59,6 | 67,8 | 52,0 | 22,1 | 3,5 | 38,3 | 58,6 |
| SK04 | Východné Slovensko | 8.430 | 6,2 | 59,3 | 68,3 | 50,9 | 24,2 | 2,9 | 42,5 | 69,6 |
| UKC1 | Tees Valley and Durham | 18.264 | 3,3 | 57,3 | 63,5 | 51,5 | 6,0 | -4,3 | 15,4 | 22,7 |
| UKC2 | Northumberland, Tyne and Wear | 21.499 | 5,5 | 57,1 | 63,6 | 51,3 | 5,9 | -3,9 | 13,9 | 26,4 |
| UKD1 | Cumbria | 19.970 | 3,0 | 63,7 | 70,6 | 56,9 | 4,1 | -2,1 |  | 21,2 |
| UKD2 | Cheshire | 27.143 | 4,5 | 61,6 | 67,1 | 56,6 | 3,1 | -1,3 | 8,7 | 26,0 |
| UKD3 | Greater Manchester | 23.691 | 5,5 | 60,7 | 66,7 | 55,1 | 4,6 | -1,6 | 13,0 | 17,3 |
| UKD4 | Lancashire | 21.041 | 4,1 | 60,9 | 67,5 | 54,7 | 4,3 | 0,1 | 10,7 | 18,4 |
| UKD5 | Merseyside | 18.550 | 5,6 | 57,2 | 64,9 | 50,1 | 5,5 | -4,1 | 14,9 | 30,9 |
| UKE1 | East Riding and North Lincolnshire | 21.408 | 3,8 | 60,6 | 68,8 | 53,1 | 5,9 | -2,6 | 12,9 | 23,8 |
| UKE2 | North Yorkshire | 24.100 | 5,5 | 63,0 | 68,4 | 57,9 | 2,6 | -1,2 |  | 17,3 |
| UKE3 | South Yorkshire | 19.426 | 5,6 | 58,3 | 65,6 | 51,6 | 4,8 | -3,1 | 11,8 | 16,0 |
| UKE4 | West Yorkshire | 23.878 | 5,2 | 62,2 | 69,1 | 55,5 | 4,6 | -1,4 | 11,8 | 15,8 |
| UKF1 | Derbyshire and Nottinghamshire | 22.267 | 4,6 | 59,9 | 66,9 | 53,2 | 4,4 | -1,3 | 10,1 | 23,2 |
| UKF2 | Leicestershire, Rutland and Northants | 25.236 | 5,1 | 65,1 | 72,2 | 58,5 | 3,6 | -1,2 | 8,9 | 13,5 |
| UKF3 | Lincolnshire | 19.815 | 3,7 | 62,9 | 70,9 | 55,4 | 4,8 | 0,1 |  | 20,6 |
| UKG1 | Herefordshire, Worcestershire and Warks | 22.467 | 4,8 | 63,5 | 70,2 | 57,0 | 3,2 | -1,6 | 9,1 | 18,3 |
| UKG2 | Shropshire and Staffordshire | 20.250 | 4,7 | 62,1 | 70,8 | 54,0 | 3,9 | -2,3 | 10,8 | 18,0 |
| UKG3 | West Midlands | 24.637 | 5,0 | 59,5 | 67,0 | 52,5 | 7,0 | -1,3 | 18,7 | 20,6 |
| UKH1 | East Anglia | 23.211 | 4,3 | 64,1 | 71,2 | 57,5 | 3,5 | -0,6 | 10,0 | 14,7 |
| UKH2 | Bedfordshire, Hertfordshire | 28.615 | 5,8 | 67,0 | 74,8 | 59,7 | 3,4 | -0,7 | 8,9 | 15,4 |
| UKH3 | Essex | 21.776 | 5,5 | 62,7 | 70,5 | 55,4 | 3,9 | -0,5 | 8,8 | 15,1 |
| UKI1 | Inner London | 60.342 | 5,9 | 61,4 | 70,5 | 52,7 | 8,9 | -0,6 | 21,5 | 29,8 |
| UKI2 | Outer London | 23.584 | 4,9 | 63,9 | 72,3 | 56,0 | 5,5 | -1,0 | 15,6 | 20,5 |
| UKJ1 | Berkshire, Bucks & Oxfordshire | 35.894 | 6,8 | 69,0 | 75,8 | 62,7 | 3,7 | 1,1 | 9,4 | 17,9 |
| UKJ2 | Surrey, East and West Sussex | 27.217 | 5,7 | 63,2 | 71,4 | 55,5 | 3,3 | -0,3 | 9,0 | 13,9 |
| UKJ3 | Hampshire and Isle of Wight | 24.881 | 6,0 | 64,4 | 72,9 | 56,6 | 3,3 | -1,3 | 9,0 | 13,4 |
| UKJ4 | Kent | 20.348 | 4,4 | 62,1 | 70,2 | 54,6 | 4,5 | 0,1 | 10,4 | 18,1 |
| UKK1 | Gloucestershire, Wiltshire and North Somerset | 29.032 | 6,3 | 65,0 | 72,5 | 58,1 | 3,3 | 0,0 | 8,4 | 12,8 |
| UKK2 | Dorset and Somerset | 20.714 | 4,7 | 60,1 | 67,2 | 53,7 | 2,4 | -2,7 |  | 6,5 |
| UKK3 | Cornwall and Isles of Scilly | 16.478 | 5,7 | 60,2 | 69,9 | 51,4 | 4,2 | -3,5 |  | 9,8 |
| UKK4 | Devon | 18.785 | 3,1 | 59,6 | 65,3 | 54,1 | 3,4 | -2,9 | 8,2 | 17,5 |
| UKL1 | West Wales and The Valleys | 16.474 | 3,6 | 55,8 | 62,0 | 50,2 | 5,2 | -2,3 | 13,6 | 21,1 |
| UKL2 | East Wales | 25.898 | 5,4 | 62,1 | 68,9 | 55,5 | 3,4 | -3,0 | 9,2 | 19,5 |
| UKM1 | North Eastern Scotland | 32.683 | 4,1 | 66,6 | 75,4 | 58,0 | 5,3 | 0,3 |  | 19,7 |
| UKM2 | Eastern Scotland | 24.483 | 4,3 | 64,3 | 70,4 | 58,7 | 4,9 | -1,7 | 13,3 | 16,5 |
| UKM3 | South Western Scotland | 23.262 | 5,0 | 60,3 | 66,6 | 54,6 | 6,7 | -2,1 | 15,4 | 23,4 |
| UKM4 | Highlands and Islands | 18.090 | 4,1 | 60,2 | 69,6 | 51,7 | 4,8 | -1,5 |  | 20,5 |
| UKN0 | Northern Ireland | 20.179 | 5,0 | 57,5 | 66,5 | 49,1 | 5,0 | -2,2 | 11,5 | 43,0 |

| Code | Region | Employment in high technology sectors 2005 in % of total employment | R&D expenditure total in % of GDP 2001 | Investment rate 2003 in % | Primacy rate | Population in the age 15 - 64 years 2003 in % of total population | Utilised agricultural area in % of total area 2003 | Labour Costs - Average income per employee in 1000 Euro |
|---|---|---|---|---|---|---|---|---|
| AT11 | Burgenland | 7,6 | 0,2 | 53,8 | 3,7 | 66,7 | 48,9 | 23,3 |
| AT12 | Niederösterreich | 8,8 | 0,6 | 24,5 | 3,7 | 67,0 | 48,9 | 27,6 |
| AT13 | Wien | 9,5 | 3,2 | 3,0 | 106,2 | 69,8 | 20,7 | 49,9 |
| AT21 | Kärnten | 9,4 | 1,1 | 7,0 | 15,7 | 67,2 | 34,2 | 31,5 |
| AT22 | Steiermark | 10,5 | 2,5 | 2,2 | 22,6 | 67,7 | 29,9 | 31,6 |
| AT31 | Oberösterreich | 10,3 | 1,3 | 1,5 | 19,9 | 67,2 | 47,2 | 33,2 |
| AT32 | Salzburg | 7,6 | 0,7 | 3,2 | 31,0 | 69,0 | 42,1 | 36,0 |
| AT33 | Tirol | 6,5 | 1,6 | 4,0 | 20,0 | 68,6 | 34,3 | 33,2 |
| AT34 | Vorarlberg | 9,1 | 0,9 | 3,1 | 19,5 | 68,3 | 44,5 | 33,0 |
| BE10 | Région de Bruxelles-Capitale / Brussels Hoofdstedelijk Gewest | 6,6 | 2,0 | -0,1 | 131,6 | 66,0 | 1,2 | 98,4 |
| BE21 | Prov. Antwerpen | 14,3 | 2,0 | 0,3 | 38,6 | 65,7 | 32,1 | 44,6 |
| BE22 | Prov. Limburg (B) | 12,3 | 2,0 | 6,7 | 5,9 | 68,4 | 35,6 | 32,4 |
| BE23 | Prov. Oost-Vlaanderen | 11,3 | 2,0 | -3,7 | 16,1 | 65,9 | 51,7 | 32,7 |
| BE24 | Prov. Vlaams Brabant | 12,1 | 2,0 | 7,9 | 7,6 | 65,8 | 41,9 | 38,2 |
| BE25 | Prov. West-Vlaanderen | 8,7 | 2,0 | 0,0 | 9,3 | 64,6 | 67,4 | 35,2 |
| BE31 | Prov. Brabant Wallon | 10,0 | 2,0 | 9,0 | 6,7 | 65,6 | 58,7 | 37,1 |
| BE32 | Prov. Hainaut | 9,4 | 2,0 | -10,3 | 22,3 | 64,8 | 58,7 | 31,3 |
| BE33 | Prov. Liège | 6,3 | 2,0 | 2,0 | 44,1 | 64,8 | 41,5 | 34,2 |
| BE34 | Prov. Luxembourg (B) | 5,3 | 2,0 | 17,7 | 6,8 | 63,9 | 33,3 | 28,5 |
| BE35 | Prov. Namur | 7,4 | 2,0 | -6,4 | 17,3 | 64,9 | 45,0 | 30,2 |
| BG11 | Severozapaden | 4,6 | 0,0 |  | 11,0 | 63,8 | 53,5 | 2,3 |
| BG12 | Severen tsentralen | 8,5 | 0,1 |  | 13,8 | 67,0 | 57,7 | 2,2 |
| BG13 | Severoiztochen | 5,5 | 0,2 |  | 22,7 | 69,3 | 63,4 | 2,3 |
| BG21 | Yugozapaden | 8,7 | 1,2 |  | 52,1 | 70,1 | 33,5 | 3,4 |
| BG22 | Yuzhen tsentralen | 8,0 | 0,1 |  | 16,7 | 68,4 | 40,6 | 2,2 |
| BG23 | Yugoiztochen | 6,2 | 0,1 |  | 24,2 | 67,8 | 45,6 | 2,2 |
| CH01 | Région lémanique | 8,3 | 2,6 |  | 34,5 | 67,6 |  |  |
| CH02 | Espace Mittelland | 12,7 | 2,6 |  | 19,3 | 66,8 |  |  |
| CH03 | Nordwestschweiz | 13,2 | 2,6 |  | 40,9 | 68,2 |  |  |
| CH04 | Zürich | 11,0 | 2,6 |  | 77,5 | 69,2 |  |  |
| CH05 | Ostschweiz | 11,5 | 2,6 |  | 12,8 | 66,9 |  |  |
| CH06 | Zentralschweiz | 10,2 | 2,6 |  | 26,8 | 67,9 |  |  |
| CH07 | Ticino | 7,0 | 2,6 |  | 36,8 | 67,3 |  |  |
| CY00 | Kypros / Kibris | 3,2 | 0,3 | -0,4 | 23,1 | 67,3 | 14,7 | 21,5 |
| CZ01 | Praha | 10,0 | 2,2 | -0,1 | 101,9 | 71,1 | 21,6 | 17,6 |
| CZ02 | Strední Cechy | 15,2 | 3,1 | -40,1 | 6,5 | 70,3 | 53,6 | 7,6 |
| CZ03 | Jihozápad | 13,5 | 0,6 | -4,8 | 14,5 | 70,4 | 43,7 | 8,2 |
| CZ04 | Severozápad | 9,9 | 0,2 | -4,7 | 8,6 | 71,4 | 37,0 | 7,6 |
| CZ05 | Severovýchod | 15,1 | 0,9 | -14,8 | 6,8 | 70,0 | 46,9 | 8,0 |
| CZ06 | Jihovýchod | 12,9 | 0,9 | -1,7 | 23,4 | 70,0 | 54,0 | 8,3 |
| CZ07 | Strední Morava | 13,7 | 0,6 | 1,2 | 8,5 | 70,4 | 45,1 | 7,4 |
| CZ08 | Moravskoslezko | 9,1 | 0,9 | 5,9 | 25,3 | 71,1 | 40,8 | 8,3 |
| DE11 | Stuttgart | 24,1 | 4,8 | 11,1 | 14,4 | 67,3 | 45,2 | 42,1 |
| DE12 | Karlsruhe | 22,2 | 3,4 | 9,1 | 11,0 | 67,5 | 29,6 | 39,8 |
| DE13 | Freiburg | 17,7 | 2,0 | 12,6 | 8,8 | 66,5 | 35,8 | 33,2 |

| Code | Region | Employment in high technology sectors 2005 in % of total employment | R&D expenditure total in % of GDP 2001 | Investment rate 2003 in % | Primacy rate | Population in the age 15 - 64 years 2003 in % of total population | Utilised agricultural area in % of total area 2003 | Labour Costs - Average income per employee in 1000 Euro |
|---|---|---|---|---|---|---|---|---|
| DE14 | Tübingen | 19,4 | 4,2 | 27,6 | 5,4 | 66,7 | 48,9 | 36,0 |
| DE21 | Oberbayern | 16,3 | 4,7 | 3,5 | 31,6 | 68,5 | 45,3 | 42,8 |
| DE22 | Niederbayern | 17,4 | 0,5 | 16,8 | 4,8 | 66,7 | 51,9 | 31,1 |
| DE23 | Oberpfalz | 16,2 | 1,8 | 13,9 | 11,5 | 66,6 | 42,2 | 33,5 |
| DE24 | Oberfranken | 12,2 | 1,1 | 49,6 | 6,5 | 65,9 | 43,2 | 33,0 |
| DE25 | Mittelfranken | 15,1 | 2,6 | 6,5 | 27,8 | 67,1 | 47,1 | 39,7 |
| DE26 | Unterfranken | 16,4 | 1,7 | 12,6 | 9,5 | 66,4 | 41,6 | 32,6 |
| DE27 | Schwaben | 14,3 | 1,0 | 14,2 | 14,1 | 66,1 | 52,2 | 33,1 |
| DE30 | Berlin | 11,3 | 3,7 | 3,5 | 101,8 | 71,8 | 2,0 | 36,1 |
| DE41 | Brandenburg - Nordost | 8,0 | 1,6 | 49,4 | 5,5 | 71,0 | 45,1 | 24,0 |
| DE42 | Brandenburg - Südwest | 8,0 | 1,6 | 49,4 | 5,5 | 70,6 | 45,1 | 26,7 |
| DE50 | Bremen | 11,1 | 2,1 | 4,2 | 78,7 | 67,2 | 22,0 | 51,9 |
| DE60 | Hamburg | 10,8 | 1,8 | 2,4 | 92,2 | 69,3 | 18,1 | 50,8 |
| DE71 | Darmstadt | 16,1 | 3,1 | 8,2 | 15,9 | 68,4 | 31,5 | 43,5 |
| DE72 | Gießen | 13,1 | 1,7 | 15,3 | 7,2 | 66,9 | 37,1 | 30,8 |
| DE73 | Kassel | 12,9 | 0,7 | -4,1 | 14,6 | 65,5 | 39,7 | 37,0 |
| DE80 | Mecklenburg-Vorpommern | 7,1 | 1,0 | 31,9 | 14,1 | 70,9 | 58,2 | 25,9 |
| DE91 | Braunschweig | 19,7 | 6,2 | 12,8 | 14,8 | 66,0 | 47,4 | 39,5 |
| DE92 | Hannover | 12,8 | 2,0 | 8,1 | 23,5 | 66,2 | 54,6 | 36,5 |
| DE93 | Lüneburg | 10,6 | 0,5 | 50,2 | 4,4 | 65,8 | 52,3 | 25,6 |
| DE94 | Weser-Ems | 8,9 | 0,5 | 39,3 | 6,4 | 65,9 | 62,1 | 33,2 |
| DEA1 | Düsseldorf | 12,3 | 1,5 | 20,2 | 11,9 | 66,3 | 43,0 | 40,8 |
| DEA2 | Köln | 13,8 | 3,3 | 7,2 | 22,2 | 67,4 | 40,6 | 39,8 |
| DEA3 | Münster | 11,4 | 0,9 | 17,5 | 9,7 | 66,0 | 58,8 | 32,2 |
| DEA4 | Detmold | 10,9 | 1,0 | 20,2 | 15,4 | 65,0 | 52,4 | 35,6 |
| DEA5 | Arnsberg | 10,7 | 1,2 | 16,7 | 15,6 | 66,0 | 31,5 | 36,4 |
| DEB1 | Koblenz | 11,1 | 0,8 | 19,2 | 7,3 | 65,1 |  | 29,4 |
| DEB2 | Trier |  | 0,8 | 2,1 | 18,7 | 65,4 |  | 28,3 |
| DEB3 | Rheinhessen-Pfalz | 16,9 | 3,4 | 7,4 | 9,4 | 66,8 |  | 34,2 |
| DEC0 | Saarland | 12,0 | 1,0 | 8,1 | 17,2 | 66,3 | 30,1 | 38,7 |
| DED1 | Chemnitz | 13,1 | 1,5 | 14,7 | 19,0 | 67,8 | 47,1 | 26,9 |
| DED2 | Dresden | 12,5 | 3,5 | 7,6 | 30,1 | 68,9 | 45,8 | 29,3 |
| DED3 | Leipzig | 12,8 | 1,9 | 7,8 | 49,9 | 69,8 | 60,0 | 29,7 |
| DEE1 | Dessau |  | 0,7 | 14,3 | 18,8 | 69,3 |  | 24,5 |
| DEE2 | Halle | 8,5 | 1,7 | 8,6 | 26,9 | 69,3 |  | 28,0 |
| DEE3 | Magdeburg | 6,5 | 1,1 | 4,2 | 23,8 | 69,5 |  | 25,2 |
| DEF0 | Schleswig-Holstein | 10,2 | 1,1 | 18,2 | 8,8 | 66,4 | 64,6 | 30,8 |
| DEG0 | Thüringen | 11,5 | 1,6 | 15,6 | 8,9 | 70,2 | 49,1 | 26,4 |
| DK00 | Danmark | 11,0 | 2,2 |  |  | 66,4 | 61,3 | 41,7 |
| EE00 | Eesti | 7,6 | 0,7 |  |  | 67,5 | 15,4 | 7,1 |
| ES11 | Galicia | 6,9 | 0,6 | -30,0 | 8,7 | 67,2 | 30,2 | 24,1 |
| ES12 | Principado de Asturias | 4,7 | 0,8 | -32,0 | 23,5 | 68,0 | 32,6 | 27,5 |
| ES13 | Cantabria | 7,5 | 0,5 | -15,7 | 31,2 | 68,8 | 38,9 | 25,8 |
| ES21 | Pais Vasco | 13,0 | 1,2 | -23,4 | 17,9 | 70,0 | 33,5 | 32,5 |
| ES22 | Comunidad Foral de Navarra | 11,2 | 0,9 | -8,0 | 33,7 | 68,2 | 59,6 | 34,4 |
| ES23 | La Rioja | 5,2 | 0,6 | -5,5 | 45,8 | 67,7 | 54,4 | 28,0 |
| ES24 | Aragón | 11,5 | 0,7 | -7,6 | 48,8 | 66,1 | 50,7 | 29,4 |
| ES30 | Comunidad de Madrid | 10,0 | 1,7 | -10,7 | 58,9 | 71,0 | 43,1 | 30,9 |

| Code | Region | Employment in high technology sectors 2005 in % of total employment | R&D expenditure total in % of GDP 2001 | Investment rate 2003 in % | Primacy rate | Population in the age 15 - 64 years 2003 in % of total population | Utilised agricultural area in % of total area 2003 | Labour Costs - Average income per employee in 1000 Euro |
|---|---|---|---|---|---|---|---|---|
| ES41 | Castilla y León | 6,2 | 0,6 | -34,6 | 13,3 | 65,6 | 54,4 | 27,4 |
| ES42 | Castilla-la Mancha | 3,9 | 0,6 | -76,9 | 7,2 | 64,8 | 59,6 | 24,1 |
| ES43 | Extremadura | 2,9 | 0,5 | -78,1 | 10,1 | 65,1 | 53,6 | 22,5 |
| ES51 | Cataluña | 11,0 | 1,1 | -4,1 | 26,7 | 68,8 | 36,9 | 28,9 |
| ES52 | Comunidad Valenciana | 5,4 | 0,7 | -18,9 | 18,0 | 69,0 | 35,7 | 24,4 |
| ES53 | Illes Balears | 3,0 | 0,2 | 3,0 | 30,4 | 70,2 | 45,6 | 26,6 |
| ES61 | Andalucia | 4,5 | 0,7 | -110,8 | 8,5 | 68,3 | 55,1 | 22,8 |
| ES62 | Región de Murcia | 5,0 | 0,7 | -23,4 | 13,7 | 68,5 | 55,5 | 21,0 |
| ES63 | Ciudad Autónoma de Ceuta (ES) |  | 0,2 | -18,7 | 88,2 | 68,4 |  | 30,6 |
| ES64 | Ciudad Autónoma de Melilla (ES) |  | 0,2 | -4,2 | 95,0 | 67,1 |  | 33,3 |
| ES70 | Canarias (ES) | 3,2 | 0,5 | -12,5 | 18,5 | 71,8 | 11,0 | 22,7 |
| FI13 | Itä-Suomi | 7,6 | 1,4 | -12,6 | 11,1 | 65,2 | 3,9 | 30,4 |
| FI18 | Etelä-Suomi | 12,3 | 3,2 | -1,5 | 52,1 | 68,2 | 17,9 | 36,4 |
| FI19 | Länsi-Suomi | 11,6 | 2,2 | -15,6 | 12,8 | 65,7 | 12,0 | 32,5 |
| FI1A | Pohjois-Suomi | 9,6 | 4,5 | -13,5 | 22,2 | 65,9 | 2,2 | 31,9 |
| FI20 | Åland |  | 0,2 | 0,0 | 43,7 | 65,2 | 12,4 | 43,4 |
| FR10 | Île de France | 12,7 | 3,4 | -1,4 | 84,9 | 67,8 | 48,7 | 55,6 |
| FR21 | Champagne-Ardenne | 6,5 | 0,6 | -20,8 | 15,4 | 65,2 | 61,3 | 31,5 |
| FR22 | Picardie | 12,3 | 1,1 | -34,6 | 8,4 | 65,3 | 69,3 | 27,4 |
| FR23 | Haute-Normandie | 12,3 | 1,5 | -26,3 | 21,3 | 65,4 | 66,5 | 32,0 |
| FR24 | Centre | 10,9 | 1,6 | -29,5 | 11,5 | 63,7 | 60,9 | 31,5 |
| FR25 | Basse-Normandie | 8,9 | 1,0 | -17,9 | 13,4 | 63,4 | 77,4 | 31,5 |
| FR26 | Bourgogne | 8,6 | 1,2 | -13,3 | 14,3 | 63,4 | 58,7 | 30,6 |
| FR30 | Nord - Pas-de-Calais | 8,4 | 0,7 | -23,0 | 24,0 | 65,2 | 68,7 | 32,8 |
| FR41 | Lorraine | 9,5 | 1,1 | 0,0 | 14,2 | 65,8 | 49,0 | 32,3 |
| FR42 | Alsace | 14,0 | 1,4 | 0,4 | 22,2 | 66,9 | 40,7 | 35,9 |
| FR43 | Franche-Comté | 16,4 | 2,2 | -13,7 | 11,0 | 65,0 | 45,7 | 28,9 |
| FR51 | Pays de la Loire | 10,5 | 1,1 | -28,8 | 15,3 | 64,0 | 71,2 | 27,9 |
| FR52 | Bretagne | 9,0 | 1,8 | -28,6 | 8,4 | 63,4 | 65,3 | 32,6 |
| FR53 | Poitou-Charentes | 7,3 | 0,7 | -38,2 | 6,5 | 62,9 | 68,4 | 29,9 |
| FR61 | Aquitaine | 8,0 | 1,5 | -5,9 | 23,8 | 63,9 | 38,3 | 37,5 |
| FR62 | Midi-Pyrénées | 9,5 | 3,3 | -15,4 | 25,3 | 63,8 | 56,3 | 34,9 |
| FR63 | Limousin | 9,8 | 0,8 | -6,7 | 23,9 | 62,1 | 51,9 | 30,8 |
| FR71 | Rhône-Alpes | 11,9 | 2,4 | -6,3 | 22,2 | 65,4 | 37,3 | 38,6 |
| FR72 | Auvergne | 6,4 | 2,2 | -14,4 | 19,4 | 63,9 | 58,9 | 34,2 |
| FR81 | Languedoc-Roussillon | 5,2 | 2,2 | -55,0 | 10,7 | 63,4 | 38,0 | 34,6 |
| FR82 | Provence-Alpes-Côte d'Azur | 8,2 | 1,9 | -24,3 | 27,1 | 63,7 | 28,5 | 40,6 |
| FR83 | Corse |  | 0,3 | -52,8 | 22,4 | 64,4 | 35,3 | 56,3 |
| FR91 | Guadeloupe (FR) |  | 1,6 | 0,0 | 46,8 | 65,0 | 27,0 | 32,7 |
| FR92 | Martinique (FR) |  | 1,6 | 0,0 | 43,8 | 65,1 | 29,6 | 35,7 |
| FR93 | Guyana (FR) |  | 1,6 | 0,0 | 26,8 | 60,8 | 0,3 | 28,0 |
| FR94 | Réunion (FR) |  | 1,6 | 0,0 | 17,3 | 65,5 | 19,4 | 31,2 |
| GR11 | Anatoliki Makedonia, Thraki | 2,2 | 0,5 | 6,0 | 10,0 | 65,9 |  | 21,2 |
| GR12 | Kentriki Makedonia | 3,5 | 0,6 | 0,7 | 41,3 | 68,0 |  | 19,4 |
| GR13 | Dytiki Makedonia | 1,2 | 0,1 | 19,3 | 10,4 | 65,0 |  | 22,2 |
| GR14 | Thessalia | 1,6 | 0,3 | -23,1 | 15,6 | 65,6 |  | 22,1 |
| GR21 | Ipeiros | 2,0 | 0,9 | -16,1 | 18,1 | 65,2 |  | 22,1 |
| GR22 | Ionia Nisia | 1,3 | 0,1 | 12,2 | 19,6 | 64,7 |  | 19,1 |

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|---|---|---|---|---|---|---|---|---|
| GR23 | Dytiki Ellada | 3,0 | 0,9 | 3,5 | 23,0 | 66,4 | | 20,2 |
| GR24 | Sterea Ellada | 3,7 | 0,2 | -14,8 | 9,5 | 65,7 | | 20,0 |
| GR25 | Peloponnisos | 2,5 | 0,4 | 14,1 | 7,1 | 63,9 | | 22,5 |
| GR30 | Attiki | 6,1 | 1,0 | -4,0 | 89,0 | 70,7 | | 18,7 |
| GR41 | Voreio Aigaio | 1,2 | 0,2 | -14,0 | 16,4 | 64,0 | | 23,8 |
| GR42 | Notio Aigaio | 1,6 | 0,1 | -19,4 | 15,5 | 68,4 | | 18,2 |
| GR43 | Kriti | 2,1 | 1,0 | -3,6 | 22,4 | 66,5 | | 19,4 |
| HU10 | Közép-Magyarország | 11,2 | 1,3 | -1,0 | 70,7 | 69,4 | 53,3 | 14,6 |
| HU21 | Közép-Dunántúl | 14,6 | 0,4 | -5,2 | 9,7 | 69,5 | 58,4 | 8,1 |
| HU22 | Nyugat-Dunántúl | 14,1 | 0,2 | 1,7 | 11,6 | 69,3 | 57,7 | 8,9 |
| HU23 | Dél-Dunántúl | 8,7 | 0,4 | -6,0 | 16,7 | 68,5 | 62,2 | 7,8 |
| HU31 | Észak-Magyarország | 12,8 | 0,2 | -13,1 | 14,5 | 67,1 | 56,6 | 7,5 |
| HU32 | Észak-Alföld | 9,6 | 0,6 | -23,4 | 12,8 | 67,5 | 69,8 | 7,4 |
| HU33 | Dél-Alföld | 7,7 | 0,6 | 4,0 | 12,6 | 67,8 | 71,5 | 7,9 |
| IE01 | Border, Midlands and Western | 8,2 | 1,1 | -38,2 | 5,8 | 65,7 | 57,0 | 33,4 |
| IE02 | Southern and Eastern | 10,0 | 1,1 | -2,6 | 34,3 | 68,7 | 66,9 | 37,1 |
| ITC1 | Piemonte | 16,1 | 1,6 | -5,9 | 32,0 | 66,2 | 43,4 | 33,6 |
| ITC2 | Valle d'Aosta/Vallée d'Aoste | | 0,7 | -6,7 | 34,5 | 67,6 | 21,2 | 34,7 |
| ITC3 | Liguria | 8,3 | 1,1 | -9,4 | 43,8 | 63,2 | 13,3 | 35,0 |
| ITC4 | Lombardia | 14,4 | 1,2 | -2,2 | 36,3 | 68,1 | 42,1 | 36,9 |
| ITD1 | Provincia Autonoma Bolzano-Bozen | 5,9 | 0,5 | | 10,4 | 67,0 | 36,1 | |
| ITD2 | Provincia Autonoma Trento | 7,4 | 0,5 | | 10,4 | 66,6 | 23,4 | |
| ITD3 | Veneto | 12,7 | 0,5 | -4,8 | 6,2 | 67,9 | 46,0 | 33,1 |
| ITD4 | Friuli-Venezia Giulia | 11,4 | 1,2 | -9,2 | 18,4 | 66,7 | 37,1 | 33,9 |
| ITD5 | Emilia-Romagna | 12,8 | 1,0 | -7,6 | 11,8 | 65,5 | 52,7 | 35,3 |
| ITE1 | Toscana | 8,6 | 1,0 | -13,4 | 14,9 | 65,4 | 34,9 | 33,9 |
| ITE2 | Umbria | 8,6 | 0,9 | -15,1 | 12,6 | 64,6 | 44,2 | 32,0 |
| ITE3 | Marche | 10,9 | 0,5 | -10,0 | 8,0 | 65,0 | 53,4 | 32,0 |
| ITE4 | Lazio | 10,0 | 1,9 | -7,4 | 51,4 | 67,7 | 48,2 | 38,8 |
| ITF1 | Abruzzo | 9,3 | 1,0 | -15,2 | 14,5 | 65,4 | 42,1 | 30,1 |
| ITF2 | Molise | 10,0 | 0,4 | -38,4 | 12,8 | 64,6 | 59,1 | 30,6 |
| ITF3 | Campania | 5,9 | 1,0 | -15,9 | 51,1 | 67,1 | 49,6 | 31,2 |
| ITF4 | Puglia | 5,0 | 0,6 | -38,2 | 9,2 | 67,3 | 78,4 | 28,7 |
| ITF5 | Basilicata | 8,1 | 0,8 | -46,0 | 9,4 | 65,6 | 46,4 | 29,5 |
| ITF6 | Calabria | 4,4 | 0,3 | -175,2 | 7,8 | 66,3 | 50,8 | 28,2 |
| ITG1 | Sicilia | 4,1 | 0,9 | -50,5 | 14,5 | 65,9 | 62,8 | 29,9 |
| ITG2 | Sardegna | 3,3 | 0,7 | -39,6 | 17,9 | 70,0 | 63,8 | 30,3 |
| LT00 | Lietuva | 4,7 | 0,6 | | | 67,0 | 38,8 | 5,7 |
| LU00 | Luxembourg (Grand-Duché) | 4,7 | 1,8 | | | 67,1 | 49,6 | 71,3 |
| LV00 | Latvija | 4,2 | 0,5 | | | 68,2 | 24,5 | 4,5 |
| MT00 | Malta | 9,3 | 1,4 | | | 68,5 | 34,2 | 16,2 |
| NL11 | Groningen | 6,3 | 1,8 | -0,7 | 29,9 | 68,6 | 67,7 | 32,1 |
| NL12 | Friesland | 5,6 | 0,7 | 6,7 | 13,5 | 66,5 | 57,2 | 28,6 |
| NL13 | Drenthe | 6,9 | 0,7 | -15,1 | 19,3 | 65,8 | 56,9 | 28,3 |
| NL21 | Overijssel | 7,1 | 1,8 | 11,9 | 13,4 | 66,7 | 61,8 | 31,4 |
| NL22 | Gelderland | 7,0 | 2,3 | 11,8 | 7,6 | 67,1 | 48,3 | 30,8 |
| NL23 | Flevoland | 9,0 | 2,1 | 8,3 | 20,5 | 68,1 | 37,1 | 23,3 |
| NL31 | Utrecht | 8,3 | 1,9 | 5,3 | 20,7 | 68,5 | 48,6 | 41,2 |

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|---|---|---|---|---|---|---|---|---|
| NL32 | Noord-Holland | 6,0 | 1,8 | 2,6 | 27,3 | 68,6 | 40,4 | 40,2 |
| NL33 | Zuid-Holland | 7,1 | 1,8 | 7,1 | 16,9 | 67,7 | 42,7 | 35,5 |
| NL34 | Zeeland | 7,4 | 0,9 | -21,0 | 12,4 | 65,1 | 62,9 | 30,4 |
| NL41 | Noord-Brabant | 8,9 | 3,4 | 17,3 | 8,1 | 68,1 | 51,2 | 33,8 |
| NL42 | Limburg (NL) | 8,9 | 2,0 | 18,8 | 10,1 | 67,8 | 46,9 | 30,2 |
| NO01 | Oslo og Akershus | 9,6 | 3,1 | | 75,1 | 67,7 | | |
| NO02 | Hedmark og Oppland | 3,9 | 0,8 | | 7,7 | 63,6 | | |
| NO03 | Sør-Østlandet | 8,4 | 1,5 | | 7,0 | 64,9 | | |
| NO04 | Agder og Rogaland | 9,7 | 1,3 | | 16,8 | 64,8 | | |
| NO05 | Vestlandet | 7,7 | 1,9 | | 25,1 | 64,0 | | |
| NO06 | Trøndelag | 7,2 | 4,1 | | 34,9 | 64,6 | | |
| NO07 | Nord-Norge | 4,4 | 1,5 | | 10,2 | 64,8 | | |
| PL11 | Lódzkie | 7,1 | 0,6 | 21,3 | 30,9 | 69,2 | 59,9 | 6,1 |
| PL12 | Mazowieckie | 8,4 | 1,5 | 13,7 | 32,1 | 68,9 | 56,8 | 11,7 |
| PL21 | Malopolskie | 5,9 | 0,8 | 34,9 | 22,9 | 68,2 | 49,3 | 6,9 |
| PL22 | Slaskie | 8,5 | 0,4 | 113,2 | 7,2 | 71,6 | 39,2 | 7,8 |
| PL31 | Lubelskie | 4,7 | 0,5 | 35,8 | 15,9 | 67,4 | 57,1 | 6,3 |
| PL32 | Podkarpackie | 6,6 | 0,4 | 53,0 | 7,6 | 67,4 | 42,0 | 6,5 |
| PL33 | Swietokrzyskie | 3,9 | 0,1 | 45,8 | 16,2 | 67,7 | 55,9 | 6,4 |
| PL34 | Podlaskie | 3,3 | 0,2 | 14,4 | 23,0 | 67,1 | 51,5 | 7,6 |
| PL41 | Wielkopolskie | 9,0 | 0,5 | 48,6 | 17,3 | 69,8 | 59,2 | 7,1 |
| PL42 | Zachodniopomorskie | 7,7 | 0,2 | 16,6 | 24,2 | 70,7 | 46,9 | 6,6 |
| PL43 | Lubuskie | 6,2 | 0,2 | 56,4 | 12,2 | 70,5 | 34,2 | 5,8 |
| PL51 | Dolnoslaskie | 7,8 | 0,6 | 46,9 | 21,5 | 70,7 | 53,0 | 8,0 |
| PL52 | Opolskie | 9,2 | 0,2 | 30,8 | 12,0 | 70,4 | 57,9 | 6,7 |
| PL61 | Kujawsko-Pomorskie | 6,7 | 0,4 | 48,3 | 18,4 | 69,7 | 58,1 | 6,3 |
| PL62 | Warminsko-Mazurskie | 6,1 | 0,3 | 24,4 | 11,5 | 69,3 | 48,6 | 6,4 |
| PL63 | Pomorskie | 9,4 | 0,5 | 43,3 | 21,0 | 69,9 | 44,4 | 7,4 |
| PT11 | Norte | 4,1 | 0,5 | 37,3 | 8,3 | 68,5 | 32,2 | 14,9 |
| PT15 | Algarve | | 0,4 | 8,6 | 8,1 | 66,9 | 23,4 | 16,7 |
| PT16 | Centro (PT) | 4,3 | 0,8 | 35,7 | 5,0 | 65,6 | 25,7 | 15,1 |
| PT17 | Lisboa | 8,7 | 0,9 | 7,8 | 19,2 | 69,0 | 29,4 | 23,3 |
| PT18 | Alentejo | 4,5 | 0,5 | 31,9 | 7,2 | 63,9 | 65,2 | 15,2 |
| PT20 | Região Autónoma dos Açores | | 2,6 | 0,0 | 8,3 | 66,6 | 60,9 | 17,3 |
| PT30 | Região Autónoma da Madeira | | 0,4 | 0,0 | 40,5 | 67,9 | 7,8 | 16,9 |
| RO01 | Nord-Est | 4,2 | 0,7 | -14,3 | 9,1 | 66,5 | 57,9 | 3,0 |
| RO02 | Sud-Est | 3,7 | 0,7 | 18,7 | 11,7 | 69,3 | 65,3 | 3,0 |
| RO03 | Sud | 8,4 | 0,7 | 31,5 | 7,3 | 67,5 | 70,9 | 3,1 |
| RO04 | Sud-Vest | 7,1 | 0,7 | 19,2 | 13,0 | 67,4 | 62,0 | 3,3 |
| RO05 | Vest | 11,5 | 0,7 | 7,3 | 16,3 | 69,7 | 59,1 | 3,4 |
| RO06 | Nord-Vest | 3,9 | 0,7 | -5,1 | 11,7 | 69,3 | 61,2 | 3,1 |
| RO07 | Centru | 8,2 | 0,7 | 18,3 | 12,0 | 69,8 | 55,5 | 3,4 |
| RO08 | Bucuresti | 10,5 | 0,7 | 2,3 | 88,7 | 72,8 | 64,5 | 5,2 |
| SE01 | Stockholm | 12,8 | 4,3 | 2,8 | 63,7 | 67,5 | | 49,5 |
| SE02 | Östra Mellansverige | 12,7 | 2,8 | -19,9 | 8,1 | 64,7 | | 35,2 |
| SE04 | Sydsverige | 11,4 | 3,1 | -7,1 | 18,4 | 64,5 | | 37,6 |
| SE06 | Norra Mellansverige | 8,7 | 1,4 | -38,2 | 8,1 | 63,0 | | 35,5 |
| SE07 | Mellersta Norrland | 7,7 | 0,3 | -12,4 | 12,9 | 63,0 | | 36,6 |

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|---|---|---|---|---|---|---|---|---|
| SE08 | Övre Norrland | 7,8 | 1,0 | -28,6 | 13,3 | 64,5 | | 35,8 |
| SE09 | Småland med öarna | 10,4 | 0,7 | -22,0 | 10,0 | 63,0 | | 36,3 |
| SE0A | Västsverige | 13,4 | 5,3 | -3,3 | 27,3 | 64,6 | | 37,9 |
| SI00 | Slovenija | 12,6 | 1,6 | | | 68,3 | 25,1 | 16,9 |
| SK01 | Bratislavský | 13,7 | 1,2 | 1,2 | 73,3 | 74,0 | 42,0 | 11,2 |
| SK02 | Západné Slovensko | 14,2 | 0,6 | 2,1 | 4,7 | 71,7 | 58,1 | 5,0 |
| SK03 | Stredné Slovensko | 9,6 | 0,6 | 54,7 | 6,4 | 70,5 | 37,0 | 5,3 |
| SK04 | Východné Slovensko | 10,5 | 0,3 | 18,7 | 15,5 | 69,2 | 43,1 | 5,0 |
| UKC1 | Tees Valley and Durham | 9,3 | 0,9 | | 7,5 | 65,2 | | 32,6 |
| UKC2 | Northumberland, Tyne and Wear | 10,3 | 0,9 | | 62,3 | 65,3 | | 34,2 |
| UKD1 | Cumbria | 7,6 | 2,0 | | 14,7 | 64,1 | | 30,8 |
| UKD2 | Cheshire | 13,9 | 2,0 | | 15,5 | 65,4 | | 37,6 |
| UKD3 | Greater Manchester | 8,8 | 2,0 | | 88,2 | 65,7 | | 35,0 |
| UKD4 | Lancashire | 10,1 | 2,0 | | 18,3 | 64,3 | | 30,5 |
| UKD5 | Merseyside | 9,5 | 2,0 | | 59,6 | 64,5 | | 30,4 |
| UKE1 | East Riding and North Lincolnshire | 7,2 | 0,9 | | 8,6 | 64,1 | | 32,5 |
| UKE2 | North Yorkshire | 7,0 | 0,9 | | 16,6 | 64,6 | | 32,6 |
| UKE3 | South Yorkshire | 8,0 | 0,9 | | 48,5 | 65,2 | | 30,5 |
| UKE4 | West Yorkshire | 8,9 | 0,9 | | 68,2 | 65,4 | | 35,4 |
| UKF1 | Derbyshire and Nottinghamshire | 11,2 | 1,8 | | 30,5 | 65,5 | | 32,8 |
| UKF2 | Leicestershire, Rutland and Northants | 11,2 | 1,8 | | 26,7 | 66,1 | | 35,0 |
| UKF3 | Lincolnshire | 8,8 | 1,8 | | 15,6 | 63,4 | | 27,9 |
| UKG1 | Herefordshire, Worcestershire and Warks | 13,1 | 1,4 | | 6,8 | 65,1 | | 29,6 |
| UKG2 | Shropshire and Staffordshire | 13,5 | 1,4 | | 8,0 | 65,6 | | 27,4 |
| UKG3 | West Midlands | 11,2 | 1,4 | | 12,6 | 64,3 | | 39,9 |
| UKH1 | East Anglia | 10,6 | 3,6 | | 8,4 | 64,3 | | 30,3 |
| UKH2 | Bedfordshire, Hertfordshire | 14,9 | 3,6 | | 13,8 | 65,7 | | 35,9 |
| UKH3 | Essex | 8,9 | 3,6 | | 16,5 | 64,5 | | 29,3 |
| UKI1 | Inner London | 6,6 | 1,1 | | 104,8 | 72,6 | | 109,5 |
| UKI2 | Outer London | 8,8 | 1,1 | | 104,8 | 67,5 | | 34,3 |
| UKJ1 | Berkshire, Bucks & Oxfordshire | 14,6 | 2,6 | | 15,8 | 67,3 | | 42,6 |
| UKJ2 | Surrey, East and West Sussex | 10,3 | 2,6 | | 16,8 | 63,6 | | 35,8 |
| UKJ3 | Hampshire and Isle of Wight | 13,7 | 2,6 | | 22,9 | 65,4 | | 31,7 |
| UKJ4 | Kent | 7,0 | 2,6 | | 7,3 | 64,2 | | 30,7 |
| UKK1 | Gloucestershire, Wiltshire and North Somerset | 12,8 | 1,9 | | 23,9 | 65,3 | | 37,7 |
| UKK2 | Dorset and Somerset | 7,7 | 1,9 | | 30,2 | 61,8 | | 29,1 |
| UKK3 | Cornwall and Isles of Scilly | 7,7 | 1,9 | | 5,5 | 62,7 | | 26,2 |
| UKK4 | Devon | 7,8 | 1,9 | | 22,8 | 63,0 | | 27,0 |
| UKL1 | West Wales and The Valleys | 9,1 | 1,1 | | 14,6 | 63,4 | | 28,0 |
| UKL2 | East Wales | 9,1 | 1,1 | | 28,8 | 64,9 | | 35,8 |
| UKM1 | North Eastern Scotland | 4,7 | 1,3 | | 45,8 | | | 49,9 |
| UKM2 | Eastern Scotland | 7,5 | 1,3 | | 21,5 | | | 35,5 |
| UKM3 | South Western Scotland | 8,4 | 1,3 | | 54,6 | | | 36,5 |
| UKM4 | Highlands and Islands | 7,0 | 1,3 | | 13,5 | | | 15,3 |
| UKN0 | Northern Ireland | 6,9 | 0,9 | | 33,0 | 65,0 | | 31,9 |

ESPON
EUROPEAN SPATIAL PLANNING OBSERVATION NETWORK

TAURUS
Environmental, Regional and Economic Research and Consultancy
Institute at the University of Trier

# ESPON project 4.1.3

# Feasibility study on monitoring territorial development based on ESPON key indicators

## Part B

## Scientific Working Paper

## Final Report

Co-financed by the European Community through the Interreg III ESPON Programme

For full information please see http://www.espon.eu
Co-financed by the European Union through the INTERREG III ESPON Programme.
This report does not necessarily reflect the opinion of the Monitoring Committee.

# ESPON Project 4.1.3

# *Feasibility study on monitoring territorial development based on ESPON key indicators*

## Part B

## Scientific Working Paper

## Final Report


Co-financed by the European Union through the INTERREG III ESPON Programme.

This report represents the final results of a research project conducted within the framework of the ESPON 2000-2006 programme, partly financed through the INTERREG programme.

The partnership behind the ESPON programme consists of the EU Commission and the Member States of the EU25, plus Norway and Switzerland. Each partner is represented in the ESPON Monitoring Committee.

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

Information on the ESPON programme and projects can be found on www.espon.eu

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

This basic report exists only in an electronic version.
**TAURUS – Institute at the University of Trier**
**Trier, Germany**
**November 2006**

# Foreword

This is the final report of the ESPON Project 4.1.3 “Feasibility study on monitoring territorial development based on ESPON key indicators”. The project started on 1 June 2006.

ESPON Project 4.1.3 adopts an important position in the ESPON Programme as the search for and selection of specific indicators should contribute to a spatial monitoring for the ESPON space. The project started the first attempt ever to implement or found an all European spatial monitoring system.

The ESPON Programme was launched after the preparation of the European Spatial Development Perspective (ESDP), adopted by the Ministers responsible for Spatial Planning of the EU in May 1999 in Potsdam (Germany) calling for a better balanced and polycentric development of the European territory. The programme is implemented in the framework of the Community Initiative INTERREG III. Under the overall control of Luxembourg, the EU Member States elaborated a joint application with the title "The ESPON 2006 Programme – Research on the Spatial Development of an Enlarging European Union". The European Commission adopted the programme on 3 June 2002.

See http://www.espon.eu for more details.

The views expressed in this report do not necessarily reflect the opinion of the ESPON Monitoring Committee.

The project team was composed of ten institutions.

The institutes are listed below, followed by a list of staff involved in the project.

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The present Final Report of the ESPON Project 4.1.3 is a team effort of all project partners under the leadership of the BBR and IRS.[1]

BBR - Bundesamt für Bauwesen und Raumordnung
(Germany)

Contact: Dr. Peter Schön
Bundesamt für Bauwesen und Raumordnung (BBR)
*Federal Office for Building and Regional Planning*
Deichmanns Aue 31 - 37
53179 Bonn
Tel. +49.(0)1888.401-2329
Fax +49.(0)1888.401-2260
E-mail: Peter.Schön@bbr.bund.de
Web-page: www.bbr.bund.de

TAURUS Institut an der Universität Trier
(Germany)

IRS - Institute for Regional Development and Structural Planning
(Germany)

IGEAT - Institut de Gestion de l'Environnement & Aménagement du Territoire Université Libre de Bruxelles
(Belgium)

NORDREGIO - Nordic Centre for Spatial Development (Sweden)

[1] Alphabetic order by names or titles of the institutes or companies


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ÖIR - Österreichisches Institut für Raumordnung
(Austria)

DIG - Department of Management, Economics and
Industrial Engineering, Politecnico di Milano
(Italy)


RRG - Büro f. Raumforschung, Raumplanung u. Geoinformation
(Germany)




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# Staff involved in the project

The staff involved in the project is listed in alphabetic order first by country and then by the surnames of the corresponding persons.

### List of persons involved in the ESPON Project 4.1.3

#### Austria

- *Schneidewind,* Peter; Österreichisches Institut für Raumplanung, Vienna
- *Schuh*, Bernd; Österreichisches Institut für Raumplanung, Vienna

#### Belgium

- *Lennert,* Moritz; Institut de Gestion de l'Environnement & Aménagement du Territoire, Brussels

#### Germany

- *Braun,* Thomas; TAURUS Institut an der Universität Trier, Trier
- *Gebhardt*, Dirk; Bundesamt für Bauwesen und Raumordnung, Bonn
- *Gensheimer*, Michaela; TAURUS Institut an der Universität Trier, Trier
- *Heidbrink*, Ingo; Bundesamt für Bauwesen und Raumordnung, Bonn
- *Müller*, Kristine; Institut für Regionalentwicklung und Strukturplanung, Erkner
- *Muschwitz*, Christian; TAURUS Institut an der Universität Trier, Trier
- *Pflanz*, Kai; Bundesamt für Bauwesen und Raumordnung, Bonn
- *Porsche*, Lars; Bundesamt für Bauwesen und Raumordnung, Bonn
- *Schön*, Peter; Bundesamt für Bauwesen und Raumordnung, Bonn
- *Schmidt-Seiwert*, Volker; Bundesamt für Bauwesen und Raumordnung, Bonn
- *Schürmann*, Carsten; Büro f. Raumforschung, Raumplanung u. Geoinformation, Oldenburg i.H.
- *Zillmer*, Sabine; Institut für Regionalentwicklung und Strukturplanung, Erkner

#### Italy

- *Camagni,* Roberto; Department of Management, Economics and Industrial Engineering (DIG)
- *Capello*, Roberta; Department of Management, Economics and Industrial Engineering (DIG)
- *Caragliu*, Andrea; Department of Management, Economics and Industrial Engineering (DIG)


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- *Fratesi*, Ugo; Department of Management, Economics and Industrial Engineering (DIG)

**Sweden**

- *Dubois,* Alexandre; Nordic Centre for Spatial Development, Stockholm
- *Gløersen*, Erik; Nordic Centre for Spatial Development, Stockholm
- *Neubauer*, Jörg; Nordic Centre for Spatial Development, Stockholm


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## Abbreviations used by the project team 4.1.3

| Abbreviation | Term |
|---|---|
| AC | Accession Country |
| BSR | Baltic Sea Region |
| CDCR | Committee for Development and Conversion of Regions |
| CEMAT | Conférence européenne des Ministres responsables de l'Aménagement du Territoire |
| CORINE | Coordination of Information on the Environment |
| CU | Co-ordination Unit |
| ECP | ESPON Contact Point |
| EEA | European Environmental Agency |
| ESDP | European Spatial Development Perspective |
| ESPON | European Spatial Planning Observation Network |
| et seq | and the following |
| FR | Final Report |
| FUA | Functional Urban Area |
| GDP | Gross Domestic Product |
| GIS | Geographical Information System |
| i.e. | that is |
| ICT | Information and Communication Technology |
| IR | Interim Report |
| LAU | Local administrative unit |
| LP | Lead Partner |
| MA | Management Authority |
| MAUP | Modifiable Area Unit Problem |
| MC | Monitoring Committee |
| MEGA | Metropolitan European Growth Area |
| MS | Microsoft |
| NSI | National Statistical Institute |


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| Abbreviation | Term |
|---|---|
| NUTS | Nomenclature des unités territoriales statistiques |
| OECD | Organisation for Economic Cooperation and Development |
| R & D | Research and development |
| RCE | Regional Classification of Europe |
| ToR | Terms of Reference |
| TPG | Transnational Project Group |
| WP | Work Package |


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# 1 Summary

## 1.1 Executive Summary

This final report presents the work of the ESPON transnational project group for the "Feasibility study on monitoring territorial development based on ESPON key indicators". Project 4.1.3 belongs to the "ESPON Research briefing and scientific networking" priority and in particular to measure 4.1 "data navigator: preparatory survey on data and scientific support actions".

The project started its work in June 2006. Its main aim was to contribute to the development of a European Spatial Monitoring System for the continuous assessment of territorial trends in relation to given territorial policy objectives. The TPG tested the capability of the indicators and tool, so far available within ESPON, in order to support a continuous reporting by elaborating a tentative spatial report. Against this background a preliminary set of indicators was defined, suitable for the provision of information on economic, social and environmental issues, and informing about the main changes in territorial structures, trends, and imbalances. It is important to emphasise the differentiation between indicators for sectorally oriented themes (current structures and territorial dynamics) and indicators representing the development of relevant policy fields and objectives. The work on the selection process of suitable indicators as well as the selected so called "routing indicators" is reflected in this final report (see section 2.6.1).

Before a spatial analysis is started, the set of indicators to be applied for that purpose needs to be reflected upon. As policy makers cannot be expected to have a profound knowledge of data and indicators, their relevance, related problems and challenges, **chapter two** gives an introduction into this field and some substantial background information. The chapter begins with a general discussion about indicators and step by step approaches the challenges of availability and homogeneity linked to the questionable quality of existing data. The research area of the project, the EU 25+2+2, has been a considerable challenge as data is collected in up to 29 different ways in the countries participating in the ESPON Programme. The chapter further examines complex indicators versus simple indicators and the recurrent debate about qualitative and quantitative indicators. The latter needs to be addressed here, too, because within the framework of this project the decision for the most suitable indicators could also involve the decision for some qualitative indicators. There is also a short discussion about the most appropriate statistical unit or standard for the analysis and representation of current structures and territorial dynamics, as well as the development of relevant policy fields and objectives. One option would be to make use of existing statistical units (Nomenclature of Territorial Units for Statistics, NUTS 2/3). However, the NUTS classification is problematic because of enormous differences and variations


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within the system. NUTS 2, for instance, is meant to be most appropriate to indicate and illustrate regional development in terms of regions with functional interactions. But in several countries the NUTS 2 level does not represent functional areas. At present there is no real solution for this difficulty[2]. For the time being, ESPON and thus project 4.1.3 have to make the most of the given situation and the existing statistical units. But for the future, a more appropriate solution needs to be found. The different expectations concerning spatial monitoring, especially from the point of view of policy makers, are presented in the following sub-chapter. Obviously, scientists and policy-makers have different approaches and take different actions to reach an aim. Nevertheless, the two groups need one another. Policy-makers are interested in the future rather than in the past. However, data on the past can give misleading pictures for the future; oftentimes (but not always) experts know where these past-future-fallacies are.

The chapter concludes with an outline of the framework applied by the TPG to select indicators. In order to form the basis for a continuous European spatial monitoring, it is necessary to identify and specify indicators, which can appropriately describe spatial developments of the European territory. Such indicators need to fulfil a number of requirements, e.g. in terms of their quality, spatial coverage, spatial level. The problems of selecting the most suitable indicators are shortly specified and the applied methodology for their identification explained.

As pointed out in the ToR, ESPON project 4.1.3 was free to make use of indicators from outside the ESPON programme. Indicators from other sources could be proposed if they were useful and had a high explanatory power in terms of the thematic field they represent and the policy objective addressed. Table 1-1 reveals the “outside” sources used by the TPG in the course of their indicator work:

**Table 1-1 Sources for the identification of indicators and/or data**

| | |
|---|---|
| INTERREG IIIB BSR | Nordregio (special study) |
| Eurostat Regio Database | World Bank |
| CORINE 2000 Dataset / 1990 Dataset | EEA |
| Various national sources on sustainability | Various national sources on Lisbon and Gothenburg strategy |
| United Nations University | European Social Survey, ESS Edition 2.0 (2004) |
| CITERES | Mcrit |
| Forbes 2000 | CIS 3 – Third community innovation survey |

Given this new research framework, it seemed useful to assign a new name to such an indicator list to point out its differences compared to previous indicator concepts. Therefore, the indicators suggested by this report are called '**routing**' indicators.

[2] Different ESPON projects discussed the problems and the so called MAUP project (no. 3.4.3) worked intensively on the issue.

The identified 'routing' indicators need to be complemented by a wish list of indicators not appropriately available yet but highly useful.

The way to the routing indicators leads through a so called “multi level filter process”. Two standardised procedures were developed:

- Filtering Procedure for the routing indicators and
- the Wish list Procedure for those indicators that have certain shortcomings but should become part of the list of routing indicators in the future.

Routing indicators are distinguished from other indicators by their ability to represent much broader contexts and to show the development tendency of an entire thematic field. Their function is that of a lighthouse, guiding through endless sources of information, or an early-warning-system indicating if and when some unintended development becomes apparent. Routing indicators need to be appropriate in their complexity and expressiveness. One of the most important preconditions is their spatial coverage. Not only should they cover the whole ESPON space, but the statistical data has to be updated regularly in short intervals, most preferably annually.

**Chapter 3** traces the various steps of the TPG in the process of indicator selection. Initially, six “dimensions” or “policy fields” were identified by ESPON 4.1.3 to cover the wide range of spatially relevant policies. The previous ten policy fields of the ESPON key indicator matrix were grouped according to policy concepts and ESDP policy options, resulting in the following six work packages for the project:

- WP 1: Territorial cohesion
- WP 2: Lisbon
- WP 3: Infrastructure and accessibility
- WP 4: Gothenburg
- WP 5: Socio-cultural issues
- WP 6: Governance

The six policy concepts respectively policy options are described in chapter 3. The various difficulties linked to the monitoring of these concepts and already experienced by previous ESPON research projects are highlighted. Furthermore, methodological aspects and particular challenges encountered when working on the respective concepts (e. g. a revised Gothenburg Strategy having been published parallel to drafting the interim report) are mentioned just like the sources used to find appropriate indicators. In this respect, the chapter reveals the meticulous research work of the TPG, that has always been fully aware of the obstacles within their work, the flaws regarding data and the needs they were expected to meet with their work.


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For the interim report, submitted end of July 2006, an extensive first list of both, routing and wish list indicators could be proposed which was further discussed by the TPG. The search for indicators until then had not been equally successful for all work packages. While, for instance, “Governance” seemed to be rather difficult to cover, a lot of indicators could be assigned to “Gothenburg”, already at that stage. Furthermore, because of the very tight schedule for the project there was hardly any chance to discuss the chosen indicators with the entire project team at that stage. As a result, overlaps and double usage of indicators could not be avoided at first, giving rise to reflections on the given structure of the “old” matrix of key indicators. Consequently, a “new” matrix (see chapter 3.2) emerged from the TPG meeting in August 2006. The previous policy orientation of the “old” matrix proved to be not only too detailed but also too vulnerable to changes on the political agenda. Therefore the previous orientation was condensed to six thematic fields, thereby making the monitoring system more robust and durable.

Finally, the indicators selected on the basis of a thematic orientation are shortly presented in chapter 3.3. More detailed information on all indicators can be found in the Annex to this Scientific working paper. It becomes quite clear here, that ESPON 4.1.3 favoured a thematically orientated spatial monitoring in a lean way, being reflected by the limited number of "routing indicators" per theme.

The question of whether and how a spatial monitoring of the EU 25+2+2 could be extended to include neighbouring countries or countries even further afield is briefly discussed in **chapter 4**. For some issues or policy concepts it may be interesting to include non-ESPON countries into a spatial monitoring. The last enlargement of the EU, to include several countries of Middle and Eastern Europe, also extended the borders further East. Developments of the new neighbouring countries there obviously have an impact on the EU space, as well. The same can be said for Northern African countries, that have a particular social impact on the EU by the influx of migrants and refugees to the EU territory. As can be seen in this report, there are still considerable problems regarding data availability, comparability, etc. within the ESPON space. Accordingly, even more difficulties are to be expected when spatial monitoring should include non-ESPON countries. However, limiting the themes and/or the countries to be covered, this challenge might still be manageable.

To conclude, **chapter 5** suggests some ideas for further improvements of the results achieved by the project. It is, again, made clear that ESPON 4.1.3 could only be considered as a first step towards the establishment of a continuous spatial monitoring of the EU 25+2+2. A lot of shortcomings, gaps and difficulties are still to be tackled to reach that aim. Nevertheless, the defined set of routing indicators can be considered as a major step forward.


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Problems to be targeted in the future are mainly related to the selected wish list indicators. To begin with, the spatial coverage of various indicators needs to be improved, a task predominantly addressed at the NSI and Eurostat. This final report offers a good starting point in this respect, giving a detailed overview of the precise problems and shortcomings.

A lack of spatial coverage can also be found for particular themes, that are not being dealt with in individual countries. For an interim period it could be a compromise to monitor the development of such themes where possible and to accept the absence of some other countries. Obviously, this is far from being an ideal situation. But it could still be better than dropping important themes altogether due to a lack of completeness.


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## 1.2 Scientific summary

Right from the beginning the ESPON 2006 Programme put a main focus on the retrieval of data and indicators, trying to develop systematic ways of accessing them. The whole process started with the so called Data Navigator, including data essential for territorially orientated research projects, and usually launched before the thematic work of the TPGs began. This process followed the research logic, that all content orientated projects were in need of good data.

### Prologue

The **ESPON Data Navigator** acts as the gate keeper to national data, giving an overview on the main data sources for several territorially relevant themes. The compilation of altogether 28 inventories[3] was crucial for the development of the **ESPON Database**. The ESPON Database provides fundamental regional information (from NUTS 0 - 3) provided by the finalised ESPON projects, covering the EU 25+2+2. It includes a selection of indicators, summarised in thematic tables and organised in two sections - ESPON Basic Indicators and ESPON Project Indicators, based on the themes and categories of the ESPON Data Navigator. The first version of the ESPON Database was developed by the coordination cross-thematic ESPON Project 3.1. From that stage on it was consecutively maintained and continuously amended by more data sets. The latter was done by the various thematic TPGs , who functioned in a double role. On the one hand they made use the Database themselves, on the other hand they tried to get hold of new data, backing their individual research interests. Whenever new data matched the standards of the ESPON Database it was added to it.

A fourth step was the systematic exploitation of the Database. This process started in parallel with the work of the thematic TPGs. The aim was to systematically condense the tremendous amount of indicators to a limited number of 'most important' indicators, derived from a policy perspective. This task was undertaken e.g. in the framework of the coordinating projects 3.1 and 3.2. The TPGs isolated the so-called **“core indicators”** from other indicators used in their respective projects. These indicators were compiled in the 'core indicator list' by the coordinating projects and represent the most important indicators for the respective thematic fields analysed by the TPGs. Altogether roughly 100 such indicators were identified from a total list of more than 1000 indicators in the ESPON Database. From this group of indicators, the coordinating project 3.2 selected the so-called **“key indicators”**. These indicators attempt to link the thematic fields with

[3] One from each of the 25 Member States as well as from Switzerland and Norway, one covering the European and transnational level and three dealing with relevant data in accession and neighbouring countries, covering the Baltic Area, the Cadses Space and the Mediterranean Basin.

territorial policy objectives. The first draft of this key indicator list resulted in a matrix structure including 28 indicators (see Table 3-2).

### ESPON 4.1.3 focus

For the time being, ESPON Project 4.1.3 marks the end of the comprehensive process of data gathering and indicator development within the ESPON 2006 Programme. The main purpose of the project was to find a set of indicators that could function as “pioneers” for a spatial monitoring covering the EU 25+2+2. The TPG was asked to come up with a limited number of indicators that should have an enormous thematic relevance: the newly termed **“routing indicators”** (see below). Unlike the development process towards the so called "key indicator list", ESPON 4.1.3 searched for indicators also beyond the ESPON Database. Furthermore, the project was not bound by the quality standards of the ESPON Database, which means indicators could be chosen freely. However, in some cases they turned out not to be available in the required depth or width. Whenever this was the case, they entered the process by becoming part of the so called **“indicator wish list”** (see below). Apart from analysing various external sources, the ESPON Database was obviously still made use of, taking into account, that hardly any territorial research has been conducted that covered the EU 25+2+2. The following figure illustrates the origin of the indicators proposed by the project:


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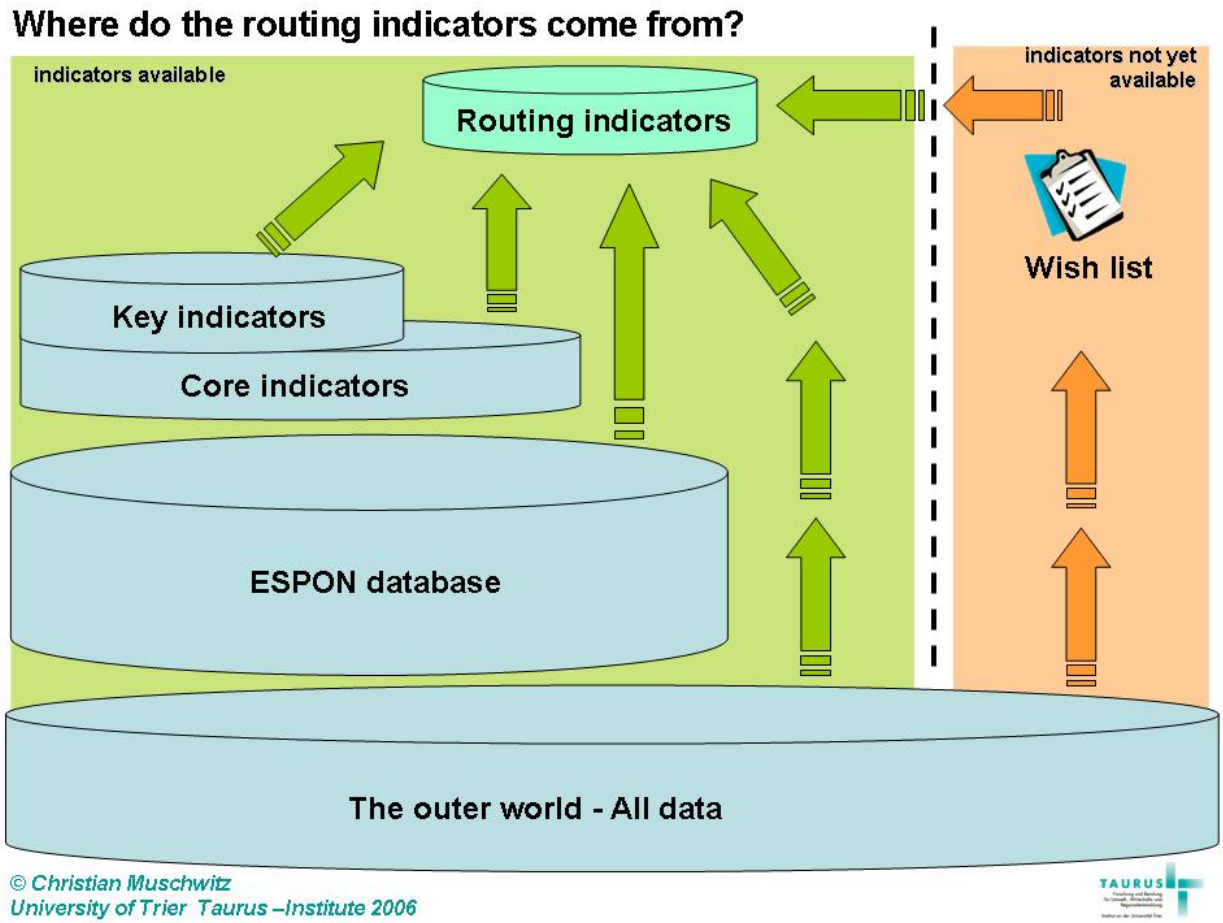
**Figure 1-1 Origin of the routing indicators**




Source: TAURUS-Institute, 2006

Altogether six overall spatially relevant concepts, derived from the matrix of key indicators, were covered by ESPON 4.1.3: Territorial cohesion, Lisbon, Infrastructure and accessibility, Gothenburg, Socio-cultural-issues and Governance. These policy fields were assigned to different partners within the TPG as individual work packages.

### Methodology

One of the project's major challenges was the development of a common methodology for selecting indicators for spatial monitoring. The chosen indicators should comply with one standard shared by all. In order to guarantee such a correspondence as best as possible, ESPON 4.1.3 developed a multistep approach which acted as a common guideline for picking indicators. The common standard was provided for by four filters that pre-selected indicators had to pass.


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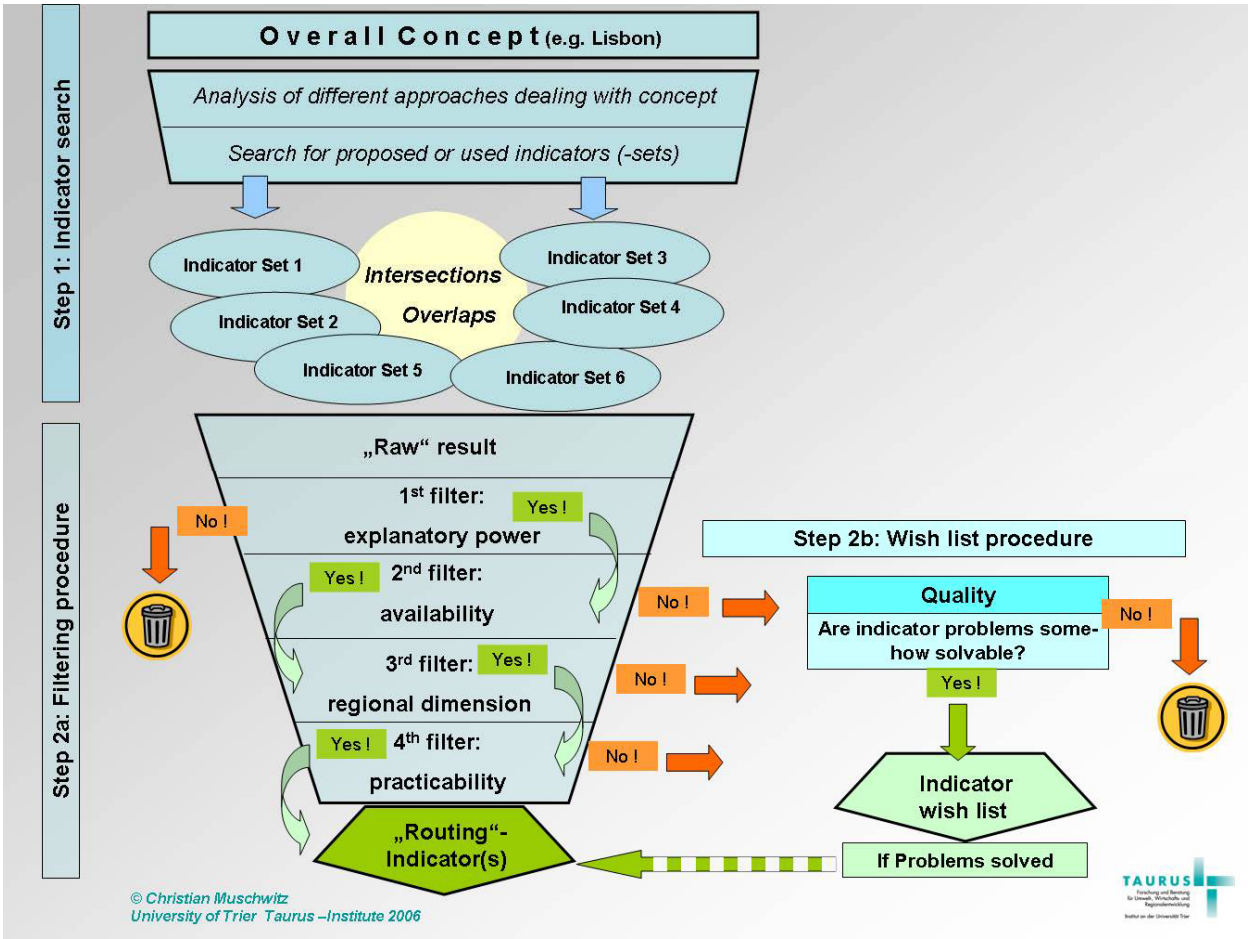
**Figure 1-2 Multi-level filtering process and Wish list procedure**




TAURUS-Institute 2006

To begin with, a broad analysis of projects and documents was conducted, dealing with the theme of the respective work package (e.g. Gothenburg). Obviously, ESPON projects presented the core sources of information since hardly any other studies have examined the European territory as a whole. However, the team's scope of research went beyond the ESPON Programme to include all available European sources such as EUROSTAT or EEA, various national sources as well as specific thematic studies. Each work package chose a comprehensive number of projects and documents that were analysed for thematically relevant indicator sets or individual indicators. These indicators were compiled and confronted with one another to be able to identify intersections and overlaps. The then available group of indicators formed the basis for the next step, the so called multi-level filtering procedure (see Figure 1-2). All indicators were checked one by one to see whether they correspond to the TPG's standard. Only if an indicator successfully passed one filter, it could enter the following filter to be checked there. Within the first filter an indicator had to stand the test of possessing sufficient explanatory power, i.e. providing enough information in order to measure the respective theme it is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supposed to monitor. If that was not the case, the indicator was discarded immediately. If, however, it was considered to be of a good explanatory power, it proceeded through the following filters.

- 1st filter: **Explanatory power**

  In fact, this first filter might be the most challenging one. Each indicator taken into consideration is tested for its ability to represent the thematic field it should cover in the best possible way. There should be no room for misinterpretation, it should be concise and to the point, the explanatory power must be extremely high. For instance, the approach of the 'ecological footprint' by WACKERNAGEL/REES[4] became famous in the discussion regarding sustainability. Eventually, the indicator "artifical land coverage" or "land use" was identified as a so called "routing indicator" for sustainability.

- 2nd filter: **Availability**

  In a second step, an indicator needs to be available, i.e. it should be collected on a regular basis by the NSI or EUROSTAT. Obviously, this filter presents a basic necessity. There is no use in entering an indicator to the set if the respective data is not available on a reasonable basis. The meaning of this filter is twofold: First, it has a spatial dimension, meaning that the data must be available for EU 25+2+2. Second, the data behind the indicator must be obtainable with reasonable resources. In an ideal case, the data is already part of the ESPON Database or can be retrieved quite easily from EUROSTAT or the NSIs.

- 3rd filter: **Regional dimension**

  Prospective indicators for monitoring spatial development should be available on a regional level to facilitate comparisons between regions in Europe. In statistical terms this translates into NUTS 2 or NUTS 3 or even beyond. Indicators that are not available on this level have to be excluded from the further filtering process.

- 4th filter: **Practicability**

  Finally, selected indicators should reveal a link to practice instead of being purely of scientific value.

If at any stage from the second to the fourth filter an indicator failed, it was shifted to the so called "**wish list procedure"**.

Indicators that stood all the tests were added to the list of "**routing indicators**". The term 'routing indicator' exceeds the currently existing definition or main idea of so called 'core or key indicators'. Routing indicators are distinguished from other

[4] Wackernagel, M. and W. Rees. 1996. Our Ecological Footprint: Reducing Human Impact on the Earth. Gabriola Island, BC: New Society Publishers. ISBN 086571312X


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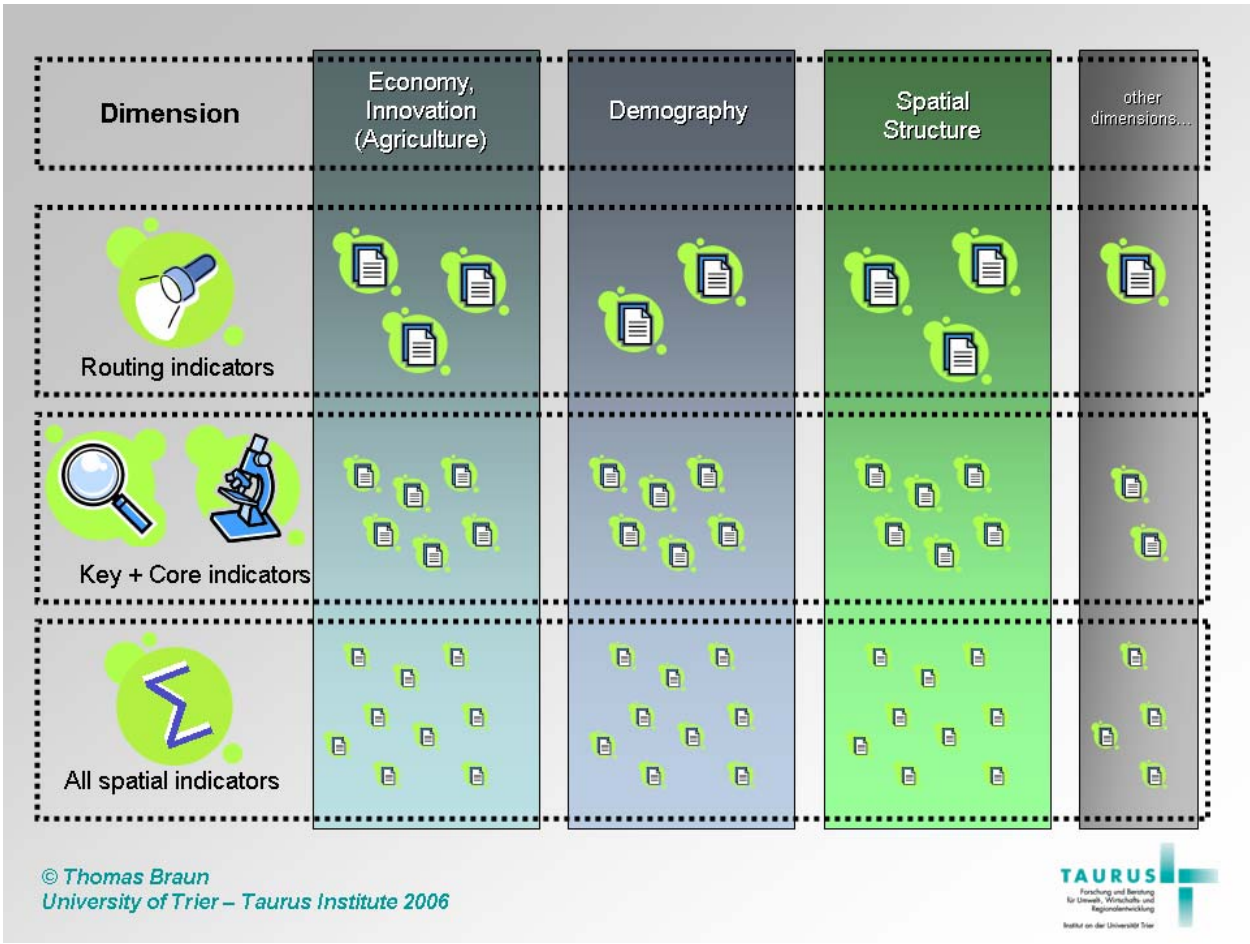
indicators by their ability to represent much broader contexts and to show the development tendency of an entire thematic field. They are the best existing indicators for a certain thematic field. In an “umbrella function” routing indicators represent and include the whole set of indicators belonging to a specific theme. For this reason, a comparatively small number of this type of indicators is needed. While there may be around 20 to 30 core indicators for one thematic field, e.g. Demography, the number of routing indicators for this field should not exceed a certain limit (see Figure 1-3). This limit is vital to make sure that routing indicators can indeed meet the high expectations related to them.

**Figure 1-3 Relation of routing indicators to key- and core indicators**

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At each step of the filtering process, several indicators dropped out. But they were not discarded, instead they entered the so called “indicator whish list” procedure. The wish list procedure includes two more filters that an indicator needs to pass through. First, it is necessary to decide whether an indicator is necessary or desirable. If that is not the case, it is excluded from the process. If, however, the


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indicator is considered to be necessary or desirable for spatial monitoring, it needs to be checked whether the problems for which it dropped out of the filtering procedure are solvable with the use of reasonable resources. If this seems unrealistic , the indicator is ultimately discarded. An example could be the need to use classified information of private companies that is protected by data protection laws. In this case, it seems unlikely that the required information will be revealed unless laws are changed.

The entire process results in two lists. First, the so called "routing indicators list", which consists of indicators that fulfil the quality criteria for a continuous spatial monitoring. Second, the so called "indicator wish list", which contains desirable indicators with either minor or major weaknesses. All wish list indicators can potentially be transformed into routing indicators, given that their specific problems are solved.

### Results

As pointed out before, the time available to the TPG to create this study was extremely limited. Nevertheless, the intermediate results that were achieved for the interim report already revealed a good and comprehensive basis for further discussion and consolidation towards the final report.

In their continued work, the TPG found that the “old” matrix did not completely seem to fit the idea of a spatial monitoring. Numerous overlaps of identical indicators that had been assigned to different policy themes revealed the limits of the matrix. Some other indicators that were considered to be important could not easily be integrated into the matrix. Moreover the number of indicators soon exceeded the previously foreseen limitation by far, especially if those of the wish list procedure were also taken into account. These problems were finally discussed during the only project meeting in Bonn on the 17 – 18 August 2006, resulting in a new matrix or a new thematic outline of the project. No spatial policy option and aim / thematic orientation was completely skipped in the revised matrix, and most of the proposed indicators are still included. It was decided to condense the thematic orientation to the following six fields:

- Economy, Innovation (Agriculture)
- Demography
- Spatical structure (Urban, urban-rural, urban hierarchy)
- Energy, transport, ICT
- Social issues, culture and governance
- Environment, Hazards

The resulting “new” matrix can be seen below (see Table 1-2 and Table 1-3 below).


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**Table 1-2 The new matrix of routing indicators**

| | | Balanced distribution of population, wealth, cities | Sustainable settlement structures | Assets for global competitiveness | Innovative knowledge society | Diversified regional economies | Sustainable transport and energy | Socially inclusive society and space | Healthy environment and hazard prevention | Diversified cultural heritage and identities | Territorially oriented governance |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Economy<br><br>Innovation (Agriculture) | A | | | GDP per capita in Euros, 2003<br><br>GDP in PPS per inhabitant, 2003<br><br>Change of GDP in Euros per capita<br><br>Labour costs<br><br>Employment in R&D | R&D personnel % of total employment<br><br>Gross domestic expenditure on R&D as % of GDP | Employment by economic activity<br><br>Share of agriculture, forestry and fishery in the regional added value (%)<br><br>Share of technological manufacturing industries in the regional added value<br><br>Share of financial and business services in the regional added value<br><br>Share of administration, education, health and social services in the regional added value<br><br>Development of unemployment rate<br><br>Employed in high-tech sector | | Unemployment rate<br><br>Unemployment rate <25 years<br><br>Long term unemployment<br><br>Activity rate female 15-64 years<br><br>Activity rate male 15-64 years | | | |
| Demography | B | Population density<br><br>Fertility rate<br><br>Population older than 64 years<br><br>Population in the age 15-64 years<br><br>Share of population younger than 15<br><br>Migratory balance | | | | | | | | | |
| Spatial structure (Urban, urban-rural, urban hierarchy) | C | Primacy rate | | | | | | | | | |

| | | Balanced distribution of population, wealth, cities | Sustainable settlement structures | Assets for global competitiveness | Innovative knowledge society | Diversified regional economies | Sustainable transport and energy | Socially inclusive society and space | Healthy environment and hazard prevention | Diversified cultural heritage and identities | Territorially oriented governance |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Energy, transport, ICT | D | | | Potential accessibility, multimodal, to population | | | | Connectivity to rail stations<br><br>Accessibility by public transport (rail) | | | |
| Social, culture and gover-nance | E | | | | | | | Employed persons by highest educational level<br><br>Population by highest educational level attained<br><br>Part-time employment | | Number of cultural sites | |
| Environ-ment, Hazards | F | | | | | | | | Fragmentation index<br><br>Flood endangered settlement and artificial areas (Corine) | | |

**Table 1-3 The new matrix of wish list indicators**

| | | Balanced distribution of population, wealth, cities | Sustainable settlement structures | Assets for global competitiveness | Innovative knowledge society | Diversified regional economies | Sustainable transport and energy | Socially inclusive society and space | Healthy environment and hazard prevention | Diversified cultural heritage and identities | Territorially oriented governance |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Economy Innovation (Agriculture) | A | Consumption per capita | Share of organic area | Capital/labour ratio<br><br>Import-export ratio EU - Non EU<br><br>Energy intensities by industries<br><br>Total factor productivity<br><br>Labour productivity per hour worked | Employed persons by highest level of education attained | Economic importance of agriculture (GDP) | | | | | |
| Demo-graphy | B | | | | | | | | | | |
| Spatial structure (Urban, urban-rural, urban hierarchy) | C | Demographic trend in urban areas compared to rural areas | Balance of commuters<br><br>Proportion of long-distance commuters<br><br>Accessibility of services of general interest<br><br>Land use (Agriculture, fisheries and rural develop-ment) (Corine) | | | | | | Evolution of natural surfaces | | |
| Energy, transport, ICT | D | | | | | | Modal split passenger transport<br><br>Renewable energies in total energy production<br><br>Energy consumption per type of user and source | Proportion of population living within 30 minutes of next railway station | | | |

| | | Balanced distribution of population, wealth, cities | Sustainable settlement structures | Assets for global competitiveness | Innovative knowledge society | Diversified regional economies | Sustainable transport and energy | Socially inclusive society and space | Healthy environment and hazard prevention | Diversified cultural heritage and identities | Territorially oriented governance |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Social, culture and governance | E | | | | Proportion of households with internet access | | | Intra-regional income dispersion<br><br>Regional price index<br><br>Household income (as disposable household income)<br><br>Gini-coefficient of household income<br><br>Social spending<br><br>Intra-mural healthcare and social expenditures in Europe<br><br>At-persistent-risk of poverty rate<br><br>Share of jobless households | | | Level of administrative functions in cities |
| Environment, Hazards | F | | | | | | | | Protected areas (European definition)<br><br>Municipalities waste | | |

The new matrix of themes is now less based on "volatile issues" that might be taken of the political agenda due to changed priorities. The dominating opinion of the project group was that gearing to such issues may lead to a very limited stability of the monitoring system as such. At some point in the future, the agenda of the Lisbon process may, for instance, be more or less fulfilled or will be redefined. However, this would not entail a stop in monitoring the themes behind the agenda at the same time.

Another aspect considered was the application and administration of the monitoring system. The system should be easy to maintain, use and understand. So the new structure with only six thematic orientations provides a better overview and is more user friendly.

Finally, the orientation of the new structure represents a more robust, spatial policy orientated monitoring, which can serve all the important political questions related to territories and space in general. However, it does not overemphasise issues that risk being outdated sooner or later.

The indicators suggested by this final report and included in the new matrix need to be considered as a first step towards a more sophisticated spatial monitoring of the EU 25+2+2. Obviously, research needs to be continued in this field, preferably under an ESPON II Programme.

Nevertheless, Project 4.1.3 made a start by proposing altogether 77 indicators for the six thematic fields mentioned above. The majority of these (43) are wish list indicators. But there are already 34 routing indicators with sufficient explanatory power and availability to allow for a start in spatial monitoring of the ESPON space. Regarding the thematic coverage, though, there are some imbalances, i.e. the field of “Economy, Innovation (Agriculture)” is much stronger covered by routing indicators than any other theme, whereas the situation in the field of “Spatial structure” (only one routing indicator) has not turned out satisfactory. This bias could be corrected by improving the quality of wish list indicators in the future, thereby upgrading them to routing indicators.

The wish list indicators themselves can be distinguished in those with minor shortcomings that should be solvable within the near future, and those with more serious gaps and flaws. For the latter, it will take a longer time to improve their quality and include them in the list of routing indicators.

The shortcomings with most wish list indicators are related to their spatial coverage. To improve this aspect, the relevant NSIs could cooperate with EUROSTAT to collect and administer the indicators in question. The main achievement of Project 4.1.3 is the structured overview of the problems and the

concentration on a limited number of indicators, therefore the improvements can be carried out very target-oriented.

Most effort should be spent on the thematic coverage of indicators. For the moment it could be a compromise to have a different thematic coverage of the European territory for different spatial dimensions. It is clear, though, that the idea of spatial monitoring is spoiled by a lack of completeness.

As a recommendation for ESPON II, the TPG suggests to resume the work conducted within project 4.1.3 and try to design a “one fits all” monitoring. Such an approach should meet both demands, the quick and easily accessible overview for practitioners, as well as the specific research approach of elaborated projects with a very particular intention. A vision for such an highly elaborated monitoring system could include three hierarchical stages:

1. A few routing indicators at the top of the system with their special lighthouse function. These are able to mark general tendencies and developments in a thematic field.
2. On a second stage, for each of the spatial fields some more elaborated indicators could be found, not more than ten per thematic field. These could go more into detail for those users who want to have a more specific view of the field in question.
3. On a third level, another ten to fifteen indicators per field with very detailed content could be suggested, these would fit very special demands in each field.

Technically, ESPON 4.1.3 developed a standardised procedure for the collection and description of both types of indicators by using the MS ACCESS programme. Two data input masks were developed, one for routing indicators, another one for wish list indicators. The input masks are designed to capture the main information about an indicator and to help reduce possible misunderstandings or wrong entries. In addition, they can be used as a basis to automatically create word documents displaying the main information about an indicator. Finally, the programme offers the possibility to create homogenous data bases for both, the routing and the wish list indicators.

Regarding possible tools supporting a sequential reporting on spatial development, the applied MS Access database could easily be linked to e.g. Geographic Information Systems (GIS). The database tool for the data fact sheets can easily be further developed and adopted to the requirements of a GIS Attribute Database, whereby a multitude of maps could be automatically generated. Maps could show the general availability of the indicator in the ESPON space as well as the spatial level they are available on. Eventually, it should be envisaged to connect the final

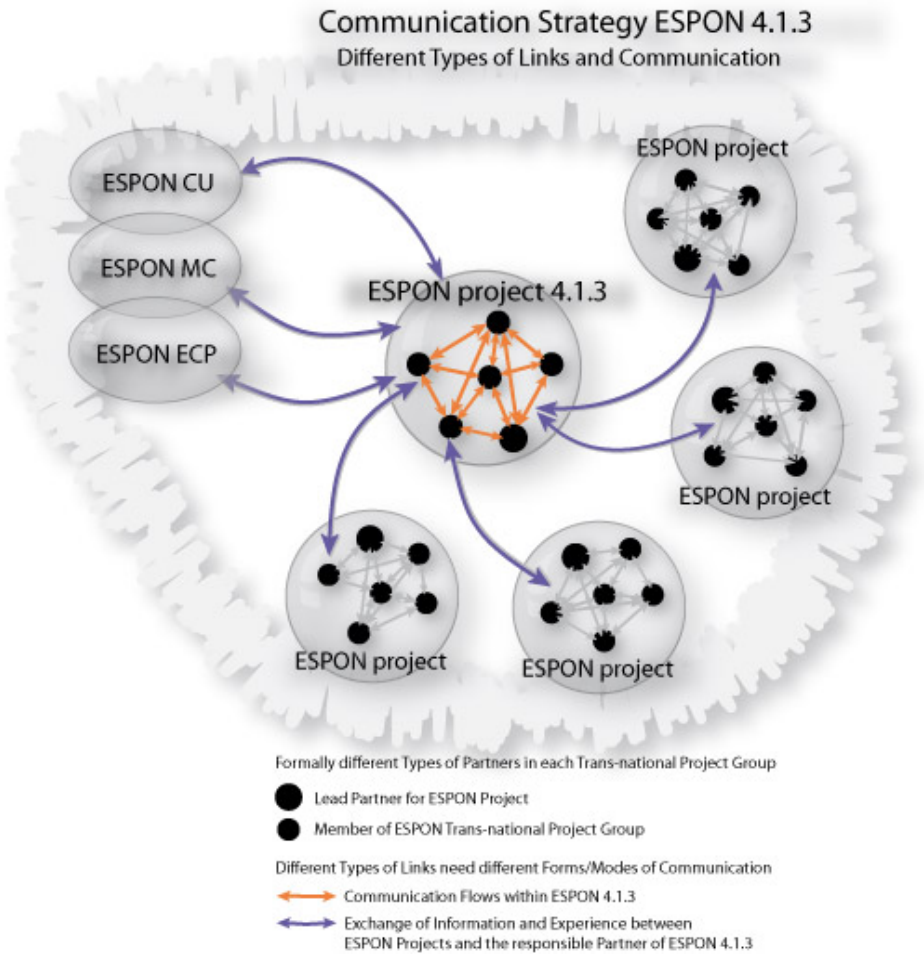
ESPON 4.1.3 routing indicators to the ESPON Web-GIS, thus allowing users to create their own maps from the indicator sets, similar to the *Informationen und Karten zur Raumentwicklung* (INKAR) (Information and maps regarding spatial development) published annually by the BBR.

## 1.3 Networking and Self-evaluation

### Integration in the ESPON Network

As networking was a fundamental aspect of ESPON Project 4.1.3 it is presented and reviewed here.

**Figure 1-4 Communication strategy ESPON project 4.1.3**




### Networking between 4.1.3 and other TPGs

In order to reach the determined objectives of searching for and recommending indicators to be used for a spatial monitoring of the ESPON space, results of other ESPON projects were vital elements. Thus close contacts with relevant ESPON projects, e.g. Projects 3.2 and 3.4.3, were very important for Project 4.1.3. The results of these projects concerning data and indicators were considered as the starting point for the work on the selection of indicators. Thus all ESPON project results were taken into consideration to cover a diversity of results and spatial

coverages.

**Networking between 4.1.3 and the ESPON Programme level**

Apart from contacts to other ESPON projects, Project 4.1.3 made intensive use of discussions and exchange with the CU, being the interface between the MC and the MA. Through this close cooperation with the CU it was possible to adjust the selection of indicators in an appropriate way for the ESPON Programme, while bearing in mind the use, applicability and practicability for the envisaged ESPON II Programme at the same time.

Overall close contacts with the ECP network were ensured by activities of TPG partners who also function as ECP (Germany and Luxembourg).

All things considered, the realised networking mentioned above could be assessed as a big step forward within a short period of time of only five months. Both, the discussions and the cooperation with all those involved in the project were fruitful and can be judged as promising for future projects under ESPON II.

### 1.3.1 Internal Project Management and Co-ordination

The trustful and professional co-operative atmosphere within the TPG helped the project group to overcome some obstacles. Good results could be produced within a very short period of time. This observation could not be taken for granted because the strict and tight time table did not allow for a TPG meeting before the delivery of the Interim Report.

Due to the tight time-frame of the project, strong project management and co-ordination were required by the TPG. Research and analysis in the context of work packages 1 to 6 started in parallel, so that a close communication, clear division of responsibilities and tasks was needed. For several working steps this was organised by the elaboration of templates and guidelines. These served as common basis for the collection as well as presentation of indicators (conducted by all partners), e.g. Access indicator form, Word “indicator fact sheet”, etc. Results of the specific collections and the corresponding analysis are integrated in the individual chapters of the report.

Finally, the division of responsibilities by work packages and issues related to the projects’ organisation, contracting and financial reporting, clarified at the beginning, showed its positive effects in a smooth and successful progression of the project.

The table below shows the relevant meetings in which the project team or a member of it participated or was present. As mentioned above, the project started in June 2006, so there were not that many meetings to attend.

**Table 1-4 List of meetings in which the project team or a member of it participated***

| Date | Type of meeting |
|---|---|
| June 2006 | ECP Meeting |
| June 2006 | Project Meeting 1.3.3. “cultural heritage” |
| June 2006 | Meeting with the CU, LP 3.2 |
| July 2006 | Project meeting 3.2 “scenarios” |

*chronological order of meetings since the start of the project

### 1.3.2 Self-evaluation

Considering the short period of time (five months) the TPG had to realise this project, the results presented in this final report can be seen as a huge step forward in setting up a continuous spatial monitoring of the ESPON space.

In the beginning, the Access indicator form and the corresponding Word template for the automatic compilation of the indicator sheets showed some minor weaknesses concerning technical aspects. These problems were fixed after the submission of the FIR.

# 2 Routing Indicators for a European spatial development

Quantitative indicators and the respective data are nowadays very popular means for spatial analyses. In social sciences this became especially true in the late 1960s, when positivistic tendencies more and more entered the every day research work of scientists. The focus shifted from qualitative case study work, with the aim of finding tendencies in single cases that may lead to common strategies, to quantitative indicator based calculations, that can be interpreted and from which intervention strategies can be derived.

This does neither mean that qualitative approaches lost their attractiveness, nor that they may not be as scientific as quantitative approaches. In reality both strands are complementary. However, both approaches need to be carried out very carefully and the interpretation of the results requires particularly careful attention.

Although not all spatial levels can be analysed with both approaches in the same quality, in general, for spatial analyses there is a clear correlation between the size and heterogeneity of the area in focus and the methodological approach. Moreover, not all themes can be analysed with the same method. Some themes are better analysed by using qualitative approaches, for others it may be more appropriate to apply quantitative methods. Nevertheless, with the usual exceptions, it can be stated that the bigger (and more heterogeneous) the area in focus, the more likely a quantitative approach will be applied. This is insofar logical, as the strength of case studies lies in the explanation of very small and very controlled main units. If too many different main units exist, which are not (or not very well) comparable, then the value of case studies reduces rapidly. So for large heterogeneous areas there is almost no alternative to quantitative work.

The research area of our project is no smaller than the EU 25+2+2! Altogether 29 different countries with different population, cultures, political maturities and economic states as well as different sizes need to be considered. In addition, within these countries, we find numerous heterogeneous structures and processes at regional level. In order to cover the whole of this varied area with a spatial analysis by using a qualitative approach would obviously provoke the need for hundreds of case studies, which would have to be carried out in parallel and with the same scientific setting. To gain updated information over time, these case studies would have to be repeated over and over again. This is surely not completely impossible, but far from being practical or affordable.

In this case a quantitative approach is obviously the best choice. However, the business is still a tricky one. Since the indicators chosen and the data collected have to be of a specific quality, it is not that easy to achieve a precise analysis.

Usually before a spatial analysis is started, it is necessary to think of the set of indicators to be applied. It has to be checked how many "right" indicators are

necessary vs. how many of them are available (see also below). There also needs to be a clarification on how the indicators will be treated once they are available, i.e. is it feasible to deal only with simple descriptive means or should more elaborated methods be chosen? Last but not least, a common basis is required meaning comparable data sets and indicators for the space in focus (see below).

## 2.1 Indicators and data

*Data* can be defined as the representation of any kind of information (such as facts, concepts, or instructions) in a formalised way. The formalisation is necessary to make the data suitable for communication, interpretation, or processing by humans or by automatic means. This means that data can exist in a variety of forms, such as numbers or text on paper, as bits and bytes stored in electronic mediums etc. Scientifically, data is the plural of datum, a single piece of information. The term data is often used to distinguish binary machine-readable information from textual human-readable information. Data is neutral, neither interpretation nor direction are included, there is no good or bad data. Finally, the term data is not to be confused with the term indicator!

*Indicators* can consist of one single datum or be a combination of different data (sets). Indicators should indicate something useful and they should indicate it clearly. They can be defined as measurable units which evaluate the state and / or the dynamics of a phenomenon. Indicators should be univocal and traceable, which means it should be very clear how their underlying data is collected or treated. From a scientific perspective, they should be reproducible and from a practical position they should be easy to maintain. Looking at the contents the indicators are dealing with, it always needs to be checked whether an indicator helps to highlight the problem or the cognitive interest in question? Here indicators are often misused, not always on purpose, though. For example, if the state of an economy and the share of the citizens on the economic development of an area are to be studied, then in most cases an economic indicator is chosen. But the most popular economic indicator "GDP/per capita" does not say anything about the concrete allocation of capital among a population, nor does it say anything about welfare or unemployment among a population.

## 2.2 Availability , homogeneity

Although scientists would like to examine nearly all imaginable aspects of life and space, not all interesting spatial aspects are covered by appropriate indicators. In a lot of cases, certain aspects are examined without having the exact indicator or indicator set. Instead an indicator (or set of indicators) is selected which comes close to the aspect in question.

The next critical point is the quality of data. Obviously, it would be ideal to collect all data in the same way, i.e. at the same time or period of time, with the same instruments or methodology, on the same level of detail, etc. However, reality is different. Data is collected in up to 29 different ways in the 29 countries participating in ESPON. In some cases the data collection is harmonised, which means the data is really comparable, but for most data, such a harmonisation is far beyond reality.

Since the monitoring of the ESPON space requires certain standards (as described in the ToR), namely the coverage of EU 25+2+2 and an analysis on the regional level (NUTS 3), it did not come as a surprise to the TPG that several problems with data availability occurred. Moreover harmonised or homogeneous data is favoured (see above). All these requirements obviously have an influence on the amount of indicators that match these standards. They act as filters (see Figure 2-1). But this does not mean, that this project only dealt with indicators that fulfil these very high requirements. Project 4.1.3 also proposes indicators that may not (yet) match the standards, but are of such an importance, that they should be available in better quality in future. This issue is described in detail in the section dealing with the so called "Wish list Procedure" (see Section 2.6.1).

### Vertical and horizontal comparability

In a lot of contexts, especially in the context of the Agenda 21-process, one main requirement of indicators is their comparability. This means that indicators collected on a certain spatial level can be compared either horizontally, i.e. within the same spatial level (e.g. from town X to town Y) or vertically, i.e. across different levels (from town X to region X to national state X). The idea behind this is to gain a maximum transparency so that changes on one spatial level can be compared to other levels or to the neighbours to the left or to the right.

In the case of a spatial monitoring, this is of course a challenge that should be discussed, especially when the spatial area of investigation is as large as the EU 25+2+2. But before desires are raised which can eventually not be fulfilled, it has to be said that such a level of complete transparency and comparability would of course make a lot of sense but is absolutely not realistic at the moment. At present, the spatial development world is more than happy, if a certain indicator does exist for all the 29 countries at all!

So the demand for this quality criterion is certainly legitimate, but meeting the criterion remains a challenge for the next decades!

## 2.3 Complex indicators vs. simple indicators

The coordinating projects of ESPON have regularly presented a list of core indicators and core typologies. This list was used as the basis for the discussions concerning possible “key” indicators for spatial monitoring. During the debates, however, it became quite clear that very different understandings of indicators and typologies exist. A very important question resulting from this discussion is whether an “indicator” necessarily needs to represent a construction out of several different “raw” variables, or whether one single of these variables can be an indicator of its own.

In this project and in the proposal for a Spatial Monitoring Report, we propose to leave this discussion behind for several reasons:

- For the purpose of this project, it is not relevant, whether an indicator or measurable unit (see above) takes the form of a raw variable, a typology, or the summary of a multivariate analysis.
- There are no “bad” or “good” indicators by definition. An indicator's quality always depends on the need it is supposed to fulfil (see above). Obviously, this will depend on several issues:
    - the relevance to the subject
    - the relevance to the political question
    - the understandability
    - the ease of reproduction
    - (in the context of monitoring): the maintainability over time

For a spatial monitoring covering a large variety of themes, it is impossible to define one “good” type of indicator. The appropriate form has to be found for each theme and each political question and might even change over time.

These elements, however, do not invalidate the question of which type of indicator is most useful in the context of policy debates, which often involve non-specialists in the debated subject. Thus, a compromise has to be found between, on the one hand, the noted elements of understandability, reproducibility, and maintainability, and, on the other hand, the scientific rigour and the comprehensiveness needed to give a sufficiently sound response to the relevant questions. In other words, where a simple variable might be the easiest to obtain, maintain and explain, it might leave out too many aspects of the question to give a relevant response. On the other hand, a multivariate construct might be more comprehensive in its message, but less understandable and more difficult to reproduce over time. Again, there is

no one-size-fits-all answer, but this question needs careful evaluation for each of the thematic fields studied in this project.

## 2.4 Administrative units and statistical units important for spatial analysis

A substantial aspect, which has direct influence on the results and significance of regional analysis, is the selected level of aggregation of spatial units. The common analysis levels are based on the Nomenclature of territorial units for statistics (NUTS). The NUTS nomenclature was created according to the following principles:

1. It favours institutional breakdowns.

2. It favours regional units of a general character.

3. It consists of a hierarchical classification, made up of three-levels.

Three different classes of NUTS regions can be distinguished, marked by minimum and maximum numbers of inhabitants:

- NUTS 1: from 3 to 7 million inhabitants
- NUTS 2: from 800.000 to 3 million inhabitants
- NUTS 3: from 150.000 to 800.000 inhabitants
- NUTS 4/now LAU 1: not existing in all countries, organisations of a number of local communities
- NUTS 5 / now LAU 2: the communities

Besides, all countries have a NUTS code, which consists of a combination of letters and numbers. A second or third subdivision is marked by another number or letter. To further explain the NUTS nomenclature, the classification for Germany is described in the following example.

The NUTS level 1 for Germany is DE. Moreover, the “Bundesland” (federal state) is the top level subdivision of Germany, e.g. DEC for Saarland. A closer look on NUTS 2 reveals the “Regierungsbezirk” (administrative district), e.g. Saarland with the nomenclature DEC0 as a second level. Finally, the NUTS level 3 is the “Kreis” (county), e.g. Neunkirchen with the code DEC03. Although the NUTS nomenclature is a good method to classify regions there are still problems in their description. The representation of small countries like Luxembourg is a good example to illustrate this problem. The country is composed of ‚Local Administrative Units‘ so called LAUs. This means that the first three NUTS divisions (NUTS 1/2/3) each correspond to the entire country itself. Therefore Luxembourg has only one NUTS code LU and even an analysis on NUTS 3 always refers to the country as a whole.

The most important i.e., mostly used NUTS level for regional analysis is the NUTS 2 level, which differentiates between 282 regions for the EU 25+2+2. NUTS 2 is meant to be the most suitable level to indicate and to illustrate regional development in terms of regions with functional interactions. Therefore it was used

by the European Commission regarding the allocation of structural funds. However, in several countries the NUTS 2 level does not represent functional areas.

Increasingly, the level of NUTS 3 regions becomes more and more relevant for regional analyses. Within the ESPON space 1.329 units belong to this level. NUTS 3 areas lend themselves to illustrate the differences of cities and their hinterland, which are hidden on NUTS level 2. Again, this differs from country to country.

Both, the NUTS 2 as well as the NUTS 3 level cover insufficiencies which influence the results of regional analysis. The problems go back to an incomparability, not only concerning the area and population size, but also functional relations and interactions which are not considered in all cases. On NUTS 2, primarily the metropolitan areas with narrow administrative delineation, limited to the core area, are affected, like Inner London, Brussels or Hamburg. On the other side the region Ile de France also contains, apart from Paris, the further functionally interconnected surrounding countryside. Therefore a uniform demarcation is not given.

An example helps to explain the challenge for the statistic analysis. In closely defined metropolitan areas - the GDP per capita is strongly overrated by a commuter surplus. The economic potential in these regions is thus valued higher, than would be possible if it was calculated on the basis of the economically active inhabitants of the region. In regions where many commuters live, like in the Dutch region Flevoland, the GDP per inhabitant is not representative for the actual regional income. Similarly, the commuters from the district of Lueneburg contribute to the GDP (and thus the GDP per capita) of Hamburg, amounting to 184 per cent of the EU 25-average. That is the fourth-highest value among the European NUTS 2-regions behind London (278), Brussels (238) and Luxembourg (234). In contrast to this, the region of Lueneburg reaches only 80 per cent of the European average value of the GDP per inhabitant, although it shows a prosperity level which, measured by available household net income, corresponds to the average of Germany.

These methodical problems have been commonly recognised for some time. In addition, they have been analysed by ESPON project 3.4.3, identifying the so called Modifiable Areas Unit Problem (MAUP). At the moment there is no real solution for this difficulty. For the time being ESPON has to make the most of the given situation and existing statistical units. But for the future a more appropriate solution has to be found.

Finally it could be said, that the results of the spatial analyses depend on the level at which the spatial entities are observed and on the kind of spatial aggregation which has been adopted.

## 2.5 Monitoring, indicators and perceptions of policy makers

Concerning the future use of the indicators and envisaged monitoring report it is important to scrutinise what policy makers need and what they expect.

Continuous monitoring of spatial development, mostly based on the analysis of quantitative indicators, is a major tool for policy makers to assess recent development trends, identify problems and communicate needs for action. Monitoring is also vital to be able to present the results of "successful policies", and compare general policy values and concepts with actual states and perspectives of the territory. Many times, monitoring reports are not just "positivistic" mirrors of reality, but also "test grounds" for new policy ideas, located somewhere in the open space between science and politics.

Existing (mostly national or regional) monitoring reports reveal a variety of possible ways of implementation. They range from comprehensive inventories and thematically focussed studies over annual abstracts of statistics and lyric textbooks, and up to public relations and scientific analysis and assessment. This depends, not least, on the authorship, the intended strategic use of the report, the courage and openness to innovation of responsible actors, and, on the available resources.

In our project we had to find and present a proposal on how an "ESPON continuous territorial monitoring report" could and should look like. It seems that the data situation in Europe, the institutional setting (ESPON network), and the restricted resources available would suggest to strive for a more standardised, indicator based, periodically updated sort of report.

There were some stumbling blocks along the path to such a report, some of which are:

- Scientists are used to see indicators as indicators, i.e. as neutral and objective information, whereas politicians often see indicators in a subjective way and interpret the information provided through the indicators as benchmarks and thresholds.
- Scientists can explain why indicator values are under- / overestimated (like GDP/cap for Hamburg); users might judge this as a misrepresentation of reality.
- Results on different scales answer different questions (for instance, sub-urbanisation or counter-urbanisation).
- Policy makers are interested in the future rather than the past. However, data on the past can give misleading pictures for the future; often (but not always) experts know where these past-future-fallacies are.

## 2.6 Framework for the selection of the indicators

Project 4.1.3 initially dealt with six 'thematic fields' or 'overall spatial concepts': territorial cohesion, Lisbon, infrastructure, Gothenburg, socio-cultural-issues and governance. Within each of these concepts a number of also very important sub-concepts can be identified. Literally hundreds of indicators can be defined to measure all these aspects. A first finding of the project was that in reality these hundreds of indictors do exist, even if they vary in terms of quality and availability. This massive number of indicators, though, is not manageable and therefore does neither satisfy the needs of decision-makers, nor the needs of scientists that act as consultants to the political level. An elaborated framework respectively a methodology is necessary to select just a relatively small number of indicators from this vast amount of indicators which really fit the needs of policy makers.

In order to come to a manageable set of indicators which really represent all the thematic fields of the project, a multi-level approach was chosen. At each level a certain filter excluded a number of indicators which did not fulfil the pre-defined filtering criteria. Having gone through certain filtering rounds only a very limited number of indicators (34 at the moment) remained. The broad range in the number of indicators may lead to a hierarchy among the routing indicators. Whether such a hierarchic treatment is feasible or not can only be answered by operating and testing the monitoring for a while and evaluating the practicability afterwards.

By using such an approach the function of these filters is extremely important, therefore the filtering criteria which are used need to be defined accurately.

### 2.6.1 Methodology / Filtering criteria

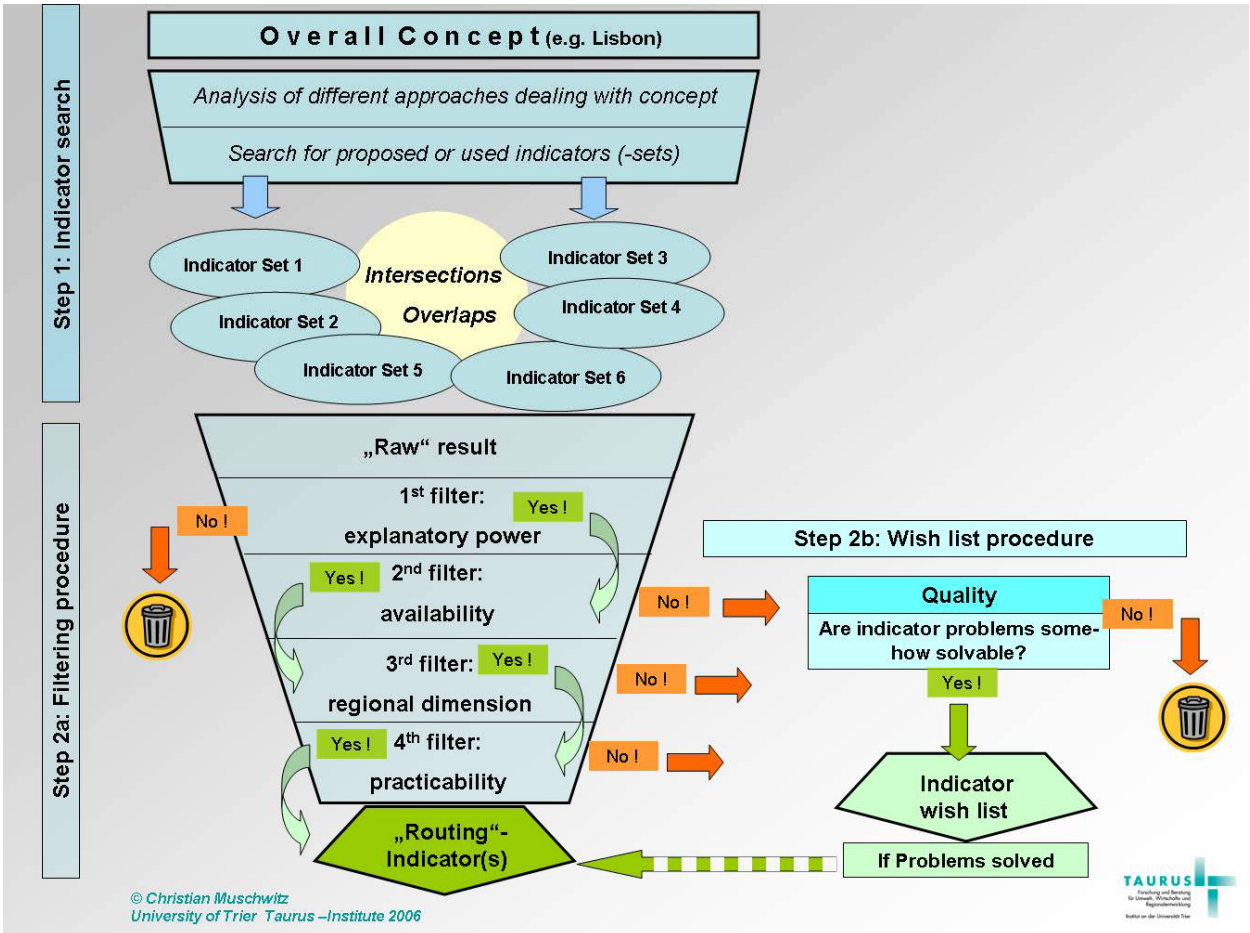
In a first step the specific overall concept (e.g. Lisbon) was broken down into sub-concepts and aspects. **This was done separately by each WP.** The search for indicators was not confined to ESPON sources only (project data, ESPON data sources etc., key+core indicator lists). On the contrary, it **was** expanded and **went** beyond ESPON by exploring studies and concepts that have been developed by other institutions outside the ESPON community. Nevertheless, because of the limited time frame of ESPON project 4.1.3., it was not possible to deliver an all-embracing and comprehensive monograph. Instead of such a comprehensive approach, a targeted and specific inspection was carried out field by field. All available ESPON sources, European sources such as EUROSTAT or EEA plus several national sources and many important studies were analysed for used indicator sets for the concept in question.

In the next step the chosen sources, research projects, studies or documents dealing with relevant aspects of the due concept, were analysed in more detail. The collection of this information was followed by a search for possible intersections and

overlaps. As a first “raw” result a broad sample of used indicators was extracted.

After this first step the already mentioned "**multi-level filtering process"** started (see also Figure 2-1 below). The indicators were checked one by one according to whether they comply with the requirements. Only if an indicator successfully passed one criterion, the next criterion was been checked. The first question was whether the indicator has any explanatory power at all, i.e. whether it provides any information that can be used to measure the respective theme. If not, it was discarded immediately, if yes it went through more filters. If at any stage from the second to the fourth filter the indicator failed, it was shifted to the so called "**Wish list procedure"**.

**Figure 2-1 Multi-level filtering process and Wish list procedure**




The criteria of the filtering procedure were:

### *1st filter-: explanatory power*

The first filter is maybe the most challenging one. Each indicator is checked for its ability to represent the thematic field it comes from in the best possible way. Therefore the explanatory power must be extremely high. For instance, in the

discussion about sustainability the approach named 'ecological footprint' by WACKERNAGEL/REES[5] became famous, leading to the indicator "artifical land coverage" or "land use" as a so called "routing indicator" for sustainability.

### *2nd filter: availability*

The second used filter is the availability of the collected indicators. This is a basic necessity. It is futile to check any other quality criterion if the data is simply not available on a reasonable basis. The meaning of this filter is twofold: First, it has a spatial dimension, meaning that the data must be available for EU 27 +2. Second, a practical aspect is included, as well: the indicator data must be obtainable with reasonable resources. The most positive case would be that the data is already part of the ESPON database or can be retrieved quite easily from EUROSTAT or the NSIs.

### *3rd filter: regional dimension*

In order to show significant results it is essential to breakdown to at least the European regions. In statistical terms this would mean at least NUTS 2 or even better, NUTS 3 or beyond! Therefore all indicators which do not match or go beyond NUTS 2 can not be taken on board.

### *4th filter: practicability*

Some indicators may be ideal only for mere scientific purposes but lack a clear link to practice. In these cases these indicators are excluded from the vast amount of indicators. There are also indicators that highlight more or less the same aspect but from a different angle or perspective, in these cases only one indicator is selected.

### *Routing indicators*

If an indicator passes all criteria tests, it enters the list of 'routing indicators'. The term 'routing indicator' exceeds the currently existing definition or main idea of so called 'core or key indicators'. The major difference is that routing indicators must be able to represent much broader contexts and should even allow to show the tendency of a whole thematic field. Their function is that of a lighthouse, guiding through endless information sources or an early-warning-system that shows whenever something unrequested is going on.

Therefore a smaller number of this type of indicators is necessary. Core indicators for one field might add up to 20 or 30, but routing indicators should not exceed a very limited number of indicators per thematic field, in order to secure the high expectations which they should meet.

[5] Wackernagel, M. and W. Rees. 1996. Our Ecological Footprint: Reducing Human Impact on the Earth. Gabriola Island, BC: New Society Publishers. ISBN 086571312X

### *Indicator wish list*

If an indicator failed at the filtering procedure before entering the routing indicator list, it was shifted to the wish list procedure. The first question asked here was, whether the indicator is necessary or desirable at all. If not, it was discarded; if yes, it needed to be checked whether the problems for which it was discarded in the filtering procedure are solvable with the use of reasonable resources. If this seemed unlikely, the indicator was ultimately discarded. An example could be the need to use classified information of private companies that is protected by data protection laws. Here it seems unlikely that this information will be revealed unless laws are changed.

The entire process results in two lists. First, the so called **"routing indicators list"**, which consists of indicators that fulfil the quality criteria for a constant spatial monitoring. Second, the so called **"indicator wish list"**, which contains desirable indicators with minor weaknesses that have a high potential to become routing indicators. All wish list indicators have the potential to be transformed into routing indicators by solving their specific problems.

This means, if it seems possible to overcome its problems, the indicator enters the wish list of desirable indicators that need more attention in terms of data supply for the indicators. For example it could be possible that the indicator is only available for every other year, more precisely for even years in country X and for odd years in country Y. In this case it seems possible to harmonise the data collection intervals, if one country changes the periodicity of the data collection.

### *Future routing indicators*

The consequence of the above described procedure will be, **that sooner or later nearly most of the indicators in the wish list will become routing indicators, too.** Such a complete indicator list can become the basis of a comprehensive and continuous spatial monitoring system. This process may take several years, maybe even decades, as in some cases the data problems can not be solved fast and easily. Some problems may even lead to very costly consequences, provoking the necessity of setting up statistic panels or the restructuring of census principles in some national states.

In practice another distinction between the indicators in general can arise. It may become useful to distinguish between wish list indicators that may be more prominent than others. So the problems concerning them, identified during the work of this project, have to be solved faster. Different priorities in transforming indicators from "wish list status" into "routing indicator status" may therefore be the logical outcome.

### 2.6.2 Description of data fact sheet and the content

Two different standardised procedures were introduced to capture both procedures described above: the Filtering Procedure for the routing indicators and the Wish list Procedure for those indicators that have certain shortcomings but should become part of the routing indicator list in the future.

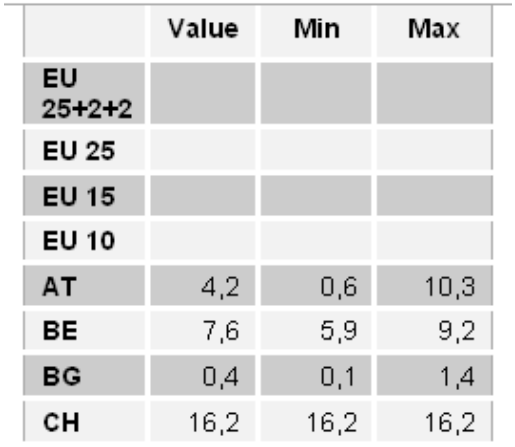
#### *Data sheet for the routing indicators*

The indicators are based on specific data sets that require a detailed quality assessment. Therefore a comprehensive set of metadata was collected to describe each of the remaining indicator data sets. The metadata was entered into a database form and subsequently automatically processed into the layout of a data sheet which was used as an 'ID card' of the data set, describing it in detail and thus facilitating an assessment of the data sets. This procedure can also be seen as a very first step of a regular and standardised spatial reporting.

The following information is used to describe the indicator sets:

**Table 2-1 Metadata collected for routing indicators**

| ***Metadata*** | ***Example*** |
|---|---|
| **Name of the indicator** | Personnel in Research and Development |
| **Dimension**: The thematic field that the indicator set covers | Economic competitiveness and sustainable management |
| **Objective**: The objective that the indicator monitors | Maintaining and improving economic performance and competitiveness |
| **Sub-objective** | Improving innovative activities in the economy |
| **Calculation**: If the data is derived from several basic data sets and not provided as such by statistical sources | Share of persons employed in the research and development sector paying statutory social security contributions in relation to all persons employed paying statutory social security contributions |

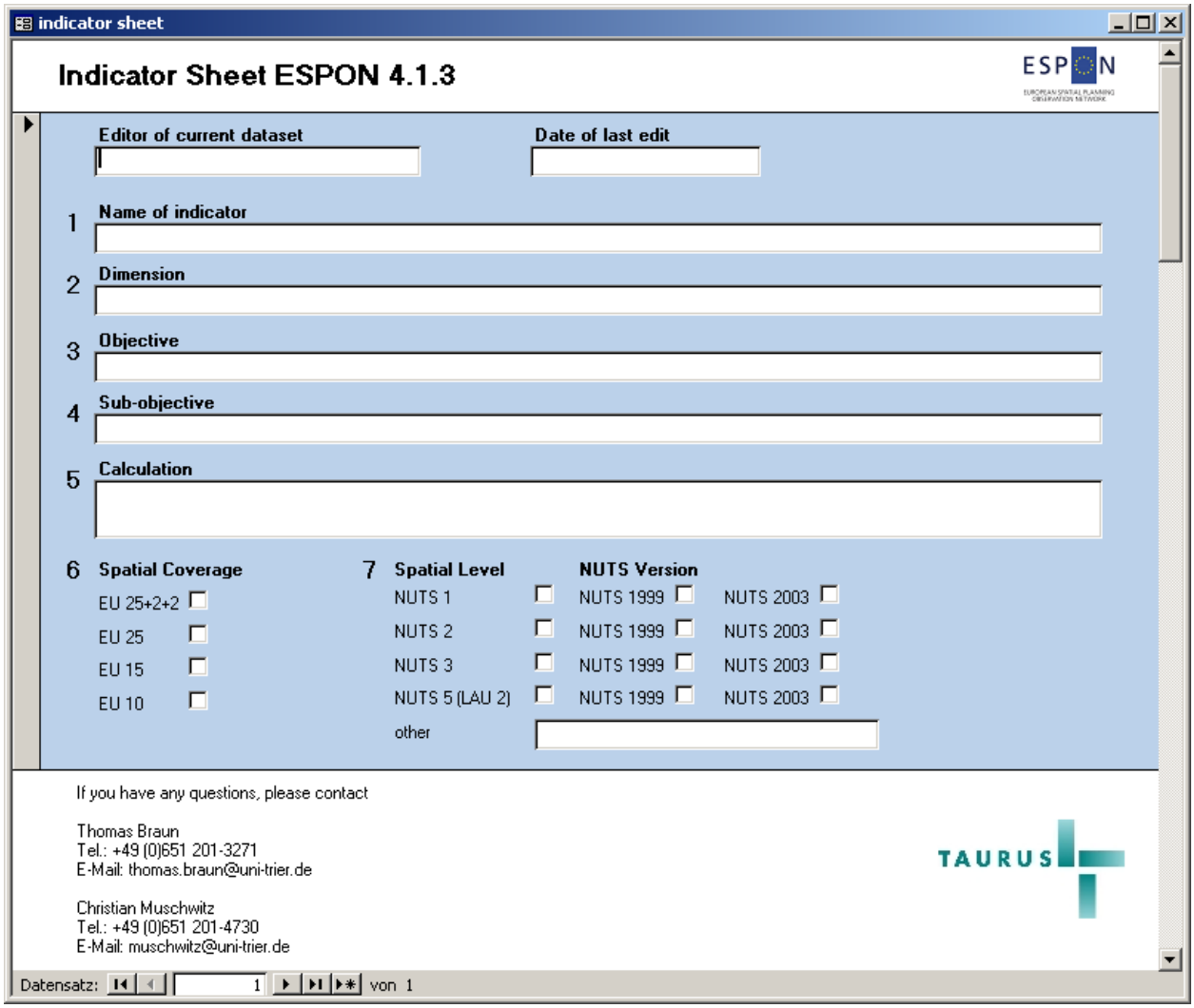
| | |
|---|---|
| **Informational value**: a narrative description of the usefulness of the indicator | Investments in research and development of new products and in new technologies lead to a future-oriented competitiveness of companies. At the same time, they are a precondition and a guarantee for both, a successful management and,a competitive economy. Maintaining competitiveness again is part of a sustainable economy. Without innovative activity, a nation's economic strength cannot be stable and future-oriented. |
| **Regional distribution**: Narrative description of outstanding regions, showing indicator values both above and below average; can be supported by a map, as far as available | The share of the R&D staff is above-average in agglomerations and bordering regions. The share is especially high in numerous southern German regions and in regions with a special, research-intensive industry such as Wolfsburg, a car industry location. |
| **Values** (national average, minimum, maximum): A table listing the national average value as well as the national maximum and minimum for each of the EU 25+2+2 countries as well as the totals for EU 25+2+2, EU 25, EU 15 (prior to last enlargement), EU 10 (the 10 new Member States), as far as available |  |
| **Spatial Coverage**: Is the indicator available for *all* countries of<br>▪ EU 25+2+2<br>▪ EU 25<br>▪ EU 15<br>▪ EU 10? | *Answer is yes or no in each case.* |

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | | | |
| EU 25 | | | |
| EU 15 | | | |
| EU 10 | | | |
| AT | 4,2 | 0,6 | 10,3 |
| BE | 7,6 | 5,9 | 9,2 |
| BG | 0,4 | 0,1 | 1,4 |
| CH | 16,2 | 16,2 | 16,2 |

| | |
|---|---|
| **Time reference / actuality**:<br>▪ Is the data for a point in time? (yes/no)<br>▪ Is the data a time series? (yes/no)<br>▪ What are the update intervals? (narrative description)<br>▪ Periodicity: For which years is the data available? (narrative description) | |
| **Spatial level**: On which NUTS levels is the data available and which is the NUTS version the data is available for on different level? The data sheet allows for different regions, e.g. Arbeitsmarktregionen in Germany | NUTS 2 (NUTS 1999)<br>NUTS 3 (NUTS 2003) |
| **Data origin and data source**: Where was the indicator found (origin) and who provided the data in the first place (source)? | Origin: ESPON project X.Y.Z<br>Source: Eurostat |
| **Type of data**:<br>▪ *Raw*: unchanged data as originally collected<br>▪ *Survey*: derived from a survey, e.g., opinion polls<br>▪ *Modified*: Original data has been modified for use in the respective indicator, e.g., through classification or z-transformation<br>▪ *Model*: Data that has been re-calculated based on raw or survey data | |
| **Data gaps**: Narrative description of data gaps, e.g., missing years/countries, varying spatial levels | |
| **Comments** | |

The information required for the data sheets was gathered in an Access database. TAURUS developed a database tool that provides a comfortable technique to collect and further process the required information. The project partners entered the information on their indicators in an MS Access database form (see Figure 2-2).

**Figure 2-2 Screenshot of Access database form for routing indicators**




TAURUS-Institute 2006

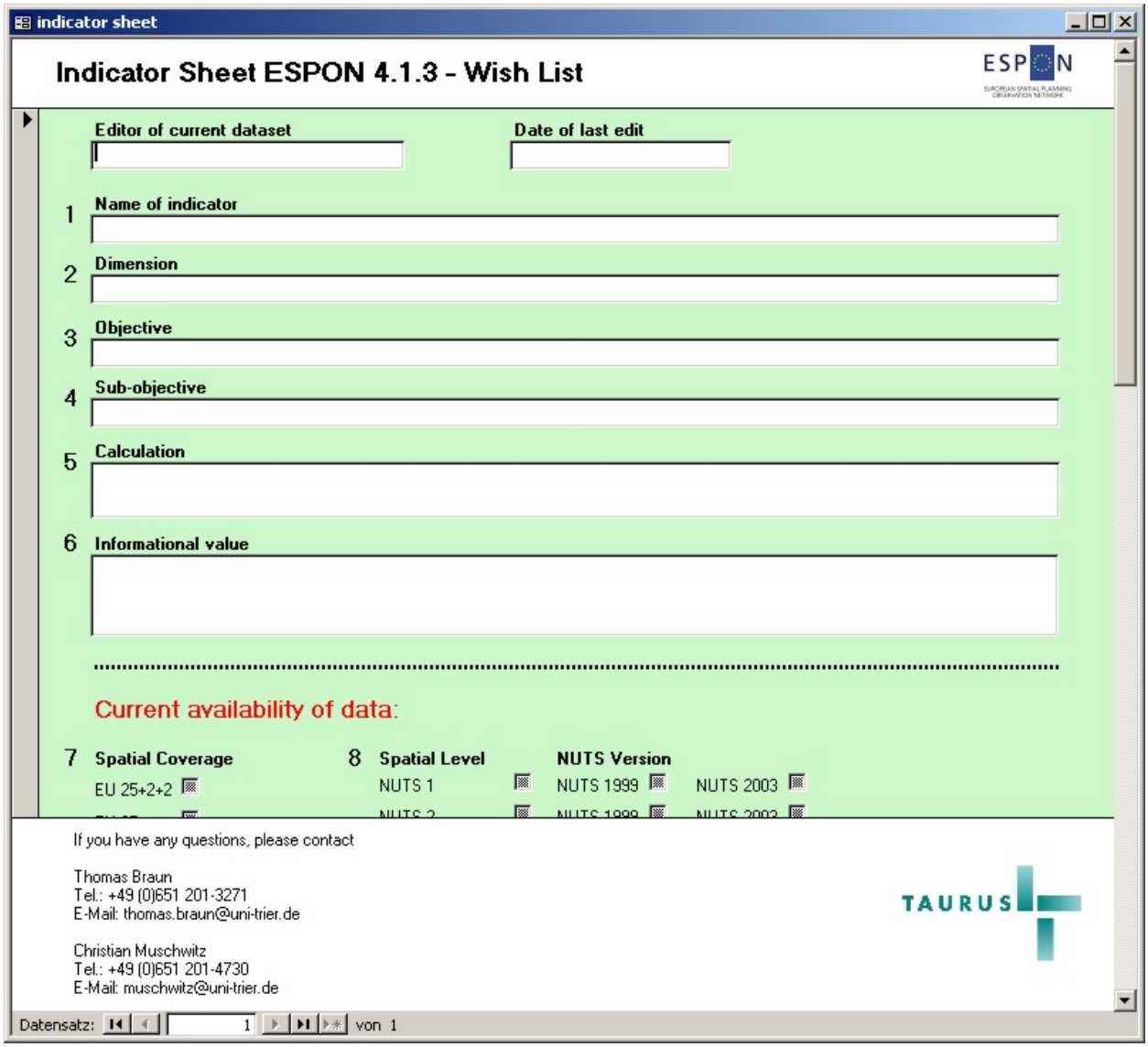
This database was then used to automatically generate the indicator fact sheets in a pre-defined layout in MS Word. For further potential applications of this tool please refer to Chapter 5.3.

### *Data sheet for the Wish list indicators*

The data for the "wish list indicators" was captured and documented in a second standardised form. The process was very similar to the one described above, also

the sheet looks nearly the same. To avoid any kind of confusion, the Access-input mask for the wish list indicators is coloured in green (instead of blue) to make the distinction as easy as possible. Thus the major differences can be found by going into detail:

**Figure 2-3 Screenshot of Access database form wish list**




TAURUS-Institute 2006

In this Access sheet each editor had to explain the informational value of data. This step was targeted at the issue "explanatory power" so a justification for the importance of an indicator was needed. In the other fields the status-quo of the indicator was checked and the shortcomings had to be described very much in detail. In contrast to the routing indicator sheet, most of the categories here were open questions. This was the reaction to the fact that reasons for the problematic status of an indicator might be multivalent and therefore do not fit very well in

closed categories.

The wish list indicator form consists of two parts. At first the general suitability of the indicator is explained, i.e. what does the indicator describe and what is the value of the indicator. In the second part detailed information of the current status (e.g., spatial and temporal coverage) of the available data set is given, which facilitates an assessment of the data gaps and whether these data gaps can be filled using reasonable resources.

This second form covers the following items, the definitions of which can be found in the metadata description table above:

- 1st part (general description)
  - Name of indicator
  - Dimension
  - Objective
  - Sub-objective
  - Calculation
  - Informational value
- 2nd part (status of the available data set)
  - Spatial Coverage
  - Spatial level
  - Regional distribution (describing spatial data gaps)
  - Time reference/actuality
  - Data source(s) and origin of data
  - Type of data
  - Difficulties with the indicator
  - Specific difficulties for the use in ESPON

Eventually, the whole procedure resulted in two data bases, which can be exploited very easily, showing in a comfortable and comprehensive manner the details of both the existing "routing indicators" and the shortcomings of the indicators from the wish list.

# 3 Towards a continuous spatial monitoring

## 3.1 Dimension of territorially oriented policy

As argued in part A of this final report, the need to implement a territorial dimension of spatial monitoring was first mentioned in the Second and Third Reports on Economic and Social Cohesion, which up to then focused on economic and social issues only. Based on the ESDP, it was one of the main tasks of the ESPON 2006 programme to add content to the term "territorial dimension", in other words, to develop a wide range of territorial indicators and typologies capable of identifying and measuring the structure and the development trends, and of monitoring the political aim of a well-balanced and polycentric EU territory.

The various ESPON projects made valuable contributions in a large amount of different thematic fields. An ideal spatial monitoring system should cover all policies with a spatial dimension by combining the results of the ESPON projects. Several distinct policies that have been analysed separately might have a similar or even the very same spatial relevance. Therefore initially six "dimensions" or "thematic fields" were identified by ESPON 4.1.3 to cover the wide range of spatially relevant policies. The ten policy fields of the ESPON key indicator proposal were grouped according to policy concepts (Lisbon and Gothenburg strategies, territorial cohesion) and ESDP policy options, thus identifying the following list of policy concepts and objectives:

*1: Cohesive spatial structure*

- Balanced distribution of population, wealth, cities, etc.
- Sustainable settlement structures

*2: Lisbon*

- Assets for global competitiveness
- Innovative knowledge society
- Diversified regional economies

*3: Infrastructure and accessibility*

- Sustainable transport and energy

*4: Gothenburg*

- Healthy environment and hazard prevention

*5: Socio-cultural*

- Socially inclusive society and space
- Diversified cultural heritage and identities

*6: Governance*

- Territorially oriented governance

This subdivision was also used to create six work packages for ESPON project 4.1.3.

### 3.1.1 Cohesive spatial structure

The first work package initially was named “territorial cohesion”. But since this concept encompasses nearly the entire indicator matrix, it was agreed to rename the work package to “cohesive spatial structures”, better reflecting the topics to be dealt with, i.e.:

- balanced distribution of population, wealth, cities, etc.
- sustainable settlement structures

Both imply the normative idea that some forms of spatial organisation are better than others and, notably, that a more polycentric distribution of populations, activities and infrastructures is better than a monocentric distribution. This notion is clearly defended in the ESDP which states the “pursuit of this concept [polycentricity] will help to avoid further excessive economic and demographic concentration in the core area of the EU.” (European Communities, 1999: p. 20)

Similar ideas can be found in the draft for the Territorial State and Perspectives of the Union” (June 2006), which mentions polycentric spatial development as a means to balance patterns of vulnerability (economic, social, and ecological). “In many contexts, especially but not exclusively in many new EU Member States, there is an over concentration of development towards the largest metropolitan region, usually the national capital region. Here we need more balanced development in the future. It must be avoided that growth and innovation of metropolitan regions are at the cost of smaller and medium sized cities. On the contrary, strengthening metropolitan networks and strengthening urban networks have to go hand in hand and reinforce each other.” (p. 46)

In general, the declared objective on European level under the overarching theme of “territorial cohesion” is to help achieve a more balanced development by reducing existing disparities and avoiding territorial imbalances. The concern is also to improve territorial integration and encourage cooperation between regions.’[6] Hereby the European Spatial Development Perspective (ESDP) and the Guiding Principles for Sustainable Spatial Development of the European Continent (CEMAT) form the basis for the concept. Hence in practical terms the indicators in this part aim at capturing the underlying structure and development (converging, diverging) of territorial disparities. This includes for example economic and social differences across the territory, varying demographic structures, endowment with infrastructure of general interest as well as territorial conditions in terms of sustainable development.

[6] Commission of the European Communities (2004): Third Report on Economic and Social Cohesion. Luxembourg. p. 27

In order to go beyond the general normative idea that cohesive and polycentric development is an aim in itself, it is necessary to see what is underneath these notions and clarify the actual objectives implied. Obviously, the main aim is well-being, but this is just as vague. To reach a more precise level of description, one can list, amongst others:

- access to services and jobs from any point in the territory
- avoiding negative externalities of excessive concentration of population, traffic, production, etc.
- avoiding excessive disparities in terms of income and wealth, both at a pan-European scale and specifically between neighbouring regions
- a limited use of surfaces and environmental resources for human activities

Indicators in this section should therefore respond to these objectives.

**Methodological Aspects**

Many of the general aims listed in the previous section can be analysed through existing, often quite simple indicators. These will not measure the degree of polycentricity, but rather the spatial distribution of several phenomena linked to different elements of well-being and sustainable development.

However, since polycentricity as such remains a major concept within European spatial policy, the identification of possible measurements of this concept is necessary. Functional polycentricity is highly complex and difficult to boil down to one or two dimensions and therefore remains a very abstract concept. Such a measurement should concentrate on the morphological aspects of a polycentric urban structure. The appropriate indicator will not have to be updated very often, for the general urban hierarchy does not change very rapidly. It will, to the contrary, be of a descriptive character, allowing to test several approaches and hypotheses concerning the advantages and impacts of such a morphological polycentric development. ESPON project 1.1.1 provided a first approach which project 1.4.3 revised on the basis of the remarks received from the MC and ECP network members.

A major concern related to access to services and (to a lesser extent jobs) is the lack of information about the exact location of such services, thus making it currently difficult to assess time-based accessibility analyses. In other words, it is currently not possible to measure the time citizens need to access the closest hospital, school, administrative centre, financial services, etc, except at very low scales, i.e. NUTS 2. A special effort should therefore be made to collect data concerning the exact location of such infrastructures, in order to be able do elaborate such indicators.

## Conclusions

Most of the indicators examined up to the interim report are fairly straightforward and quite easily available and updatable. However, some of the most important social indicators (income dispersion, price levels, access to services) are currently not available which implies either an intensive data gathering effort by ESPON, or lobbying with Eurostat and the national offices in order to convince them to collect the missing data.

One of the main elements of discussion concerning indicators dealing with policy objectives around balanced spatial structures is the way these indicators should be presented. Two possibilities exist:

1) a simple listing / benchmarking of the spatial units based on their local value of the indicator

2) a more complex system attributing relative values to the spatial units resulting from a comparison with their neighbours, their national mean and/or the ESPON space mean.

ESPON provides an approach for the second possibility through the multi-scalar analysis developed by UMS Riate in project 3.1. This could be used with the idea that it describes the relative instead of the absolute position of a region, which counts when discussing notions such as territorial cohesion and balanced spatial development.

The selection of indicators for "cohesive spatial structure" was particularly difficult because of its very wide scope. Its central notion being that of “balanced” spatial structure, all forms of human activity can be studied under this aspect.

## References and Sources

The Territorial State and Perspectives of the European Union Document (draft, June 2006). Towards a Stronger European Territorial Cohesion in the Light of the Lisbon and Gothenburg Ambitions. First Draft, Elaborated by the Editorial Group as of 26 June 2006.

COMMISSION OF THE EUROPEAN COMMUNITIES (1999): ESDP - European Spatial Development Perspective. Towards Balanced and Sustainable Development of the Territory of the EU, Luxembourg: Office for Official Publications of the European Communities, 87 pp.

ESPON projects 1.1.1, 1.1.4, 1.4.3, 3.4.2, 3.1

### 3.1.2 Lisbon strategy

In 2000 the European Spring Council, held in Lisbon, adopted a new strategy for growth and jobs for the whole of the EU. The “Lisbon Strategy” is supposed to offer orientation to member states in dealing with the challenges of an increased pace of globalisation on the one hand and the consequences of an ageing population on the other hand. Through the formulation of various policy initiatives to be taken by all member states the strategy was supposed to be a means in facing the low productivity and stagnation of economic growth in the EU. Within a ten year period, up until 2010, the EU should become “the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion” (see Council of the European Union, 2000).

Competitiveness is one of the key terms in the Lisbon Strategy as it involves more than asserting a position in the global market in economic terms. It can be considered as a cross-cutting issue, linked to different sectoral policies. Therefore the Lisbon Strategy emerged as a comprehensive concept, addressing economic, social as well as environmental renewal. From an economic point of view, knowledge and innovation are seen as the fundamental motor of European growth and as means to maintain and improve a hold on the global market. Both, public and private investment in research and development determine how well regional economies perform in an integrated global economy. Furthermore, regional competitiveness very much depends on the interrelation between economic strength, innovation potential of the regional economy and the qualification and productivity of the labour forces. These factors make up a region’s capital and its response potential to the challenges of increasing competition.

The human capital in terms of well educated regional population is another key element of the Lisbon Strategy. The level and degree of qualification is the decisive factor when it comes to employability. Therefore the creation of a knowledge based economy heavily depends on the level of the population’s education. The link between the latter and employment is evident, as it is between the educational level and the GDP.

In 2005, after a mid-term review of the strategy’s implementation had been conducted, the Commission presented a new approach to the Lisbon Strategy with a stronger focus on growth and jobs. The Spring European Council in that year endorsed the “Integrated Guidelines for Growth and Jobs”, a reference document for national Lisbon programmes, which should contribute to an increased ownership of member states. A respective “Community Lisbon Programme” should be developed to cover actions at EU level. (see Commission of the European Communities, 2005)

The Lisbon strategy focuses on sustainable economic growth and the creation of

jobs in order to enhance and ensure the attractiveness of Europe as a place to invest and work. In this respect, it is an essential component of the overarching objective of sustainable development set out in the EU Treaty: improving welfare and living conditions in a sustainable way for present and future generations. Both, the Lisbon and the Gothenburg Strategy contribute to ensuring this goal. Being mutually reinforcing, they target complementary actions, use different instruments and produce their results in different time frames.

In its Spring Reports the EU Commission regularly assesses the progress made in achieving the Lisbon goals. This annual review is based on a shortlist of 14 structural indicators that cover the following six domains (see Eurostat 2006):

- General Economic Background
- Employment
- Innovation and Research
- Economic Reform
- Social Cohesion
- Environment.

This system of indicators and their regular analysis can be seen as a monitoring system for the thematic areas covered by the Lisbon Strategy. In this respect, there are a lot of similarities to the monitoring of the Gothenburg Strategy (see chapter 4.4).

In addition to the Commission's Structural Indicators, some member states developed their own sets of Lisbon Indicators to be in a position to review their achievements on a national level (e.g. Luxembourg where a "Competitiveness Scoreboard" was developed[7]).

### Methodological aspects

The starting point for the analysis of existing Lisbon indicators was the set of Structural Indicators by the EU Commission. These indicators were confronted with the indicators used in 5 selected ESPON projects (see reference list below) dealing with Lisbon topics. Obviously, ESPON Project 3.3 on the territorial dimension of the Lisbon/Gothenburg Process was a key source of information in this respect. Given the relatively short period of time and the comprehensive tasks to be dealt with in ESPON project 4.1.3, it was not possible to look into national sets of Lisbon indicators and to include them in the analysis.

[7] Presentation by Pierre Thielen, Observatoire de la Compétitivité: "The Luxembourg National Plan for Innovation and Full Employment" given in the framework of an ESPON workshop on 24 March 2006 in Luxmebourg.

The indicators from the six different sources were all added into an Excel-sheet in order to be able to detect overlaps or intersections[8] and to get a general overview of the diversity of indicators. We had altogether 350 different indicators covering the six Lisbon domains mentioned above.

With reference to chapter 3.1.3, overlaps with the selected Gothenburg Indicators there can be made out, regarding e. g. economic indicators, employment/social indicators.

The Lisbon indicators were then, in a first preliminary and rather rough process, checked against the criteria of the filtering process (i.e. Explanatory power, Availability, Regional dimension, Practicability). On this basis, the team responsible for this work package agreed to drop some indicators that actually showed a large number of overlaps and replace them by others of the complete indicator list. These other indicators, that were eventually included in the indicator sheets (see Annex) were considered to have a better explanatory power and to serve better the purpose of representing a comprehensive thematic field.

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[8] i.e. whether an individual indicator is used in several domains or in multiple ESPON projects

### 3.1.3 Gothenburg strategy

In 2001 the European Commission agreed upon a long-term EU strategy on sustainable development, commonly known as the "Gothenburg Strategy". This strategy provides a policy framework for a sustainable development, i.e. to meet the needs of the present generation without compromising the ability of future generations to meet their own needs. The strategy rests on three separate pillars - economic, social and environmental - which need to reinforce one another to ensure sustainable development. The economic, social and environmental implications of all sectoral policies thus need to be examined in a coordinated manner and taken into account when those policies are being drawn up and adopted.

The Gothenburg Strategy adds a third, environmental dimension to the Lisbon Strategy (see section 3.1.2), that initially had a main focus on economic renewal and social issues related to that, i.e. education, employment, social inclusion. It is designed to be a catalyst for policy makers and public opinion, to change society's behaviour. As such, it is built around cross-cutting proposals, measures to achieve long-term objectives and effective preparation and monitoring of policies. Member states are to draw up national strategies for sustainable development and have to review their progress in the field.

The Gothenburg Strategy identifies six unsustainable trends on which action needs to be taken: poverty and social exclusion, the implications of an ageing society (already covered by the Lisbon Strategy), climate change, health, natural resources, transport. The long-term objectives accordingly include (among others) limiting climate change, limiting major threats to public health, food safety and quality, removing threats to the environment posed by chemicals, a more responsible management of natural resources, limiting the adverse effects of transport and reducing regional disparities. These objectives are all in line to a high degree with the overall aims of the European Spatial Development Perspective (ESDP).

In correspondence to these trends and objectives, the Gothenburg Strategy's aims cover a wide range of topics which can add up to altogether 10 thematic fields. A hierarchical thematic framework was developed on the basis of the policy priorities of the Sustainable Development Strategy. The 10 themes, which may be further developed in the future, are[9]:

1. Economic development

2. Poverty and social exclusion

3. Ageing society

[9] A Sustainable Europe for a Better World: A European Strategy for Sustainable Development. COM (2001) 264

4. Public Health

5. Climate change and energy

6. Production and consumption patterns

7. Management of natural resources

8. Transport

9. Good governance

10. Global partnership

In order to be able to monitor the implementation of the political priorities incorporated in the Gothenburg Strategy, a comprehensive list of indicators was drawn up by a group of national experts. The list takes the form of a hierarchical framework of 12 headline indicators (corresponding to the main sustainable development themes identified at European and international level), 45 core policy indicators (corresponding to the key objectives of each theme) and 98 analytical indicators (corresponding to measures implementing the key objectives).[10]

Based on these indicators the EU Commission reviews the progress in implementing the Gothenburg Strategy every other year. In addition, an assessment of the achievements has to be made at each spring European Council. Against this background, the Commission's system of indicators and their regular analysis can be understood as a monitoring system for sustainable development in the EU. However, as with many other thematic areas too, the data availability for these indicators is often a problem and can be seen as the limiting factor in monitoring sustainable development.

Apart from the EU Commission's set of indicators for the whole of the EU, several member states developed their own sets of indicators to be in a position to review their efforts towards a sustainable development within their respective country (e.g. Sweden, Norway, Germany). Within some countries research institutes, regions and/or local authorities developed yet other sets of "sustainability indicators".

### List of key indicators

As there are quite a number of indicator sets to measure and assess the implementation of sustainable development on different levels, the sources of information for this work package are abundant. Obviously, ESPON Project 3.3 analysing the territorial dimension of the Lisbon/Gothenburg Process, was a key source of information in this respect. As cross-cutting and multidimensional overall

[10] Sustainable development indicators to monitor the implementation of the EU sustainable development strategy SEC (2005) 161


Co-financed by the European Union through the INTERREG III ESPON Programme.

concept, the Gothenburg Strategy touches upon a variety of topics. Therefore a large number of other ESPON projects (see list of sources at the end of this section) were scrutinised for proposed or used indicators that might be appropriate for measuring individual aspects of the Gothenburg Strategy. In addition to the ESPON Programme, we also looked for existing indicator sets and monitoring systems for sustainable development in selected countries (e.g. Germany, Norway, Sweden). All in all we analysed 26 different approaches, most of them dealing with the concept of Sustainable Development, only one specifically dealing with the Gothenburg Strategy. It needs to be pointed out that the majority of approaches (21) are ESPON projects.

The indicators from these different sources were all added into an Excel-sheet in order to be able to detect overlaps and to get a general overview of the diversity of indicators. We had altogether 696 different indicators covering the ten themes of the Gothenburg Strategy.

In spite of the large number of indicators we compiled, there are only very few overlaps of indicators from different sets. This holds particularly true when comparing indicators from the German sources we looked into with those from the Nordic Council and from Sweden and Norway. Therefore it seems that even though the principles of sustainable development, incorporated in the Gothenburg Strategy, are widely accepted, the indicators to assess the implementation of the concept tend to differ.

Those overlaps that can be identified largely occur within the ESPON Programme, i.e. different ESPON projects make use of the same indicator. Obviously, synergies were used here, which is also within the logic of the programme. In fact, the co-ordinating cross-thematic projects are set up just for this purpose, to evaluate the results of other ESPON projects and integrate them to facilitate drawing conclusions for territorial development.

Going through the collection of indicators for each Gothenburg theme there is often one indicator per theme that seems to be more widely used as others. For some themes, though, there is no one indicator particularly standing out, i.e. in the fields “Public Health”, “Transport”, and above all “Good governance”. The latter theme stands out as being least covered by indicators within the ESPON Programme. Section 3.1.6 on Governance will further expand on this issue. For “Global partnership” no overlaps of indicators from different sources could be made out at all. However, this theme is generally covered by only very few indicators.

The Gothenburg indicators were then, in a first preliminary and rather rough process, checked against the criteria of the filtering process (i.e. Explanatory power, Availability, Regional dimension, Practicability). On this basis, the team responsible for this work package agreed to drop some indicators that actually showed a large number of overlaps and replace them by others of the complete

indicator list. These other indicators, that were eventually included in the indicator sheets (see Annex) were considered to have a better explanatory power and to serve better the purpose of representing a comprehensive thematic field.

**Challenges encountered**

The ten Gothenburg themes of the 2001 revision of the strategy[11] were renamed in the revised Gothenburg Strategy[12] of 9 June 2006. While the majority of themes is retained, some of them just renamed or amended with some sub-themes, two themes were taken off the list. The review thus incorporates the following seven themes:

1. Climate change and clean energy (previously “Climate change and energy”)
2. Sustainable Transport (previously “Transport”)
3. Sustainable Consumption and Production (previously “Production and consumption patterns”)
4. Conservation and management of natural resources (previously “Management of natural resources”)
5. Public Health (unchanged)
6. Social inclusion, demography and migration (previously “Poverty and social exclusion” and "Ageing society")
7. Global poverty and sustainable development challenges (previously “Global partnership”)

No longer included are the previous themes “Economic development” and “Good governance”.

As a consequence, for the further work on this work package, we did no longer focus on the themes that are no longer part of the revised Gothenburg Strategy. However, as these themes are still dealt with in other work packages of the project, the indicators we extracted from different approaches may still be used there.

As mentioned on several occasions throughout this chapter, the Gothenburg Strategy is intrinsically multi-sectoral. On the one hand, this offers the opportunity to make use of a large pool of existing indicator sets. On the other hand, as outlined above, the simple fact that there is an abundance of indicators to cover this subject does not necessarily mean that the same indicators are repeatedly applied, i.e. there are surprisingly little overlaps. Consequently, a first selection of

[11] A Sustainable Europe for a Better World: A European Strategy for Sustainable Development. COM (2001) 264

[12] Council of the European Union (2006): Review of the EU Sustainable Development Strategy (EU SDS) – Renewed Strategy.

indicators is not as simple as might have been expected at the outset in view of the supply of indicators.

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ESPON Project 3.4.2: EU economic policies and location of economic activities.

### 3.1.4 Infrastructure and accessibility

#### The relevance of infrastructure and accessibility indicators

Accessibility is the main 'product' of a transport system. It determines the locational advantage of a region relative to all regions. Indicators of accessibility measure the benefits households and firms in a region enjoy from the existence and use of the transport infrastructure relevant for their region. Accessibility indicators can be defined to reflect both, transport infrastructure within a region and infrastructure outside the region which affect the region (Schürmann and Talaat, 2000, p. 6). In general terms, accessibility is a construct of two functions, one representing the activities or opportunities to be reached and one representing the effort, time, distance or cost needed to reach them. The important role played by the transport infrastructure in regional development is one of the fundamental principles of regional economics. In its most simplified form it implies that regions

with better access to the locations of input materials and markets will, ceteris paribus, be more productive, more competitive and hence more successful than more remote and isolated regions. In this sense the improvement of transport infrastructure is contributing to the (global) economical competitiveness of a region. Beyond this, it is widely expected that improvements in transport systems also imply cohesion effects in that they should reduce regional disparities. Because transport infrastructure may contribute to both of these two general policy objectives, the enlargement of transport networks is still an issue at stake in many regional development strategies. Although such impacts of transport infrastructure on regional development have been difficult to verify empirically in the past, accessibility indicators are being used to analyse these impacts.

Improvements in accessibility may have several dimensions: they may trigger the (global) competitiveness of a region or of Europe as a whole, but may also contribute to a balanced distribution of population and wealth or improve opportunities for social contacts or cultural interactions, on various spatial levels. Therefore, one may find accessibility indicators in the indicator matrix in both columns labelled “Balanced distribution of population, wealth, cities” and “Assets for global competitiveness”. On the other hand, the absence of high quality transport infrastructures or very distant geographical locations may not always be synonymous with economic backwardness, as the examples of several Nordic regions or Ireland have shown in recent years. Neither is a central geographical location is sufficient for economic success, as the Ruhr Area in Germany could experience throughout the past decades.

To make things even more difficult, the same transport infrastructure project may satisfy different policy goals in conflicting manner. For instance, a new high-speed rail connection linking two agglomeration centres will probably increase the global competitiveness of the agglomerations (and perhaps also of Europe as a whole). However, there is also some danger that the project may lead to a more uneven distribution of population and wealth, thereby increasing disparities between the regions or between the agglomerations and rural areas, if such transport projects are not embedded into a more comprehensive policy package.

In parallel to the rise of the debate about sustainable development, environmental concerns were expressed concerning a further undamped development of traffic volumes and transport infrastructures, calling for additional transport-related sustainability indicators taking into account energy and land consumption, modal split and accidents. ESPON project 1.2.1 already tried to link EU transport policies to the three cornerstones of sustainability (see Mathis et al. 2004, p. 71)

Accessibility at European level should also be discussed with regard to different transport modes. Generally speaking, accessibility by road can be characterised by a clear distinction between central and peripheral regions, showing the well-known

European core-periphery pattern, while accessibility by rail favours central areas but also cities serving as main nodes in the high-speed rail networks. Accessibility by air finally shows a patchwork of regions with very good accessibilities surrounded by those with bad accessibilities, some of them being located in the geographical core of Europe. While for road and rail there is generally a core-periphery pattern at the European scale, similar patterns are replicated at the national level as border regions, coastal regions and islands, and mountainous regions within a country very often also suffer from relative poor accessibilities compared to more central parts or even the capital regions within a country.

ESPON project 3.1 already tried to summarise the different facets of accessibility, and identified the following components (ESPON 3.1, Final Report Part C, p. 137; see also Wegener et al., 2001, 9):

- *type of area for which accessibility is measured*: region, city (punctual), corridor (linear), other entities (FUAs, islands, mountain ranges etc.)
- *resources to be reached ("mass" term):* population, GDP, acitivities, natural resources, public service facilities such as hospitals, universities, airports etc.
- *modes of transport:* road, rail, air, inland waterways, seaways, ICT
- *means of transport and purposes:* passenger, freight, business, leisure
- *units and scale:* local, regional, continental, intercontinental
- *ways of measurement:* type of networks to be considered, constraints, type of impedance functions, etc.
- *connectivity:* topological relationships, relational aspects

Against the background of this complex situation it is clear from the beginning that a single infrastructure and accessibility indicator is not capable of capturing all aspects of transport in order to monitor all the divergent policy objectives. Thus there is a large variety of approaches to measure infrastructure systems and accessibility in the geographic and economic literature, applied in various studies. Applied indicators range from rather simple endowment indicators (e.g. length or density of motorways, number of railway stations), over travel time or travel costs indicators (e.g. number of cities that can be reached within a certain travel time or cost) towards more complex indicators of the potential accessibility type. In recent years there has already been a number of attempts to classify and compare accessibility indicators in a systematic way (inter alias, Schürmann et al., 1997; Copus, 2001; Geurs and Ritsema van Eck, 2001; Wegener et al., 2001; Spiekermann and Neubauer, 2002; Mathis et al., 2004).

The appropriate spatial level for the indicators is also interrelated into these three

goals: Firstly, they must be able to analyse the position of a region (or a city or any other spatial entity) within Europe as a whole (distance to main markets and to the main economic centres in Europe) (global competitiveness). Secondly, the relative position of a region (or city) within the national context must be addressed (cohesion). Finally, such indicators should also reflect the transport infrastructure provision and the accessibility patterns within a regional context, i.e. comparing one region with its neighbouring regions or analysing a city´s accessibility within its regional hinterland (cohesion, sustainability).

### Data sources

The following data sources were used to feed the proposed key indicators:

- ESPON Database (vers. May 2006)
- Eurostat Regio Database
- CORINE 2000 Dataset (EEA 2005)
- INTERREG IIIB Baltic Sea Project
- Nordregio study on sparsely populated areas

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### 3.1.5 Socio-cultural issues

This section deals with the two policy goals “Socially inclusive society and space” as well as “Diversified cultural heritage and identities”.

The existing indicators suggested to depict these two long term territorial goals presented the starting point to this work package. So far only two indicators in the thematic fields of “culture” (for diversified cultural heritage and identities) and “transport” (for socially inclusive society and space) have been put forward. These two indicators have – in a first attempt – been checked in terms of plausibility and availability. Then further indicators have been identified and checked in order to complete the indicator matrix for these two policy fields. The following section describes this process and tries to reveal the logic and rationale behind the selection and checking of the suggested core indicators in this field.

The definition of the two rather heterogeneous policy fields – socially inclusive society on the one hand and diversified cultural heritage on the other hand – causes some problems. The two ESPON projects dealing with these issues – i.e. ESPON 1.4.2 “Preparatory Study on Social Aspects of EU Territorial Development” and ESPON 1.3.3 “The Role and Spatial Effects of Cultural Heritage and Identity” – experienced the same problem when pinning down these issues to a simple picture and definition.

**The socially inclusive society:**

The range of this policy field is rather wide – as could easily be seen by the range of topics to be covered in the ESPON 1.4.2 project – covering aspects such as housing, education and training, employment and income distribution, and access to social services, services of general interest and mechanisms of public transfer. The heterogeneity of these topics on the one hand, and their complex interlinkages on the other hand made it quite difficult to come forward in due time with a single unambiguous definition of simple core indicators covering all aspects at the same time.

Within this policy field research concentrates on the following issues:

- **Poverty and social exclusion** as one (or the) main question, making mechanisms of public transfers necessary.
- **Social services and expenditures**: As an indicator, social expenditures depict the offer of social services and are therefore an important descriptive indicator in this field.
- **Health care,** which is stated to be one of the most important issues within the area of social services (together with employment/income distribution and education/training).

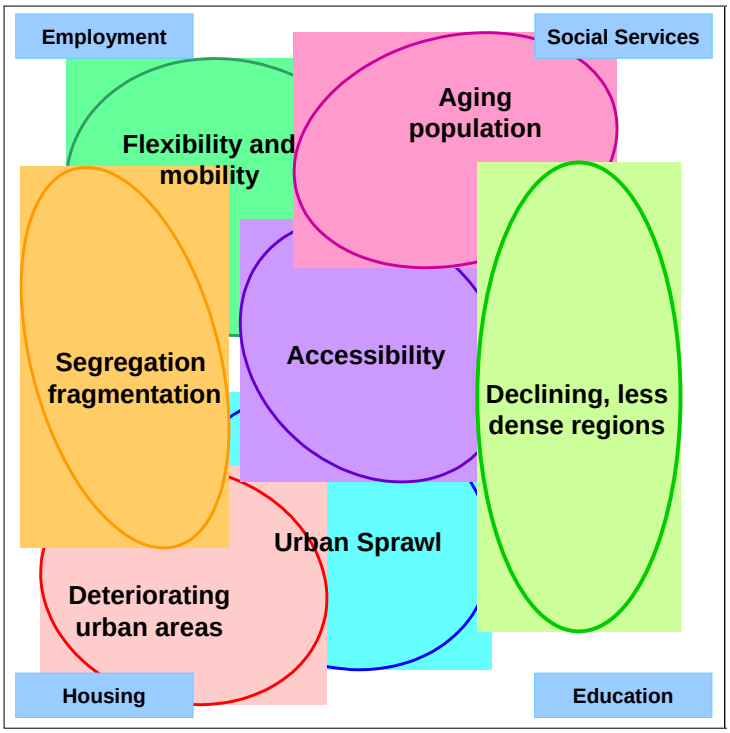
- **Employment/ unemployment:** Employment (resp. unemployment) has been a core issue on the political agenda in Europe since by the early 1990s unemployment throughout Europe has risen to unprecedented levels. Consequently, concern over the economic well-being of less-skilled workers and tackling long term unemployment have become prominent policy contents. Still there is hardly any other socioeconomic phenomenon which is so strongly debated and so weakly embedded in sound economic theory than unemployment and employment policies.
- **Income distribution/ income disparities:** The topic of income disparities certainly is a special issue related in many ways to labour markets but also to other social policy aspects Moreover income disparities – or to put it in a neutral way the differences in household income within a specified economy – are a political issue in a bizarre way: On the one hand social cohesion in the sense of equal welfare distribution is a high political goal[13]. On the other hand disparities within economies as well as among countries and regions increase and rise the question of the efficiency of measures aiming at equal welfare distribution (see e.g. the discussion about the support of the growth poles in Europe vs. the support of regions lagging behind).
- **Housing**: there are dynamic processes in the housing systems of the EU 25+2+2 that can be captured via exploring their territorial manifestation, e.g. through housing market developments, housing investment, and quality of housing supply. The broad range of topics, relevant for the current policy and scientific discussions (e.g. employment, urban development), indicate that housing research is related to numerous social aspects and social and economic processes co-determine the territorial processes of housing.
- **Education and Training:** Education is expected to ensure the acquisition of skills and competences that are closely linked with the access to job opportunities. This dynamic process comprehends several interrelated dimensions. On the one hand, it is associated with the human capital dimension at an individual level by determining a person's socioeconomic situation and consequently his/her standard of living, which generally impacts the social sphere. On the other hand, it has an economic dimension, since these skills and competences strongly influence the levels of productivity, innovation and economic growth. These two dimensions are also linked to a third one, which has to do with the states' capacity, or lack thereof, to provide social protection to its citizens, namely by guaranteeing the access to the various levels of education, free of charge and with a broad regional coverage, thereby promoting social cohesion.

[13] see e.g. Commission of the European Communities (2004): Third Report on Economic and Social Cohesion. Luxembourg.

When trying to link those aspects and to find thematic clusters ESPON project 1.4.2 listed the following societal-territorial trends, which are embedded in the policy fields listed below:

- Social-territorial segregation / fragmentation
- Aging population
- Access to jobs, housing and educational and social services
- Flexibility and mobility
- Urban sprawl
- Deteriorating urban areas
- Declining, peripheral regions

**Figure 3-1 Thematic clusters within the policy fields of socially inclusive society**




These thematic clusters will have to be borne in mind when identifying affective core indicators in this field.

**Cultural Heritage and Identity:**

This policy field suffers even more than the socially inclusive society from the difficulty to select a meaningful list of components of cultural heritage and identity, building upon existing, practicable and measurable categories. ESPON project 1.3.3 tried hard to do so and came forward with the following list of cultural heritage and identity components:

- **Monuments:** historical buildings and sites; most countries do have national or regional registers of the cultural heritage subdivided by typology
- **Protected cultural landscapes and conjuncts**: this category focuses on the interaction of different cultural elements and on their spatial pattern. These assets have a composite nature and occupy a large area in the space, so that it is not possible to pinpoint them to an exact location. They are subject to different levels of protection; data is available from national lists
- **Museums and galleries**: collections of movable, tangible heritage grouped in a man-made exhibition space (museum or gallery).
- **Events**: they provide a "symbolic" backbone for the very recognition of the physical cultural markers of the heritage. Cultural events may be conceived as an explication of the cultural idiosyncrasy of a territory, stretching in range from the celebration of traditional folklore to the increasing multiculturalism of metropolitan cities.
- **Cultural diversity**: Languages, religions, ethnic groupings, social structures are expressions of the local identity. The selection criterion for these assets should be the existence of spatial expressions and effects, which need to be visible, traceable and measurable.
- **Cultural professionals**: i.e. the share of population employed in cultural industries – thus depicting how far cultural heritage helps to generate regional revenues
- **Cultural infrastructure and organisations**: this category includes elements which contribute to the forwarding and transmission of the heritage: institutions and organisations which are not to be considered cultural heritage per se but reflect the will of a community to further share and promote their cultural heritage thus defining their identity; e.g. theatres, cinemas, public libraries
- **Intellectual capital**: that is the extension of the capacities on which the region can count to further its heritage and identity. This capital consists in universities, high levels of quality of life within a region.

- **Cultural excellence**: This data regards cultural components classified uniformly over the EU territory as part of networks of excellence in specific fields of cultural activity – e.g. European Theatre Convention, European Capitals of Culture, UNESCO world heritage sites.

As could be easily seen from this list the main challenge was to translate all these components into reasonable and measurable indicators. The results of ESPON 1.3.3 may be debateable in this respect. Only very few aspects could be depicted without bias and unambiguously on the regional level. Complete and reliable pictures on the NUTS 3 level for the entire ESPON space could only be drawn for the culture-related jobs and to some extent the number of monuments.

### Conclusion

In this first attempt of finding key indicators we took a rather pragmatic and reality-driven approach. The two suggested indicators in the two policy fields presented the starting point. We tried to check their plausibility by cross checking their use in the two ESPON studies and other policy related indicators sets. As both of them were to be found reliable in this respect we decided to keep them in the matrix for the time being.

In the second step we added additional indicators along the x-axis of the indicators matrix (i.e. along the socio-economic, environment and culture related fields of spatial monitoring on the basis of ESPON projects).

### The Socially inclusive society:

Here, we started off with the evaluation of the Laeken Set of Social Indicators[14], which can be considered as a comprehensive set of indicators which found a remarkable way through the different requirements of policy monitoring. The Laeken indicators show the following characteristics: Nine are monetary indicators based on income data (mainly panel data from the European Community Household Panel - ECPH), five are indicators of Labour Participation (mainly based on the European Labour Force Survey), two are indicators reflecting formal job qualification and two are health indicators.

Although heavily relying on income indicators, the Laeken set makes use of both – imminent and probabilistic – indicators as well as individual and regional indicators. The non-monetary indicators cover only some aspects of social exclusion (as long term unemployment or qualification) and some regional indicators as life expectancy at birth. Non-monetary but imminent individual indicators are only excluded by a health self-assessment.

[14] Named after the EU Summit in Laeken, Belgium in December 2001

On a regional level, the quality of the Laeken set suffers heavily by the non-availability of income data. But without income data, the Laeken set cannot be considered as appropriate in measuring poverty nor social exclusion. The ESPON 1.4.2 project thus came to the conclusion that due to the decentralised responsibility for the legislation within the Member States, the availability of European-wide, harmonised data on a regional level (NUT 2 or NUTS 3) for social issues is rather poor.

Within the ESPON project 1.4.2 indicators of various European and international sources and databases were analysed. More than 230 indicators were identified as relevant for social-territorial issues. However, about 80% of all these social indicators are available only at national level, e.g. all OECD data and lots of UN-data. Moreover, the data from the Urban Audit are available only for selected cities, not covering the territory of EU 25+2+2. Their use is therefore limited to analyses within the ESPON-space.

**Cultural Heritage and Identity:**

Here the situation proved to be even worse. As mentioned above the ESPON project 1.3.3 provided very little data on the NUTS 2/3 level which could be seen as key information for a European spatial monitoring scheme.

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### 3.1.6 Governance

Good governance is widely considered as being fundamental for economic growth and political stability. Within this field, the theme of territorially oriented governance touches a relatively new scientific field, in which the attempts for measuring or monitoring the related development in space have been very limited so far. This is why the definition of the term 'territorially oriented governance' is still to be discussed. In addition, empirical approaches to the measurement of governance show the difficulty in developing appropriate indicators and gaining valid data (see e.g. Court, Hyden and Mease, 2002). Due to the different spatial levels under consideration once territorially oriented governance is to be measured, this problem is even aggravated.

Within the ESPON 2006 Programme Project 2.3.2 dealt with territorial governance issues. The extensive final report to this project impressively shows the difficulty in finding 'the' key indicator which could provide a comprehensive but simultaneously precise picture of achievements in territorial governance of a region, a state or a transnational territory. In addition, governance issues are not easily dealt with in a quantitative way but are based on numerous qualitative – and partly quantitative – observations, which are considered jointly in order to gain a comprehensive overview. To further complicate the search for governance key indicators, different spatial levels as well as a variety of policies need to be distinguished and cannot be easily aggregated to one single or very few indicators.

#### Definition and understanding of territorially oriented governance

**Governance** can be understood as ‘an emerging political strategy’ for nation states (or territories) in order to adapt to changes by supplementing formal authority with an increasing reliance on informal authority (see Pierre 2000, p.2). This process or transition entailed the emergence of new forms of participation and cooperation, within different political fields as well as on different spatial levels. Within this

tendency, the state's (or official territory's) representatives are considered as one group of actors among others, who, at the most, will take on a management role.

Governance does not stand in opposition to government, but is related to it in a complementary way. While the term *government* refers to the formally and hierarchically organised procedures and structures of the state, *governance* incorporates the relevance of 'new actors' and their procedures of involvement in the political scene (see also ESPON 2.3.2 FR, p.23). Government therefore does not show a retreat in these developments, but can rather act as a catalyst operating within this newly emerging multi-level structure of cooperation and relations among actors (see also Kujath/Dybe/Fichter 2001, p.10).

Primarily, governance focuses on procedures of problem-solving, conflict-mediation and decision-making. Some basic principles have been summarised and accepted by the Commission of the European Union (see White Paper p.10), as principles of good governance in general:

- *Openness*: Are relevant processes concerning spatial policy implementation publicly discussed, is decision-making transparent? Are decision and policy contents understood by the general public? (Degree of active communication within the process of territorial governance and the decisions it takes).
- *Participation*: Are all relevant actors of the policy chain included in the processes of policy conception and implementation? (Degree of empowerment and involvement of a wide range of actors).
- *Accountability*: Can (public and private) actors be held accountable for spatial policy implementation and are the roles of the different actors clear? (Degree of taking responsibility by the involved actors in implementing spatial development issues).
- *Coherence*: Are policies of different sectors and different spatial levels coherent in terms of objectives but also responsibilities etc.? (Degree of consistency within the complex system of sectoral policies affecting the same territory).
- *Effectiveness:* Are policies effective and timely, delivering what is needed on the basis of the ESDP objectives on the respective territorial level of decision and implementation? (Degree of delivering regional/local needs on the basis of territorial objectives)

Other principles describing governance are transparency, sustainability, subsidiarity, equity or effectiveness, civic engagement or cooperation (see ESPON 2.3.2, FR, Annex B, p.27). Since most of them partially express similar notions as the five principles named above, they were not considered as additional principles within the analyses of this project.

***Territorially oriented*** governance consists of those procedures, applied to political activities with a strong territorial focus like spatial planning or regional policy. It presents the way in which roles and responsibilities are distributed among the different government levels and other involved actors, and describes the related processes of negotiation and consensus building within the territorially oriented political fields.

### Spatial ESDP objectives and territorially oriented governance

In the context of the relation between governance and spatial objectives, EU territorial governance constitutes a special case, since it focuses on the impact of EU policies with their declared aim of strengthening spatial cohesion within the EU (see 'The territorial state and perspectives of the EU', draft, p.5). At the same time, EU territorial governance itself, as the whole complex of interactions among different actors and different interests on a territorial level, can be considered as part of the territorial cohesion process (see also ESPON 2.3.2, Exec. Summary, p.11).

For the purpose of this project, especially the ESDP objectives specified for the achievement of a polycentric spatial development and new urban-rural relationships are relevant. Once the criteria for good governance and the 'measurement' of governance achievements are established for the different respective spatial areas considered in this field of ESDP objectives, they can be more easily applied to the other spatial objectives in relation to infrastructure and knowledge access as well as the management of natural and cultural heritage. Thus, this project needs to consider the different types of territories for which territorially important policies are implemented, in order to elaborate the relevant governance criteria for them.

The relevant territories distinguished in the ESDP are related to the following objectives

- Polycentric and balanced spatial development in the EU
- Dynamic, attractive and competitive cities and urbanised regions
- Indigenous development, diverse and productive rural areas
- Urban-rural partnership

### Appropriateness of governance indicators developed by ESPON project 2.3.2

ESPON project 2.3.2 developed different sets of indicators in order to 'measure' different aspects of territorially oriented governance. The TPG utilised qualitative indications for specifying multi-level and horizontal governance and multi-level governance relationships. This qualitative information was standardised by means

of varying scaling systems. These varying scaling systems automatically imply that different indicators gain varying weights. Such a compilation of a complex indicator appears arbitrary and – when summed up – does not contain any information about a territory's specific governance performance, i.e. a medium overall value can be due to generally medium performance or to rather high values for some governance aspects which are accompanied by relatively low values for other aspects. As a consequence of this aggregative method, the countries of the ESPON space, with few exceptions, score around medium values for horizontal and vertical governance structures and relationships, thereby not providing a high explanatory content.

To overcome the analysis limited to country levels for the whole ESPON space, ESPON project 2.3.2 also introduced a quantitative assessment. This assessment consisted of a simple aggregation of a small number of regional structure and performance indicators to a synthetic indicator. Besides an indicator on the civil society all utilised indicators referred to general employment, economic and spatial issues not directly linked to governance (see ESPON project 2.3.2 FR, p.176). Consequently, these indicators can neither provide an indication of the regions' governance approaches at different spatial levels nor in different types of territorial relations (e.g. regional, trans-national, rural-urban etc.). In addition, rather than a numerical addition of standardised indicators, only their scaling in relation to the respective average values was applied, which implies further simplification and easily inhibits assessment biases. Therefore, the applied quantitative indicators – with the possible exception of the Eurobarometer indicator on civil society aspects – do not appear to be particularly useful in search for governance key indicators.

**Methodological approach for the measurement of territorially oriented governance**

Several institutions have started to develop possible sets of indicators for measuring governance in a variety of contexts, among them the World Bank[15] or the United Nations University (see e.g. Court, Hyden and Mease, 2002). These examples as well as the previously discussed results of the ESPON project 2.3.2 prove that the work done so far is valuable but not sufficient for the purpose of ESPON project 4.1.3, as it does not offer indicators, which could serve as key indicators at different spatial levels.

As done in the aforementioned approaches, the exploration has to start with a determination of principles that give a comprehensive description of good governance structures and procedures. Here, the five principles of good governance as in the White Paper will serve as a starting point.

In a second step, these principles need to be filled with more specific criteria (e.g. participation: actors involved) in order to make them more concrete and tangible.

[15] see http://www.worldbank.org/wbi/governance/govdata/

Within this step, and in advancement to the discussed approaches, these specific criteria need to be chosen and adjusted in a way that they can be utilised for all different territorial levels. This specific approach of structuring and filling the principles with criteria according to the various spatial levels represents the distinctive challenge for ESPON project 4.1.3.

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## 3.2 From the old to the new matrix

Project 4.1.3 started off by pursuing the current thematic issues in spatial planning. Consequently, work packages were organised along the themes Territorial Cohesion, Lisbon Strategy, Infrastructure, Gothenburg Strategy, Socio-cultural issues, and Territorially oriented governance. This approach was also outlined and postulated in the ToR.

The point of departure and research setting for the project was the matrix of key indicators. The matrix was developed during a process of intensive discussion between the ESPON CU, the so called "guiding projects" (ESPON 3.1 and 3.2) and lead partners from other projects. The process aimed at the identification of a short list of indicators, sufficient for providing cross-thematic information on European spatial development. The matrix of key indicators (see table below) was eventually agreed upon by the ESPON Monitoring Committee.

**Table 3-1 The initial matrix**

| | Balanced distribution of , population, wealth, cities, etc. | Assets for global competitiveness | Innovative knowledge society | Diversified regional economies | Sustainable transport and energy | Sustainable settlement structures | Socially inclusive society and space * | Healthy environment and hazard prevention | Diversified cultural heritage and identities * | Territorially oriented governance * | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Urban development & hierarchy | Rank-size index (by population) | importance/share of major transport hubs (pass and gds) | | | | Primacy rates | | | | | 3 |
| Urban-rural relationships | | | | | | Artificial area development | | Evolution of naturale surfaces | | | 2 |
| Demography | Evolution of population by age group and gender | Migratory balance | | Activity rates by age group and gender | | Day/night time population | | Loss of life expectancy because of air poluton | | | 5 |
| Innovation | | | Patents by field of activity | R&D personnel | | | | | | | 2 |
| ICT | | | Broadband usage | | | | | | | | 1 |
| Hazards | | | | | | | | Hazard risk typology | | | 1 |
| Culture | | | | | | | | | Number of cultural sites | | 1 |
| Transport | Potential time distance to centres of different levels | Multimodal accessibility | | | Intensity of transport flows by mode | | Accessibility by public transport (or just by train – as a proxy) | | | | 4 |
| Agriculture, Fisheries and Rural Development | | | | | | | | | | | 0 |
| Energy | | | | | Energy consumption per type of user and source | | | | | | 1 |
| Governance | | | | | | | | | | | 0 |
| Environment | | | | | | | | Fragmentation index / Ground water quality | | | 2 |
| Social issues | Rank-size index (by household income) | | Population by education level | | | | | | | | 2 |
| Economy | Rank-size index (by GDP) | Number of multinational headquarters | Employed in HI-TEC sector | Added value by economic sector (some specialisation index) | | | | | | | 4 |
| TOTAL NUMBER OF INDIC | 5 | 4 | 4 | 3 | 2 | 3 | 1 | 5 | 1 | 0 | 28 |

The matrix of key indicators included 14 spatial policy options and aims (see first column) and 10 long term territorial goals (see first line) as well as first proposals for altogether 28 key indicators.

As outlined in section 3.1, the matrix served to identify the work packages of project 4.1.3 according to specific policy fields. Within the individual work packages suggested indicators had to be assigned to their most appropriate field in the

matrix, thereby accepting the given structure and policy orientation. Due to the very tight time frame of the project, there was hardly any chance to discuss the chosen indicators within the whole project team. As a result, overlaps and double usage of indicators could not be avoided at first.

Nevertheless, when compiling the Interim Report these incidents gave rise to reflection. The given “old” matrix did not completely seem to fit the idea of a spatial monitoring. Numerous overlaps of identical indicators that had been assigned to different policy themes revealed the limits of the matrix. Some other indicators that were considered to be important could not easily be integrated into the matrix. Moreover the number of indicators soon exceeded the previously foreseen limitation by far, especially if those of the wish list procedure were also taken into account. These problems were finally discussed during the project meeting in Bonn on the 17 – 18 August 2006, resulting in a new matrix or a new thematic outline of the project.

No spatial policy option and aim / thematic orientation was completely skipped and most of the proposed indicators are still used. But the discussion among the TPG members revealed several incidents where the thematic orientation proved to be too detailed, thereby leading to overlaps in the assignments of the indicators used.. It was decided to condense the thematic orientation to no more than six fields, resulting in a “new” matrix (see Table below).

**Table 3-2 The new matrix of routing indicators**

| | | Balanced distribution of population, wealth, cities | Sustainable settlement structures | Assets for global competitiveness | Innovative knowledge society | Diversified regional economies | Sustainable transport and energy | Socially inclusive society and space | Healthy environment and hazard prevention | Diversified cultural heritage and identities | Territorially oriented governance |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Economy, Innovation (Agriculture) | A | | | GDP per capita in Euros, 2003<br><br>GDP in PPS per inhabitant, 2003<br><br>Change of GDP in Euros per capita<br><br>Labour costs<br><br>Employment in R&D | R&D personnel % of total employment<br><br>Gross domestic expenditure on R&D as % of GDP | Employment by economic activity<br><br>Share of agriculture, forestry and fishery in the regional added value (%)<br><br>Share of technological manufacturing industries in the regional added value<br><br>Share of financial and business services in the regional added value<br><br>Share of administration, education, health and social services in the regional added value<br><br>Development of unemployment rate<br><br>Employed in high-tech sector | | Unemployment rate<br><br>Unemployment rate <25 years<br><br>Long term unemployment<br><br>Activity rate female 15-64 years<br><br>Activity rate male 15-64 years | | | |
| Demography | B | Population density<br><br>Fertility rate<br><br>Population older than 64 years<br><br>Population in the age 15-64 years<br><br>Share of population younger than 15<br><br>Migratory balance | | | | | | | | | |
| Spatial structure (Urban, urban-rural, urban hierarchy) | C | Primacy rate | | | | | | | | | |

| | | Balanced distribution of population, wealth, cities | Sustainable settlement structures | Assets for global competitiveness | Innovative knowledge society | Diversified regional economies | Sustainable transport and energy | Socially inclusive society and space | Healthy environment and hazard prevention | Diversified cultural heritage and identities | Territorially oriented governance |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Energy, transport, ICT | D | | | Potential accessibility, multimodal, to population | | | | Connectivity to rail stations<br><br>Accessibility by public transport (rail) | | | |
| Social, culture and gover-nance | E | | | | | | | Employed persons by highest educational level<br><br>Population by highest educational level attained<br><br>Part-time employment | | Number of cultural sites | |
| Environ-ment, Hazards | F | | | | | | | | Fragmentation index<br><br>Flood endangered settlement and artificial areas (Corine) | | |

### Table 3-3 The new matrix of wish list indicators

| | | Balanced distribution of population, wealth, cities | Sustainable settlement structures | Assets for global competitiveness | Innovative knowledge society | Diversified regional economies | Sustainable transport and energy | Socially inclusive society and space | Healthy environment and hazard prevention | Diversified cultural heritage and identities | Territorially oriented governance |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Economy Innovation (Agriculture) | A | Consumption per capita | Share of organic area | Capital/labour ratio<br><br>Import-export ratio EU - Non EU<br><br>Energy intensities by industries<br><br>Total factor productivity<br><br>Labour productivity per hour worked | Employed persons by highest level of education attained | Economic importance of agriculture (GDP) | | | | | |
| Demo-graphy | B | | | | | | | | | | |
| Spatial structure (Urban, urban-rural, urban hierarchy) | C | Demographic trend in urban areas compared to rural areas | Balance of commuters<br><br>Proportion of long-distance commuters<br><br>Accessibility of services of general interest<br><br>Land use (Agriculture, fisheries and rural develop-ment) (Corine) | | | | | | Evolution of natural surfaces | | |
| Energy, transport, ICT | D | | | | | | Modal split passenger transport<br><br>Renewable energies in total energy production<br><br>Energy consumption per type of user and source | Proportion of population living within 30 minutes of next railway station | | | |

| | | Balanced distribution of population, wealth, cities | Sustainable settlement structures | Assets for global competitiveness | Innovative knowledge society | Diversified regional economies | Sustainable transport and energy | Socially inclusive society and space | Healthy environment and hazard prevention | Diversified cultural heritage and identities | Territorially oriented governance |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Social, culture and governance | E | | | | Proportion of households with internet access | | | Intra-regional income dispersion<br><br>Regional price index<br><br>Household income (as disposable household income)<br><br>Gini-coefficient of household income<br><br>Social spending<br><br>Intra-mural healthcare and social expenditures in Europe<br><br>At-persistent-risk of poverty rate<br><br>Share of jobless households | | | Level of administrative functions in cities |
| Environment, Hazards | F | | | | | | | | Protected areas (European definition)<br><br>Municipalities waste | | |

The new matrix of themes is now less based on "volatile issues" that might be taken of the political agenda due to changed priorities. The dominating opinion of the project group was that an orientation at such issues may lead to a very limited stability of the monitoring system as such. For example the agenda of the Lisbon process may at some point in the future be more or less fulfilled or will be redefined. However, this would not result in stopping spatial observation of the themes behind the agenda at the same time.

Another aspect considered was the application and administration of the monitoring system. The system should be easy to maintain, use and understand. So the new structure with only six thematic orientations provides a better overview and is more user friendly.

Finally the orientation of the new structure represents a more robust, spatial policy orientated monitoring, which can serve all the important political questions considering territories and space in general. However, it does not overemphasise issues that risk being outdated sooner or later.

## 3.3 Thematic orientation of spatial monitoring

As explained above, the former political orientation of the old matrix was replaced by a thematic orientation, broken down into the following six fields:

- Economy, Innovation (Agriculture)
- Demography
- Spatial structure (Urban, urban-rural, urban hierarchy)
- Energy, transport, ICT
- Social issues, culture and governance
- Environment, Hazards

In most cases, the suggested indicators to monitor developments in these thematic fields come from different work packages, e.g. the three work packages on respectively the Gothenburg Strategy, Infrastructure and accessibility, as well as Socio-cultural issues all proposed indicators that were assigned to the theme “Spatial structure”.

Detailed information on all indicators suggested by ESPON 4.1.3 can be found in the indicator sheets in the annex to this part B. For each indicator there is one indicator sheet, revealing the objective, calculation, informational value, and regional distribution of the respective indicator. In addition, each indicator sheet contains information about the spatial coverage, spatial level, time reference, data sources, type of data, data gaps, and finally comments on the indicator.

Indicator sheets were created not only for the routing indicators, fulfilling all criteria of the selection process, but also for the wish list indicators.

The following chapters shortly present the routing indicators as well as the wish list indicators for each of the six thematic orientations of the new matrix.

### 3.3.1 Economy, Innovation (Agriculture)

The thematic field of "Economy, Innovation (Agriculture)" encompasses the largest number of indicators of all thematic fields (i.e. 30ndicators altogether, of which 19are routing indicators, and 11 are wish list indicators). This exceptionally high number of indicators is due to the fact, that all six work packages of the project suggested indicators for this theme, thereby revealing that economic issues and innovation are relevant in several policy strategies and orientations.

| Routing indicator | Informational value |
|---|---|
| Employment in R&D | This indicator is among the milestones in evaluating a region's innovation skills, given the assumption that higher investment in production factors shall lead to higher output. The indicator measures a certain kind of innovation capability. It is very useful as an indicator for product innovation, mainly undertaken by large firms. However, it is not useful to measure managerial, organisational and process innovation, nor innovation developed by SMEs, which generally are unable to have employees devoted only to R&D activity. In this sense it would be useful to add specific indicators for the different innovative activities that can be developed by SMEs. |
| Employment in High-Tech | The percentage of people employed in the high-tech sector shows an important aspect of the economic structure and the ability to produce innovation of different regions. Therefore the indicator provides information on the spatial balance of the development of the knowledge economy and the knowledge society in general across the ESPON space. |
| R&D personnel % of total employment | This indicator is among the milestones in evaluating a region's innovation skills, given the assumption that higher investment in production factors shall lead to higher output. It measures a certain kind of innovation capability. In fact, it is very useful as an indicator for product innovation, mainly undertaken by large firms. However, it is not useful to measure managerial, organisational |

| | |
|---|---|
| | and process innovation, nor innovation developed by SMEs. The latter generally lack the resources to have employees exclusively devoted to R&D activity. |
| Gross domestic expenditure on R&D as % of GDP | The indicator's relevance in quality research on innovation is similar to that of "R&D personnel/ total employment". However, wider data gaps worsen this indicator's availability, thus making it urgent to improve data collection, given the indicator's relevance. As the previous indicator on % of R&D employees, also this indicator is a good measure for input innovation, while it does not guarantee to capture the real innovative output. |
| Labour costs | In absolute value, this indicator is of no particular use. However it is the base for calculating more efficient and relevant indicators, e.g. unit labour costs (i.e. sum of wages and salaries divided by value of production, or value added) and income share of GDP. This latter is calculated as compensation of employees/GDP. It is often and widely calculated in several studies, being thought to be capable of gauging the relative strength of different sources of income (namely, labour income and capital rent) in an economy. Its value is demonstrated to oscillate over time and across countries. |
| GDP per capita in Euros<br>(in 2003) | This indicator is a measure of the average capability of producing wealth in a region or a country. In dynamic terms, this indicator contains both economic and social effects. In fact, an increase in GDP per capita can be the result of a real economic increase (GDP growth) or a social disease (population outmigration). In static analyses, at very disaggregated territorial level (e.g. NUTS 3), the indicator can contain bias effects due to commuters, who in reality produce wealth in an area where they are not registered as inhabitants. |
| GDP in PPS per inhabitant<br>(in 2003) | Similarly to what was explained about its absolute counterpart, GDP in PPS is a useful tool to compare living standards across countries and regions. Its per capita value offers a portrait of relative purchasing powers across countries and an average within them. It's therefore a rough but significant device to compare countries and regions, cancelling out differences in exchange rates (whereas needed) and price levels. |

| | |
|---|---|
| Change of GDP per capita | This indicator is a measure of the average capability of producing wealth in a region or a country. In dynamic terms, this indicator contains both economic and social effects. In fact, an increase in GDP per capita can be the result of a real economic increase (GDP growth) or a social disease (population outmigration). In static analyses, at very disaggregated territorial level (e.g. NUTS 3), the indicator can contain bias effects due to commuters, who in reality produce wealth in an area where they are not registered as inhabitants. |
| Unemployment rate | The rate of unemployment delivers some insight into matters of social and economic exclusion of a region. A high unemployment rate might go along with parts of a society having difficulties in accessing the labour market, thereby experiencing economic difficulties that prevent them from being fully integrated members of the society they live in. |
| Long term unemployment | Here, the same goes as for unemployment rate. However, this indicator is even more appropriate in revealing or hinting at potential social problems, as long term unemployment entails more severe consequences than unemployment for a limited period of time. |
| Development of unemployment rate | The developent of the unemployment rate provides a dynamic picture of the use of labour within the economy over time. Unlike the static point of view of single unemployment rates the developent may provide information on tendencies, improvements and deteriorations. If mirrored with other economic structural data (e.g. efficiency indicators, economic output indicators) it may also provide some insight in structural qualities of regional economies. Furthermore the indicator provides - as an early warning indicator - some information on the share of population at risk of social exclusion. |
| Unemployment rate < 25 years | The acquisition of data on unemployed persons and their comparative analysis across space is highly relevant for gaining a thorough impression on social inclusion within a certain territory. Especially the employment and thus integration of young people is essential for the functioning of social inclusion of a society. The continuous measurement of this indicator therefore reveals an important facet of the status and progress of social |

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| | inclusion within the ESPON space. |
| Activity rate female 15-64 years | Women activity rates reflect, on one hand, social behaviour in the labour market and, on the other hand, economic obstacles such as unemployment rate. In political terms, it indicates the share of potentially active female population which is really active on the labour market and consequently able to support the non-active population. |
| Activity rate male 15-64 years | Men activity rates reflect, on one hand, social behaviour in the labour market and, on the other hand, economic obstacles such as unemployment rate, which could discourage to enter the labour market. In political terms, it indicates the share of potentially active male population which is really active on the labour market and subsequently able to support the non-active population. |
| Employment by economic activity | The informational value of these indicators is to give an indication of the economic profile of each region, and thereby also of the level of advancement of the economic evolution. The highest proportions of employment in agriculture generally concern regions with a less-advanced economy or an economy with structural difficulties. |
| Share of agriculture, forestry and fishery in the regional added value (%) | The sectoral structure of the economy is an important information for understanding the economic path of a region and the opportunities and threats it is confronted with.<br>The information concerning the primary sector is particularly important for identifying peripheral regions which still highly depend on this sector for their economic income and which therefore will be confronted to structural changes in the near future, particularly in the context of the WTO negotiations.The share of agriculture, sylviculture and fishery in the economy is also an indicator of structural economic weakness: in most of the cases, it is the result of the weakness of services and manufacturing activities more than the intrisic development of primary sector. |
| Share of technological manufacturing industries in the regional added value | The share of technological machine-tools, electric and electronic equipment and transport equipment is an indicator of the techological level of the economies, generally less subject to international competition with low cost labour countries. |
| Share of financial and business services in the | The share of financial and business services is an indicator of a leading and autonomous role in the |

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| regional added value | economy, as well as a sign of a strong insertion in the world economy, in which these types of services play a major role. Indeed, there is a correlation between this share and the level of internationalization. |
| Share of administration, education, health and social services in the regional added value | The share of administration, education, health and social services are an interesting indicator of the development of social services to the population, whose most part is still taken in charge by the state. This indicator, to a certain extent, corresponds to the share of non market services and gives an idea of the weight of the state in the services dedicated to the population. |
| Land use (Agriculture, fisheries and rural development) (Corine) | The identification of agriculturual land use helps recognising rural areas, also measuring the importance and spatial distribution of the agricultural sector. This information is also useful for interpreting urban-rural relations. |

| Wish list indicator | Informational value |
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| Location of multinational headquarters | The location of transnational headquarters gives a good idea of the distribution of economic command functions in Europe, especially if the indicator is completed with the level of financial services. |
| Investment rate | This indicator reveals a country's intensity of economic activity. In a way, it is capable of gauging the country's propensity to postpone today's for future consumption. Along with savings it is also a measure of how postponing today's consumption can be allocated internally or externally. Whatever the absolute dimensions of the two raw indicators with which it is calculated (Gross Fixed Capital Formation and GDP), it gauges the country's (or region's) economic liveliness. |
| Enterprises in innovation | This indicator provides information on innovation activities on the level of enterprises. It displays the share of enterprises, that have introduced technologically new or improved products to the market, or have applied new or improved technological processes.<br><br>Hereby, a more detailed picture of the innovation potential of an economy shall be gained, thus allowing for an assessment of the regional knowledge economy. The innovation activities of an enterprise are of high importance in this regard, since they have valuable effects on the |

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| | competitiveness, employment, economic growth and trade patterns of a region. Detailed knowledge of the spatial distribution of these innovation activities in enterprises is therefore a basic precondition for possible efforts of improvement of a spatial balance of knowledge-intensive economies. |
| Share of organic area in utilised agricultural area (UAA) | Organic farming can be defined as an approach to agriculture where the aim is to create integrated, humane, environmentally sustainable agricultural production systems. Maximum reliance is placed on self-regulating agro-ecosystems, locally or farm-derived renewable resources and the management of ecological and biological processes and interactions. Dependance on external inputs, whether chemical or organic, is reduced as far as possible.<br>The main advantages of organic farming are generally seen as:<br>- the market price for such products are higher,<br>- the way in which they are produced involves less intensive use of land,<br>- the attainment of a better balance between supply of, and demand for, agriculture products,<br>- better protection of the environment.<br>Another advantage is that organic farms are in general, more labour intensive than conventional farms, and therefore, should contribute to rural employment and help keep in business small farms which would otherwise not be able to cope with intensification and global competition. |
| Capital/labour ratio | Capital /labor ratio is deemed to be one of the main determinants of economic growth. In the Solow model (1956) and in the Dixon and Thirwall one (1975), to name but a few, it is the real source to productivity increase, along with technological change. |
| Import-export ratio EU – Non EU | This indicator is of fundamental value in representing the degree of dependency from external economies of a region or country. However, ideally it should be matched with other similar indicators, such as the degree of openness itself, i.e. (Import+Export)/GDP. |
| Energy intensities by | This indicator is necessary to assess another aspect of the capital intensity of the production of |

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| industries | certain goods. Factor prices influence a region's competitiveness by distorting relative prices. Suppose a region has a strong competitive advantage in producing a high energy-intensive good: then an increase in energy prices would have a major effect on the region's economic performance. In a way this indicator offers a wide perspective on the kind of technology required to produce goods, and given the region's specialisation framework, this also offers relevant indications on possible future developments of the regions themselves. |
| Consumption per capita | Consumption per capita is a rough but nevertheless meaningful indicator. It is used to show the possibility of enjoying acquired wealth and, in combination with other GDP components in a time series setting, it measures the evolution of expenditure capability and the changes in propensity to postpone today's for future consumption. When used in time series, deflation has to be applied. |
| Total factor productivity | Total factor productivity (TFP) allows scholars and policymakers to measure an economy's effectiveness in transforming inputs into outputs. TFP therefore entails more information than simple labor productivity such as the already mentioned productivity per hour worked. Having the series available at regional level would endow scholars with a powerful tool of analysis, suitable of a wide range of uses in growth analyses. |
| Labour productivity per hour worked | This indicator would provide information on the different levels of labour productivity in space. This would allow for well directed actions to improve the level of economic productivity and competitiveness of certain regions. |
| Economic importance of agriculture (GDP) | The economic importance of the agricultural sector illustrates the sectoral structure of the economy. In combination with other indicators suggested in this project, this indicator allows detailed conclusions about the efficiency of the agricultural sector, the status quo of the economy in terms of development towards the secondary and tertiary sectors. |

### 3.3.2 Demography

"Demography" stands out as being the only thematic field without any indicators with weaknesses. All indicators assigned to this theme passed the selection process, resulting in altogether six routing indicators.

| Routing indicator | Informational value |
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| Share of population younger than 15 | The indicator shows the population in school age, and consequently the potential cost for the collectivity. It also reveals the share of the population which will enter the job market in a near future. |
| Population in the age 15 – 64 years | This indicator informs about the potential share of population that is entitled by their age to work. The active population can be obtained by the multiplication of activity rate and the volume of the 15 to 64 years population, that is to say the combination between a social behaviour and the age structure. The share of people of 15 to 64 years has important implications in political terms, since it shows the relative weight of inactive people, and consequently the social cost of this age structure. |
| Population older than 64 years | The share of population older than 64 years is an important indicator, since this population is nearly entirely dependent upon the collectivity. The political implications are very different than the share of population younger than 15 which represents the future active population, and which remains mainly dependent upon the family. |
| Migratory balance | To a certain point, this indicator shows the "winning" and "loosing" regions in Europe when it comes to migration. It can help to indicate areas of depopulation, even if outmigration is combined with low fertility rates and unfavourable age structures to explain this depopulating process. |
| Fertility rate | Fertility rate is an interesting indicator in the long run: the long term decline will inevitably provoke, an ageing of the population, if there is no in-migration, with all the consequences of this process. |
| Population density | Population density is one of the fundamental spatial indicators, providing information about both potentials (in form of labour force, consumers, etc) and in terms of challenges (agglomeration diseconomies, depopulation, etc). |

### 3.3.3 Spatial structure (Urban, urban-rural, urban hierarchy)

Altogether nine indicators were identified to cover this theme. Strikingly, only one indicator passed the filtering process and could be adopted as routing indicator. The majority of selected indicators here had to be put on the wish list, though.

| Routing indicators | Informational value |
|---|---|
| Primacy rate | The indicator provides a good impression of the polycentricity of a region. A metropolitan area is polycentric if the primacy rate is low, and mono-centric if the primacy rate is high. Along this measuer it is possible to construct categories of metropolitan areas (see BBR [Bundesamt für Bauwesen und Raumordnung] (2001) Study Programme on European Spatial Planning. Final Report. Issue 103.2. Bonn - where seven categories have been defined. |

| Wish list indicator | Informational value |
|---|---|
| Urban growth 1990 - 2000 | Urban Growth during the period 1990 to 2000 shows the total amount of increase of artificial surfaces as defined by the CORINE land cover data. |
| Percentage of artificial area (Corine) | Land take by the expansion of artificial areas and related infrastructure is the main cause of the increase in the coverage of land at the European level. Agricultural zones and, to a lesser extent, forests and semi-natural and natural areas, disappear in favour of the development of artificial surfaces. This affects biodiversity since it decreases habitats, the living space of a number of species, and fragments the landscapes that support and connect them. |
| Percentage of urban fabric (Corine) | This indicator should allow the characterisation of urbanisation, and through the use of time series, the evaluation of urban sprawl. |
| Demographic trend in urban areas compared to rural areas | A regional demographic evolution can hide important discrepancies between different sub-entities, typically between urban and rural areas. The objective of this indicator is to reveal where such discrepancies can be identified. |
| Accessibility of services | The provision and securing of adequate access to |

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| of general interest | major public services such as hospitals or universities became politically more and more important over the last decade. One reason can be seen in demographic trends (over-aging, migration) fundamentally changing the amount and structure of the demand for such services; secondly, increasing car usage has also changed people´s travel behaviour and their patterns of movement in space, so that many locations of such services nowadays are questioned, many of them being in danger of being closed down. On the other hand, missing public services may also foster negative demographic trends in (rural) areas, leading to a downward spiral. The travel time to such facilities alone does not inform about the quality of the supply, as isochrones say only little whether their spatial coverage comply with the population distribution. Therefore, this indicator provides information on the proportion of population living within the service area of such facilities, after the isochrones have been overlaid with population figures. Because of the impacts on the demographic trends and for regional planning (as briefly described above), this indicator is of high political relevance. Apart from these practical considerations, this indicator also illustrates the (hierarchy) of the urban system in countries and regions: one may find a situation where such services are concentrated in only few (big) cities, compared to situations where they are scattered around in small and medium sized towns and villages. From a spatial planning point of view, it is widely accepted that a balanced distribution of such facilities across the territory contributes best to a sustainable development (however, in some countries one can observe remarkable exceptions from this convention). |
| Balance of commuters | This indicator helps to identify economic centres in each territory. It is important when assessing GDP per capita values, otherwise overestimated because of commuter surplus or underestimated because of out-commuting. |
| Proportion of long-distance commuters | Helps understanding regional economic dynamics and the functional structure and dynamic of a territory. For example in terms of a lack of local job opportunities forcing the active population to commute over large distances; in terms of an inflow of revenue stemming from employment in other regions; in terms of the structure and |

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| | dynamics of the regional housing market etc. |
| Evolution of natural surfaces | The increase of artificial surfaces goes along with a decrease of natural surfaces, such as grassland and forested areas. Land take by the expansion of artificial areas and related infrastructure is the main cause of the increase in the coverage of land at the European level. Agricultural zones and, to a lesser extent, forests and semi-natural and natural areas, disappear in favour of the development of artificial surfaces. This affects biodiversity since it decreases habitats, the living space of a number of species, and fragments the landscapes that support and connect them. |

### 3.3.4 Energy, transport, ICT

Again, a larger share of indicators to monitor the theme of "Energy, transport, ICT" revealed some shortcomings so that they had to be added to the wish list. The filtering process left only three routing indicators.

| Routing indicator | Informational value |
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| Potential accessibility, multimodal, to population | Accessibility indicators of the potential type belong to the most common and most extensively tested accessibility indicators, as they best describe the relationship between transport systems and regional economic development. Accessibility to population is seen as an indicator for the size of the market areas for suppliers of goods and services, while, alternatively, accessibility to GDP is considered as an indicator of the size of market areas for suppliers of high-level business services. In this sense, the indicator describes assets of global (economic) competitiveness of a region. As the indicator also takes the destination activities and their spatial distribution into account, it goes far beyond the purely travel time indicators.<br><br>The indicator can be calculated for individual modes, but also multimodal. Although the multimodal accessibility indicator is suggested as routing indicator, it is, thus, worth to mention that the model indicators provide good supplements to the multimodal indicator in order to get a full picture of the |

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| | accessibility situation in Europe. |
| Connectivity to rail stations | Based on recent demographic trends in many EU Member States (overaging, migration, long-time unemployment), but also because of heavy congested road networks, it becomes more and more important to strengthen public transport and to ensure a high-quality level of mobility, not only in rural areas but also in the agglomerations. A good access to the respective railway stations and stops is a prerequisite for this.<br><br>However, this indicator does not relate the travel time to the population distribution, i.e. nothing is said about whether or not areas with good accessibility comply with areas where people live. Such a composite indicator overlaying the travel times with the population is not yet available in ESPON. This is the reason why the present indicator 'Connectivity to rail stations' is considered as the second best indicator, while another indicator 'Proportion of population living within 30 minutes of next railway stations' is proposed as wish list indicator. |
| Accessibility by public transport (rail) | This indicator incorporates both, a social as well as an ecological dimension. The social dimension is revealed by the fact that good accessibility i.e. to services of general interest is an aspect of equal opportunities for all groups of society, including e.g. potentially socially weak groups that might not be in a position to afford an own car. In an ecological sense, accessibility by public transport can be incentive for not using ones own car, thereby contributing to a reduction in the amount of traffic and eventually to an improvement in air quality. |

| Wish list indicator | Informational value |
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| Average travel time to next three regional cities | This indicator relates the density and quality of the transport networks to the spatial distribution of cities. Cities are considered here as functional nodes offering public and private services, jobs and social contacts, shopping and cultural facilities. The better the |

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| | access to these cities, i.e. the shorter the travel times to these cities and the bigger their catchment areas, the more people can benefit from the opportunities offered in regional cities.<br><br>The main objective of this indicator is to assess the direct impacts of the improvements of the regional road networks, by capturing travel time savings. For this reason the indicator has been widely used in spatial monitoring systems (for example, Germany, the Netherlands). The city size threshold of 100,000 inhabitants may not be appropriate for Nordic countries or island regions, as regional cities there tend to have smaller population numbers. For these areas it may be discussed to use smaller cities (such as more than 50,000 inhabitants). |
| Intensity of traffic flows per network segment | The analysis of regional traffic needs to be complemented by the analysis of traffic on each of the main network segments or corridors, if one is to understand the issues of traffic flows for regional development in full depth. Individual segments may be overloaded (and so fostering further investments in infrastructure on a particular region) or additional capacities may be available, which could be promoted (as it is the case for inland waterways). A comparison of the actual segment loads of different modes (road compared to parallel railways or inland waterways) may yield interesting information about capacities, capacity restrictions and actual modal split within that corridor. Such network-type analyses are also needed to understand ongoing political discussions about transport projects in sensible areas (for instance, the discussions about additional railway corridors through the Alps, bridge/tunnel projects like Öresund or Fehmarnbelt etc.), where a corridor or network approach is more appropriate as a regional approach (on which ESPON is up to now focussing on).<br><br>Furthermore, comparing the traffic intensities for different modes, provides valuable information on the main transport corridors in Europe, on potential available capacities (for |

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| | instance, of inland waterways compared to roads) and on potential impacts on nature reserves. As sectoral authorities in the transport sector generally tend to work on network segments (or corridors) rather than on regions, ESPON should enlarge its spatial concept from a purely regional focus by a another pillar, i.e. by network or corridor approaches. |
| Modal split passenger transport | This indicator should help to assess the car-dependency of a transport system in a particular region, as well as the role of other modes (rail, air, public transport, non-motorised). Even though cars/lorries are expected to be the predominant modes in many regions, trains and other modes of public transport (in cities and agglomerations), non-motorised modes (within settlements) and even planes (for instance in Nordic regions, for island regions) may also contribute a significant proportion of traffic. This indicator illustrates the actual usage of the transport infrastructure. This may, in turn, be the outcome of the preferences of regional population, of the actual infrastructure supply and the actual taxation and financial system, or it may also represent actual bottlenecks of lack of infrastructure supply (for instance, people use the car or go by plane because attractive train connections are missing). This indicator may contribute in two ways to the monitoring of sustainability: Firstly, it is widely accepted that cars and planes are the least sustainable means of transport, so high proportions of these may indicate a situation where transport patterns cannot be considered as sustainable in the long run. Secondly, the absence of certain modes of transport in a region or a city reduces the options for daily travel behaviour of families and households. |
| Proportion of population living within 30 minutes of next railway station | Despite the increasing car usage in all European countries, access to and accessibility by public transport has received growing awareness over the last decade both because of environmental concerns and to ensure a best level of mobility for those people that cannot drive a car or cannot use a car for whatever reason. Based on recent |

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| | demographic trends in many EU Member States (overaging, migration, long-time unemployment), but also because of heavy congested road networks, it becomes more and more important to strengthen public transport and so to ensure a high-quality level of mobility, not only in rural areas but also in the agglomerations. A good access to the respective railway stations and stops is a prerequisite for this. The present indicator is capturing this access by calculating the travel time by car from each raster cell to the next rail station. Afterwards, the population living within 30-minutes isochrones is summed-up and the proportion on the total NUTS 3 region population is aggregated. Regions with a high proportion will become immediately visible in the map. Compared to the second best indicator ('Connectivity to railway stations') this indicator not only calculates the travel times but also looks whether areas with short connecting times comply with those areas where most people live, honouring the fact that the location of railway stations should be in compliance with the population distribution. For areas where such a compliance is missing, public transport facilities can be judged to be not sufficiently provided, or that a country (or a region) is applying different transport strategies (for example such as in France where HRL stations sometimes are not located in city ceterns but between two cities). |
| Renewable energies in total energy production | This indicator shows to which degree energy production is covered by renewable energy sources - thus covering two effects: 1. How far the dependecy on fossile fuels is reduced at the regional scale - and in due course how far this region is capable of meeting primary energy demand in the future; 2. How far the path towards a sustainable energy production mix is followed. Sure enough this indicator only covers the supply side of the energy market thus neglecting the option of reducing energy demand at the same time (e.g. by raising energy efficiency) and producing the same two effects as mentioned before. |
| Energy consumption per type of user and source | This indicator covers the demand side of the energy market - i.e. how much energy is consumed within a specific period of time. The |

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| | informational value lies in the possibility to guide energy markets towards sustainability in two way - i.e. the supply side and the demand side. Thus this indicator provides valuable information on whether on a regional basis energy efficiency has increased (by reducing the amount of energy consumed - without reducing the total economic output at the same time). |

### 3.3.5 Social issues, culture and governance

This theme was assigned the second largest number of indicators (16 altogether). However, the number of indicators on the wish list (12) clearly outweighs that of the routing indicators (four).

| Routing indicator | Informational value |
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| Number of cultural sites | With this indicator, various markers of European history are supposed to be registered. The aggregation of this information is intended to stimulate a European-wide perception of European identity and history and to contribute to a common knowledge on different historic sites. This, in turn, could boost tourism and creative industries.<br><br>So far, the definitions of markers of European history and identity do not seem clear and commonly shared across Europe. The information collected so far therefore has to be used with caution. An accurate definition of a monument or other historic markers is needed, agreed upon by all European states, in order to make this indicator valuable for further use. |
| Population by highest educational level attained | This indicator displays the share of population of 15 years and above of each area, that has reached an education on the tertiary level. This way, an impression can be obtained about the share of the population that possesses the qualifications to actively take part in social and economic life on the highest level. It is the aim of fostering a balanced development regarding this aspect in order to guarantee a better social inclusion; the |

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| | regular spatial observation of this measurement is therefore of high importance. |
| Employed persons by highest educational level attained | This indicator provides information on the educational level of the workforce in a region. It helps to find spatial concentrations with high percentages of highly educated employees, thereby providing important information on the balance of conditions for social inclusion in space.<br><br>In combination with the indicator measuring the share of population with tertiary education, this indicator also allows to detect imbalances between these two, and thus to detect areas of high unemployment of this resource. |
| Part-time employment | By collecting information on different proportions of forms of employment, a clearer picture shall be gained of aspects of social inclusion of the population across Europe. Next to figures on employment and unemployment, also the share of persons in part-time employment reveals an important part of information about the social structure and patterns of inclusion of a region.<br><br>However, interpretations have to be made with caution. Various reasons can be named for part-time employment, especially since flexibility on the labour market has been promoted in many European countries and growing numbers of female workers during the last years. Part-time work can be a choice, and can therefore not always be considered as negative.<br><br>A possible solution would be the registration of unwanted part-time employment, in order to detect problems of restricted inclusion and underemployment. |

| Wish list indicator | Informational value |
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| Trust in the legal system | The legal system of a state represents a main framework and precondition for all governance processes. Therefore, the degree of trust the people have in this legal system |

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| | is of high value for the monitoring and assessment of governance structures and processes, and expresses to a great extent the accountability of the legal system, which is a necessary precondition for good territorially oriented governance.<br><br>A solid and trusted legal system also provides a necessary basis for the development of consistent policies, and for a stable coordination among authorities and other actors. The trust in the legal system therefore also reflects the possibility of coherence in all governance structures and processes. |
| Politics too complicated to understand | This indicator allows for a measurement of the transparency of governance. The according data show, how often the interviewed persons find politics too complicated to understand (with the categories never, seldom, occasionally, regularly and frequently). Although the level of understanding of politics is linked to the educational level of the interviewed, the indicator still reflects the clearness and transparency of politics, and can therefore give an indication of the possible necessity of improvement of the transparency of politics, which would improve also the openness of territorially oriented governance structures. |
| Worked in an organisation or association (other than party) last 12 months | Participation is one of the main pillars of governance. Without a high number of actors getting involved, good governance would not be possible. The degree to which the public gets involved in political decision making processes not only expresses criteria of participation but also openness of governance structures.<br><br>A very active form of political involvement or participation is the regular participation in the work of a group of people like an organisation or association. It indicates a high motivation to get involved with various issues of the society. This sort of participation can be a rather important aspect for the territorially oriented governance processes of an area. |
| Proportion of households | The access to the internet has become a |

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| with internet access | crucial precondition for the development of a knowledge society both, in economic as well as in social terms. This indicator reflects the access to the internet in private households, and therefore gives important information for the improvement of the balance of internet access across Europe.<br><br>Unfortunately it is difficult to find reliable data at regional level across Europe. As examples have shown, it is very important to collect data at the most disaggregated level as possible. |
| Level of administrative functions in cities | This indicator focuses on the structural aspects of governance, since it gives information on the different levels of administrative functions and their spatial locations. The observation of these structures gives an insight into the hierarchical structures of the different administrative systems and their balance, as they constitute a precondition for well-balanced governance structures. Thus, the intention with this indicator is to check the administrative systems of the countries as well as the European administrative system as to how well their functions are balanced. |
| At-persistent risk of poverty rate | This indicator provides a good picture of the share of population which dropped below a specific income level thus being at risk to loose contact to civil society. Poverty is not only a problem of income distribution but goes hand in hand with other social problems - such as declining health status, long term unemployment due to a loss of job experience. |
| Share of jobless households | Unlike the traditional unemployment rate the share of jobless households provides a picture on how many households in a region are affected by unemployment. This information is valuable for estimating the proportion of the population (including all household members) which is directly and indirectly affected by unemployment. This figure sheds some light on the dependency of household members on a reduction of income and provides in due course a picture on how far households are at risk to face social |

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| | problems. |
| Ratio of capital and labour income | Capital /labour ratio is deemed to be one of the main determinants of economic growth. In the Solow model (1956) and in the Dixon and Thirwall one 1975), to name but a few, it is the real source of productivity increase, along with technological change. |
| Intra-regional income dispersion | An indicator of intra-regional dispersion of income would give an idea of the intra-regional realities hidden behind aggregated indicators such as GDP/cap or mean household income. |
| Regional price index | Much of the information concerning regional wealth and household income is currently strongly biased by the absence of regional price indices. Thus the income in metropolitan areas (often more expensive) is often overestimated, and that in rural areas underestimated if one does not take into account the price differences between these regions. |
| Social spending | The amount of social spending in a society/a region may be seen as measure for the amount of people in need (either by poverty, ageing, illness, etc.). This information regarded in a spatial context provides important information on regions lagging behind, "hot spots" of social deficits etc. |
| Gini-coefficient of household income | Even better than the household income (adjusted to PPP) this indicator provides information about social segregation and ghetto building within a region. Moreover, combined with accessibilty indicators, this indicator reveals the reasons for such seggregation. |

### 3.3.6 Environment, Hazards

Compared to the other thematic orientations, “Environment, Hazards” is covered by one of the smallest number of indicators (altogether seven part from three routing indicators, three wish list indicators could be identified by the work package on the Gothenborg Strategy.

| Routing indicator | Informational value |
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| Flood endangered settlement and artificial areas (Corine) | This indicator identifies flood endangered settlements. Areas with a high number of flood events and a large share of artificial surface (i.e. settlement areas) are considered most vulnerable. Since a multiplication by 0 always results in 0, areas with either no flood events (no matter how high the share of artificial area is) or no/only very little artificial area (no matter how many flood events) show values of 0 or close to 0 and are therefor mapped as least vulnerable. However, this inidcator does not reflect protective measures that have been implemented (e.g. river dikes) that might limit the adverse effects of flood events in densely populated areas. |
| Fragmentation index | Landscape indicators, such as fragmentation, are gaining more and more political and scientific attention, as they help to understand the complexity of the European landscape. The indicator of fragmentation of the natural areas can be used to depict the environmental 'sensitive' areas. For example, the survival of threatened species requires populations which are large enough to maintain genetic diversity. If the habitats of these species are reduced or fragmented by human activities (e.g. transport infrastructures, built-up areas, noise propagation), it may lead to the isolation of individuals and groups from main population. The fragmentation index is considered superior compared to similar indicators such as 'proportion of forest areas', because indicators of the latter type do not say anything about the spatial distribution and patch sizes, however, both are important for the quality of any habitat. As the forest area of a region may either, in the extreme cases, be constituted by one big overall forest patch or by hundredres of small patches, the impacts of the patch size and patch distance and spatial distribution on the habitats and so on the species is significant. Therefore, the fragmentation index often is a more useful indicator. Empirically, regions with a high proportion of forests (or natural areas) are not necessarily less fragmented, and vice versa. |

| Wish list indicator | Informational value |
|---|---|
| Land consumption by transport infrastructure | As transport demand is constantly growing, so is the land occupied by transport infrastructure. For some regions the (annual) increase of transport infrastructures is significant, so it is a matter of concern to analyse in which region and to which degree transport developments take place. Furthermore, it is interesting to analyse the relation between the increase of the settlement areas (or built-up areas) as a whole and the transport areas in particular. Land take is one of the major human-made causes for floods and other hazards, which may lead to severe damages, where transport infrastructure being of its main driving forces. So from an environmental point of view monitoring and controlling the land take as a whole and the land take for transport infrastructure in particular is seen crucial for achieving sustainability. |
| Natural Areas (NATURA 2000) | NATURA 2000 is the European Union network of sites designated by Member States under the birds directive (79/403/EEC) and under the habitats directive (92/43/EEC). |
| Protected areas (European definition) | Several EU policies (e.g., NATURA 2000, Gothenburg strategy) focus on sustainability and environmental protection, which is best illustrated through the creation of protected areas that are kept free of anthropogenic change. |
| Municipalities waste | The amount of municipal waste collected by the municipality or by order of the municipality illustrates the degree of sustainability that a region has reached. |

# 4 Enlarging the territorial scope - inclusion of non-ESPON countries

Any spatial monitoring is, by nature, limited to a certain predefined territory, in our case the EU 25+2+2. For some issues, though, it may be interesting to go beyond these limitations. The Lisbon process, for example, requires an international benchmarking, otherwise a control of the strategy's success is not possible.

Obviously, there are various of these issues that require a crossing of the territorial limititations when it comes to spatial monitoring of the EU 25+2+2. Europe is surrounded by some very dynamic countries. Especially now independent countries of the former Soviet Union, the Middle East and North Africa are territories of great influence and interest for the broader EU perspective. In fact, it might be unwise to ignore them due to their relevance in various policy fields and particularly their effects on Europe. The increasing number of migrants, particularly from Northern Africa to the Southern EU Member States, their inclusion into the host society, in the labour market, their impact on the demographic development, etc. are just some aspects of an extensive list of issues that could be dealt with and covered when enlarging the territorial scope.

Such an enlargement of the territorial scope is a very ambitious challenge. A lot of countries which may be interesting to include in a European spatial monitoring will not match the statistical standards of the EU. On the other hand, the EU gained a lot of experience with these problems after the last two rounds of enlargment.

The extent of a possible enlargement of the scope of spatial monitoring can reach from the nearest neighbouring countries up to the world in general! Before long, the extension of such a monitoring with quite a vast number of indicators will face severe problems regarding capacity and the management of data inquiries. Obviously, a monitoring only makes sense if its timeliness is not too outdated. An over ambitious approach, e.g. too many countries or too many themes, may run the risk of failing in respect to timeliness and relevance. A compromise could lie in either limiting the themes respectively number of indicators or in restricting the number of countries being added to the monitoring.

Since time was a precious and scarce resource in this project there was hardly any chance to ponder on these thoughts very intensively. Nevertheless, it seems appropriate - if the scope of spatial monitoring should be extended - to follow an at least twofold strategy. First, the monitoring as a whole with all its themes and indicators, could be implemented in the nearest neighbouring countries. That should be possible since the number of countries with geographical borders to the EU 25+2+2 is manageable. However, in some cases there can be doubts about the interest of these countries in such a cooperation. This aspect, though, can not be

clarified by Project 4.1.3 as it is a matter of bilateral political discussions and agreements.

Second, the monitoring could be further extended by using a very limited number of indicators that are known to be commonly used in most countries in the world. This should be the case for at least some of the economy related indicators. Of course, various other problems could still crop up, just like ESPON project "Europe in the world" experienced them. Nevertheless, it is the only way that seems to be realistic. Moreover, such an international extension makes sense especially for economically related purposes. Therefore the disadvantages of a lack of comparability of a lot of other themes and indicators should not be overemphasised.

**Availability of indicators in Non-ESPON countries**

The first approach, enlarging the territorial scope by including the nearest neighbouring countries of the ESPON space, was further looked into by Project 4.1.3. As an example, four neighbouring countries were checked for the availability of selected indicators for spatial monitoring. Iceland followed the ESPON Programme over the past months of 2006 as an observer country and will participate in ESPON II from 2007 on. Turkey, Croatia and Macedonia are the most likely candidates for a possible next round of EU enlargement.

The overall availability of the selected indicators on NUTS 2 is quite satisfying in the considered countries. The main socio-economic data like GDP, unemployment rates, employment structure and demographic data exists almost completely. Especially for Iceland, Macedonia and Croatia the available data covers most of the requested indicators. These are not always updated yearly but partly result from census data, particularly in Croatia. In Turkey, the national Labour Force Survey contains data on the regional level but not as detailed as required so that data gaps occur in employment and educational status.

Special cases are indicators resulting from ESPON Projects like accessibility or fragmentation and the ones calculated on the basis of CORINE data. Those indicators are missing in all countries.

**Table 4-1 Availability of indicators[16] in Non-ESPON countries**

| Indicator | Turkey | Croatia | Macedonia | Iceland |
|---|---|---|---|---|
| Percentage of urban fabric - Corine | - | - | - | - |
| Percentage of artificial atea - Corine | - | - | - | - |
| Primacy rate | x* | x* | x* | x* |
| Population in the age <14 years | x** | x | X | X |
| Population in the age 15 - 64 years | x** | x | X | X |
| Population in the age > 65 years | x** | x | X | X |
| Migratory balance | x | x | X | X |
| Fertility rate | x | - | - | X |
| Activity rate - male | - | x | X | X |
| Activity rate - female | - | x | X | X |
| Unemployment rate < 25 years | x | x | X | X |
| Population density | x | x | X | X |
| Employment in R&D | - | - | - | X |
| Employement in High-Tech | - | - | - | - |
| Population by highest educational level | - | x | X | X |
| R&D expenditure total in % of GDP | - | - | - | X |
| Number of cultural sites | - | - | - | - |
| Multimodal accessibility | - | - | - | - |
| Employment in agriculture | x | x | X | X |
| Utilised agricultural area (UAA) | x | x | X | X |
| Natural areas (NATURA 2000) | - | - | - | - |
| Land consumption by transport infrastructure (CORINE) | - | - | - | - |
| Fragmentation index | - | - | - | - |
| GDP in Euro | x | x | X | X |
| GDP in PPS | x | x | X | X |
| Change of GDP per capita | x | x | X | X |
| Added value by economic sector (some specialisation index) | - | - | - | - |
| Employed persons by high educational level | - | x | - | X |
| Part-time employment | - | x | X | X |
| Unemployment rate | x | x | X | X |
| Development of unemployment rate | x | x | X | X |
| Long-term unemployment | - | - | X | - |

* basis data for calculation available

** age dependency ratio available

[16] This list of indicators includes both, routing indicators as well as wish list indicators.

# 5 Achievements, further improvements, recommendations

ESPON Project 4.1.3 did not set out to aspire for the development of the ultimate, sophisticated spatial monitoring instrument for the EU 25+2+2. Instead it should rather be considered as a pilot or a pioneer whose main challenge was to find a first small corridor in the vast field of existing indicators and themes in the spatial "jungle". In a next step, this first corridor should be widened to a comfortable path, which could be started under an ESPON II and may result in a continuous spatial monitoring. At present, though, this is not more than a vision.

## 5.1 Achievements

The experiences made in the course of the project indicate very clearly that a number of shortcomings, gaps and difficulties still exist. Nevertheless the number of indicators which passed the filtering criteria is surprisingly high. In total, 77 indicators are proposed for the six thematic fields.

*Routing indicators*

But at present 34 of them can be classified as routing indicators (see table below), since they matched the filtering criteria in all respects. This means they all fulfil the requirements concerning their explanatory power, they are all available for EU 25+2+2 and at least on NUTS 2, some even on the NUTS 3 level.

**Table 5-1 List of routing indicators**

| Dimension | Name of Indicator | EU 25+2+2 | NUTS 3 | NUTS 2 |
|---|---|---|---|---|
| Economy, Innovation (Agriculture) | Employment by economic activity | X | - | X |
| | R&D personel % of total employment | X | - | X |
| | Gross domestic expenditure on R&D as percentage of GDP | X | - | X |
| | GDP per capita in Euros, 2003 | X | X | X |
| | GDP in PPS per inhabitant, 2003 | X | X | X |
| | Change of GDP in Euro per capita | X | X | X |
| | Labor costs | X | - | X |
| | Activity rate male 15-64 years | X | - | X |
| | Share of agriculture, forestry and fishery in the regional added value (%) | X | X | X |
| | Share of technological manufacturing industries in the regional added value | X | X | X |
| | Share of financial and business services in the regional added value | X | X | X |
| | Share of administration, education, health and social services in the regional added | X | X | X |
| | Activity rate female 15-64 years | X | - | X |
| | Employed in high-tech sector | X | - | X |
| | Employment in R&D | X | X | X |
| | Development of unemployment rate | X | X | X |
| | Unemployment rate < 25 years | X | - | X |
| Demography | Population density | X | X | - |
| | Migratory balance | X | X | X |
| | Share of population younger than 15 years | X | - | X |
| | Population in the age of 15 to 64 years | X | - | X |
| | Population older than 64 years | X | - | X |
| | Fertility rate | X | - | X |
| Spatial structure (urban, urban-rural, urban hierarchy) | Primacy rate | X | - | X |
| Energy, Transport, ICT | Accessibility by public transport (rail) | X | X | - |
| | Potential accessibility, multimodal, to population | X | X | - |
| Social, Culture and Governance | Number of cultural sites | X | X | X |
| | Employed persons by highest educational level | X | - | X |
| | Population by highest educational level attained | X | - | X |
| | Part-time employment | X | - | X |
| | Unemployment rate | X | X | - |
| Environment, Hazards | Fragmentation index | X | X | - |
| | Flood endangered settlement and artifical areas (Corine) | X | X | - |

Nevertheless, by looking at the table of routing indicators the field of “Economy, Innovation (Agriculture)” stands out as being represented best while the other fields lag behind. That may be corrected by grading up the indicators from the wish list. Another more serious shortcoming is the very weak representation of the field "Spatial structure", only covered by the indicator "primacy rate". A look at the wish list reveals, that there is only a small chance for improvement of this situation in the near future. For the two dimensions "Infrastructure" and "Environment" only two indicators are available each.

*Wish list Indicators*

Another set of 15 indicators (see table below) reveals some more or less minor shortcomings or gaps. The indicators exist in principle, some of them only for selected countries, some only on NUTS level 1.

**Table 5-2 Wish list indicators I**

| Dimension | Name of Indicator | EU 25+2+ 2 | NUTS 3 | NUTS 2 |
|---|---|---|---|---|
| Economy, Innovation (Agriculture) | Investment rate | - | - | X |
| | Location of multinational headquarters | - | X | X |
| | Enterprises in innovation | - | - | - |
| | Utilised agricultural area (UAA) | - | - | X |
| Demography | | | | |
| Spatial structure (urban, urban-rural, urban hierarchy) | Urban growth 1990 - 2000 | - | X | - |
| | Percentage of artificial area - Corine | - | X | - |
| | Percentage of urban fabric - Corine | - | X | - |
| Energy, Transport, ICT | Average travel time to next three regional cities | X | - | - |
| | Intensity of traffic flows per network segment | X | - | - |
| Social, Culture and Governance | Trust in the legal system | X | - | - |
| | Politics too complicated to understand | X | - | - |
| | Worked in an organisation or association (other than party) last 12 mon | X | - | - |
| Environment, Hazards | Land consumption by transport infrastructure | - | X | - |
| | Natural areas (NATURA 2000) | - | X | - |

For the dimension “Demography” there is no additional indicator included in the wish list at all, but the amount and quality of the routing indicators is satisfying. Finally, there are another 28 indicators (see table below) on the wish list which suffer from major problems, in some cases data is not available at all. To deal with the problems of these indicators the efforts that have to be undertaken, will cost a lot of effort and time.

**Table 5-3 Wish list indicators II**

| Dimension | Name of Indicator |
|---|---|
| Economy, Innovation (Agriculture) | Capital /labor ratio |
| | Import-Export ratio EU - Non EU |
| | Energy intensities by industries |
| | Total factor productivity |
| | Consumption per capita |
| | Land use (agriculture, fisheries and rural development) (Corine) |
| | Economic Importance of Agriculture (GDP) |
| | Share of organic area in UAA |
| | Labour productivity per hour worked |
| Demography | |
| Spatial structure (urban, urban-rural, urban hierarchy) | Demographic trend in urban areas compared to rural areas |
| | Balance of commuters |
| | Proportion of long-distance commuters |
| | Accessibility of services of general interest |
| | Evolution of natural surfaces |
| Energy, Transport, ICT | Proportion of population living within 30 minutes of next railway station |
| | Modal split passenger transport |
| | Renewable energies in total energy production |
| | Energy consumption per type of user and source |
| Social, Culture and Governance | Intra-regional income dispersion |
| | Regional price index |
| | Level of adminstrative functions in cities |
| | Proportion of households with internet access |
| | Gini coefficient of household incomes |
| | At persistent risk of poverty rate |
| | Share of jobless households |
| Environment, Hazards | Protected areas (European definition) |
| | Municipalities waste |

Recapitulating, it can be stated, that although some indicators still do not meet the required quality criteria, the set of indicators which matched the standards and became routing indicators represents a major step forward. In fact, it is the first attempt towards a spatial monitoring of a large part of Europe. For a certain number of indicators in the wish list, the data problems seem to be solvable more or less easily. For some others the perspectives are more disillusioning.

## 5.2 Further Improvements

The wish list indicators could beef up the list of routing indicators very soon. On the other hand, one needs to be realistic about the whole set of indicators proposed so far. Some of them will only be available in several years time.

If improvements can be made, e.g. if there will be a prolonged effort for a spatial monitoring, than it is logical and obvious that the improvements should concentrate on the wish list indicators first.

### Spatial coverage

Altogether ten indicators are not available for the EU 25 +2 +2. Here the concerned NSIs in cooperation with EUROSTAT should collect and administer the indicator sets in question. The main achievement of this project is the structured overview of the problems and the concentration on a limited number of indicators, therefore the improvements can be carried out very target-oriented.

### *Thematic coverage*

In the near future, most effort should be spend on the dimension "Spatial structure", followed by the dimensions "Infrastructure" and "Environment". For the moment, it could be a compromise, to have a different thematic coverage of the European territory for different spatial dimensions. This would still be better then to leave out the other dimensions, even though information exists for them. It is clear that the idea of a spatial monitoring is spoiled by a lack of completeness. Nevertheless, the usage of certain themes, even though they are not fully available, may also result in an incentive for beefing up the monitoring very soon.

### *Availability*

At present, there is no data available in the required quality for 28 indicators. The only information we have is, that these indicators exist and are used, for example on a regional level or in single member states. But there is no full territorial coverage nor is there a spatial level which is matched so far.

# 6 Piloting a territorial monitoring system

At the moment the results of project 4.1.3 can only be a profound starting point for a continuous territorial monitoring system. But without any doubt it indeed is necessary to have such a monitoring as soon as possible to make it possible that territorial evidence and good spatial information is the base for any kind of territorial decisions to be made in the future.

## 6.1 The lessons from the past

An analysis of the territorial developments of Europe, which is intended as basis for the political discussion of spatial processes and the spatial orientation of policies, requires well-founded geographical and regional-statistical information. The quality of the analytical representation of the spatial structures and developments depends on the availability of appropriate and harmonized data, i.e. data that is comparable in its definition.

The data in focus must guarantee a temporary as well as a long term comparison to ensure and to enable a thematic oriented preparation, development and formation of indicators for structural and temporal comparisons. These elements will form the process or change of paradigm from regional statistics to the continuous observation of regions and territories.

Periodic regional reporting and evaluations on basis of harmonized data for the European Union, the candidate countries and in selected cases beyond that regional scope exists on the part of the European Commission within several documents and reports like the periodic reports for the economic and social situation and development as well as the reports to the economic and social cohesion. In recent years the statistical yearbooks of the regions of Eurostat have developed beyond the character of a pure statistical representation to a comprehensive source of information.

In May 1999 a first thematically broader assessment of the trends and situations of regional development in Europe was accomplished by means of the European spatial development perspective (ESDP), submitted by the informal Council of Ministers responsible for spatial planning of the European Union. The content related emphasis orients on the topics of regional development European identified of central importance within “Principles of European regional development policies“ in the starting phase of the ESDP process 1994. Furthermore, a provision of comparable data and indicators for the widening of the knowledge base for national, trans-national and European-wide structures and trend in the framework continuous observation of regions was concretized in the ESDP. The importance of the exchange of information, the assessment of the developments and the deduction of conclusions for the political goals and options as essential components were pointed out.

In this respect, special attention in the European spatial development is given to the balanced development of settlements, the appropriate and sufficient access to infrastructures and information structures and the wise management and development of natural and cultural assets.

During the ESDP process it became evident that deficits related to statistical and geographical information exist in many fields of the specified topics, which finally do not ensure an adequate analysis and interpretation of the spatial processes and which therefore does not support appropriate policy recommendations in all fields. In the context of this process it became obvious, that a joint effort is needed from the Member States and the Commission to overcome these deficits in order to use the expert knowledge in the best possible way.

On the basis of the experiences made in the ESDP process and the results of the Study Programme on European Spatial Planning (SPESP), the ESPON programme was launched in 2002 to initialise a comprehensive spatial observatory in the European context.

In this respect ESPON focuses on the availability and the comparability of the fundamental data for a European spatial observation and on the elaboration to what extent the existing information base, in particular the regional-statistical information, meets the analytic requirements on the European level.

## 6.2 ESPON putting spatial monitoring on track

Within the past years the ESPON programme laid ground for a comparative documentation and analysis of spatial structures and development of the European territory, not only covering the EU 25 Member States, but also the Candidate countries Bulgaria and Romania and the neighbouring countries Switzerland and Norway. The different rounds of projects, the thematic studies and policy impact studies as well the integrative and scenario oriented projects set the scene for a European spatial oriented information system

One of the aspects within the tasks of the transnational project groups targeted in this to the provision of thematic related data and the elaboration of indicators based on them.

In the understanding of spatial monitoring, which targets to monitor, to measure and to analyse spatial phenomena which determine space and spatial development information is needed on the spatial structure as well as on the elements that determine and change the spatial structure.

A spatial observation in this respect must satisfy two demands, it must provide the base for a sound and evidence based spatial analysis and as well for a policy oriented monitoring which provides information that enables targeted description of the main trends related to policy strategies and to the assessment of the

achievement of policy aims. Spatial monitoring and evaluation has to go along with targeted spatial reporting on topically relevant territorial questions.

In this two folded approach one must distinguish between the full range of a mature spatial monitoring and a concentration on a mere political orientated spatial monitoring. It is quite obvious that the latter could not be done with this complete range of spatial information. A selection of indicators is necessary – so to speak a short list of spatial key indicators - to maintain that short term focused aspect of a continuous spatial monitoring on the basis of the existing indicators within ESPON.

## 6.3 Defining the scope of elements

Several parallel and interlinked efforts have been undertaken within the ESPON programme to summarise the research efforts and results in respect of the preparation of a continuous monitoring, considering both aspects of the orientation demanded.

### 6.3.1 Core indicators as base for the spatial information

A first approach in the process of information selection of ESPON indicators was initialised by ESPON projects 3.1 and 3.2, in respect to the restricted life time of the ESPON projects and to enable a continuation and update of the most relevant information. This elaboration has been carried out on the basis of project suggestions and resulted in the list of core-indicators among the much broader number of indicators provided in total. This included a selection of indicators with the potentially highest importance for a spatial information system and the measurement of living conditions in Europe.

Especially thinking of the programming period of ESPON and the successive ends of the different projects, the list of ESPON core indicator describing and presenting the fundamental indications for the analysis of spatial structures and trends in Europe has a crucial role within the discussion and decisions processes in European spatial information and regional statistic activities and is one of the fundamental outcomes of the ESPON projects.

The definition of this range of indicators will be a valuable input for the potential maintenance and updating in the future. Especially related to model calculation output this “core indicator” could be interpreted also as indication of both the inital development and further improvement of indicators representing the same thematic evidence – maybe in a slightly different algorithm – but in a comparable spatial policy related orientation.

The complete list of TPG-generated core-indicators will provide the orientation which is necessary to define the focus of research and the related data acquisition. Its main use is for research and specialised policy making. The main task concerning these indicators will be to evaluate their sustainability after project

termination to maintain their spatial memento beyond the first phase of ESPON. Updating and consequent enrichment over time as well as adjustments to spatial relevant questions and challenges characterise this point of departure defined in ESPON as nucleus of a future continuous spatial observation.

### 6.3.2 Typologies defining the territorial aspect

Parallel to the elaboration on indicators for the identification of regional structures and trends, the ESPON results also laid ground to a second territorial aspect of continuous spatial monitoring by defining a range of typologies to describe the most fundamental spatial patterns.

ESPON typologies provide a special view of the ESPON space allowing the identification of regional characters and the analysis of the causes of the differences between them. Beyond simple benchmarking the typologies show the regional setting in respect of selected thematic orientation. They provide the conceptual analytical tool to describe territorial structures on the basis of derived indicators which could be used for further investigations in relation other spatial structures and developments.

In this respect the regional types define the base of thematic orientated spatial patterns, which enable an investigation of trends and developments and the differences between different regional types in cases the regional is kept constant in time. Using the same definition and method for the regional typology with a periodical update of the data behind, the development of typology and the regional composition will be focus of the investigation showing the changes of spatial types in time.

### 6.3.3 Routing indicators – Policy oriented territorial assessment

A policy orientated spatial monitoring, which needs a sound base of a broader selection of indicators, starts with the indicators provided by ESPON. The freedom of choice is necessary to cover a detailed and profound demand of information arising from the need of interpretation on different regional levels and also to enable a detailed thematic evidence base.

A more general spatial policy related process targeting at supporting the discussion of the territorial questions could not be carried out with the complete range of spatial information. The characterisation of the main challenges and the key factors in the context of territorial cohesion and spatial development need a selection of indicators.

The routing indicator set enables a demand driven selection of sets of territorial indicators comparable to the elaboration of the short list of indicators related to the Lisbon / Gothenburg agenda.

Based on policy debate related to intergovernmental processes, particularly the ESDP and the state and the perspective of the European Union, and to the European policy objectives and priorities, especially in relation to Territorial Cohesion and to the Lisbon Strategy, a spatial reporting should orient towards territorial policy fields like balanced distribution of population and sustainable settlement and structures and city systems, global competitiveness, innovative knowledge society, diversified regional economies, sustainable transport systems. Furthermore social issues, environment and hazard prevention, diversified cultural heritage and identities and territorially oriented governance should be in focus of investigation.

In order to identify the characterisation of the territory, the elaboration of these indicators for a tentative spatial planning report orientated on the key ideas of policy fields and the thematic orientation of the ESPON projects as starting point. The identification of fundamental territorial indicators will finally be done by the combination of sectoral aspects like economy, innovation, demography, spatial structure (Urban, urban-rural, urban hierarchy), energy, transport and ICT, social and cultural aspects and environment and hazards result in. These are able to support the 'daily' political demand on fast but profound and sound information on the state and perspective of the European territory.

The wish list indicators could beef up the list of routing indicators very soon. On the other hand, one needs to be realistic about the whole set of indicators proposed so far. Some of them will only be available in several years time. Only if improvements can be made, e.g. if there will be a prolonged effort for a spatial monitoring, it is logical and obvious that the improvements should concentrate on the wish list indicators first.

## 6.4 Monitoring the European territory

Looking back on the starting point of the ESPON programme and the expected results concerning indicators and typologies to assist a monitoring and setting of European priorities for a balanced and polycentric enlarged European territory, one can outright recognize that the work of the TPG related to the improvement of the data situation yield fruit and the efforts of the projects to overcome deficits ended in a considerable range of new regional data and indicators.

By now the list of TPG-generated indicators and typologies provides the orientation which is necessary to define research focus and topic related data acquisition. The main use of this range of indicators lies in research and specialised policies orientated advice. The main task concerning these indicators within a continuous spatial monitoring system will be the evaluation of their sustainability in the future.

A short indicator set for regional and spatial reporting, easy to update in short time, has been proposed for further use in the spatially oriented discussion. The choices

concerning this set are more political choices, depending on political options and objectives. This main use of these indicator targets at a type of general monitor of the state of the European territories, one important outcome of the starting phase towards a European continuous spatial monitoring and to monitor territorial development.

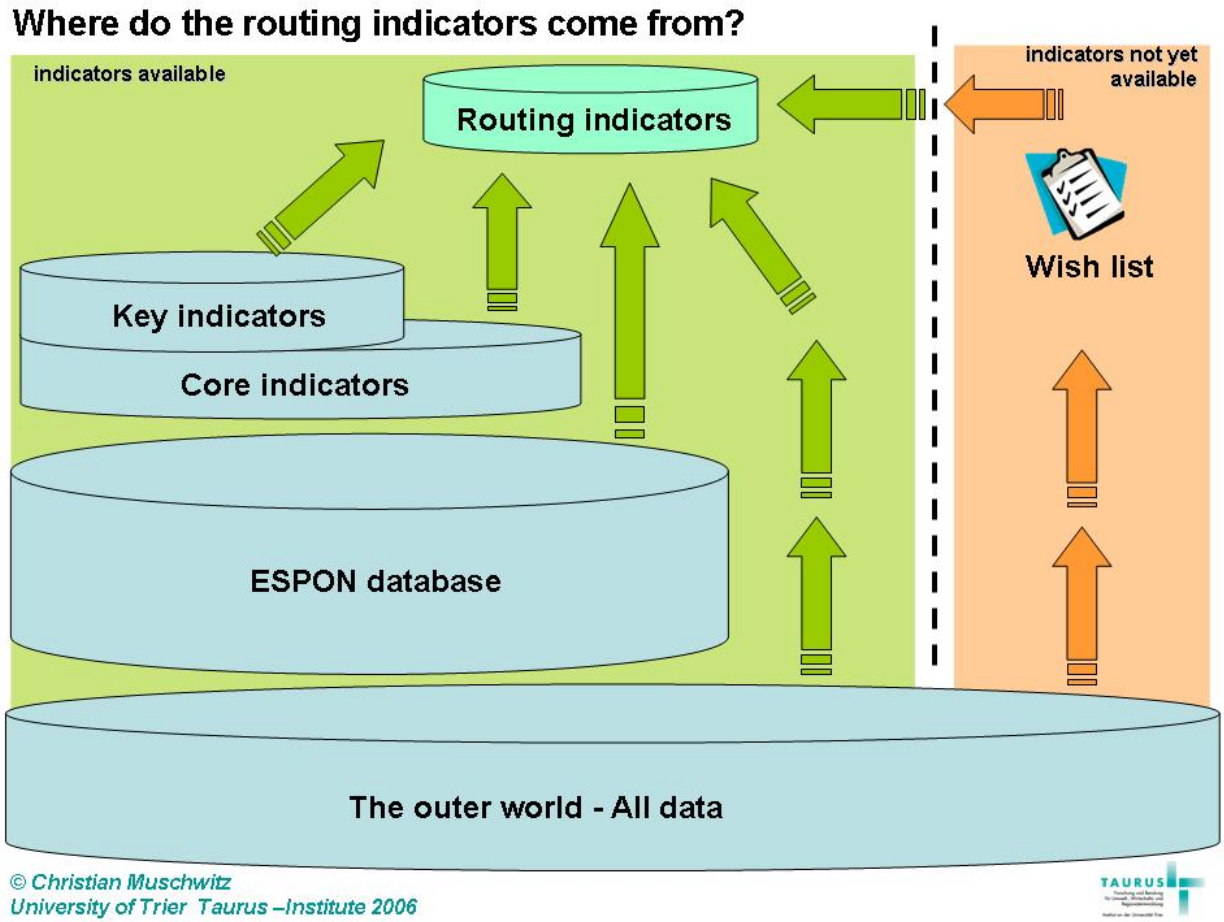
## 6.5 Possible tools of supporting a sequential reporting

A more technical improvement to be established in the future could take advantage of the lay-out of this very first monitoring attempt by Project 4.1.3. Since the information in the data fact sheet (which is used to collect metadata on the respective indicators) is not gathered in a pure text format but in a database, this tool allows more practicable applications. Potentially, all tools and interfaces to other software that exist for MS Access databases can be applied. In the context of spatial monitoring a linkage can be made to Geographic Information Systems (GIS). GIS are based on two databases: a Spatial Database, containing geometric information on the location (coordinate systems), shape, and interrelationships of map features for the spatial representation, and an Attribute Database containing the information that is to be shown through the map features.

The database tool for the data fact sheets can easily be further developed and adopted to the requirements of a GIS Attribute Database. It is possible to get a multitude of automatically generated maps. Maps could show the general availability of the indicator in the ESPON countries, as well as the spatial level they are available on. With the current design of the database, the national average values that are collected in the data fact sheet, can be translated into maps, showing these values for each country. In any case, this is not meant as a substitute for the ESPON database which provides a vast amount of data on much more disaggregated levels. However, it should eventually be technically possible to connect the final ESPON 4.1.3 routing indicators to the ESPON Web- GIS, thus allowing users to create their own maps from the indicator sets similar to the Informationen und Karten zur Raumentwicklung (INKAR), published annually by the BBR.

The routing indicators will form a sub-set of the key and core indicators, which are themselves a sub-set of the ESPON database (see figure below).

**Figure 6-1 Origin of routing indicators**




Routing indicators adopted from other sources than the ESPON database may enter the routing indicator list and should subsequently also become part of the ESPON database. It should then be possible to easily adopt the data of the routing indicators into the ESPON Web-GIS.

Since the national means, minima and maxima are collected in the indicator form, another possible application could be the automatic generation of span diagrams using these values of the database as an input to MS Excel.

In general, this tool is open for many more potential applications as it is, depending on the demand of the future sequential reporting. Furthermore, adjustments can be easily made to incorporate further information on the indicators.

# 7 ANNEX

## 7.1 Part 1 Routing Indicators / Factsheets

## Indicator Sheet: Employment by economic activity

| | |
|---|---|
| Dimension: | Economy, Innovation (Agriculture) |
| Objective: | Diversified regional economies |
| Sub-objective: | Assets for global competitiveness |
| Calculation: | Number of employed persons by economic activity (NACE classification):<br><br>a_b Agriculture, hunting, forestry and fishing<br><br>c_d_e Total industry (excluding construction)<br><br>c_to_f Industry<br><br>f Construction<br><br>g_to_q Services<br><br>g_h_i Wholesale and retail trade, repair of motor vehicles, motorcycles and personal and household goods; hotels and restaurants; transport, storage and communication<br><br>j_k Financial intermediation; real estate, renting and business activities<br><br>l_to_q Public administration and defence, compulsory social security; education; health and social work; other community, social and personal service activities; private households with employed persons; extra-territorial organizations and bodies |

**Informational value**

The informational value of these indicators is to give an indication of the economic profile of each region, and thereby also of the level of advancement of the economic evolution. The highest proportions of employment in agriculture generally concern regions with a less-advanced economy or an economy with structural difficulties.

**Regional distribution**

East-West divide (agriculture and manufacturing to the East, services to the West), specific metropolitan profile (over-representation of quaternary activities), specific peripheral profile in the Iberian peninsula, Southern Italy and parts of Ireland (over-representation of construction and retail / tourism). Scandinavia, on the other hand,

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 0 | 0 | 0 |
| EU 25 | 0 | 0 | 0 |
| EU 15 | 0 | 0 | 0 |
| EU 10 | 0 | 0 | 0 |
| AT | 0 | 0 | 0 |
| BE | 0 | 0 | 0 |
| BG | 0 | 0 | 0 |
| CH | 0 | 0 | 0 |
| CY | 0 | 0 | 0 |
| CZ | 0 | 0 | 0 |
| DE | 0 | 0 | 0 |
| DK | 0 | 0 | 0 |
| EE | 0 | 0 | 0 |
| ES | 0 | 0 | 0 |
| FI | 0 | 0 | 0 |
| FR | 0 | 0 | 0 |

has the same profile as North-Western parts of continental Europe.

| | | | |
|---|---|---|---|
| **GR** | 0 | 0 | 0 |
| **HU** | 0 | 0 | 0 |
| **IE** | 0 | 0 | 0 |
| **IT** | 0 | 0 | 0 |
| **LT** | 0 | 0 | 0 |
| **LU** | 0 | 0 | 0 |
| **LV** | 0 | 0 | 0 |
| **MT** | 0 | 0 | 0 |
| **NL** | 0 | 0 | 0 |
| **NO** | 0 | 0 | 0 |
| **PL** | 0 | 0 | 0 |
| **PT** | 0 | 0 | 0 |
| **RO** | 0 | 0 | 0 |
| **SE** | 0 | 0 | 0 |
| **SI** | 0 | 0 | 0 |
| **SK** | 0 | 0 | 0 |
| **UK** | 0 | 0 | 0 |

### Spatial coverage

| | Yes / No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

### Spatial level / regional level

| | Yes / No | Version |
|---|---|---|
| NUTS 1 | yes | NUTS 2003 |
| NUTS 2 | yes | NUTS 2003 |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | no |
| a time series: | yes |
| | |
| updated data (intervals): | 1999-2004 |
| periodicity (i.e. available years etc.): | yearly |
| other | |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | |
| Source | Eurostat, NSI (Norway) |

### Type of data (raw data, model output, survey data etc.)

| | Yes / No | Description |
|---|---|---|
| raw | yes | based on registers, where available |
| survey | yes | based on surveys, where available |

| | Yes / No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

### Data gaps (please describe)

A number of gaps. Especially, population employed in NACE a_b (Agriculture, hunting, forestry and fishing) not available for
be1 Région de Bruxelles-Capitale/Brussels Hoofdstedelijk Gewest
be10 Région de Bruxelles-Cappitale/Brussels Hoofdstedelijk Gewest
be31 Prov. Brabant Wallon
de5 Bremen
de50 Bremen
es63 Ciudad Autónoma de Ceuta (ES)
es64 Ciudad Autónoma de Melilla (ES)
fr France
fr83 Corse
fr9 French overseas departments (FR)
fr91 Guadeloupe (FR)
fr92 Martinique (FR)
fr93 Guyane (FR)
fr94 Reunion (FR)
fi2 Åland
fi20 Åland
ukc1 Tees Valley and Durham

ukd2 Cheshire
ukd3 Greater Manchester
ukd5 Merseyside
uke3 South Yorkshire
uke4 West Yorkshire
ukg3 West Midlands
uki1 Inner London
ukm1 North Eastern Scotland

**Comments**

# Indicator Sheet: R&D personel % of total employment

| | |
|---|---|
| Dimension: | Economy, Innovation (Agriculture) |
| Objective: | Innovative knowledge society |
| Sub-objective: | |
| Calculation: | Number of people employed in the R&D sector/Total workforce |

**Informational value**

This indicator is among the milestones in evaluating a region's innovation skills, given the assumption that higher investment in production factors leads to higher output. Therefore it is of maximum importance to keep track of all observations in all countries, at least filling the gaps in exisiting NUTS 2 data. This indicator measures a certain kind of innovation capability. It is, in fact, very useful as an indicator for product innovation, mainly undertaken by large firms. However, it is not useful to measure managerial, organisational and process innovation, nor innovation developed by SMEs, which generally are unable to have employees devoted only to R&D activity. In this sense it would be useful to add specific indicators for the different innovative activities that can be developed by SMEs.

**Regional distribution**

R&D personel seem to display wide differences on an interregional and cross-border level. This phenomenon probably reflects a different investment in high-tech industries, both at country level as well as at regional level. This parapraph is affected by a scarce availability of data, though. Certain statements can still be made. At national level, in particular, it seems that some of the new member states can compete on the ground of R&D personnel intensity with older and richer EU15 countries. At regional level, this relative homogeneity disappears and R&D personnel seems to concentrate around the largest cities, especially in capital cities, therefore displaying a significant agglomeration phenomenon.

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 0,96 | 0,47 | 2,34 |
| EU 25 | 0 | 0 | 0 |
| EU 15 | 0 | 0 | 0 |
| EU 10 | 0 | 0 | 0 |
| AT | 0 | 0 | 0 |
| BE | 0 | 0 | 0 |
| BG | 0,67 | 0,19 | 2,60 |
| CH | 0 | 0 | 0 |
| CY | 0 | 0 | 0 |
| CZ | 1,3 | 0,23 | 3,26 |
| DE | 0,86 | 0,86 | 0,86 |
| DK | 0 | 0 | 0 |
| EE | 0 | 0 | 0 |
| ES | 0 | 0 | 0 |
| FI | 0 | 0 | 0 |
| FR | 0 | 0 | 0 |
| GR | 0 | 0 | 0 |
| HU | 1,3 | 0,55 | 3,5 |
| IE | 1 | 1,21 | 1,21 |
| IT | 0,59 | 0,20 | 1,21 |
| LT | 0 | 0 | 0 |
| LU | 0,47 | 0,47 | 0,47 |
| LV | 0 | 0 | 0 |
| MT | 0 | 0 | 0 |
| NL | 0 | 0 | 0 |
| NO | 0 | 0 | 0 |
| PL | 0,97 | 0,29 | 2,56 |
| PT | 0,93 | 0,83 | 0,83 |
| RO | 0 | 0 | 0 |
| SE | 0 | 0 | 0 |
| SI | 0 | 0 | 0 |
| SK | 2,33 | 0,85 | 5,25 |
| UK | 0,89 | 0,89 | 0,89 |

### Spatial coverage

| | Yes / No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

### Spatial level / regional level

| | Yes / No | Version |
|---|---|---|
| NUTS 1 | yes | NUTS 1999 |
| NUTS 2 | yes | NUTS 1999 |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | no |
| a time series: | yes |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | Data are available from the ESPON database from 1995 to 2000 |
| other | |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | ESPON database |
| Source | Eurostat |

### Type of data (raw data, model output, survey data etc.)

| | Yes / No | Description |
|---|---|---|
| raw | yes | Number of R&D employees over total workforce |
| survey | no | |

| | Yes / No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

### Data gaps (please describe)

Data are available in Eurostat. In the the ESPON database only for the following countries: Bulgaria - Czech Republic - Germany - Hungary - Ireland - Italy - Luxembourg - Poland - Portugal - Slovakia - UK. However, several coutnries and regions are missing also in the Eurostat database. Therefore, a strong reccomendation is to pay attention to compiling this dataset and fill in all the gaps.

### Comments

Data gaps should be promptly filled to give the dataset real explanatory power. Also, for many countries only a few observations are available (e.g. Stuttgart for Germany). Ideally, data should be collected at NUTS 3 level.

# Indicator Sheet: Gross domestic expenditure on R&D as percentage of GDP

| | |
|---|---|
| Dimension: | Economy, Innovation (Agriculture) |
| Objective: | Innovative knowledge society |
| Sub-objective: | |
| Calculation: | Gross expenditure in Research activities over Gross Domestic Product |

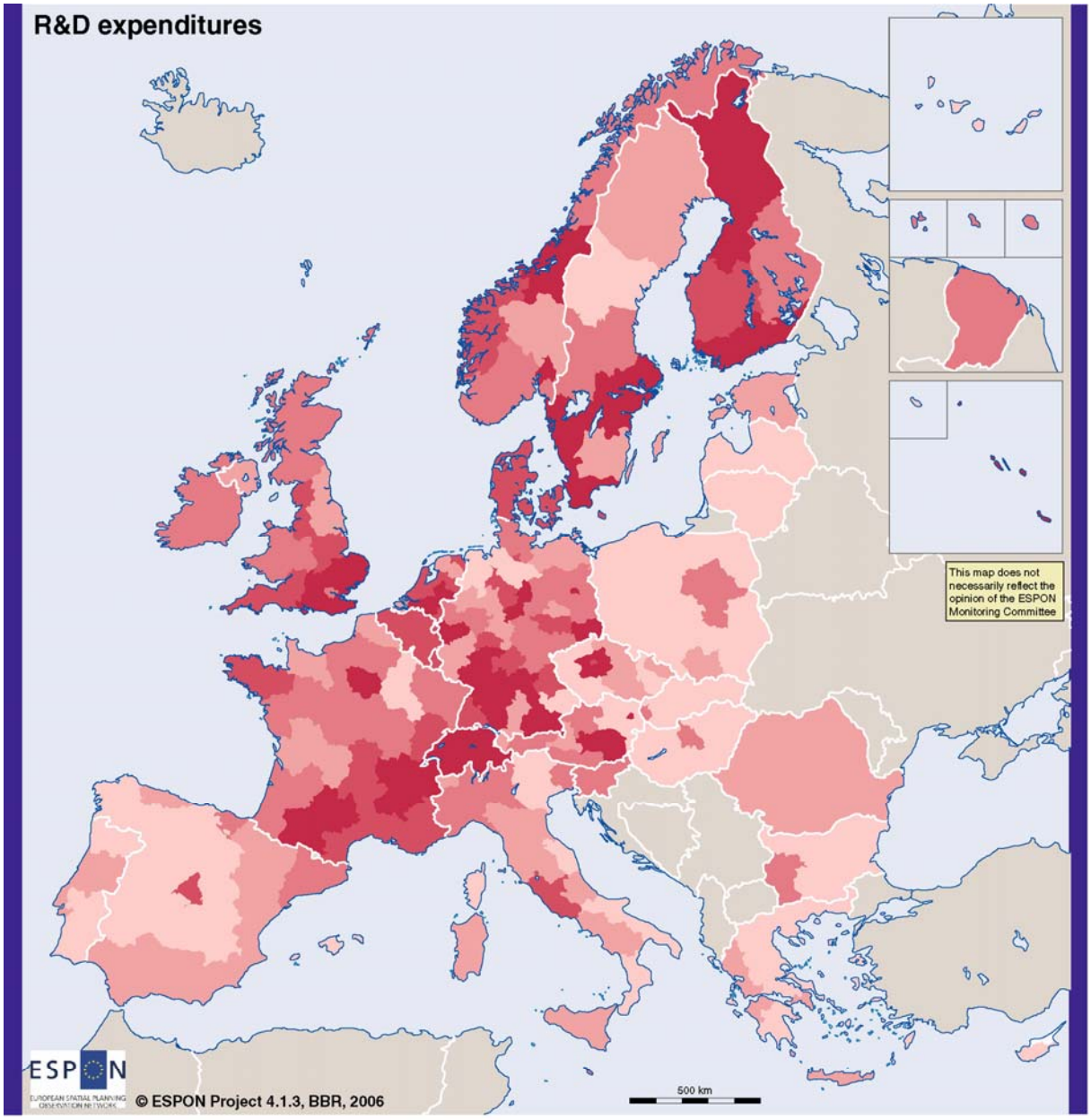
**Informational value**

The indicator's relevance in quality research on innovation is similar to that of "R&D personnel/ total employment". However, wider data gaps worsen this indicator's availability, thus making it urgent to improve data collection, given the indicator's relevance. Like the previously listed indicator, this one is also a good measure for input innovation, while it does not guarantee to capture the real innovative output.

**Regional distribution**

Given the fundamental value of research and development for future economic growth, and the special attention paid by the EU on innovation (especially in the Lisbon agenda), along with a lower value for the EU as a whole with respect to Japan and the US, particularly consistent regional disparities across EU countries and regions seem to be particularly worrying.

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 0,68 | 0 | 3,14 |
| EU 25 | 0 | 0 | 0 |
| EU 15 | 0 | 0 | 0 |
| EU 10 | 0 | 0 | 0 |
| AT | 0 | 0 | 0 |
| BE | 0 | 0 | 0 |
| BG | 0,31 | 0,05 | 1,22 |
| CH | 0 | 0 | 0 |
| CY | 0 | 0 | 0 |
| CZ | 1,17 | 0,20 | 0 |
| DE | 0 | 0 | 0 |
| DK | 2,07 | 2,07 | 2,07 |
| EE | 0 | 0 | 0 |
| ES | 0 | 0 | 0 |
| FI | 0 | 0 | 0 |
| FR | 0 | 0 | 0 |
| GR | 0 | 0 | 0 |
| HU | 0,54 | 0,20 | 1,26 |
| IE | 0 | 0 | 0 |
| IT | 0,89 | 0,29 | 1,94 |
| LT | 0 | 0 | 0 |
| LU | 1,77 | 1,77 | 1,77 |
| LV | 0 | 0 | 0 |
| MT | 0 | 0 | 0 |
| NL | 0 | 0 | 0 |
| NO | 0 | 0 | 0 |
| PL | 0,46 | 0,11 | 1,53 |
| PT | 0 | 0 | 0 |
| RO | 0 | 0 | 0 |
| SE | 0 | 0 | 0 |
| SI | 0 | 0 | 0 |
| SK | 0,65 | 0,31 | 1,2 |
| UK | 0 | 0 | 0 |




**R&D expenditure as percentage of regional GDP 2001**

- less than 0.7
- 0.7 to below 1.1
- 1.1 to below 1.7
- 1.7 to below 2.3
- more than 2.3
- no data


Regional level: NUTS 1/2
Origin of data: Eurostat, CH & NO: National Statistical Offices
**Source: ESPON database**

# Indicator Sheet: Gross domestic expenditure on R&D as percentage of GDP

## Spatial coverage

| | Yes/No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

## Spatial level / regional level

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | yes | NUTS 1999 |
| NUTS 2 | yes | NUTS 1999 |
| NUTS 3 | no | |
| NUTS 5 | no | |

## Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | no |
| a time series: | yes |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | Yearl, from 1995 to 2000 in the ESPON database |
| other | |

## Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | ESPON database |
| Source | Eurostat |

## Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| raw | yes | R&D expenditure on GDP. Being a ratio of two monetary measures, a real values is obtained. |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

## Data gaps (please describe)

Data are available in the Eurostat database. In the ESPON database data are available only for the following countries: Bulgaria - Czech Republic - Denmark - Hungary - Italy - Luxembourg - Poland - Slovakia.

## Comments

Data gaps should be promptly filled to give the dataset real explanatory power. Ideally, data should be collected at NUTS 3 level. This indicator measures exactly the same effect of R&D employees/total workforce, under the assumption that the productivity of the employee in the R&D sector exactly matches the labor productivity in the whole economy.

# Indicator Sheet: GDP per capita in Euros, 2003

| | |
|---|---|
| Dimension: | Economy, Innovation (Agriculture) |
| Objective: | Assets for global competitiveness |
| Sub-objective: | |
| Calculation: | Gross Domestic Product in Euros in 2003/Number of region's inhabitants in 2003 |

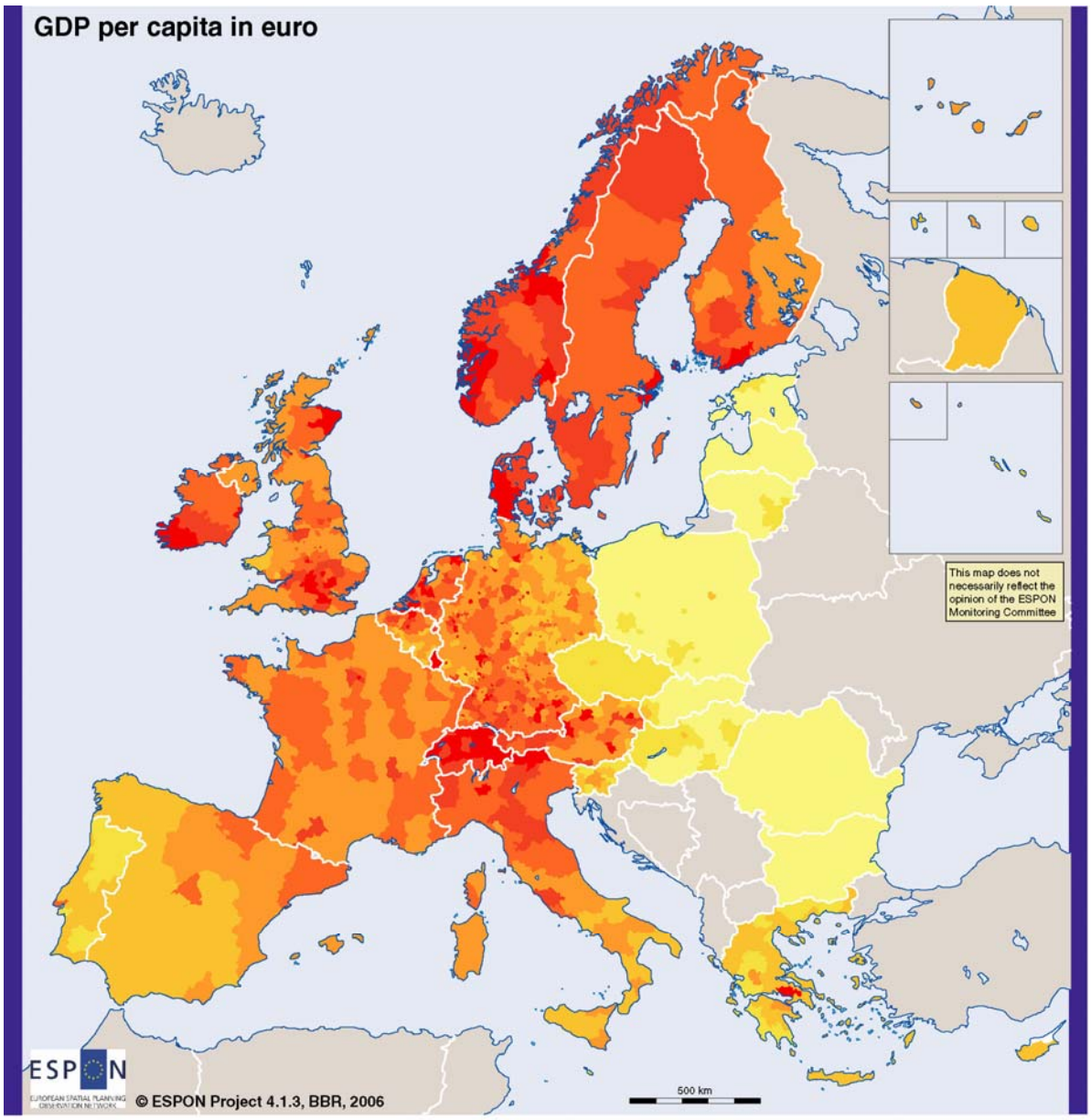
**Informational value**

This indicator is a measure of the average capability of producing wealth in a region or a country. In dynamic terms, this indicator contains both economic and social effects. In fact, an increase in GDP per capita can be the result of a real economic increase (GDP growth) or a social disease (population outmigration). In statical analyses, at very disaggregated territorial level (e.g. NUTS 3), the indicator can contain bias effects due to commuters, who in reality produce wealth in an area where they are not registered as inhabitants.

**Regional distribution**

Consistent regional disparities affect EU countries and regions. Policies tackiling these disparities have been put into practice since the very beginning of the European Union, along the line of the convergence principle. Such policies have probably proved to be quite effective, especially noticing that GDP growth rates tend to be higher in new members.

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 20448,09 | 1105 | 135571,40 |
| EU 25 | 21612,09 | 2025,90 | 135571,40 |
| EU 15 | 24137,27 | 6179,90 | 135571,40 |
| EU 10 | 6011,92 | 2025,90 | 12183,70 |
| AT | 27001,40 | 14099,70 | 38655,60 |
| BE | 25278,20 | 10605,80 | 50771 |
| BG | 2108,30 | 1346,5 | 4072,80 |
| CH | 40015,44 | 31055,20 | 59438,70 |
| CY | 15484,6 | 15484,6 | 15484,6 |
| CZ | 7684,5 | 5876,70 | 17365,60 |
| DE | 25548,60 | 11235,30 | 80494,80 |
| DK | 34063,40 | 24286,40 | 55969,5 |
| EE | 5487,30 | 3218,30 | 8405 |
| ES | 17229,5 | 10891,30 | 23852,90 |
| FI | 26972,5 | 18178,20 | 37419,60 |
| FR | 24933,10 | 12652,80 | 70440,5 |
| GR | 12893,6 | 8124,60 | 32893,10 |
| HU | 6782,60 | 3666,80 | 14381,70 |
| IE | 32599 | 20924,60 | 43846,60 |
| IT | 22055 | 12151,70 | 34154,40 |
| LT | 4303,30 | 2487,20 | 6165,10 |
| LU | 51110,5 | 51110,5 | 51110,5 |
| LV | 4187,30 | 2025,90 | 7608,40 |
| MT | 10757,4 | 7768 | 11011,80 |
| NL | 27569,20 | 16513 | 42604,30 |
| NO | 35697,54 | 25504 | 67895 |
| PL | 5296,80 | 3101,70 | 15347,1 |
| PT | 12389,4 | 6170,90 | 21093,70 |
| RO | 2219,40 | 1105 | 4763,30 |
| SE | 28777,60 | 22387,40 | 39651,5 |
| SI | 11788,20 | 8136,70 | 16719,40 |
| SK | 4773,40 | 2919,10 | 11145,70 |
| UK | 28033,10 | 13932,4 | 135571,40 |




**GDP per capita in euro 2003**
**EU25 average = 100**

- less than 25
- 25 to below 50
- 50 to below 75
- 75 to below 100
- 100 to below 125
- 125 to below 150
- 150 and more
- no data


Regional level: NUTS 3
Origin of data: Eurostat, CH & NO: National Statistical Officies
**Source: ESPON database**

### Spatial coverage

| | Yes / No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

### Spatial level / regional level

| | Yes / No | Version |
|---|---|---|
| NUTS 1 | yes | NUTS 2003 |
| NUTS 2 | yes | NUTS 1999NUTS 2003 |
| NUTS 3 | yes | NUTS 2003 |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | no |
| a time series: | yes |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | Yearly, from 1998 to 2002 in the ESPON database |
| other | |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | ESPON database |
| Source | Eurostat |

### Type of data (raw data, model output, survey data etc.)

| | Yes / No | Description |
|---|---|---|
| raw | yes | Data are already calculated in the Eurostat /ESPON database, with yealy availability from 1995 and a whole cover of EU regions. |
| survey | no | |

| | Yes / No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

### Data gaps (please describe)

Data are available for all EU countries and regions.

### Comments

In the table at point 15, data are taken from the NUTS 3 database.

# Indicator Sheet: GDP in PPS per inhabitant, 2003

| | |
|---|---|
| Dimension: | Economy, Innovation (Agriculture) |
| Objective: | Assets for global competitiveness |
| Sub-objective: | |
| Calculation: | Gross Domestic Product in PPS in 2003/number of region's inhabitants in 2003 |

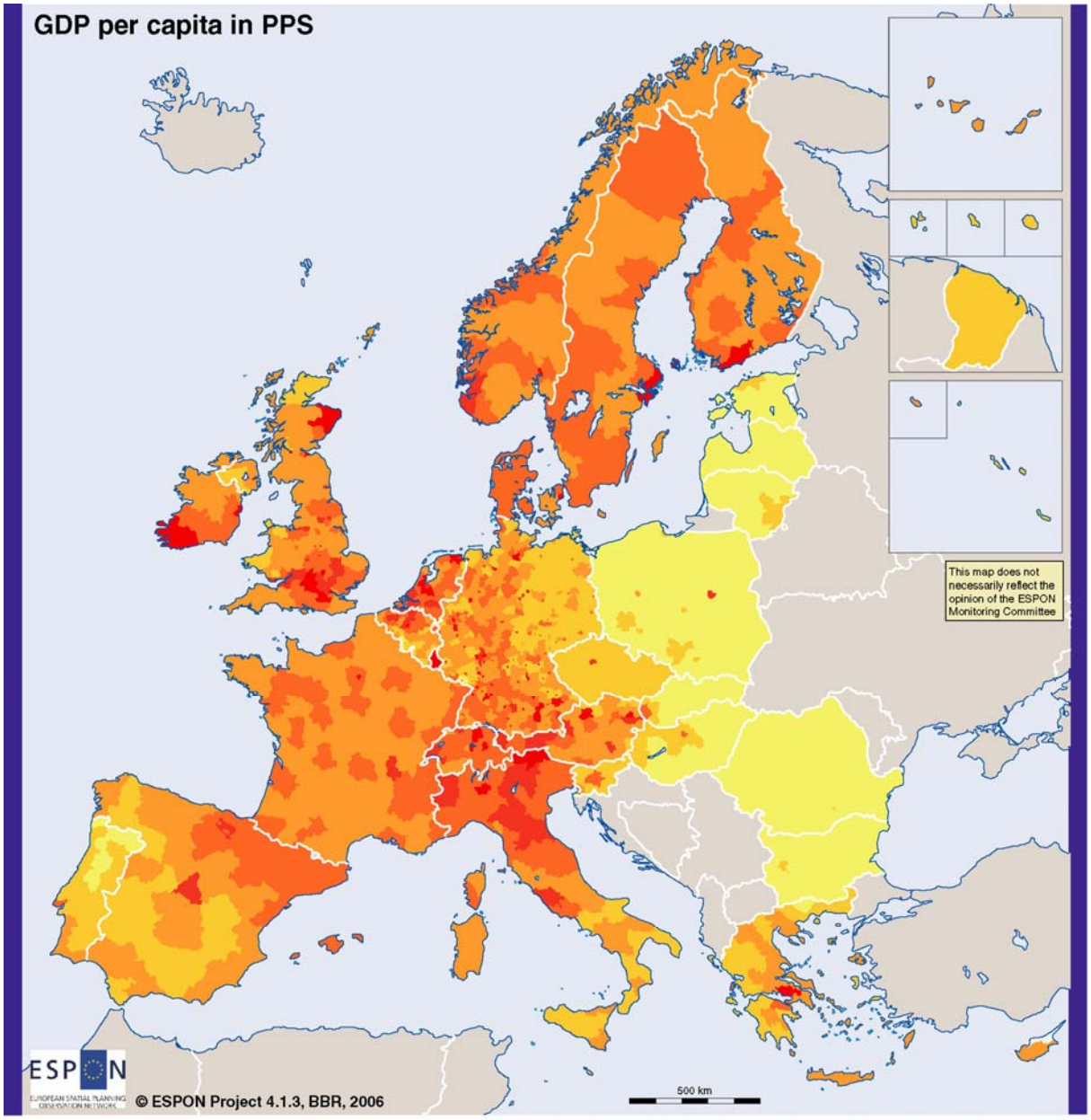
**Informational value**

Similarly to what was explained about its absolute counterpart, GDP in PPS is a useful tool to compare living standards across countries and regions. Its per capita value offers a portrait of relative purchasing powers across countries and an average within them. It's therefore a rough but significant device to compare countries and regions, cancelling out differences in exchange rates (whereas needed) and price levels.

**Regional distribution**

Exactly as its absolute counterpart, PPS values tend to reflect real cross countries differences, but with closer gaps, given that a part of real differences can be explaned with inflationary pressures typical of developed and wealthy countries, in regimes of fast growing GDP and employment.

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 0 | 3016,10 | 120637,7 |
| EU 25 | 0 | 3990,90 | 120637,7 |
| EU 15 | 0 | 80925 | 120637,7 |
| EU 10 | 0 | 3990,90 | 32357,20 |
| AT | 25567,5 | 13350,9 | 36602,90 |
| BE | 24717,40 | 10370,6 | 49644,60 |
| BG | 6098,5 | 3894,80 | 11781 |
| CH | 27966,65 | 21704,30 | 41541,5 |
| CY | 17557,70 | 17557,70 | 17557,70 |
| CZ | 14318,5 | 10950 | 32357,20 |
| DE | 23011,60 | 10119,6 | 72501,60 |
| DK | 25935,90 | 18491,60 | 42615,20 |
| EE | 9871 | 5789,30 | 15119,6 |
| ES | 20025,40 | 12658,70 | 27723,60 |
| FI | 24089,60 | 16235,30 | 33420 |
| FR | 23915 | 12136,20 | 67564,10 |
| GR | 16424,90 | 10349,80 | 41902 |
| HU | 12401,6 | 6704,40 | 26296,10 |
| IE | 28089 | 18029,60 | 37780,30 |
| IT | 23082,70 | 12718 | 35745,90 |
| LT | 8977,30 | 5188,60 | 12861,30 |
| LU | 45026 | 45026 | 45026 |
| LV | 8248,5 | 3990,90 | 14987,9 |
| MT | 15498,6 | 11191,70 | 15865,20 |
| NL | 25847,20 | 15481,5 | 39943,10 |
| NO | 25204,60 | 18007,30 | 47937,90 |
| PL | 9663,90 | 5659 | 28000,40 |
| PT | 16247,5 | 8092,5 | 27662,40 |
| RO | 6058 | 3016,10 | 13001,5 |
| SE | 24304,30 | 18907,40 | 33487,90 |
| SI | 15941,30 | 11003,30 | 22609,80 |
| SK | 10857,20 | 6639,5 | 25350,80 |
| UK | 24945 | 12397,6 | 120637,7 |




**GDP per capita in PPS 2003**
**(EU25 average = 100)**

- less than 50
- 50 to below 75
- 75 to below 100
- 100 to below 125
- 125 to below 150
- 150 and more
- no data


Regional level: NUTS 3
Origin of data: Eurostat, CH & NO: National Statistical Officies
**Source: ESPON database**

### Spatial coverage

| | Yes/No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

### Spatial level / regional level

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | yes | NUTS 2003 |
| NUTS 2 | yes | NUTS 1999NUTS 2003 |
| NUTS 3 | yes | NUTS 1999NUTS 2003 |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | no |
| a time series: | yes |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | Data are updated yearly; available in the ESPON database from 1998 to 2002 |
| other | |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | ESPON database |
| Source | Eurostat |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| raw | no | |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | yes | Gross Domestic Product is expressed in Purchasing Power Parity, i.e. reflecting the real expenditure capability of each region, thus ruling out biases due to disparities in price levels. The number is then divided by the number of inhabitants of the region in same year. |
| model | no | |

### Data gaps (please describe)

Data are collected and updated at NUTS 1, 2 and 3 levels, with no gap. Table at point 15 shows absolute values for NUTS 0 (countries), and minimum and maximum values for relative NUTS 3 regions.

### Comments

The quality of the indicator requires the same cavets as its absolute (i.e. aggregate) counterpart. PPS values are quite interesting in smoothing living standards differences; however, in a way they hide determinants of competitiveness which is what regional analysis is mainly about. Therefore the use of this indicator needs to be paid careful attention.

# Indicator Sheet: Change of GDP in euros per capita

| | |
|---|---|
| Dimension: | Economy, Innovation (Agriculture) |
| Objective: | Assets for global competitiveness |
| Sub-objective: | |
| Calculation: | [[(Gross Domestic Product in 2002/number of region's inhabitants in 2002)-(Gross Domestic Product in 2001/number of region's inhabitants in 2001)]/(Gross Domestic Product in 2001/number of region's inhabitants in 2001)]*100 |

**Informational value**

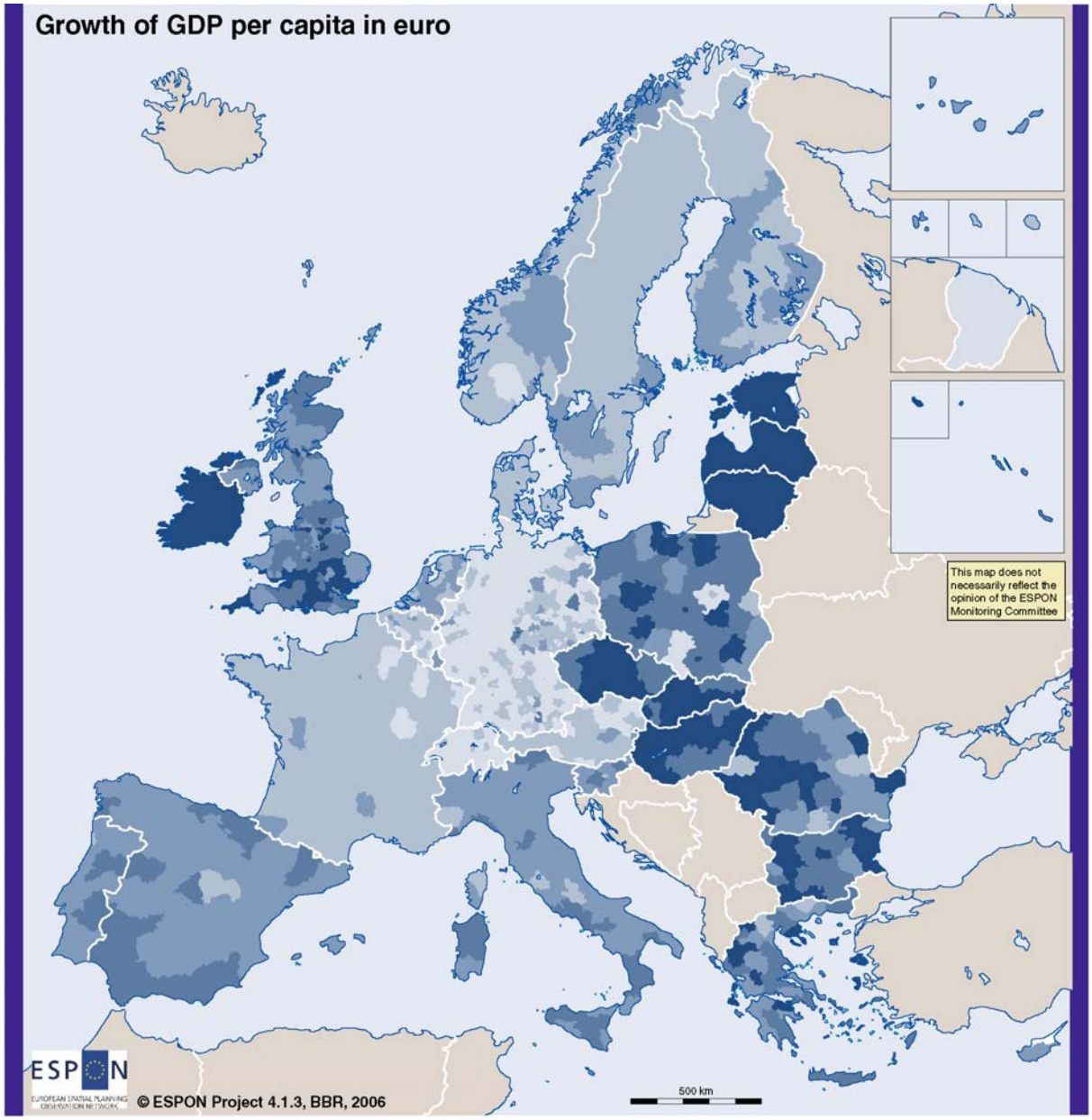
The usual caveats expressed over other measures of gross product apply. Being a measure of change, this indicator's widest use is in dynamic analyses. As a percentage change, nominal values are naturally transformed into their real counterparts, thus making it easier for the scholar to use it for studies.

**Regional distribution**

As already mentioned in the previous GDP level indicators, GDP per capita, according to neoclassical theory, should converge to a "Steady state" level, common to every country) according to other relevant parameters, such as population level, capital formation and so on). This seems to be the case for several EU countries and regions. This indicator in fact shows that most new Eu members tend to grow rapidly and on average faster than their respective EU15 counterparts. In this case, and with respect to the objective of convergence, disparities are well foreboding.

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 0 | -13,49 | 41,08 |
| EU 25 | 0 | -13,49 | 25,01 |
| EU 15 | 0 | -13,49 | 16,36 |
| EU 10 | 0 | -11,30 | 25,01 |
| AT | 1,92 | -1,29 | 8,01 |
| BE | 2,98 | -6,81 | 15,67 |
| BG | 4,33 | 1 | 21,99 |
| CH | 5,82 | 2,19 | 11,6 |
| CY | -3,37 | 3,07 | 3,07 |
| CZ | 5,83 | 10,16 | 19,11 |
| DE | 2,18 | -7,17 | 8,20 |
| DK | 0,34 | 0,91 | 3,538 |
| EE | 7,79 | 9,39 | 13,56 |
| ES | 5,99 | 1,3 | 11,45 |
| FI | 3,22 | -2,57 | 7,47 |
| FR | 1,82 | 0,07 | 5,37 |
| GR | 8,97 | 4,20 | 10,94 |
| HU | 7,38 | 8,37 | 25,012 |
| IE | 6 | -3,05 | 13,20 |
| IT | 1,3 | -3,38 | 9,85 |
| LT | 7,63 | 5,92 | 16,39 |
| LU | 2,48 | 2,48 | 2,48 |
| LV | 7,71 | -11,30 | 13,63 |
| MT | 2,97 | -1,11 | 0,70 |
| NL | 1,72 | -2,78 | 10,65 |
| NO | 2,05 | 4,30 | 26,12 |
| PL | 2,97 | -10,23 | 5,92 |
| PT | 3,35 | 5,14 | 8,05 |
| RO | 10,9 | -9,25 | 41,08 |
| SE | 2,01 | 0,51 | 8,25 |
| SI | 4,23 | 4,11 | 9,01 |
| SK | 8,47 | 8,14 | 13,29 |
| UK | 5,92 | -13,49 | 16,36 |


Co-financed by the European Union through the INTERREG III ESPON Programme.
This fact sheet does not necessarily reflect the opinion of the Monitoring Committee.




**Average yearly growth rate of GDP per capita in euro from 1995-2003 in %**

- less than 2
- 2 to below 4
- 4 to below 6
- 6 to below 8
- 8 and more
- no data


Regional level: NUTS 3
Origin of data: Eurostat, CH & NO: National Statistical Officies
**Source: ESPON database**

### Spatial coverage

| | Yes/No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

### Spatial level / regional level

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | yes | NUTS 2003 |
| NUTS 2 | yes | NUTS 1999NUTS 2003 |
| NUTS 3 | yes | NUTS 1999NUTS 2003 |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | no |
| a time series: | yes |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | Data are updated yearly; available in the ESPON database from 1998 to 2002 |
| other | |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | ESPON Database |
| Source | Eurostat |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| raw | no | |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | yes | Indicator can be calculated from GDP per capita figures available in the ESPON database |
| model | no | |

### Data gaps (please describe)

The ESPON database covers alla countries extensively, but has only three regional observation at NUTS 3 level for Portugal in 2001 (Algarve, Açores and Madeira).National data for Luxembourg do not overlap with those at NUTS 3 level (which should be the same); NUTS 0 GDP growth rate is 3,16, while it is 2,48 at NUTS 3 level.

### Comments

This is the milestone indicator expressing the increase in production capacity of a country or a region. It summarizes the competitiveness capability, and it is also a very good measure of pure economic growth. In theoretical growth models it is always used as the variable to be explained.

## Indicator Sheet: Labor costs

| | |
|---|---|
| Dimension: | Economy, Innovation (Agriculture) |
| Objective: | Assets for global competitiveness |
| Sub-objective: | |
| Calculation: | Raw data: compensation of employees in Million Euros at current market prices. |

**Informational value**

As already mentioned, this indicator in absolute value is of no particular use. However, it is the base for calculating more efficient and relevant indicators.

**Regional distribution**

This indicator's spatial distribution sould not really be a concern. In fact it is calculated in absolute values - million Euros at current market prices. It is also the sum of all wages and salaries paid in a region. Therefore, it reflects different agglomeration and definition criteria across countries. Different values reflect different geographical references, and they do not offer a real perspective of relative wages across EU regions. More meaningful approaches would lead to confront Unit labor costs or income share of GDP across regions.

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 0 | 0 | 0 |
| EU 25 | 0 | 0 | 0 |
| EU 15 | 0 | 0 | 0 |
| EU 10 | 0 | 0 | 0 |
| AT | 0 | 3455,5 | 26189,5 |
| BE | 0 | 2953,10 | 25095,80 |
| BG | 0 | 0 | 0 |
| CH | 0 | 0 | 0 |
| CY | 0 | 0 | 0 |
| CZ | 0 | 3263,70 | 6967,90 |
| DE | 0 | 5298 | 75490 |
| DK | 0 | 102639,10 | 102639,10 |
| EE | 0 | 3839,30 | 3839,30 |
| ES | 0 | 604,30 | 71561,80 |
| FI | 0 | 428,5 | 39979,90 |
| FR | 0 | 2714,40 | 223974,30 |
| GR | 0 | 784 | 21289 |
| HU | 0 | 2370,20 | 15095,70 |
| IE | 0 | 0 | 0 |
| IT | 0 | 1367 | 113920 |
| LT | 0 | 6482,80 | 6482,80 |
| LU | 0 | 0 | 0 |
| LV | 0 | 4105,60 | 4105,60 |
| MT | 0 | 0 | 0 |
| NL | 0 | 5112,70 | 54823,10 |
| NO | 0 | 0 | 0 |
| PL | 0 | 1663,2 | 15739 |
| PT | 0 | 1335 | 25059 |
| RO | 0 | 0 | 0 |
| SE | 0 | 5662,5 | 38909,80 |
| SI | 0 | 0 | 0 |
| SK | 0 | 2656,80 | 3891,90 |
| UK | 0 | 4473,30 | 84145,20 |

### Spatial coverage

| | Yes/No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

### Spatial level / regional level

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | yes | NUTS 2003 |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | no |
| a time series: | yes |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | Yearly, from 1995 to 2003 |
| other | |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | ESPON database |
| Source | Eurostat |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| raw | yes | Data are simply the total sum of a regions' wages and salaries expressed in million Euros at current market prices. |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

### Data gaps (please describe)

Some regions present missing values. This happens especially for small coutnries (Cyprus, Malta, Luxembourg and so on).

### Comments

This indicator is a basic tool for several types of analyses. As such, however, it is of scarce utility. However it can be used to measure two relevant indicators: Unit labor costs (i.e. sum of wages and salaries divided by value of production, or value added) and income share of GDP. This latter is calculated as Compensation of employees /GDP. It is often and widely calculated in several studies, being thought to be capable of gauging the relative strength of different sources of income (namely, labor income and capital rent) in an economy. It value is demonstrated to oscillate over time and across countries.

# Indicator Sheet: activity rate male 15-64 years

| | |
|---|---|
| Dimension: | Economy, Innovation (Agriculture) |
| Objective: | Sufficient labour force |
| Sub-objective: | |
| Calculation: | Numbers of males between 15 and 64 years on the labour market/ all males between 15 and 64 years |

**Informational value**

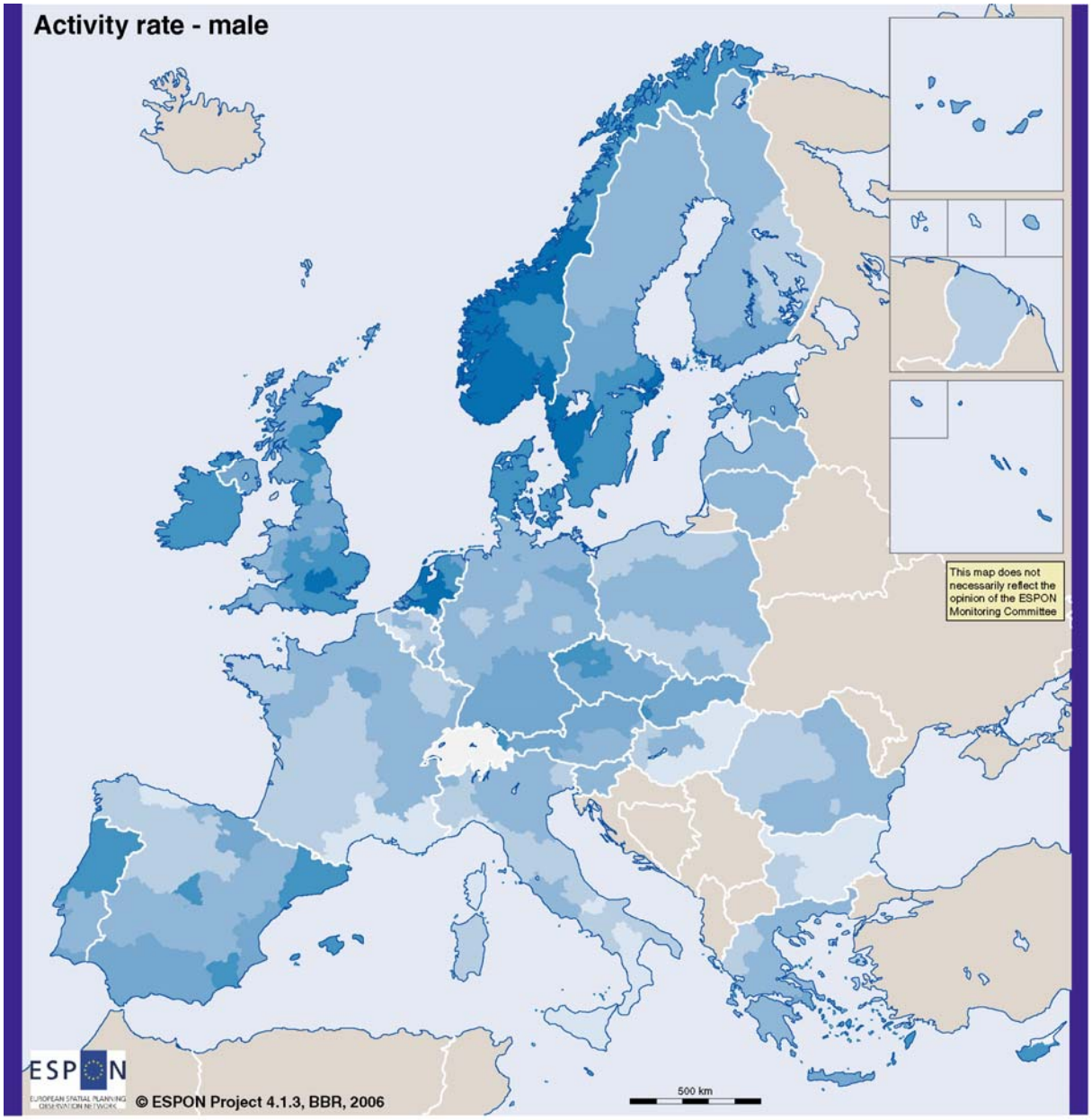
Men activity rates reflect, on one hand, social behaviour in the labour market and, on the other hand, economic obstacles such as unemployment rate, which could discourage to enter the labour market. In political terms, it indicates the share of potentially active population which is really active on the labour market and subsequently able to support the non-active population.

**Regional distribution**

Men activity rates show big international contrasts, but to a much lesser extent than women activity rates: highest levels can be observed in Northern countries, United Kingdom, Ireland and Netherland while, the lowest ones concern mainly Belgium, France and Italy. Eastern and central european, as well as mediterranean countries, have average men activity rates.

The main difference is due to the young and old active ages. For example, in Belgium, France or Italy, activity rates beyond 50 years are very low because pre-pension systems have been encouraged as a solution to the crisis.

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 0 | 0 | 0 |
| EU 25 | 77,40 | 0 | 0 |
| EU 15 | 78,5 | 0 | 0 |
| EU 10 | 72 | 0 | 0 |
| AT | 78,5 | 75,78 | 82,20 |
| BE | 73,40 | 68,5 | 76,70 |
| BG | 66,40 | 59,70 | 69,40 |
| CH | 88 | | |
| CY | 83 | 83 | 83 |
| CZ | 77,90 | 74,20 | 80 |
| DE | 79 | 75,60 | 83,20 |
| DK | 84 | 84 | 84 |
| EE | 74,40 | 74,40 | 74,40 |
| ES | 80,40 | 71,20 | 84,20 |
| FI | 76,40 | 71,60 | 79,80 |
| FR | 75 | 64,5 | 77,80 |
| GR | 79 | 75,80 | 83,40 |
| HU | 67,20 | 61,40 | 72 |
| IE | 80 | 79,40 | 80,10 |
| IT | 74,90 | 69,10 | 80,80 |
| LT | 72,80 | 72,80 | 72,80 |
| LU | 74,80 | 74,80 | 74,80 |
| LV | 74,30 | 74,30 | 74,30 |
| MT | 80,30 | 80,30 | 80,30 |
| NL | 83,90 | 80,5 | 86,40 |
| NO | 81,70 | 79,90 | 83,60 |
| PL | 70,10 | 65,20 | 74,10 |
| PT | 79,10 | 76,60 | 81,70 |
| RO | 70 | 65,90 | 72,30 |
| SE | 79,10 | 73,30 | 83,10 |
| SI | 74,5 | 74,5 | 74,5 |
| SK | 76,5 | 75,80 | 79 |
| UK | 82 | 75,20 | 88,20 |




**Activity rate 2004 in % - male**

- less than 58
- 58 to below 62
- 62 to below 66
- 66 to below 70
- 70 to below 74
- 74 and more
- no data


Regional level: NUTS 2
Origin of data: Eurostat
**Source: ESPON database**

### Spatial coverage

| | Yes/No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

### Spatial level / regional level

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | yes | NUTS 2003 |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | no |
| a time series: | no |
| | |
| updated data (intervals): | yearly |
| periodicity (i.e. available years etc.): | |
| other | |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | Eurostat |
| Source | Eurostat |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| raw | yes | |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

### Data gaps (please describe)

no regional data in CH

### Comments

# Indicator Sheet: Share of agriculture, forestry and fishery in the regional added value (%)

| | |
|---|---|
| Dimension: | Economy, Innovation (Agriculture) |
| Objective: | Diversified economies; Competitiveness |
| Sub-objective: | |
| Calculation: | added value in Agriculture, Forestry and Fisheries / total added value |

**Informational value**

The sectoral structure of the economy is an important information for understanding the economic path of a region and the opportunities and threats it is confronted with.

The information concerning the primary sector is particularly important for identifying peripheral regions which still highly depend on this sector for their economic income and which therefore will be confronted to structural changes in the near future, particularly in the context of the WTO negotiations.The share of agriculture, sylviculture and fishery in the economy is also an indicator of structural economic weakness: in most of the cases, it is the result of the weakness of services and manufacturing activities more than the intrisic development of primary sector.

**Regional distribution**

The spatial distribution of the relative share of agriculture in the economy shows a centre/periphery pattern: high shares are located in mediteranean areas, eastern and central Europe as well as some rural isolated regions of France. The weak development of manufacturing activities and market services explain in most of the cases the relative high share of primary activities. By contrast, the low share of these activities in the "blue banana", from England to central Italy, is to be related to the strong development of others activities and not at all to the weakness of the agricultural activity itself, often very intensive.

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 2,11 | 0,01 | 22,04 |
| EU 25 | 2,06 | 0,01 | 16,67 |
| EU 15 | 2,01 | 0,01 | 16,67 |
| EU 10 | 3,21 | 0,09 | 7,01 |
| AT | 2,05 | 0,25 | 5,77 |
| BE | 1,24 | 0,03 | 3,55 |
| BG | 12,13 | 3,60 | 22,04 |
| CH | 1,37 | 0,52 | 2,16 |
| CY | 3,92 | 3,92 | 3,92 |
| CZ | 3,08 | 0,09 | 5,95 |
| DE | 1,13 | 0,15 | 4,15 |
| DK | 1,45 | 1,45 | 1,45 |
| EE | 4,89 | 4,89 | 4,89 |
| ES | 3,28 | 0,07 | 9,91 |
| FI | 3,52 | 1,64 | 9,56 |
| FR | 2,57 | 0,15 | 9,68 |
| GR | 7,07 | 0,60 | 16,67 |
| HU | 3,68 | 0,91 | 9 |
| IE | 3 | 1,95 | 6,08 |
| IT | 2,69 | 1,27 | 5,19 |
| LT | 7,01 | 7,01 | 7,01 |
| LU | 0,57 | 0,57 | 0,57 |
| LV | 4,60 | 4,60 | 4,60 |
| MT | 2,69 | 2,69 | 2,69 |
| NL | 2,48 | 0,92 | 6,43 |
| NO | 2,16 | 0,29 | 5,53 |
| PL | 2,77 | 0,93 | 6,03 |
| PT | 3,61 | 0,73 | 15,56 |
| RO | 12,62 | 0,75 | 20,74 |
| SE | 1,84 | 0,14 | 5,76 |
| SI | 3,15 | 3,15 | 3,15 |
| SK | 4,45 | 0,87 | 6,09 |
| UK | 0,99 | 0,01 | 7,09 |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### Spatial coverage

| | Yes/No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

### Spatial level / regional level

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | yes | NUTS 2003 |
| NUTS 2 | yes | NUTS 2003 |
| NUTS 3 | yes | NUTS 2003 |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | yes |
| a time series: | no |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | possible to update every year, but time consuming |
| other | mix of NUTS1,2 and 3 |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | ESPON 3.4.2 |
| Source | Eurostat and National Statistical Offices |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| raw | yes | for some countries available as such |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | yes | for many countries not available at needed spatial level, so estimated on the basis of employment data |
| model | no | |

### Data gaps (please describe)

### Comments

# Indicator Sheet: Share of technological manufacturing industries in the regional added value

| | |
|---|---|
| Dimension: | Economy, Innovation (Agriculture) |
| Objective: | Diversified economies; Competitiveness |
| Sub-objective: | |
| Calculation: | added value in machine tools (Dk), electric and electronic equipment (Dl), transport equipment (Dm) / total added value |

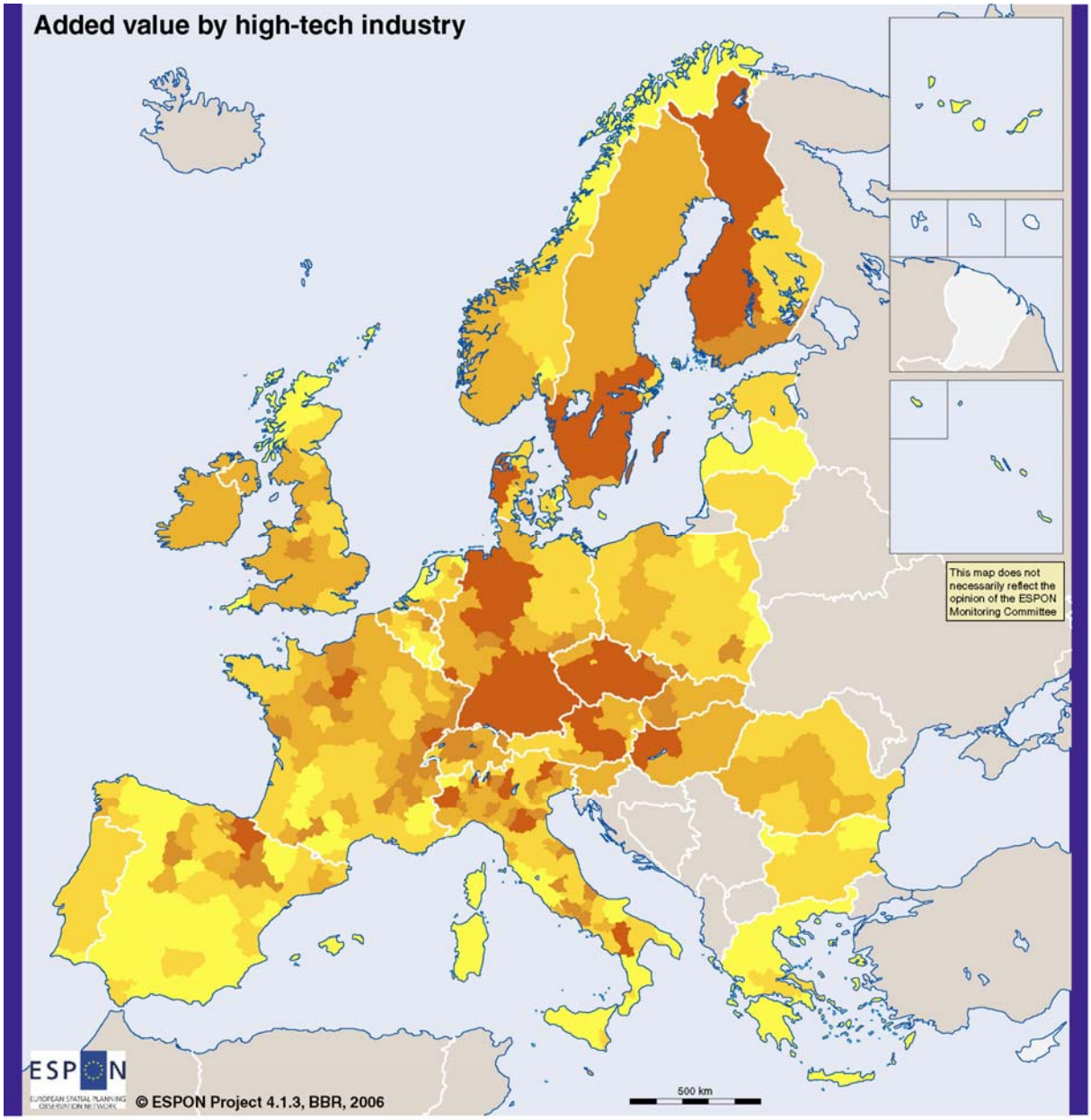
**Informational value**

The share of technological machine-tools, electric and electronic equipment and transport equipment is an indicator of the techological level of the economies, generally less subject to international competition with low cost labour countries.

**Regional distribution**

Peripheral regions of mediterranean and Eastern countries show the lowest level of technological manufacturing activities. However, in the rich central regions, only some parts have high level of technological industry, especially Western Germany, Southern Sweden, while others spaces have lost their industrial specificity for a more market service-oriented economy, notably in England. High figures of central Europe (Czech and Slovak Republic, Hungary) should be relativised, since the major part of these activities correspond to semi-qualified assembling industry, such as automobile industry.

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 6,08 | 0,03 | 21,52 |
| EU 25 | 6,09 | 0,03 | 21,52 |
| EU 15 | 6,10 | 0,03 | 21,52 |
| EU 10 | 5,80 | 0,47 | 16,96 |
| AT | 6,36 | 3,68 | 10,29 |
| BE | 4,14 | 0,93 | 9,80 |
| BG | 3,10 | 1,24 | 3,83 |
| CH | 7,19 | 4,36 | 9,92 |
| CY | 0,47 | 0,47 | 0,47 |
| CZ | 8,79 | 2,79 | 14,62 |
| DE | 10,05 | 3,61 | 21,52 |
| DK | 4,5 | 4,5 | 4,5 |
| EE | 2,75 | 2,75 | 2,75 |
| ES | 4,02 | 0,10 | 11,89 |
| FI | 9,27 | 0,56 | 12,48 |
| FR | 5,48 | 0,54 | 10,44 |
| GR | 1,46 | 0,03 | 3,64 |
| HU | 7,66 | 5,03 | 16,96 |
| IE | 6 | 6,15 | 6,62 |
| IT | 5,49 | 1,32 | 9,31 |
| LT | 2,74 | 2,74 | 2,74 |
| LU | 1,12 | 1,12 | 1,12 |
| LV | 1,64 | 1,64 | 1,64 |
| MT | 7,34 | 7,34 | 7,34 |
| NL | 3,13 | 1,73 | 5,53 |
| NO | 4,11 | 0,92 | 7,33 |
| PL | 4,31 | 2,56 | 7,37 |
| PT | 2,71 | 0,34 | 3,27 |
| RO | 4,56 | 2,87 | 6,87 |
| SE | 7,07 | 3,36 | 10,49 |
| SI | 6,75 | 6,75 | 6,75 |
| SK | 6,67 | 5,52 | 8,5 |
| UK | 4,64 | 0,40 | 8,63 |




**Share of added value by high-tech industry 2003 in %**

- less than 2,5
- 2,5 to below 5,0
- 5,0 to below 7,5
- 7,5 to below 10,0
- 10,0 and more
- no data


Regional level: NUTS 1/2/3
Origin of data: IGEAT
**Source: ESPON database**

### Spatial coverage

| | Yes/No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

### Spatial level / regional level

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | yes | NUTS 2003 |
| NUTS 2 | yes | NUTS 2003 |
| NUTS 3 | yes | NUTS 2003 |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | yes |
| a time series: | no |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | possible to update every year, but time consuming |
| other | mix of NUTS1,2 and 3 |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | ESPON 3.4.2 |
| Source | Eurostat and National Statistical Offices |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| raw | yes | for some countries available as such |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | yes | for many countries not available at needed spatial level, so estimated on the basis of employment data |
| model | no | |

### Data gaps (please describe)

### Comments

# Indicator Sheet: Share of financial and business services in the regional added value

| | |
|---|---|
| Dimension: | Economy, Innovation (Agriculture) |
| Objective: | Diversified economies; Competitiveness |
| Sub-objective: | |
| Calculation: | Added values in the financial (J) and business (K) services/total added value |

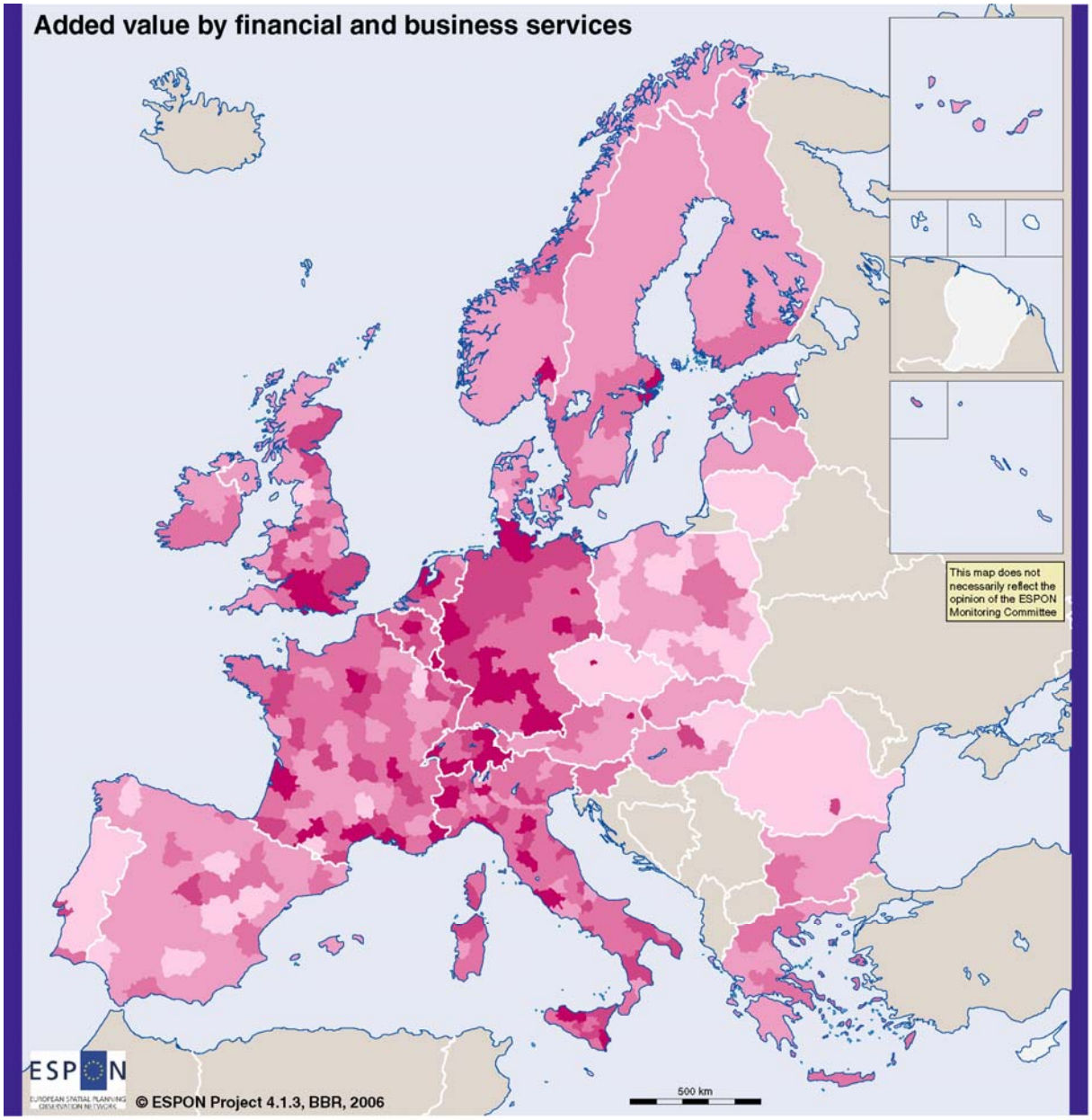
**Informational value**

The share of financial and business services is an indicator of a leading and autonomous role in the economy, as well as a sign of a strong insertion in the world economy, in which these types of services play a major role. Indeed, there is a correlation between this share and the level of internationalisation.

**Regional distribution**

The spatial distribution of financial and business services is in accordance with a centre-periphery model, at both European and national scale. At European level, the highest shares are to be found in the "blue banana", between Southern England and central Italy, including Benelux countries, Western Germany and Switzerland. By contrast, peripheral regions such as Spain, Portugal, Greece and central and Eastern countries have a much lower share of these high level services. But one has to notice that the biggest contrasts occur inside national borders between major metropolises, at the top of national economic command and well inserted in the world networks, and the rest of the country: the highest shares of high level services in Europe are moreover located in the world metropolises of Paris and London.

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 27,29 | 9,32 | 53,44 |
| EU 25 | 27,31 | 9,32 | 53,44 |
| EU 15 | 27,72 | 9,52 | 53,44 |
| EU 10 | 18,27 | 9,32 | 35,62 |
| AT | 22,70 | 16,88 | 31,09 |
| BE | 28,16 | 21,71 | 39,68 |
| BG | 20,11 | 18,25 | 22,41 |
| CH | 30,52 | 21,47 | 46,09 |
| CY | 23,81 | 23,81 | 23,81 |
| CZ | 17,40 | 9,32 | 35,62 |
| DE | 30,26 | 20,68 | 43,23 |
| DK | 24,13 | 24,13 | 24,13 |
| EE | 21,25 | 21,25 | 21,25 |
| ES | 19,98 | 11,45 | 27,47 |
| FI | 20,97 | 13,91 | 23,51 |
| FR | 30,46 | 20,99 | 42,61 |
| GR | 20,93 | 15,39 | 23,47 |
| HU | 21,46 | 14,06 | 28,36 |
| IE | 22 | 17,57 | 22,79 |
| IT | 26,5 | 20,36 | 30,02 |
| LT | 12,57 | 12,57 | 12,57 |
| LU | 46,14 | 46,14 | 46,14 |
| LV | 19,05 | 19,05 | 19,05 |
| MT | 13,82 | 13,82 | 13,82 |
| NL | 26,74 | 16,02 | 36,24 |
| NO | 23,55 | 18,09 | 31,91 |
| PL | 16,62 | 11,78 | 21,97 |
| PT | 19,03 | 9,52 | 27,13 |
| RO | 15,17 | 10,54 | 26,28 |
| SE | 24,92 | 16,52 | 35,95 |
| SI | 20,71 | 20,71 | 20,71 |
| SK | 20 | 16,32 | 28,75 |
| UK | 29,80 | 11,84 | 53,44 |




**Share of added value by financial and business services 2002 in %**

- less than 15
- 15 to below 20
- 20 to below 25
- 25 to below 30
- 30 and more
- no data


Regional level: NUTS 1/2/3
Origin of data: IGEAT
**Source: ESPON database**

### Spatial coverage

| | Yes/No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

### Spatial level / regional level

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | yes | NUTS 2003 |
| NUTS 2 | yes | NUTS 2003 |
| NUTS 3 | yes | NUTS 2003 |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | yes |
| a time series: | no |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | possible to update every year, but time consuming |
| other | mix of NUTS1,2 and 3 |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | ESPON 3.4.2 |
| Source | Eurostat and National Statistical Offices |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| raw | yes | for some countries available as such |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | yes | for many countries not available at needed spatial level, so estimated on the basis of employment data |
| model | no | |

### Data gaps (please describe)

### Comments

# Indicator Sheet: Share of administration, education, health and social services in the regional added value

| | |
|---|---|
| Dimension: | Economy, Innovation (Agriculture) |
| Objective: | Diversified economies; Competitiveness |
| Sub-objective: | |
| Calculation: | Added value in administration (L), Education (M), Health and social services (N)/ total added value |

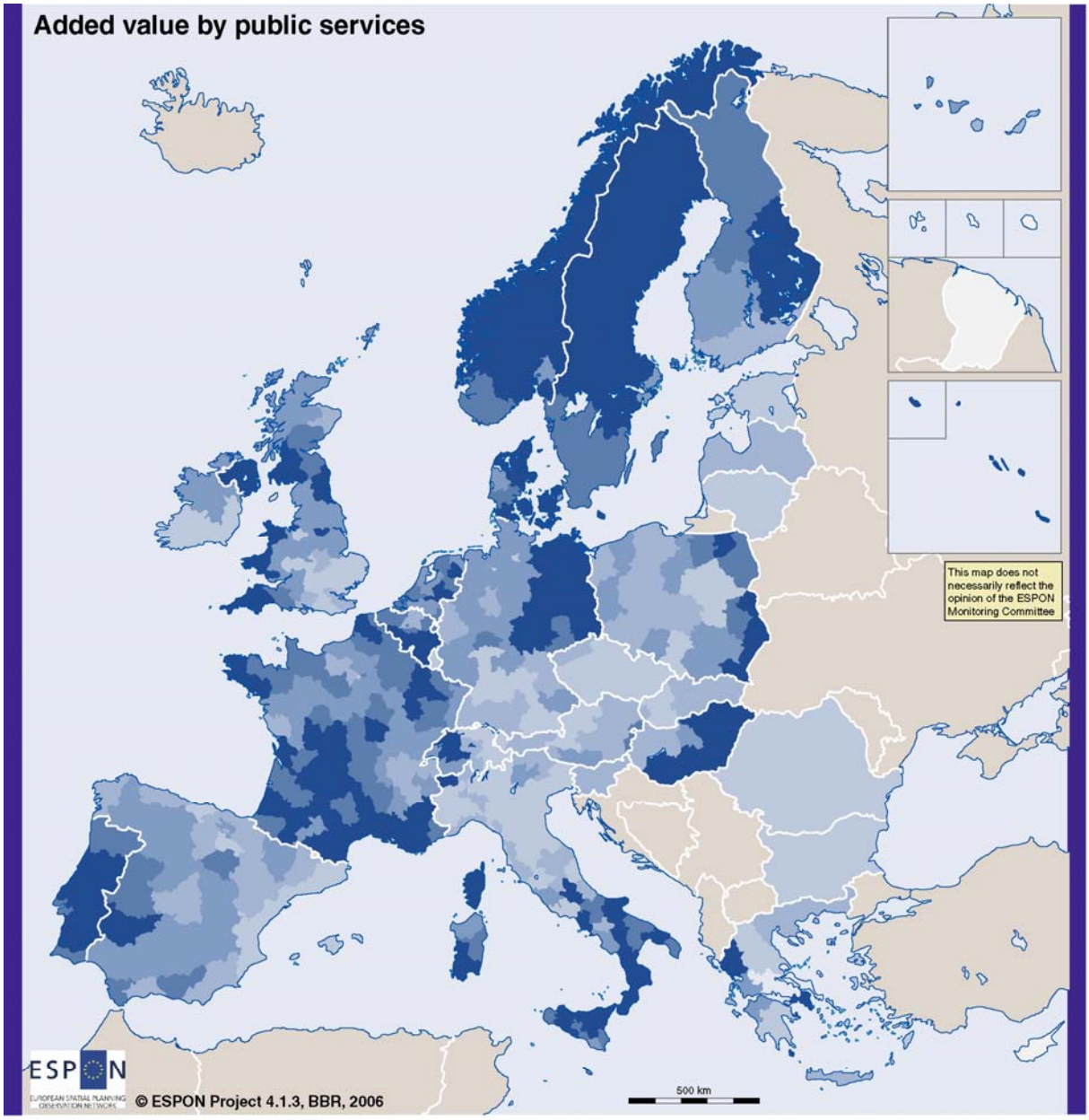
**Informational value**

The share of administration, education, health and social services is an interesting indicator of the development of social services for the population, most of which is still provided by the state. This indicator, to a certain extent, corresponds to the share of non-market services and gives an idea of the weight of the state in the services dedicated to the population.

**Regional distribution**

The spatial distribution is the result of two major processes. First, we can observe international differences at country scale: on one hand, we find countries where social services are highly developed and the state has kept a central role in the supply of these services, such as France, Belgium or Scandinavian countries, and, on the other hand, countries where privatisation process has gone further even in some educational services, for example in the United Kingdom, Spain or some Eastern countries. But regional contrasts inside each country are even more pronounced: in the same national political context, the high shares of non-market services reflect the weakness of others activities, mainly market services, rather than the intrinsic development of these non-market services. For example, we find high shares in poor regions of rich countries such as Waloonia in Belgium, Southern Italy, Eastern Germany or Northern Scandinavia.

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 17,55 | 8 | 43,79 |
| EU 25 | 17,53 | 8 | 43,79 |
| EU 15 | 17,59 | 8 | 43,79 |
| EU 10 | 16,26 | 11,66 | 24,59 |
| AT | 16 | 12,66 | 21,73 |
| BE | 21,53 | 16,14 | 34,54 |
| BG | 13,82 | 13,54 | 13,99 |
| CH | 16,64 | 12,63 | 22,59 |
| CY | 18,13 | 18,13 | 18,13 |
| CZ | 13,39 | 11,66 | 15,28 |
| DE | 16,93 | 11,34 | 25,75 |
| DK | 23,37 | 23,37 | 23,37 |
| EE | 12,72 | 12,72 | 12,72 |
| ES | 16,06 | 12,56 | 43,79 |
| FI | 18,16 | 16,33 | 24,92 |
| FR | 19,22 | 14,73 | 30,33 |
| GR | 17,85 | 8 | 26,26 |
| HU | 19,66 | 16,92 | 24,59 |
| IE | 14 | 12,63 | 19,10 |
| IT | 15,28 | 9,62 | 25 |
| LT | 14,58 | 14,58 | 14,58 |
| LU | 12,74 | 12,74 | 12,74 |
| LV | 15,99 | 15,99 | 15,99 |
| MT | 21,05 | 21,05 | 21,05 |
| NL | 20,11 | 17,60 | 23,38 |
| NO | 23,36 | 19,98 | 34,23 |
| PL | 16,30 | 12,81 | 22,88 |
| PT | 22,5 | 20,78 | 25,68 |
| RO | 9,44 | 8,48 | 11,34 |
| SE | 21,35 | 18,64 | 26,58 |
| SI | 16,86 | 16,86 | 16,86 |
| SK | 14,95 | 13,20 | 16,11 |
| UK | 17,14 | 12,15 | 26,64 |




**Share of added value by public services 2002 in %**

- less than 15,0
- 15,0 to below 17,5
- 17,5 to below 20,0
- 20,0 to below 22,5
- 22,5 and more
- no data


Regional level: NUTS 1/2/3
Origin of data: IGEAT
**Source: ESPON database**

### Spatial coverage

| | Yes/No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

### Spatial level / regional level

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | yes | NUTS 2003 |
| NUTS 2 | yes | NUTS 2003 |
| NUTS 3 | yes | NUTS 2003 |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | yes |
| a time series: | no |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | possible to update every year, but time consuming |
| other | mix of NUTS1,2 and 3 |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | ESPON 3.4.2 |
| Source | Eurostat and National Statistical Offices |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| raw | yes | for some countries available as such |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | yes | for many countries not available at needed spatial level, so estimated on the basis of employment data |
| model | no | |

### Data gaps (please describe)

### Comments

# Indicator Sheet: activity rate female 15-64 years

| | |
|---|---|
| Dimension: | Economy, Innovation (Agriculture) |
| Objective: | Sufficient labour force |
| Sub-objective: | |
| Calculation: | Numbers of females between 15 and 64 years on the labour market/ all females between 15 and 64 years |

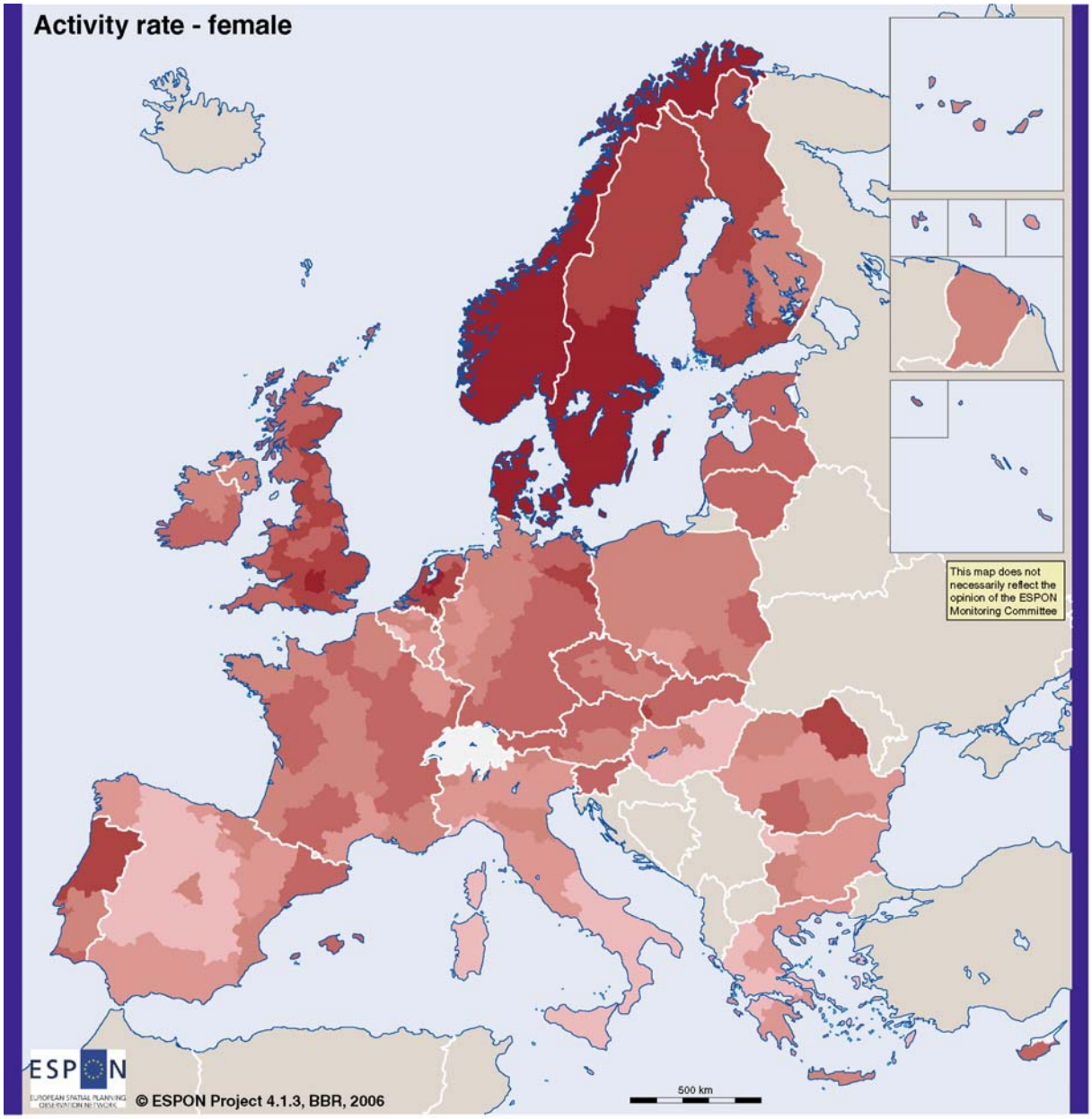
**Informational value**

Women activity rates reflect, on one hand, social behaviour in the labour market and, on the other hand, economic obstacles such as unemployment rate. In political terms, it indicates the share of potentially active population which is really active on the labour market and consequently able to support the non-active population.

**Regional distribution**

Women activity rates reveal big international contrasts: highest levels can be observed in Northern and Baltic countries, Switzerland, Portugal, United Kingdom and Netherland while, the lowest ones concern mainly mediteranean countries. Eastern and central european countries have average women activity rates. This geography reflects, on one hand, the integration of women in the labour market and, on the other hand, the difference of activity rates for young (15-24 years) and old (50 to 64 years) potentially active people. For example, in Northern countries, the high rates are explained by the traditional integration of women in the labour market but also because both men and women have the highest levels of activity rates at young and old active ages. This second aspect explains why the geography of women activity rate is relatively near to the male one. Regional contrasts inside each country are often to be related with economic structure: for example, tertiary metropolitan areas, but also traditional textile industrial areas, which are offering more “female jobs” are showing higher women activity rates than their national average (see for example Madrid in Spain, or the textile central Italy).

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 0 | 0 | 0 |
| EU 25 | 61,80 | 35,5 | 77,40 |
| EU 15 | 62,30 | 35,5 | 77,40 |
| EU 10 | 59,20 | 36 | 69 |
| AT | 64,20 | 61,5 | 66,30 |
| BE | 58,20 | 51,80 | 64,20 |
| BG | 57,20 | 51,90 | 62,70 |
| CH | 73,90 | | |
| CY | 62,80 | 62,80 | 62,80 |
| CZ | 62,20 | 60,10 | 66,70 |
| DE | 65,10 | 58,40 | 75,30 |
| DK | 76,20 | 76,20 | 76,20 |
| EE | 66 | 66 | 66 |
| ES | 56,80 | 36,70 | 64,20 |
| FI | 72 | 66,80 | 77,40 |
| FR | 63,60 | 49,60 | 67,90 |
| GR | 54,10 | 46,20 | 59 |
| HU | 54 | 47,5 | 60,30 |
| IE | 59 | 57,20 | 59,60 |
| IT | 50,60 | 35,5 | 63,40 |
| LT | 65,60 | 65,60 | 65,60 |
| LU | 54,30 | 54,30 | 54,30 |
| LV | 65,30 | 65,30 | 65,30 |
| MT | 36 | 36 | 36 |
| NL | 69,20 | 65,10 | 72,20 |
| NO | 75,10 | 72,60 | 76,90 |
| PL | 57,90 | 54,40 | 61,5 |
| PT | 67 | 50,20 | 70,90 |
| RO | 56,20 | 51,30 | 62,80 |
| SE | 75,20 | 71,60 | 79 |
| SI | 65 | 65 | 65 |
| SK | 63 | 60,5 | 69 |
| UK | 68,60 | 59,80 | 73,90 |




**Activity rate 2004 in % - female**

- less than 58
- 58 to below 62
- 62 to below 66
- 66 to below 70
- 70 to below 74
- 74 and more
- no data


Regional level: NUTS 2
Origin of data: Eurostat
**Source: ESPON database**

### Spatial coverage

| | Yes / No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

### Spatial level / regional level

| | Yes / No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | yes | NUTS 2003 |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | no |
| a time series: | no |
| | |
| updated data (intervals): | yearly |
| periodicity (i.e. available years etc.): | |
| other | |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | Eurostat |
| Source | Eurostat |

### Type of data (raw data, model output, survey data etc.)

| | Yes / No | Description |
|---|---|---|
| raw | yes | |
| survey | no | |

| | Yes / No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

### Data gaps (please describe)

no regional for CH

### Comments

# Indicator Sheet: Unemployment rate < 25 years

| | |
|---|---|
| Dimension: | Socially inclusive society and space |
| Objective: | Improving social cohesion/equality |
| Sub-objective: | Reducing unemployment among young people |
| Calculation: | Share of unemployed persons of the labour force, below 25 years |

**Informational value**

The acquisition of data on unemployed persons and their comparative analysis across space is highly relevant for gaining a thorough impression on social inclusion within a certain territory. Especially the employment and thus integration of young people is essential for the functioning of social inclusion of a society. The continuous measurement of this indicator therefore reveals an important facet of the status and progress of social inclusion within ESPON space.

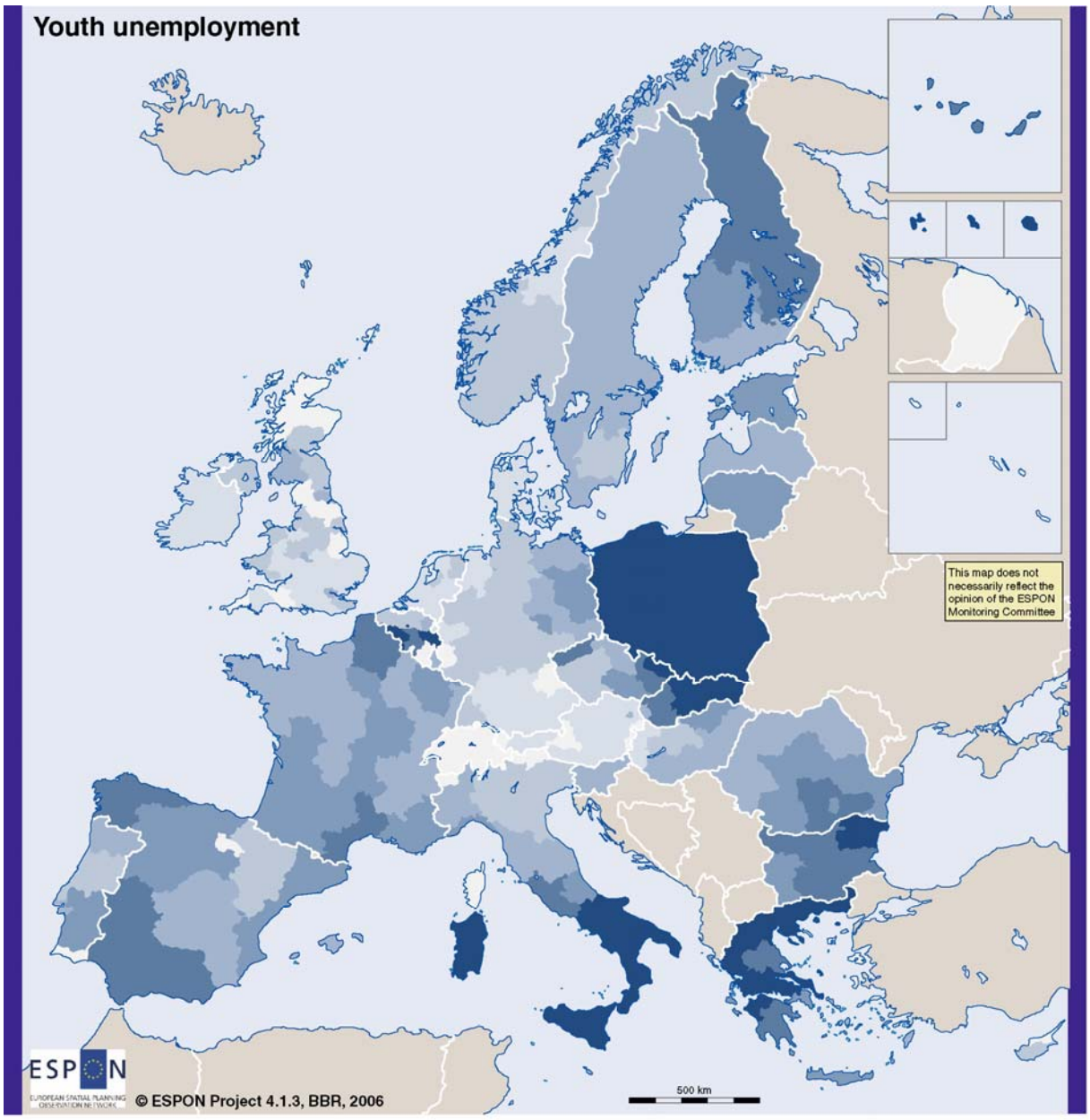
**Regional distribution**

The registered values for this indicator in the year 2005 rank between 8 and 37 %. Lowest shares of unemployed among young people have been recorded in Northern/North-Western and central Europe (IE, UK, DK, NO, NL, Austria). Values about average are visible in most Central-Eastern and Eastern European countries (e.g. CZ, HU, LT, EE), while other Eastern European countries could only reduce their before even higher shares of young unemployed down to rather moderately high shares during the last years (e.g. from around 35-40% down to around 20 to 30% in SK, BU).

Also in Southern and Western European countries (e.g. GR, IT, FR), about one quarter of the workforce under 25 is facing unemployment.

In total, the map reflects a tendency to higher youth unemployment in peripheral regions of Europe.

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 19,70 | 5,40 | 56,60 |
| EU 25 | 19,70 | 5,40 | 56,60 |
| EU 15 | 18,10 | 5,40 | 56,60 |
| EU 10 | 28,10 | 9,40 | 48 |
| AT | 9,70 | 7,30 | 16,80 |
| BE | 23,20 | 12,20 | 39,90 |
| BG | 26,90 | 20,70 | 31,80 |
| CH | | | |
| CY | 11,6 | 11,6 | 11,6 |
| CZ | 20,5 | 10,80 | 33,40 |
| DE | 13,30 | 7,10 | 23 |
| DK | 8,20 | 8,20 | 8,20 |
| EE | 21,70 | 21,70 | 21,70 |
| ES | 21,40 | 13,70 | 27,60 |
| FI | 22,80 | 18 | 26,10 |
| FR | 25,10 | 16,20 | 56,60 |
| GR | 29,10 | 19,80 | 49,30 |
| HU | 15,9 | 9,40 | 22,10 |
| IE | 9,10 | 8,80 | 9,40 |
| IT | 23,70 | 10,30 | 42,90 |
| LT | 22,70 | 22,70 | 22,70 |
| LU | 18,30 | 18,30 | 18,30 |
| LV | 18,10 | 18,10 | 18,10 |
| MT | 16,10 | 16,10 | 16,10 |
| NL | 8,40 | 5,40 | 12,1 |
| NO | 11,4 | 8 | 13,4 |
| PL | 40,40 | 31,20 | 48 |
| PT | 16,90 | 11,6 | 22,10 |
| RO | 22 | 17,70 | 27,60 |
| SE | 17,5 | 14,70 | 19,20 |
| SI | 16,10 | 16,10 | 16,10 |
| SK | 31,40 | 19,5 | 42,5 |
| UK | 11,80 | 8,20 | 21,5 |




**Unemployment rate of persons from 15 to 24 years 2004**

- up to 10
- 10 up to 15
- 15 up to 20
- 20 up to 25
- 25 up to 30
- more than 30
- no data


Regional level: NUTS 2
Origin of data: Eurostat
**Source: ESPON database**

### Spatial coverage

| | Yes/No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | yes |
| EU 15 | yes |
| EU 10 | yes |

### Spatial level / regional level

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | yes | NUTS 2003 |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | yes |
| a time series: | yes |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | 1998 - 2004 |
| other | |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | ESPON database |
| Source | Eurostat |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| raw | yes | |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

### Data gaps (please describe)

no data for CH

### Comments

# Indicator Sheet: Employed in high-tech sector

| | |
|---|---|
| Dimension: | Diversified regional economies |
| Objective: | Improving regional economies/aspects of knowledge economy |
| Sub-objective: | Fostering balanced and competitive regional economies |
| Calculation: | persons employed in medium-high and high-tech sector of manufactoring as share of total employment, in % |

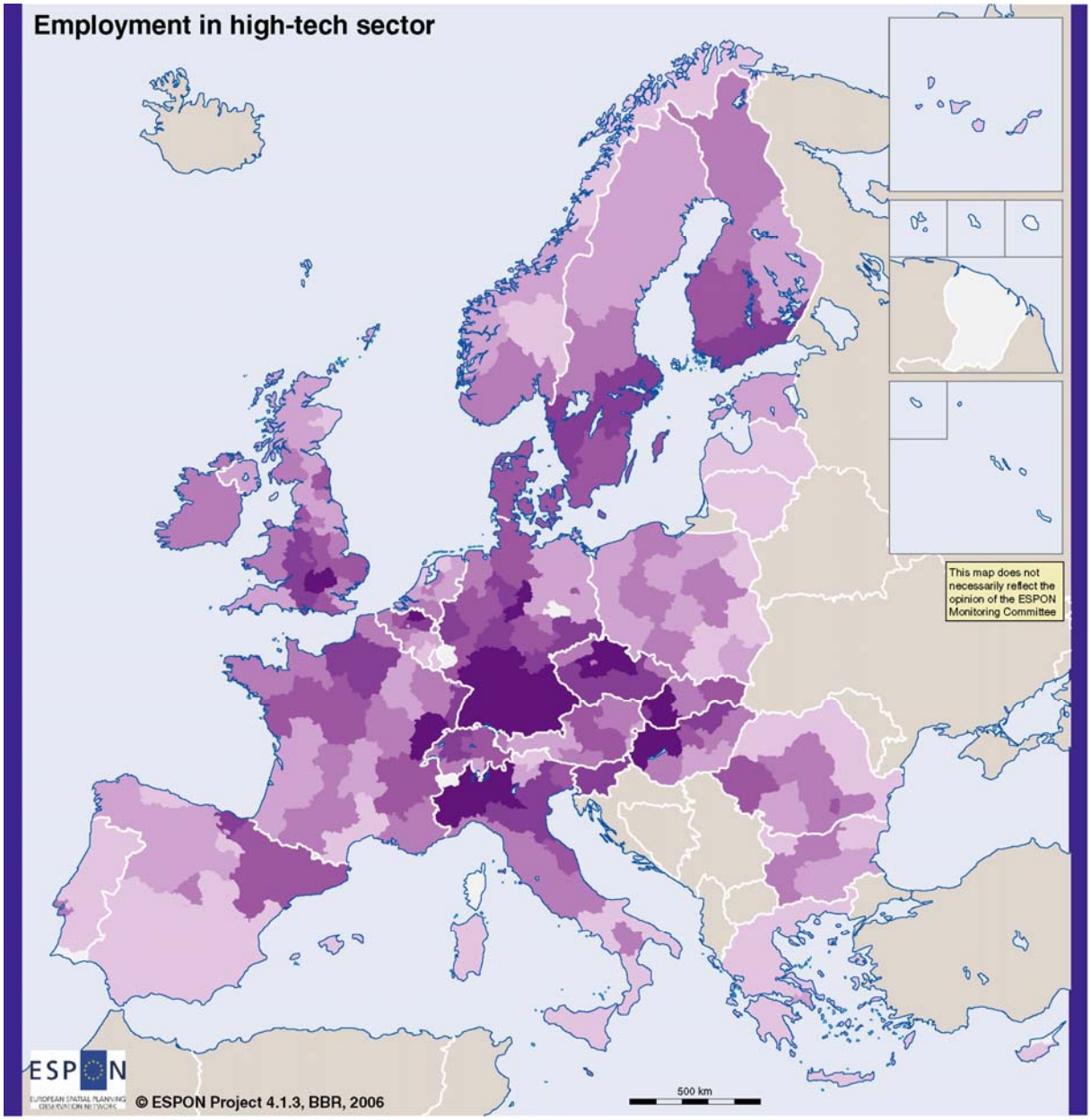
**Informational value**

The percentages of persons employed in the high-tech sector show an important aspect of the economic structure and innovativeness of the different regions. This indicator therefore provides information on the spatial balance of the development of the knowledge economy and the knowledge society in general across the ESPON space.

**Regional distribution**

Employment in high-tech sectors appears to show a strong concentration in a few regions of central Europe, e.g. Southern Germany, some Western regions of the Czech Republic or Hungary, Northern Italy and Western France. The peripheral regions clearly show below-average shares of employment in high-tech sector, with percentages of up to 10 % of the employed people in Poland, or Southern Spain and Italy or Northern Norway. This indicator shows quite strong variations within the countries, a detailed regional monitoring is therefore essential.

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 9,20 | 1,2 | 24,10 |
| EU 25 | 9,30 | 1,2 | 24,10 |
| EU 15 | 9,40 | 1,2 | 24,10 |
| EU 10 | 9,20 | 3,20 | 15,20 |
| AT | 8,80 | 6,5 | 10,5 |
| BE | 9,40 | 5,30 | 14,30 |
| BG | 6,90 | 4,60 | 8,70 |
| CH | 10,6 | 7 | 13,20 |
| CY | 3,20 | 3,20 | 3,20 |
| CZ | 12,4 | 9,10 | 15,20 |
| DE | 13,20 | 6,5 | 24,10 |
| DK | 11 | 11 | 11 |
| EE | 7,60 | 7,60 | 7,60 |
| ES | 6,80 | 2,90 | 13 |
| FI | 10,30 | 7,60 | 12,30 |
| FR | 9,80 | 5,20 | 16,40 |
| GR | 2,5 | 1,2 | 6,10 |
| HU | 11,20 | 7,70 | 14,6 |
| IE | 9,10 | 8,20 | 10 |
| IT | 8,80 | 3,30 | 16,10 |
| LT | 4,70 | 4,70 | 4,70 |
| LU | 4,70 | 4,70 | 4,70 |
| LV | 4,20 | 4,20 | 4,20 |
| MT | 9,30 | 9,30 | 9,30 |
| NL | 7,40 | 5,60 | 9 |
| NO | 7,30 | 3,90 | 9,70 |
| PL | 40,40 | 3,30 | 9,40 |
| PT | 5,40 | 4,10 | 8,70 |
| RO | 7,20 | 3,70 | 11,5 |
| SE | 10,6 | 7,70 | 13,4 |
| SI | 12,6 | 12,6 | 12,6 |
| SK | 12 | 9,60 | 14,20 |
| UK | 9,60 | 4,70 | 14,9 |




**Share of employment in high and medium high technology manufacturing and knowledge-intensive high-technology services in % of total employment 2005**

- up to 6
- 6 up to 8
- 8 up to 10
- 10 up to 12
- 12 up to 14
- more than 14
- no data


Regional level: NUTS 2
Origin of data: Eurostat
**Source: ESPON database**

### Spatial coverage

| | Yes/No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | yes |
| EU 15 | yes |
| EU 10 | yes |

### Spatial level / regional level

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | yes | NUTS 2003 |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | yes |
| a time series: | yes |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | 1998-2005 |
| other | |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | ESPON database |
| Source | EUROSTAT |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| raw | yes | |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

### Data gaps (please describe)

- not all years available for all countries

### Comments

## Indicator Sheet: Employment in R&D

| | |
|---|---|
| Dimension: | Economy, Innovation (Agriculture) |
| Objective: | Assets for global competitiveness; Diversified regional economies |
| Sub-objective: | provide know-how and prepare the ground for innovative society and economy |
| Calculation: | share of employees in research and development (both in the private and public sector) in the total amount of employees |

### Informational value

Employment in R&D is a good equivalent for measuring the capacity of society to create an innovate society and economy. Sure enough, it only provides information on the potential and not on the actual output of innovation. The main bias within this indicator is therefore the way how employment in this sector is measured. In reality only a small proportion of employees in R&D really account for innovation in the pure meaning of the word - as long as support functions (such as administrations) are accounted for as well as employed in R&D - the effect on innovative behaviour may be misleading.

### Regional distribution

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 4,22 | 0 | 21,40 |
| EU 25 | 0 | 0 | 0 |
| EU 15 | 0 | 0 | 0 |
| EU 10 | 0 | 0 | 0 |
| AT | 4,20 | 0,60 | 10,30 |
| BE | 7,61 | 5,90 | 9,20 |
| BG | 0,42 | 0,10 | 1,40 |
| CH | 16,21 | 16,20 | 16,20 |
| CY | 0,57 | 0,60 | 0,60 |
| CZ | 2,34 | 0,60 | 4,40 |
| DE | 6,47 | 0,90 | 21,40 |
| DK | 9,06 | 9,10 | 9,10 |
| EE | 1,08 | 1,10 | 1,10 |
| ES | 2,01 | 0,20 | 7 |
| FI | 7,53 | 0 | 11,6 |
| FR | 4,21 | 0 | 13,9 |
| GR | 0,53 | 0,10 | 1,90 |
| HU | 1,14 | 0,30 | 3,80 |
| IE | 5 | 4,80 | 4,80 |
| IT | 2,41 | 0 | 7,2 |
| LT | 0,40 | 0,40 | 0,40 |
| LU | 12,51 | 12,5 | 12,5 |
| LV | 1,21 | 1,2 | 1,2 |
| MT | 0,43 | 0,40 | 0,40 |
| NL | 5,05 | 2,30 | 11 |
| NO | 5,47 | 1 | 10,70 |
| PL | 0,46 | 0,10 | 1,2 |
| PT | 0,45 | 0,10 | 0,70 |
| RO | 2,0 | 0,70 | 7,80 |
| SE | 8,04 | 1,60 | 15,9 |
| SI | 4,23 | 4,20 | 4,20 |
| SK | 2,16 | 0,70 | 4,40 |
| UK | 4,85 | 1,90 | 10 |

### Spatial coverage

| | Yes / No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

### Spatial level / regional level

| | Yes / No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | yes | NUTS 2003 |
| NUTS 3 | yes | NUTS 2003 |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | no |
| a time series: | yes |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | |
| other | |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | |
| Source | |

### Type of data (raw data, model output, survey data etc.)

| | Yes / No | Description |
|---|---|---|
| raw | no | |
| survey | no | |

| | Yes / No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

### Data gaps (please describe)

### Comments

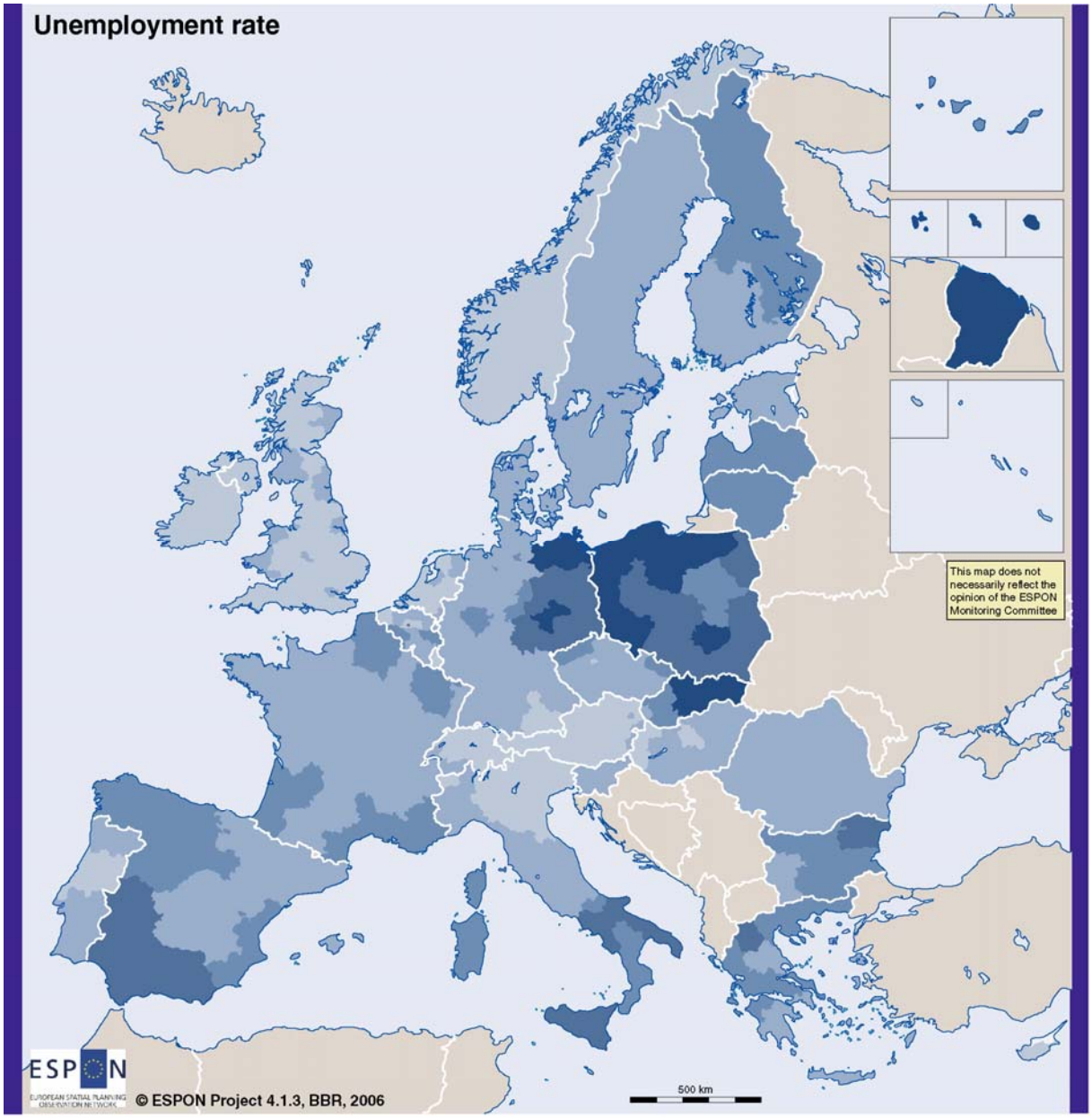
## Indicator Sheet: Unemployment rate

| | |
|---|---|
| Dimension: | Socially inclusive society and space |
| Objective: | Maintaining and improving the household income equally in the space |
| Sub-objective: | Maintaining an equal distribution of population/ enabling people to sustain their social environment |
| Calculation: | Unemployment rate represents unemployed persons as a percentage of the economically active population |

**Informational value**

**Regional distribution**

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 8,97 | 2,40 | 32,80 |
| EU 25 | 0 | 0 | 0 |
| EU 15 | 0 | 0 | 0 |
| EU 10 | 0 | 0 | 0 |
| AT | 4,64 | 3,30 | 8,90 |
| BE | 8,68 | 4,5 | 15,70 |
| BG | 12,9 | 9,40 | 17,60 |
| CH | 4,40 | 3,30 | 6,20 |
| CY | 4,90 | 4,90 | 4,90 |
| CZ | 8,40 | 3,90 | 14,6 |
| DE | 11,07 | 4,90 | 23,40 |
| DK | 5,5 | 5,5 | 5,5 |
| EE | 9,70 | 9,70 | 9,70 |
| ES | 10,62 | 5,5 | 17,20 |
| FI | 10,03 | 7,30 | 12,5 |
| FR | 11,83 | 7,10 | 32,80 |
| GR | 11,05 | 7,70 | 16,60 |
| HU | 6,46 | 4,5 | 9,70 |
| IE | 5 | 4,5 | 4,70 |
| IT | 8,02 | 2,70 | 17,2 |
| LT | 11,4 | 11,4 | 11,4 |
| LU | 4,80 | 4,80 | 4,80 |
| LV | 10,4 | 10,4 | 10,4 |
| MT | 7,20 | 7,20 | 7,20 |
| NL | 4,76 | 3,40 | 6,40 |
| NO | 4,14 | 3,40 | 4,80 |
| PL | 19,5 | 14,6 | 24,90 |
| PT | 6,78 | 4,30 | 8,80 |
| RO | 8,11 | 6,20 | 9,90 |
| SE | 6,70 | 5,20 | 7,90 |
| SI | 6,30 | 6,30 | 6,30 |
| SK | 17,23 | 8,30 | 24,20 |
| UK | 4,51 | 2,40 | 8,90 |




**Regional unemployment rate 2004**

- up to 5,0
- 5,0 up to 10,0
- 10,0 up to 15,0
- 15,0 up to 20,0
- 20,0 and more
- no data


Regional level: NUTS 2
Origin of data: Eurostat
**Source: ESPON database**

### Spatial coverage

| | Yes/No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

### Spatial level / regional level

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | no | |
| NUTS 3 | yes | |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | yes |
| a time series: | yes |
| | |
| updated data (intervals): | annually |
| periodicity (i.e. available years etc.): | partly starting 1990, 1999, 2003 |
| other | |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | ESPON 1.4.2.; ESPON 3.1. |
| Source | Eurostat |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| raw | yes | |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

### Data gaps (please describe)

### Comments

there is still the problem of harmonisation of definitions within the generally harmonised concept of unemployment (e.g. the amount of persons in training schemes, early retirement schemes); besides there is a growing extent of misinterpretation of this indicator in terms of household income --> the social phenomenon of the "working poor" is disguised by low unemployment rates.

# Indicator Sheet: Development of unemployment rate

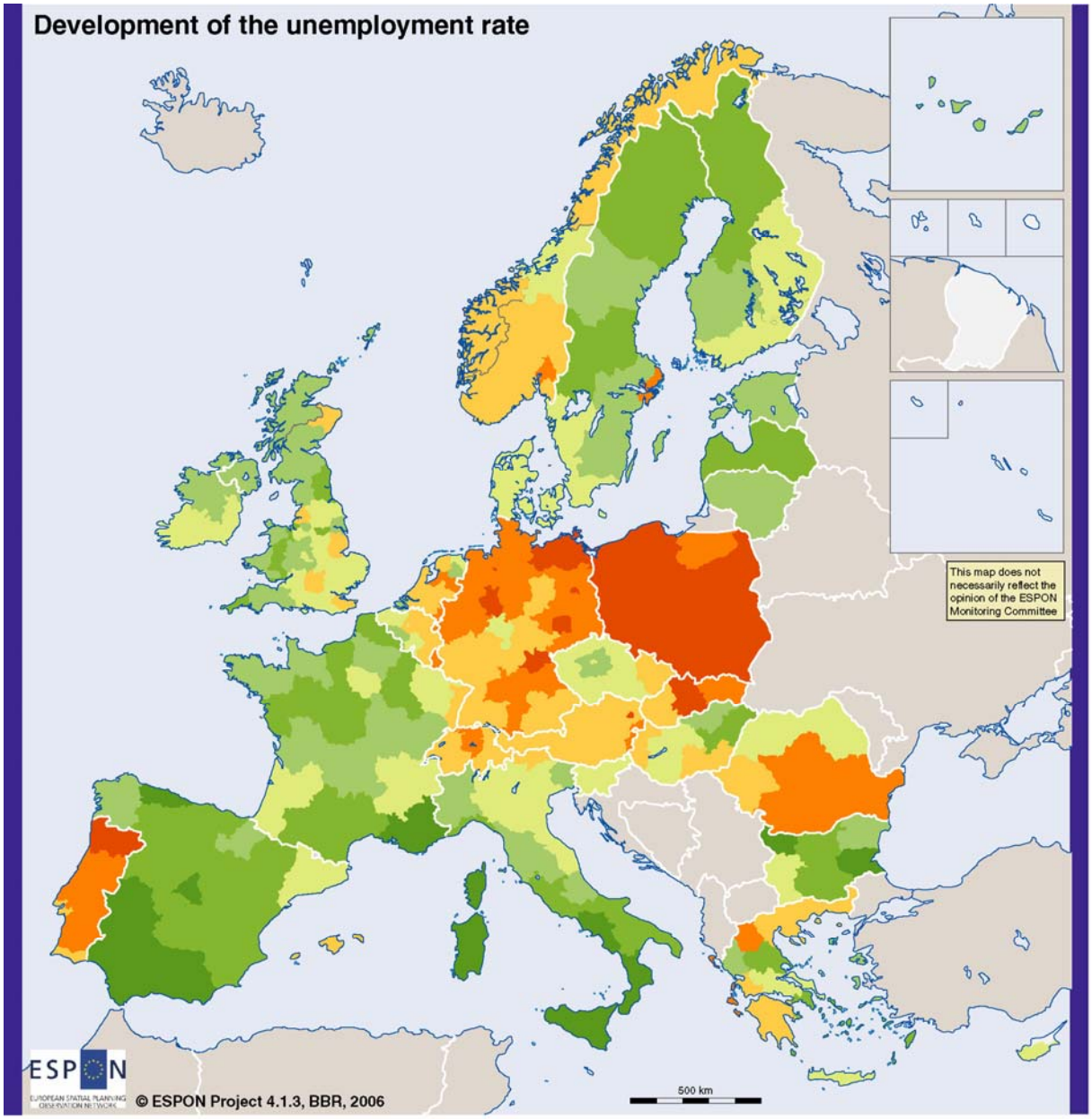
| | |
|---|---|
| Dimension: | Economy, Innovation (Agriculture); Social, culture and governance |
| Objective: | Diversified regional economies; Socially inclusive society and space |
| Sub-objective: | maintaining an equal distribution of population/ enabling people to sustain their social environment |
| Calculation: | variation of unemployment rates over time |

## Informational value

The developent of the unemployment rate provides a dynamic picture of the use of labour within the economy over time. Unlike the static point of view of single unemployment rates the developent may provide information on tendencies, improvements and deteriorations. If mirrored with other economic structural data (e.g. efficiency indicators, economic output indicators) it may also provide some insight in structural qualities of regional economies. Furthermore the indicator provides - as an early warning indicator - some information on the share of population at risk of social exclusion.

## Regional distribution

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | -0,47 | -16,5 | 10,1 |
| EU 25 | 0 | 0 | 0 |
| EU 15 | 0 | 0 | 0 |
| EU 10 | 0 | 0 | 0 |
| AT | 1,16 | 0,30 | 3,20 |
| BE | -0,03 | -2,30 | 1,2 |
| BG | -4,63 | -8,10 | -1 |
| CH | 1,3 | 0,2 | 1,8 |
| CY | -0,10 | -0,1 | -0,10 |
| CZ | -0,45 | -2,6 | 1,5 |
| DE | 1,94 | -0,60 | 4,5 |
| DK | -0,10 | -0,10 | -0,10 |
| EE | -1,90 | -1,90 | -1,90 |
| ES | -4,81 | -16,5 | 0,90 |
| FI | -1,8 | -3 | -0,80 |
| FR | -2,78 | -11,80 | 0,10 |
| GR | -0,81 | -3,60 | 2,40 |
| HU | -0,91 | -3 | 0,5 |
| IE | -2 | -2,20 | -0,90 |
| IT | -3,46 | -13,70 | 0,20 |
| LT | -2 | -2 | -2 |
| LU | 2,40 | 2,40 | 2,40 |
| LV | -3,40 | -3,40 | -3,40 |
| MT | 0 | 0 | 0 |
| NL | 0,47 | -2,90 | 1,90 |
| NO | 0,73 | -0,40 | 2,10 |
| PL | 6,34 | 2,80 | 10,1 |
| PT | 1,88 | 0,70 | 3,10 |
| RO | 1,31 | -1,3 | 2,5 |
| SE | -1,59 | -3,80 | 1,8 |
| SI | -1,10 | -1,10 | -1,10 |
| SK | 1,85 | 0,10 | 3,5 |
| UK | -1,58 | -4,30 | 1,10 |


Development of the unemployment rate
This map does not necessarily reflect the opinion of the ESPON Monitoring Committee
ESPON
© ESPON Project 4.1.3, BBR, 2006
500 km
Change of the unemployment rate 1999-2004
up to -6,0
-6,0 up to -3,0
-3,0 up to -1,5
-1,5 up to 0,0
0,0 up to 1,5
1,5 up to 3,0
more than 3,0
no data
© EuroGeographics Association for administrative boundaries
Regional level: NUTS 2
Origin of data: Eurostat
Source: ESPON database

### Spatial coverage

| | Yes/No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

### Spatial level / regional level

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | yes | NUTS 2003 |
| NUTS 3 | yes | NUTS 2003 |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | no |
| a time series: | yes |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | yearly updates |
| other | |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | ESPON 1.4.2., 3.4.2. |
| Source | Eurostat |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| raw | yes | |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

### Data gaps (please describe)

### Comments

# Indicator Sheet: Population density

| | |
|---|---|
| Dimension: | Demography |
| Objective: | Balanced distribution of population; critical mass |
| Sub-objective: | |
| Calculation: | total population / total area |

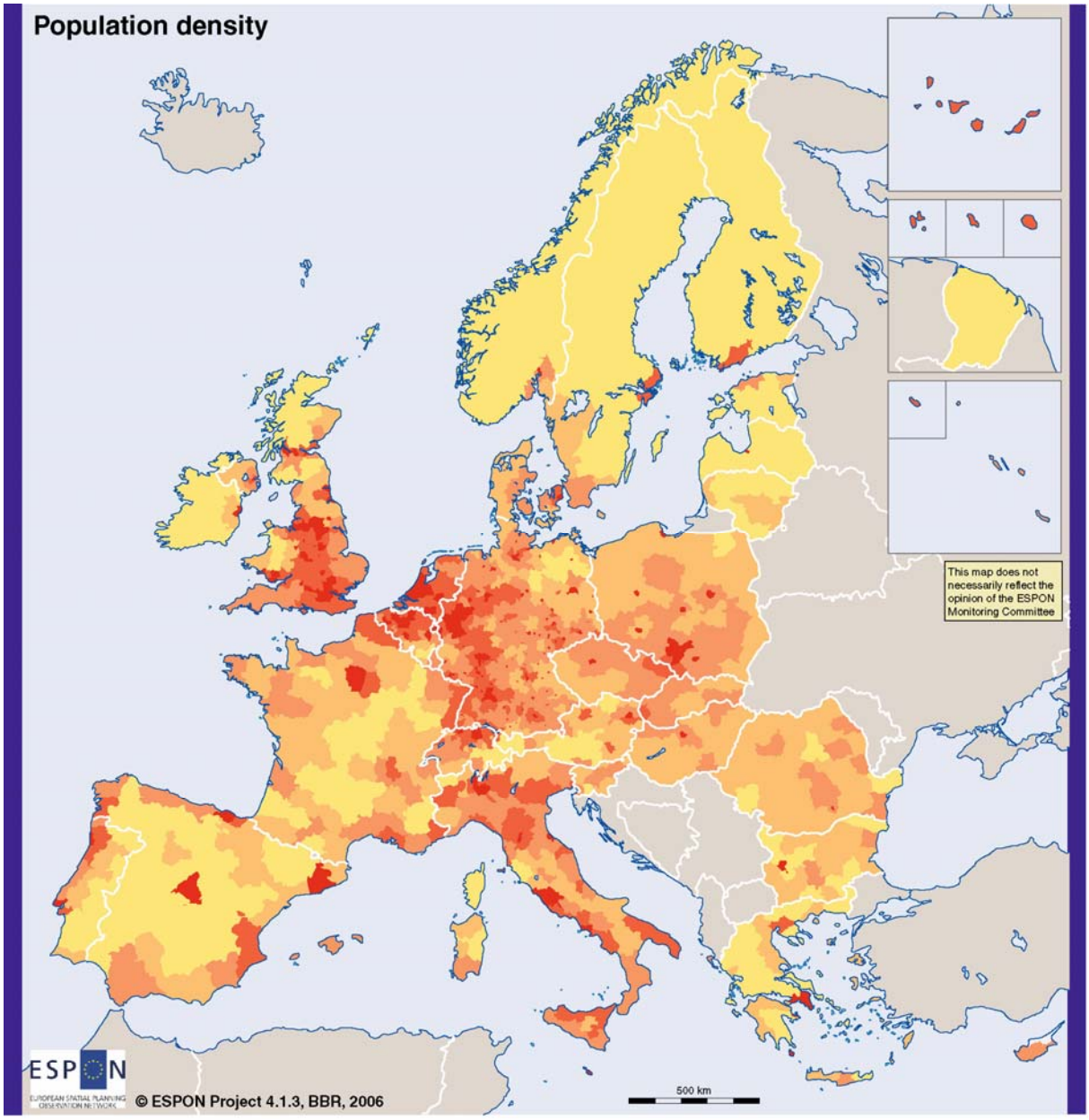
### Informational value

Population density is one of the fundamental spatial indicators, providing information about both potentials (in form of labour force, consumers, etc) and in terms of challenges (agglomeration diseconomies, depopulation, etc).

### Regional distribution

The spatial distribution of the population in Europe shows a major contrast between the very densely populated central Europe, "the blue banana" from Northern England to Italy, and peripheral regions, with much lower densities.

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 0 | 2 | 20494,30 |
| EU 25 | 117,5 | 2 | 20494,30 |
| EU 15 | | 2 | 20494,30 |
| EU 10 | | 14,80 | 3294,20 |
| AT | 98,5 | 21,10 | 3972,90 |
| BE | 342,10 | 40 | 6104,20 |
| BG | 70,5 | 38,10 | 883,30 |
| CH | 183,5 | 26,20 | 5050,60 |
| CY | 124,7 | 124,7 | 124,7 |
| CZ | 132,10 | 64,90 | 2388,80 |
| DE | 231,20 | 40,5 | 3968,60 |
| DK | 125,10 | 56,70 | 6090,20 |
| EE | 31,20 | 14,80 | 120,7 |
| ES | 83 | 8,80 | 5122,20 |
| FI | 17,10 | 2 | 207,90 |
| FR | 97,90 | 2,10 | 20494,30 |
| GR | 84,30 | 10,4 | 1026,8 |
| HU | 108,90 | 55,70 | 3294,20 |
| IE | 58 | 27,90 | 1223,8 |
| IT | 195,20 | 37,10 | 2640,20 |
| LT | 55,10 | 25,60 | 86,90 |
| LU | 172,5 | 172,5 | 172,5 |
| LV | 37,30 | 16,90 | 2903,10 |
| MT | 1263 | 444,5 | 1485 |
| NL | 480,30 | 147,5 | 2963,10 |
| NO | 14,9 | 2 | 1212 |
| PL | 122,2 | 44,80 | 3179 |
| PT | 113,60 | 15,5 | 1544,10 |
| RO | 94,30 | 30,10 | 8478,10 |
| SE | 21,80 | 2,60 | 283 |
| SI | 99,10 | 35,5 | 193,5 |
| SK | 109,7 | 69,90 | 291,80 |
| UK | 244,30 | 6,90 | 9558,20 |




**Population density in inhabitants per km² - 2002**

- less than 50
- 50 to below 100
- 100 to below 200
- 200 to below 500
- 500 and more
- no data


Regional level: NUTS 3
Origin of data: Eurostat
**Source: ESPON database**

### Spatial coverage

| | Yes/No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

### Spatial level / regional level

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | no | |
| NUTS 3 | yes | NUTS 2003 |
| | | |
| NUTS 5 | yes | NUTS 1999 |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | no |
| a time series: | no |
| | |
| updated data (intervals): | yearly |
| periodicity (i.e. available years etc.): | |
| other | |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | ESPON 3,1/3,2 |
| Source | National Statistical Offices (via Nordregio Mountain Study) for LAU2<br>Eurostat for NUTS3 & National Statistical Offices for CH and NO |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| raw | yes | population: number of residents<br>area: square kilometers |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

### Data gaps (please describe)

CH and Norway are not in the NUTS3 Regio database
For LAU2 it is necessary to collect national data

### Comments

Population density is very sensitive to the MAUP and a map at one particular NUTS-level does not give a good indicatioon of the situation since regions cover different realities (e.g. some cover urban core, while others a whole functional urban area).
Ideally population density should probably be displayed through gaussian smoothin, using data surveyed at NUTS5 level in order to allow a more fine-grained picture. This should also allow avoiding issues with "artificial" densities due to large spatial units (cf. case of Austria with large parts of areas in mountanous regions not being inhabitable.

# Indicator Sheet: Migratory balance

| | |
|---|---|
| Dimension: | Demography |
| Objective: | Sustainable demographic development |
| Sub-objective: | |
| Calculation: | ((Population at the end of the period - Population at the beginning of the period) - (births - deaths))/ total population at the beginning of the period |

**Informational value**

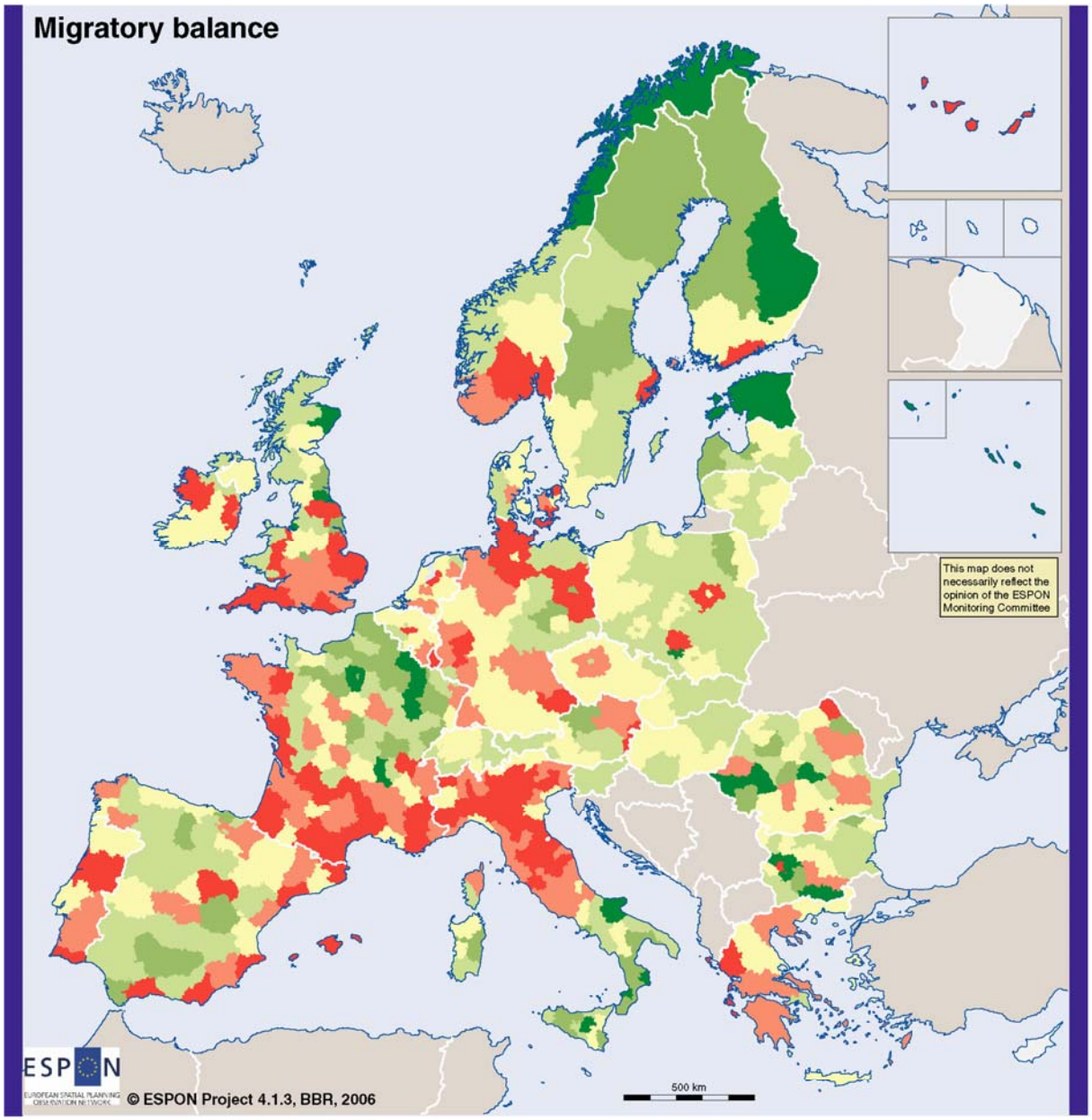
To a certain point, this indicator shows the attractive and repulsive regions in Europe. It can help to indicate depopulation areas, even if outmigration is combined with low fertility rates and unfavourable age structures to explain this depopulating process.

**Regional distribution**

Regional constrasts in Europe are to be observed inside the countries, since most of the migratory movements take place between regions inside the same country more than between the different countries of Europe. This map enables us to read national patterns of migration: for example from North to South in England and France, in the opposite direction in Italy, from Eastern to Western Germany, or from interior to coastal areas in Spain. Clearly, these movements are to be related with strong contrasts of economic wealth.

Migratory balances also put into the fore contrasts between major metropolises and the rest of the country: some of these metropolises are very attractive, for example in Scandinavia, while others seem to be repulsive, for example Paris. Indeed these constrasts hide similar patterns: big cities are attractive for young active people, including extra-European immigrants, and repulsive for national pensioners and middle age people with children. However, the balance between these opposite movements change from one city to another.

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | | | |
| EU 25 | | -11,07 | 28,53 |
| EU 15 | | -11,07 | 28,53 |
| EU 10 | | | |
| AT | 0,70 | -3,94 | 6,09 |
| BE | 0,96 | -0,7 | 5,01 |
| BG | 0,20 | -12,64 | 7,27 |
| CH | 0,08 | -1,21 | 1,57 |
| CY | | | |
| CZ | 0,93 | -0,98 | 3,67 |
| DE | 1,97 | -4,38 | 9,96 |
| DK | 3,10 | -0,80 | 8,58 |
| EE | -0,12 | -6,32 | -6,32 |
| ES | 1,14 | -2,92 | 18,55 |
| FI | 0,89 | -5,71 | 8,32 |
| FR | -0,17 | -11,07 | 20,79 |
| GR | 1,7 | -1,57 | 10,52 |
| HU | -0,07 | -1,94 | 1,32 |
| IE | 8 | -2,16 | 16,45 |
| IT | 2,08 | -10,03 | 12,47 |
| LT | -0,24 | -1,09 | 1,16 |
| LU | 9,46 | 9,46 | 9,46 |
| LV | -8,51 | -4,55 | 0,45 |
| MT | | | |
| NL | 2,04 | -0,03 | 28,53 |
| NO | 0 | -8,19 | 7,06 |
| PL | -0,34 | -5,99 | 6,08 |
| PT | 1,26 | -9,19 | 20,24 |
| RO | -0,56 | -7,26 | 5,86 |
| SE | 0 | -3,99 | 6,21 |
| SI | -0,49 | -0,57 | -0,57 |
| SK | -0,11 | -1,17 | 0,66 |
| UK | 2,13 | -6,69 | 9,28 |




**Migratory balance 1994-1999 per 1000 inhabitants**

- less than -5.0
- -5.0 to below -2.5
- -2.5 to below 0.0
- 0.0 to below 2.5
- 2.5 to below 5.0
- 5.0 and more
- no data


Regional level: NUTS 2/3
Origin of data: IGEAT
**Source: ESPON database**

### Spatial coverage

| | Yes/No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

### Spatial level / regional level

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | yes | NUTS 1999 |
| NUTS 3 | yes | NUTS 1999 |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | no |
| a time series: | yes |
| | |
| updated data (intervals): | yearly |
| periodicity (i.e. available years etc.): | currently available period: 1/1/1996-1/1/1999 |
| other | |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | ESPON 1.1.4 |
| Source | Eurostat, National statistical institutes of Norway and Switzerland. |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| raw | yes | number of persons<br>As migratory balances are not well measured across Europe, they are approximated by using differences in population and the natural evolution. |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

### Data gaps (please describe)

no data for Cyprus and Malta

### Comments

# Indicator Sheet: Share of population younger than 15

| | |
|---|---|
| Dimension: | Demography |
| Objective: | Sustainable demographic development |
| Sub-objective: | |
| Calculation: | (Population younger than 15/ total population)*100 |

**Informational value**

The indicator shows the population in school age, and consequently the potential cost for the collectivity, and also the share of population which will enter the employment market in a near future, that is to say the possible evolution of age unbalances on the labour market.

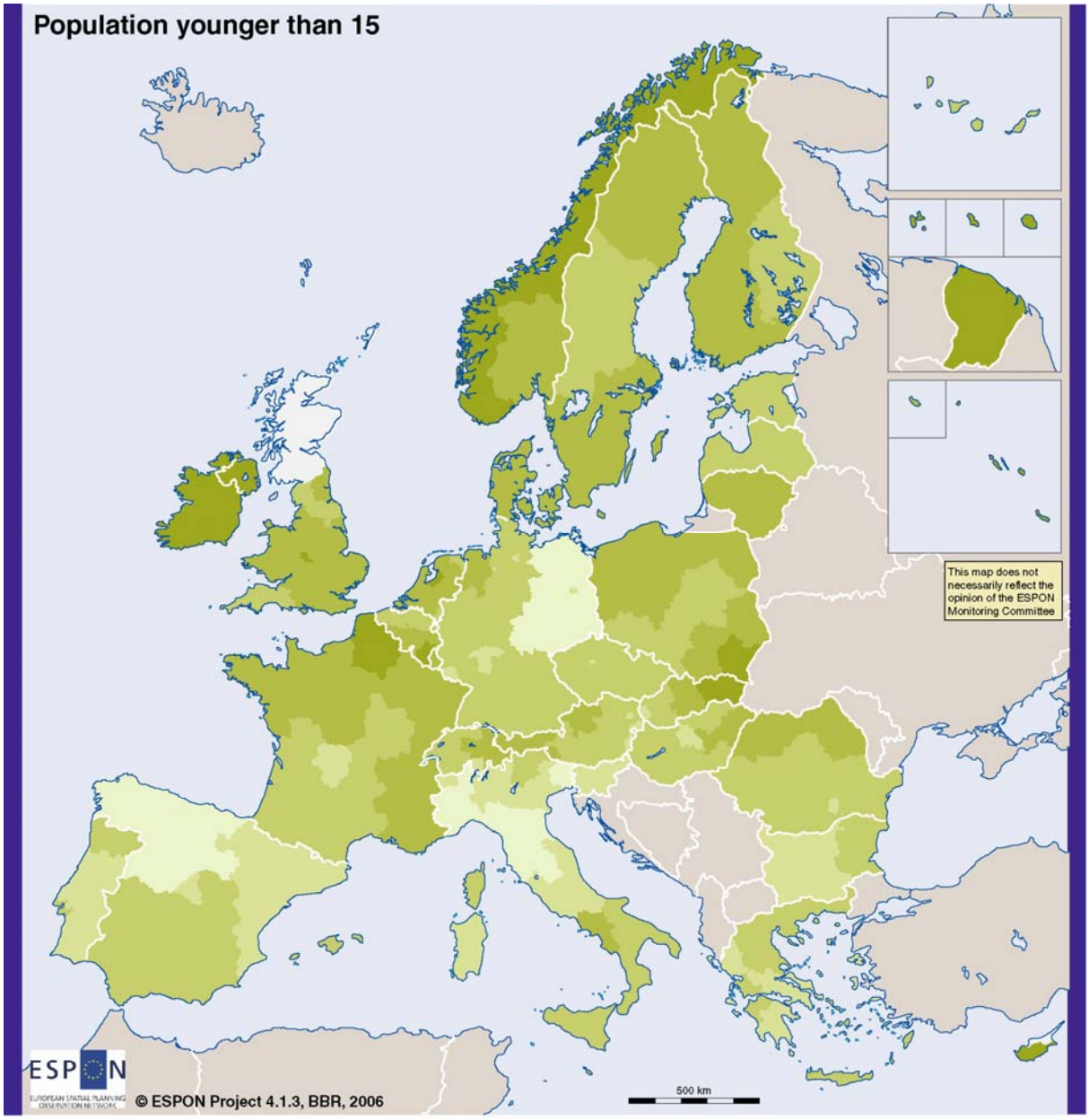
**Regional distribution**

Important contrasts can be observed on the European territory, at both national level and regional level. At national level, one can clearly point out countries where the more or less recent drop of birth rate has provoked a weak share in the population younger than 15: mediterranean countries such as Spain, or Italy, or Germany, mainly East Germany. By contrast, Ireland and Norway have kept high birth rates both because of higher fertility and favourable age structure.

In Eastern countries, the share of population younger than 15 remains relatively high despite an even more dramatic drop of the fertility rate in the last 15 years, after the fall of communist regimes, because the age structure was still favourable in terms of share of women of procreating age.

In regional terms, we can point out the important regional differences in Germany, between the Eastern and the Western part, in Italy and Spain, where the fertility drop in the Northern regions explain the low share of population under 15.

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 16,40 | 10,13 | 35,33 |
| EU 25 | 16,40 | 10,13 | 35,33 |
| EU 15 | 16,30 | 10,13 | 35,33 |
| EU 10 | 16,70 | 12,95 | 20,85 |
| AT | 16,5 | 14,70 | 19,09 |
| BE | 17,40 | 16,44 | 20,03 |
| BG | 14,6 | 13,6 | 16,15 |
| CH | 16,70 | 14,58 | 18,01 |
| CY | 20,90 | 20,85 | 20,85 |
| CZ | 15,6 | 12,94 | 16,40 |
| DE | 15 | 11,14 | 17,75 |
| DK | 18,80 | 18,82 | 18,82 |
| EE | 16,60 | 16,57 | 16,57 |
| ES | 14,5 | 10,13 | 22,12 |
| FI | 17,80 | 16,83 | 19,94 |
| FR | 18,60 | 14,74 | 35,33 |
| GR | 14,6 | 13,54 | 17,15 |
| HU | 16,10 | 14,51 | 18,34 |
| IE | 21 | 20,66 | 21,91 |
| IT | 14,20 | 10,77 | 18,29 |
| LT | 18,30 | 18,28 | 18,28 |
| LU | 18,80 | 18,84 | 18,84 |
| LV | 16 | 15,98 | 15,98 |
| MT | 18,72 | 18,72 | 18,72 |
| NL | 18,60 | 16,93 | 23,33 |
| NO | 20 | 18,33 | 21,85 |
| PL | 17,80 | 16,16 | 20,25 |
| PT | 15,80 | 13,49 | 20,62 |
| RO | 17 | 12,97 | 19,79 |
| SE | 18 | 16,91 | 18,49 |
| SI | 15 | 14,82 | 14,82 |
| SK | 18,10 | 13,94 | 20,32 |
| UK | 18,5 | 16,90 | 21,56 |




**Share of population younger than 15 in % - 2003**

- less than 12.5
- 12.5 to below 15.0
- 15.0 to below 17.5
- 17.5 to below 20
- 20 and more
- no data


Regional level: NUTS 2
Origin of data: Eurostat
**Source: ESPON database**

### Spatial coverage

| | Yes / No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

### Spatial level / regional level

| | Yes / No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | yes | NUTS 2003 |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | no |
| a time series: | no |
| | |
| updated data (intervals): | yearly |
| periodicity (i.e. available years etc.): | |
| other | |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | |
| Source | Eurostat |

### Type of data (raw data, model output, survey data etc.)

| | Yes / No | Description |
|---|---|---|
| raw | yes | |
| survey | no | |

| | Yes / No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

### Data gaps (please describe)

### Comments

# Indicator Sheet: Population in the age of 15 to 64 years

| | |
|---|---|
| Dimension: | Demography |
| Objective: | Sustainable demographic development |
| Sub-objective: | |
| Calculation: | (Population in the age of 15 to 64 years/ total population)*100 |

**Informational value**

Population in the age of 15 to 64 years is an essential variable, since it indicates the potential population, old enough to enter the labour market. The active population can be obtained by the multiplication of activity rate and the volume of the 15 to 64 years population, that is to say the combination between a social behaviour and the age structure. The share of 15 to 64 years has thus important implications in political terms, since it shows by contrast the relative weight of inactive people, and consequently the social cost of this age structure, all others things being equal.

**Regional distribution**

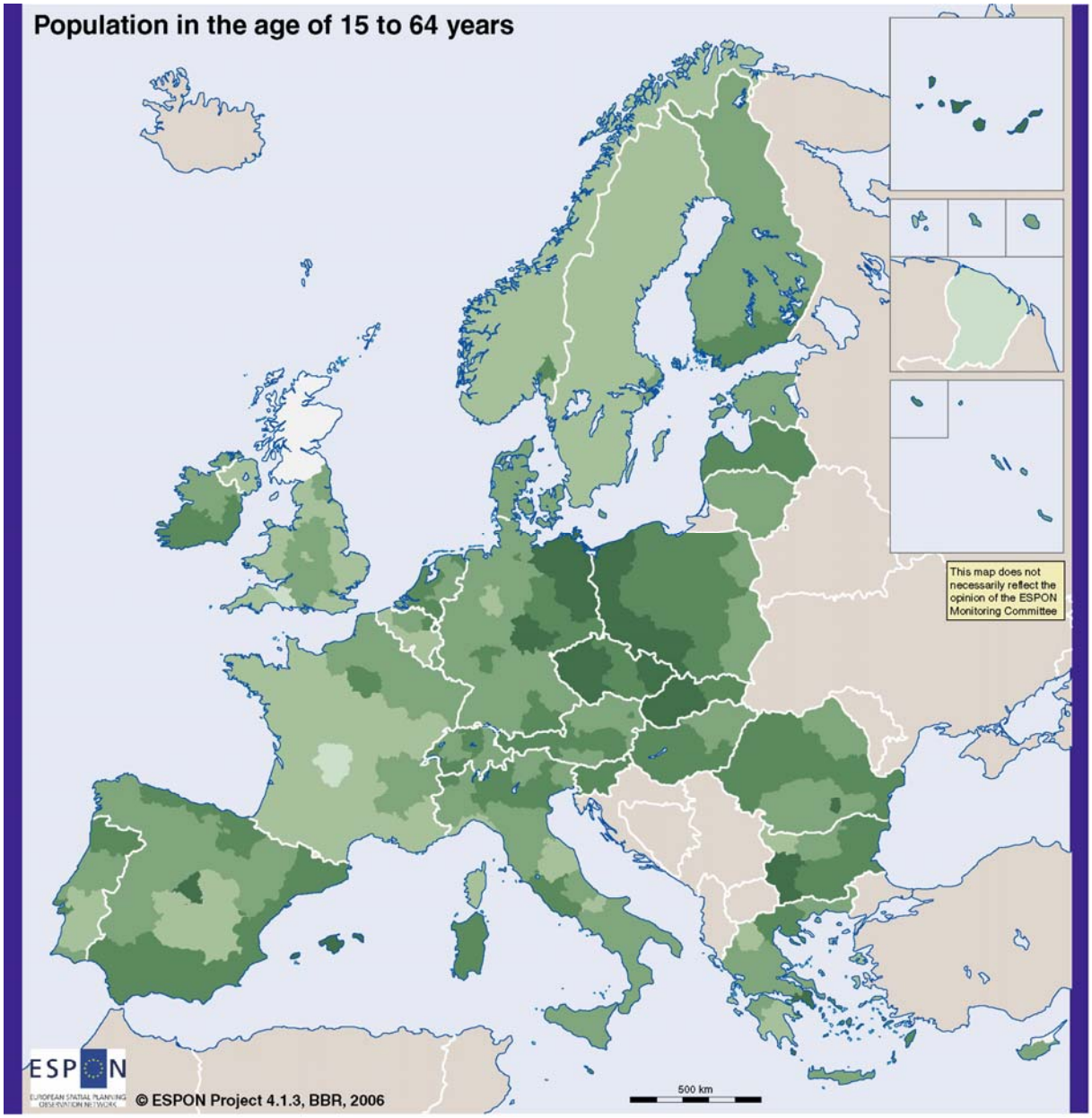
If the share of population under 15 reflects the natality rate of the recent years, the share of 15-64 years population depends upon the natality rates in older times, roughly between 1940 and 1990. To a certain point, it shows a contrast between rich central countries, where this share is weak, and peripheral countries, where it is much higher. It is particularly true for the Eastern countries, whose fertility rates had been higher than in the Western countries during the communist period (1945-1990): the contrast between Eastern and Western Germany is very convincing in this respect. Mediterranean countries had also kept higher fertility rates during this period, except at the end of it, comparing to Northern Europe. For rich Northern and North-Western countries, the early drop of the fertility rate, particularly marked in Norway and Sweden, explain the weak share in the 15-64 years population.

However, the evolution of fertility is not the only explanatory key of the map, especially if one looks on it on regional level. Indeed, migratory movements, both internal and external, explain the high share of potentially active population in attractive big metropolises, for example Paris, Stockholm, Madrid,

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 67,30 | 60,78 | 73,98 |
| EU 25 | 67,20 | 60,78 | 73,98 |
| EU 15 | 66,70 | 60,78 | 72,57 |
| EU 10 | 69,70 | 63,78 | 73,98 |
| AT | 68,10 | 66,74 | 69,84 |
| BE | 65,60 | 63,85 | 68,38 |
| BG | 68,40 | 63,78 | 70,05 |
| CH | 67,70 | 66,78 | 69,22 |
| CY | 67,33 | 67,33 | 67,33 |
| CZ | 70,5 | 69,96 | 71,39 |
| DE | 67,40 | 65,02 | 71,77 |
| DK | 66,35 | 66,35 | 66,35 |
| EE | 67,54 | 67,54 | 67,54 |
| ES | 68,5 | 64,79 | 71,81 |
| FI | 66,90 | 65,19 | 68,15 |
| FR | 65,10 | 60,78 | 67,85 |
| GR | 67,80 | 63,89 | 70,67 |
| HU | 68,5 | 67,07 | 69,46 |
| IE | 68 | 65,70 | 68,66 |
| IT | 66,80 | 63,20 | 70,01 |
| LT | 67 | 67 | 67 |
| LU | 67,13 | 67,13 | 67,13 |
| LV | 68,17 | 68,17 | 68,17 |
| MT | 68,45 | 68,45 | 68,45 |
| NL | 67,60 | 65,14 | 68,65 |
| NO | 65,20 | 63,61 | 67,66 |
| PL | 69,30 | 67,11 | 71,56 |
| PT | 67,60 | 63,87 | 68,97 |
| RO | 68,80 | 66,49 | 72,80 |
| SE | 64,80 | 62,97 | 67,49 |
| SI | 70,30 | 68,28 | 68,28 |
| SK | 70,40 | 69,15 | 73,98 |
| UK | 65,60 | 61,81 | 72,57 |

etc.

## Indicator Sheet: Population in the age of 15 to 64 years




**Share of population in the age of 15 to 64 years in % - 2003**

- less than 62.5
- 62.5 to below 65.0
- 65.0 to below 67.5
- 67.5 to below 70
- 70 and more
- no data


Regional level: NUTS 2
Origin of data: Eurostat
**Source: ESPON database**

### Spatial coverage

| | Yes / No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

### Spatial level / regional level

| | Yes / No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | yes | NUTS 2003 |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | no |
| a time series: | no |
| | |
| updated data (intervals): | yearly |
| periodicity (i.e. available years etc.): | |
| other | |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | Eurostat |
| Source | Eurostat |

### Type of data (raw data, model output, survey data etc.)

| | Yes / No | Description |
|---|---|---|
| raw | yes | |
| survey | no | |

| | Yes / No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

### Data gaps (please describe)

### Comments

# Indicator Sheet: Population older than 64 years

| | |
|---|---|
| Dimension: | Demography |
| Objective: | Sustainable demographic development |
| Sub-objective: | |
| Calculation: | (Population older than 64 years/total population)*100 |

**Informational value**

The share of population older than 64 years is an important indicator, since this population is nearly entirely dependent upon the collectivity. The political implications are thus very different than the share of population younger than 15 which represents the future active population, and which remains mainly dependent upon the family.

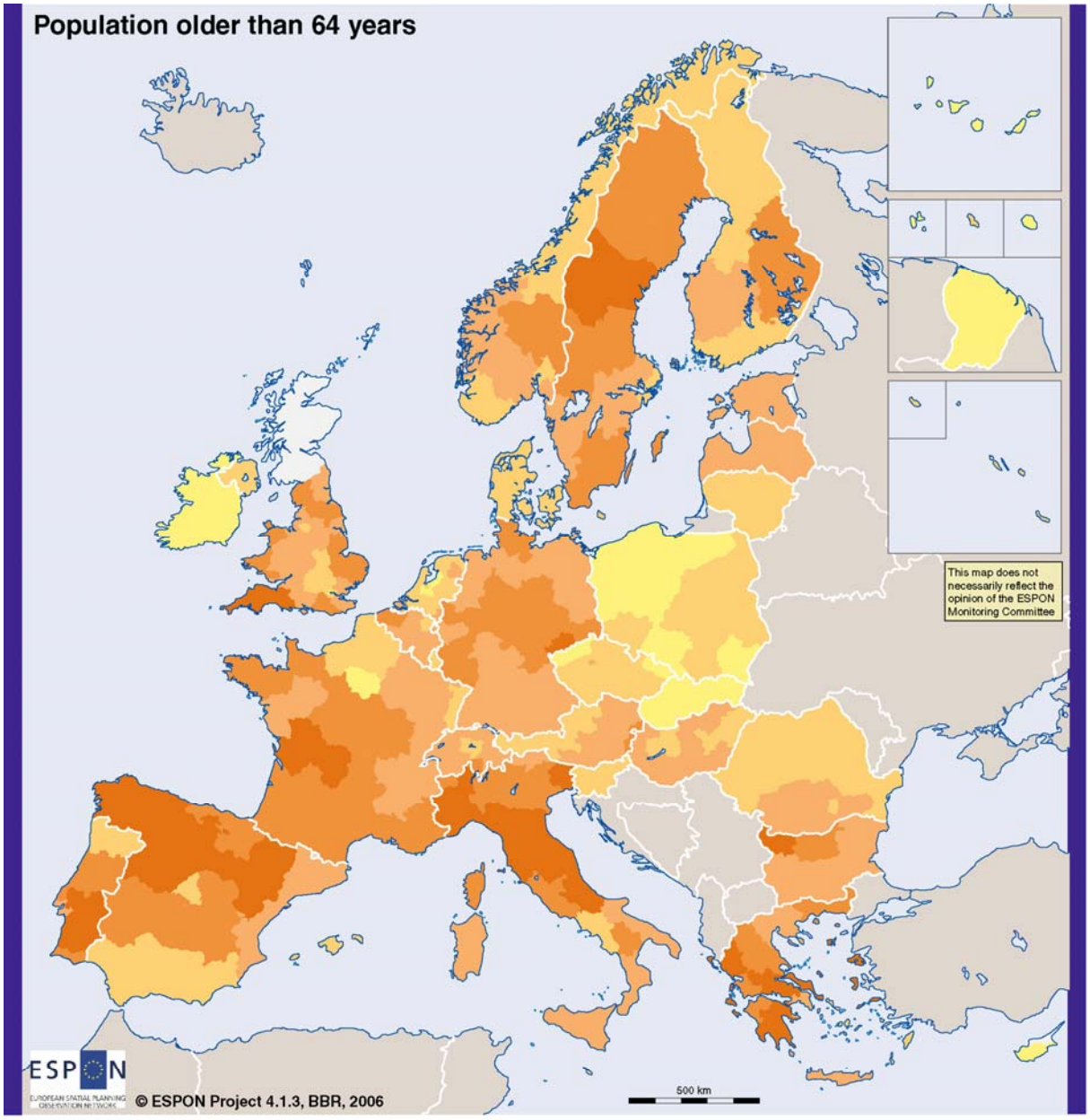
**Regional distribution**

The share of population older than 64 years shows a very complex pattern, reflecting birth rates before 1940, migratory movements as well as regional differences in life expectancy. For example, in Eastern countries, the low share is mainly the result of a lower life expectancy, while in Ireland, it reflects the high natality rates until very recent times. Big metropolises represent a third pattern: the low shares of population older than 64 years is mainly the result of the outmigration of the wealthy part of the population to less urban environments far from Paris, London or Madrid.

By contrast, in Northern Italy and Spain, higher figures are the result of dramatic drop of natality rate in the last 30 years, while in Sweden, this drop was even earlier but has been slowed down in the last years.

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 16,30 | 3,89 | 26,03 |
| EU 25 | 16,40 | 3,89 | 16,03 |
| EU 15 | 17 | 3,89 | 26,03 |
| EU 10 | 13,6 | 10,53 | 21,87 |
| AT | 15,5 | 12,65 | 18,34 |
| BE | 17 | 14,85 | 18,94 |
| BG | 17 | 15,16 | 21,87 |
| CH | 15,6 | 14,13 | 18,13 |
| CY | 11,82 | 11,82 | 11,82 |
| CZ | 13,9 | 12,21 | 15,99 |
| DE | 17,5 | 15,45 | 21,03 |
| DK | 14,80 | 14,83 | 14,83 |
| EE | 15,9 | 15,86 | 15,86 |
| ES | 16,90 | 10,78 | 22,61 |
| FI | 15,30 | 14,14 | 17,96 |
| FR | 16,30 | 3,89 | 23,14 |
| GR | 17,5 | 14,44 | 22,06 |
| HU | 15,4 | 14,13 | 16,09 |
| IE | 11 | 10,68 | 12,38 |
| IT | 19 | 14,59 | 26,03 |
| LT | 14,72 | 14,72 | 14,72 |
| LU | 14,03 | 14,03 | 14,03 |
| LV | 15,85 | 15,85 | 15,85 |
| MT | 12,83 | 12,83 | 12,83 |
| NL | 13,70 | 8,59 | 16,47 |
| NO | 14,80 | 13,18 | 18,06 |
| PL | 12,80 | 11,03 | 14,66 |
| PT | 16,70 | 12,78 | 22,65 |
| RO | 14,20 | 13,15 | 15,89 |
| SE | 17,20 | 14,03 | 20,09 |
| SI | 14,80 | 14,66 | 14,66 |
| SK | 11,5 | 10,53 | 12,20 |
| UK | 15,9 | 9,79 | 21,13 |


Co-financed by the European Union through the INTERREG III ESPON Programme.




**Share of population older than 64 years in % - 2003**

- less than 12.5
- 12.5 to below 15.0
- 15.0 to below 17.5
- 17.5 to below 20
- 20 and more
- no data


Regional level: NUTS 2
Origin of data: Eurostat
**Source: ESPON database**

# Indicator Sheet: Population older than 64 years

## Spatial coverage

| | Yes/No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

## Spatial level / regional level

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | yes | NUTS 2003 |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

## Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | no |
| a time series: | no |
| | |
| updated data (intervals): | yearly |
| periodicity (i.e. available years etc.): | |
| other | |

## Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | Eurostat |
| Source | Eurostat |

## Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| raw | yes | |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

## Data gaps (please describe)

## Comments

# Indicator Sheet: Fertility rate

| | |
|---|---|
| Dimension: | Demography |
| Objective: | Sustainable demographic development |
| Sub-objective: | |
| Calculation: | sum of the probability to have a child at each age for women between 15 and 49. |

### Informational value

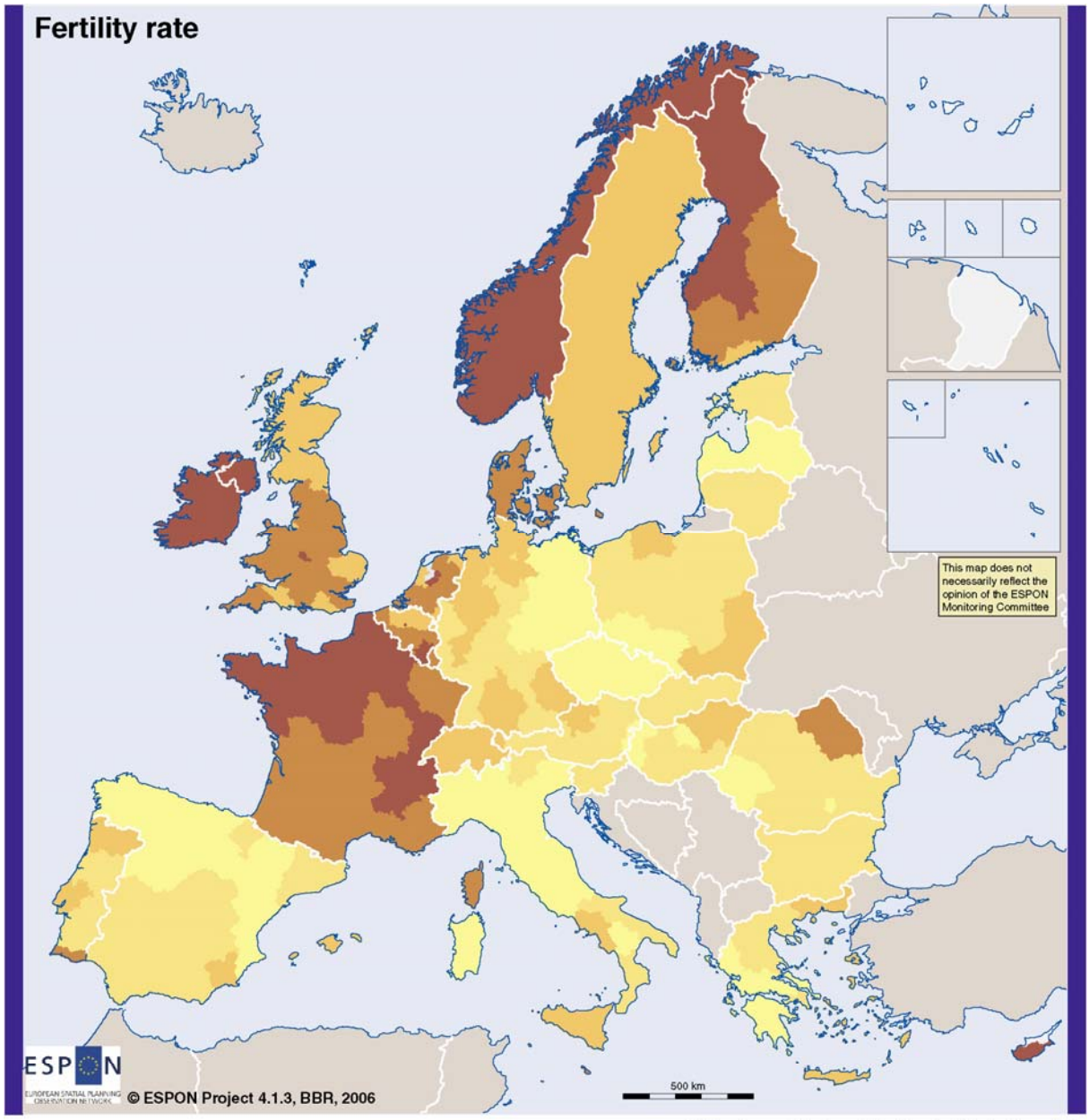
Fertility rate is an interesting indicator in the long run: the long term decline will inevitably provoke, without immigration, an ageing of the population, with all the consequences of this process.

### Regional distribution

Fertlity rate shows strong international differences: while France, Ireland, Netherland and Scandinavian countries have high levels of fertility, the figures are very weak - in some countries not more than one child per woman - in Spain, Italy, and most of Eastern and central european countries. These figures are not easy to interpret. However, the low fertility rates in ex-communist countries are to be related with the economic crisis of the nineties in a context of high women educational level and activity rates. Regional contrasts are relatively weak compared to national ones, e.g. the difference between low fertility rate in Northern Italy and Spain and the rest of the country, while in France, Northern regions have higher fertility rates.

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 0 | 0 | 0 |
| EU 25 | 1,51 | 0 | 0 |
| EU 15 | 0 | 0 | 0 |
| EU 10 | 1,27 | 0 | 0 |
| AT | 1,38 | 1,15 | 1,51 |
| BE | 1,64 | 1,46 | 1,84 |
| BG | 1,23 | 1,23 | 1,23 |
| CH | 1,39 | 1,48 | 1,48 |
| CY | 1,5 | 1,83 | 1,83 |
| CZ | 1,13 | 1,13 | 1,13 |
| DE | 1,34 | 1,08 | 1,59 |
| DK | 1,76 | 1,74 | 1,74 |
| EE | 1,24 | 1,24 | 1,24 |
| ES | 1,3 | 0,82 | 1,91 |
| FI | 1,76 | 1,58 | 2,04 |
| FR | 1,89 | 1,61 | 2 |
| GR | 1,28 | 0,99 | 1,51 |
| HU | 1,27 | 1,17 | 1,55 |
| IE | 2 | 1,85 | 2,02 |
| IT | 1,28 | 0,95 | 1,57 |
| LT | 1,35 | 1,35 | 1,35 |
| LU | 1,73 | 1,73 | 1,73 |
| LV | 1,18 | 1,18 | 1,18 |
| MT | 1,72 | 1,72 | 1,72 |
| NL | 1,75 | 1,51 | 1,94 |
| NO | 1,84 | 1,84 | 1,84 |
| PL | 1,22 | 1,15 | 1,49 |
| PT | 1,44 | 1,35 | 1,67 |
| RO | 1,27 | 0,90 | 1,66 |
| SE | 1,51 | 1,49 | 1,54 |
| SI | 1,21 | 1,21 | 1,21 |
| SK | 1,33 | 1,33 | 1,33 |
| UK | 1,71 | 1,53 | 1,88 |

## Indicator Sheet: Fertility rate




**Fertility rate 1999**

- less than 1.2
- 1.2 to below 1.4
- 1.4 to below 1.6
- 1.6 to below 1.8
- 1.8 and more
- no data


Regional level: NUTS 2
Origin of data: ITPS
**Source: ESPON database**

### Spatial coverage

| | Yes / No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

### Spatial level / regional level

| | Yes / No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | yes | NUTS 1999 |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | yes |
| a time series: | no |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | |
| other | |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | ESPON 1.1.4 |
| Source | Eurostat |

### Type of data (raw data, model output, survey data etc.)

| | Yes / No | Description |
|---|---|---|
| raw | yes | |
| survey | no | |

| | Yes / No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

### Data gaps (please describe)

### Comments

## Indicator Sheet: Primacy Rate

| | |
|---|---|
| Dimension: | Spatial Structure (Urban, Urban-rural, Urban Hierarchy) |
| Objective: | Balanced distribution of population, wealth, cities; Sustainable settlement structures |
| Sub-objective: | Polycentrism/ Monocentrism of metropolitan areas |
| Calculation: | The share of the region's total population that is found in the largest city in the region. |

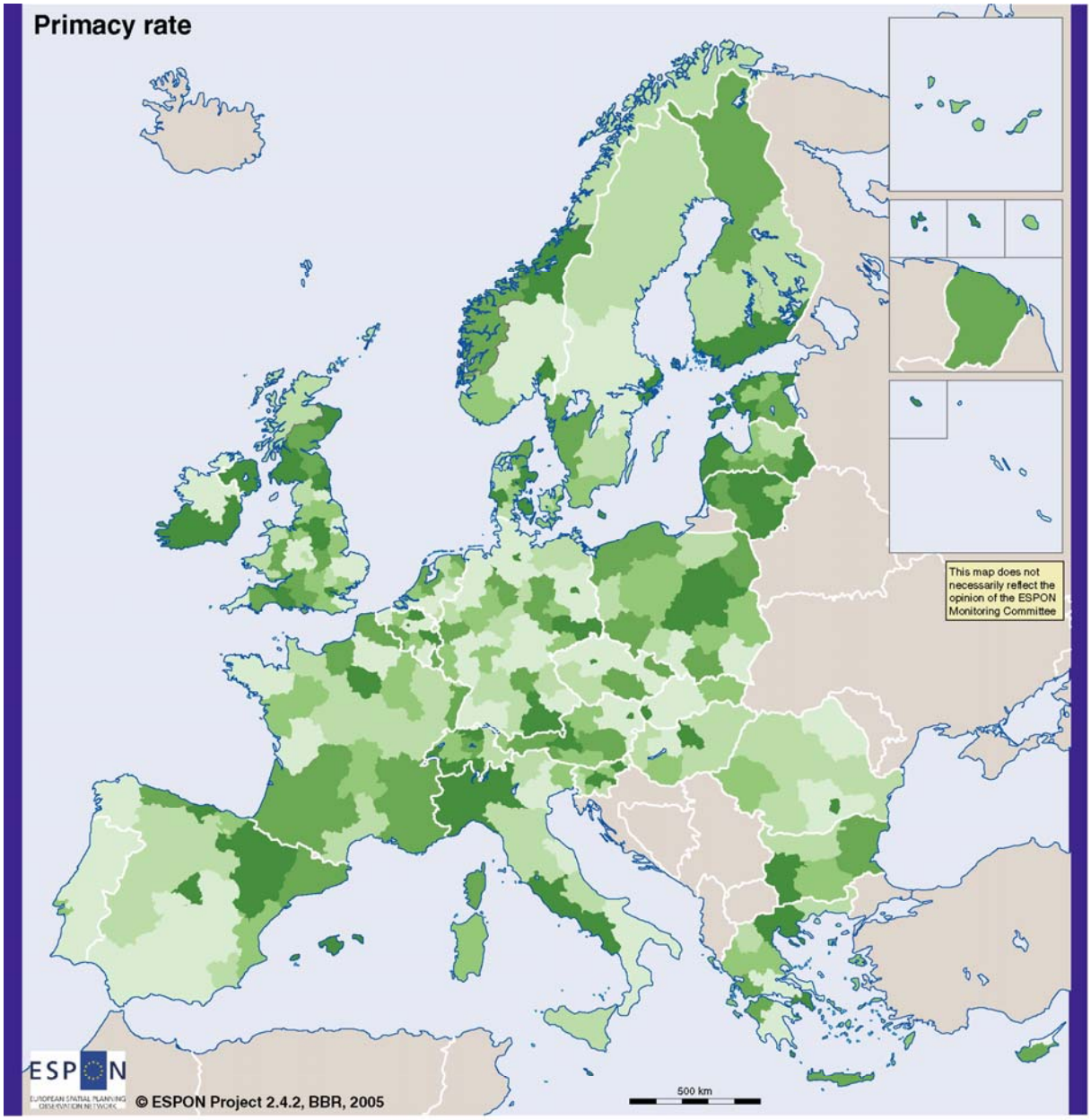
### Informational value

The indicator provides a good impression of the polycentricity of a region. A metropolitan area is polycentric if the primacy rate is low, and mono-centric if the primacy rate is high. The indicator allows the construction of categories for metropolitan areas (see BBR 2001) Study Programme on European Spatial Planning. Final Report. Issue 103.2. Bonn) where seven categories have been defined.

### Regional distribution

As we can see, most metropolitan polycentric regions are located at the core of Europe, with the smaller ones in the Northern regions of Europe, and a lot of small and medium-sized regions on the British Islands (Ireland and Scotland).

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 25,20 | 3,70 | 131,60 |
| EU 25 | 0 | 0 | 0 |
| EU 15 | 0 | 0 | 0 |
| EU 10 | 0 | 0 | 0 |
| AT | 26,94 | 3,70 | 106,2 |
| BE | 30,63 | 5,90 | 131,60 |
| BG | 23,42 | 11 | 52,10 |
| CH | 35,51 | 12,80 | 77,5 |
| CY | 23,10 | 23,10 | 23,10 |
| CZ | 24,44 | 6,5 | 101,90 |
| DE | 20,57 | 4,40 | 101,8 |
| DK | 30,58 | 10,30 | 100 |
| EE | 40,43 | 15,6 | 82,70 |
| ES | 31,47 | 7,20 | 95 |
| FI | 28,39 | 11,1 | 52,10 |
| FR | 22,32 | 6,5 | 84,90 |
| GR | 22,92 | 7,10 | 89 |
| HU | 21,23 | 9,70 | 70,70 |
| IE | 20 | 5,80 | 34,30 |
| IT | 20,36 | 6,20 | 51,40 |
| LT | 38,35 | 18,40 | 65,90 |
| LU | 23,5 | 23,5 | 23,5 |
| LV | 37,49 | 11,30 | 110,3 |
| MT | 55,23 | 55,20 | 55,20 |
| NL | 16,64 | 7,60 | 29,90 |
| NO | 25,25 | 7 | 75,10 |
| PL | 18,37 | 7,20 | 32,10 |
| PT | 13,83 | 5 | 40,5 |
| RO | 21,24 | 7,30 | 88,70 |
| SE | 20,22 | 8,10 | 63,70 |
| SI | 22,04 | 10 | 55,10 |
| SK | 24,97 | 4,70 | 73,30 |
| UK | 30,09 | 5,5 | 104,8 |


Primacy rate
This map does not necessarily reflect the opinion of the ESPON Monitoring Committee
ESPON
© ESPON Project 2.4.2, BBR, 2005
500 km
Share of largest city population to total population in % 2002
less than 10
10 to below 15
15 to below 20
20 to below 30
more than 30
no data
© EuroGeographics Association for administrative boundaries
Regional level: NUTS 2/3
Origin of data: BBR
Source: ESPON database

# Indicator Sheet: Primacy Rate

## Spatial coverage

| | Yes / No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

## Spatial level / regional level

| | Yes / No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | yes | NUTS 2003 |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

## Time reference / actuality

| | |
|---|---|
| data is available as... | |
| data for a point of time: | yes |
| a time series: | no |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | No reference date available |
| other | |

## Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | ESPON data base |
| Source | Eurostat |

## Type of data (raw data, model output, survey data etc.)

| | Yes / No | Description |
|---|---|---|
| raw | yes | share of the region's total population that is found in the largest city in the region |
| survey | no | |

| | Yes / No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

## Data gaps (please describe)

There is no data available on NUTS III level

## Comments

# Indicator Sheet: Accessibility by public transport (rail)

| | |
|---|---|
| Dimension: | Socially inclusive society and space |
| Objective: | Maintaining and improving the access to social services at central places by the wide public |
| Sub-objective: | Providing equal accessibility in the space |
| Calculation: | Either calculated by travel time or potential accessibilty in the form of infrastructure endowment indexed via the EU 29 average |

## Informational value

## Regional distribution

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 0 | 0 | 0 |
| EU 25 | 0 | 0 | 0 |
| EU 15 | 0 | 0 | 0 |
| EU 10 | 0 | 0 | 0 |
| AT | 101,34 | 78,94 | 128,37 |
| BE | 191,59 | 148,82 | 217 |
| BG | 36,59 | 32,91 | 38,11 |
| CH | 143,37 | 121 | 164,45 |
| CY | 4 | 4 | 4 |
| CZ | 91,69 | 82,97 | 106 |
| DE | 159,64 | 106,38 | 215,80 |
| DK | 56,40 | 36 | 80 |
| EE | 25,20 | 18 | 32 |
| ES | 31,18 | 3,35 | 55,63 |
| FI | 12,97 | 6,31 | 19,39 |
| FR | 101,024 | 3,35 | 198,07 |
| GR | 18,53 | 4,39 | 28,20 |
| HU | 66,52 | 54,66 | 78,80 |
| IE | 23 | 18,48 | 26,61 |
| IT | 79,02 | 10,42 | 138,13 |
| LT | 26,90 | 21 | 33 |
| LU | 166 | 166 | 166 |
| LV | 22,25 | 17 | 26 |
| MT | 9,08 | 9,08 | 9,08 |
| NL | 169,77 | 126,23 | 207,99 |
| NO | 8,54 | 3,35 | 15,52 |
| PL | 75,22 | 49,49 | 93 |
| PT | 16,37 | 3,35 | 26,74 |
| RO | 42,58 | 35,40 | 47,88 |
| SE | 23,66 | 4 | 54,59 |
| SI | 73 | 61 | 87 |
| SK | 79,33 | 65,49 | 93 |
| UK | 101,26 | 18,5 | 166,92 |

# Indicator Sheet: Accessibility by public transport (rail)

## Spatial coverage

| | Yes/No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | yes |
| EU 15 | yes |
| EU 10 | no |

## Spatial level / regional level

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | yes | |
| NUTS 3 | yes | |
| | | |
| NUTS 5 | no | |

## Time reference / actuality

| | |
|---|---|
| data is available as... | |
| data for a point of time: | yes |
| a time series: | no |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | 2003 |
| other | |

## Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | ESPON 2.4.2. RCE indicator set |
| Source | EUROSTAT |

## Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| raw | yes | |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | yes | Indexed by EU average |
| model | no | |

## Data gaps (please describe)

## Comments

## Indicator Sheet: Potential accessibility, multimodal, to population

| | |
|---|---|
| Dimension: | Energy, Transport, ICT |
| Objective: | Assets for Global Competitiveness |
| Sub-objective: | Potential market size and contact opportunities |
| Calculation: | Activities (here: population) weighted by a function of travel time. For each origin, the destination activities are summed up based on the assumption that the attraction of a destination increases with size and declines with increasing travel times. For this indicator travel time is represented as the minimum travel time of the modes road, rail and air. The indicator values are then standardised at the average of the ESPON space (ESPON space = 100). |

**Informational value**

Accessibility indicators of the potential type belong to the most common and most extensively tested accessibility indicators, as they best describe the relationship between transport systems and regional economic development. Accessibility to population is seen as an indicator for the size of the market areas for suppliers of goods and services, while, alternatively, accessibility to GDP is considered as an indicator of the size of market areas for suppliers of high-level business services. The indicator combines two elements, which usually are seen as individual indicators: travel time (i.e. the quality of the transport infrastructure) and destination activities (i.e. the level of regional development). In this, the indicator describes assets (or potentials) of global (economic) competitiveness of a region. As the indicator also takes the destination activities and their spatial distribution into account, it goes far beyond the pure travel time indicators.

The indicator can be calculated for individual modes, but also multimodal (as done in ESPON 1.2.1). The basic difference to the modal accessibility indicators is that the multimodal indicator integrates the modal indicators into one overall indicator and so illustrates the combined effects of alternative transport modes on each location. However, different modes have different importance in different parts of Europe, and of course the different modes have different implications for local economies in a region. Although the multimodal accessibility indicator is suggested as routing indicator, it is worth mentioning that the model indicators provide good supplements to the multimodal indicator in order to get a full picture of the accessibility situation in Europe.

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 100 | 24 | 190 |
| EU 25 | 0 | 24 | 190 |
| EU 15 | 0 | 24 | 190 |
| EU 10 | 0 | 24 | 190 |
| AT | 98,46 | 64 | 144 |
| BE | 130,12 | 96 | 177 |
| BG | 56,39 | 37 | 99 |
| CH | 120,92 | 86 | 164 |
| CY | 51 | 51 | 51 |
| CZ | 87,86 | 69 | 138 |
| DE | 116,85 | 59 | 190 |
| DK | 94,53 | 74 | 144 |
| EE | 49,60 | 34 | 85 |
| ES | 63,42 | 34 | 126 |
| FI | 54,75 | 24 | 97 |
| FR | 89,84 | 42 | 179 |
| GR | 59,18 | 36 | 103 |
| HU | 74,05 | 46 | 131 |
| IE | 72 | 45 | 110 |
| IT | 91,55 | 47 | 161 |
| LT | 47,5 | 32 | 96 |
| LU | 143 | 143 | 143 |
| LV | 52,60 | 25 | 94 |
| MT | 77 | 71 | 83 |
| NL | 125,92 | 71 | 171 |
| NO | 58,84 | 34 | 101 |
| PL | 69,52 | 37 | 133 |
| PT | 53,64 | 29 | 93 |
| RO | 51,76 | 29 | 103 |
| SE | 73,81 | 44 | 126 |
| SI | 86,08 | 70 | 106 |
| SK | 79,62 | 62 | 124 |
| UK | 99,09 | 24 | 177 |

European-wide multimodal potential accessibility

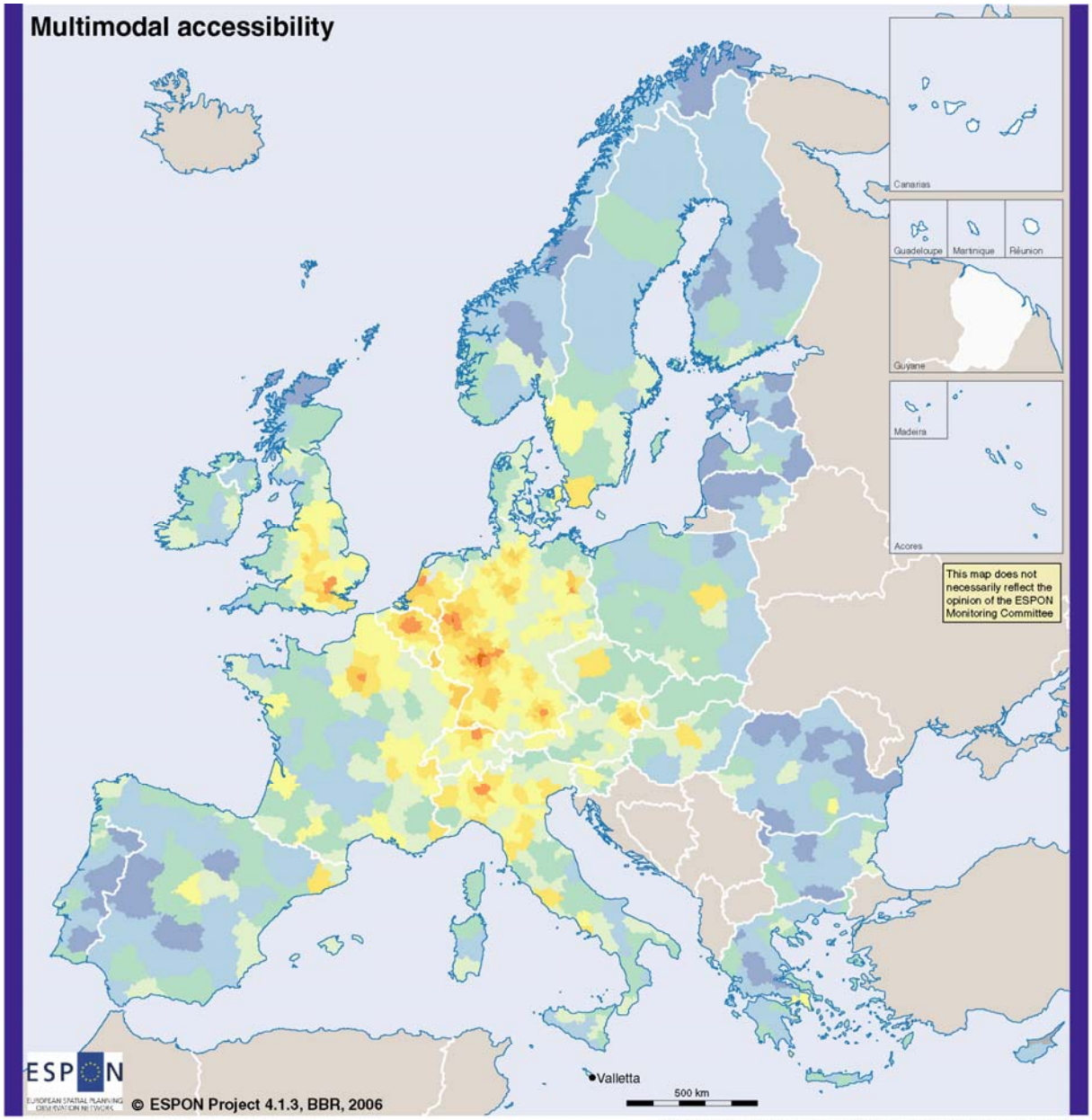
indicators have been calculated throughout recent years in a variety of countries. In early years Keeble et al. (1982, 1988) analysed the accessibility of European centres using accessibility of the potential type with GDP as destination activity, and mapped the results in form of contour lines. In a variation, Bruinsma and Rietveld (1992) calculated the potential accessibility of selected European cities to population. Spiekermann and Wegener (1994, 1996) calculated potential accessibility indicators for road and rail on a 10x10km raster basis. Copus (1997, 1998, 1999) and Schürmann and Talaat (2000) developed 'peripherality indicators' for the European Commission for NUTS-2 and NUTS-3 regions for road to GDP and population, where peripherality is considered as the negative notion of accessibility.

This indicator represents one of the prominent indicators to monitor the Lisbon strategy, particularly addresing the assets for global competitiveness. To some degree this indicator must be seen in contrast to the political goal of territorial cohesion, as the potential accessibility indicator highlights economic centres rather than promoting a balanced distribution of population and wealth, or sustainable settlement structures.

**Regional distribution**

Regions located in the 'blue banana' ranging from London, the Benelux countries, Western Germany to Northern Italy show highest potential accessibilities. As a tendency, the further away the regions are located from the 'blue banana' the lower the potential accessibility is, with the remarkable exception of those regions with hub airports. In most cases such regions are the capital regions (for instance, Roma, Prague, Vienna/Bratislava, Budapest, Copenhagen/Malmoe, Warsaw). Even in areas with generally poor accessibility, far below European average (e.g. Baltic countries, Bulgaria, Romania, Portugal, Greece, Nordic regions), such regions experience above-average accessibilities (see, for example, Sofia and Bucarest, Riga, Tallin, Lisbon, Helsinki) as they benefit from good flight connections to other parts of Europe.
The mentioned regions with high accessibilities can be considered as those regions with highest economic potentials, as they have either good transport connections to other regions, or big local/regional markets, or both. From a theoretical regional science perspective these regions are

expected to belong to the most prosperous ones. However, the indicator results also reveal some outliers: there are also geographically centrally located regions (e.g. regions in East Germany or East of France) with rather low accessibility, as the local markets are comparatively small. In contrast, there are also geographically peripheral regions (e.g.Madrid, Bucuresti some Nordic regions) showing rather high accessibilities as they experience rather big and active local markets.




**Potential accessibility multimodal 2001 (ESPON space = 100)**

- less than 40
- 40 to below 60
- 60 to below 80
- 80 to below 100
- 100 to below 120
- 120 to below 140
- 140 to below 160
- 160 to below 180
- 180 and more
- no data


Regional level: NUTS 3
Origin of data: Spiekermann & Wegener (S&W)

**Source: ESPON database**

### Spatial coverage

| | Yes/No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

### Spatial level / regional level

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | no | |
| NUTS 3 | yes | NUTS 1999 |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| | |
|---|---|
| data is available as... | |
| data for a point of time: | yes |
| a time series: | no |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | Currently the indicator is available for one year only (2001). |
| other | |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | ESPON project 1.2.1 |
| Source | S&W |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| raw | no | |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | yes | Indicator calculated by network/accessibility model based on shortest route algorithms. Necessary base data are: Transport networks (road, rail, air), NUTS-3 region centroids (point layer), population figures (destination activities) at NUTS-3 level (based on REGIO database of Eurostat). |

### Data gaps (please describe)

French Overseas Departements (FR), Acores and Madeira (PT), Canary Islands (ES)

### Comments

Up to now the indicator is calculated for 2001 only. As the development of the transport infrastructure takes place rather slowly, a periodicty of 5-year intervals seems reasonable.
Although the multimodal accessibility indicator provides an overall picture of the full transport system, it has to be critically admitted that for many regions (or coutnries) often one mode is the dominating one (for instance, as the flight networks for many islands or for most of the northernmost regions of Scandinavia are). As the multimodal indicator is to some degree 'levelling' over the individual modes,

such dominances are hid away. Therefore, the multimodal accessibility indicator often is accomplished by the modal counterparts, in order to reveal such predominating modes.
As many of the mentioned studies have shown, the way the indicator is standardised has some influences on the results. In the ESPON context naturally the average over the entire ESPON space should be used for standardisation, however, as usually the differences in accessibility over all this ESPON territory are much greater than within one country, differences in accessibiity within one country are levelled (see, for instance, Portugal, Baltic countries, Ireland, Northern Scandinavia), pretending that there are only little differences within one country. Alternatively, one may use the respective national averages for standardisation which would reveal internal national differences, but on the dispense of a ESPON-wide comparison.
The chosen impedance (or distance decay) function is also determining the results: If the applied impedance function is too steep the indicator is measuring not more than the self-potential of each region; in contrast, if the impedance function is too flat the availability and quality of the transport networks are neglected, and the results would be similar to a geographical distance function (i.e. eucleadian distance, 'as the crow flies'). Therefore, the type of the impedance function has to be selected with care.

# Indicator Sheet: Number of cultural sites

| | |
|---|---|
| Dimension: | Diversified cultural heritage and identities |
| Objective: | Maintaining markers of European history and identity |
| Sub-objective: | Improving the regional potential for tourism and creative industries by maintaining markers of history and identity |
| Calculation: | Number of registered monuments and sites in national lists, wieghted by number of 'excellence'resources - or same approach of calculation, normalised by square km |

## Informational value

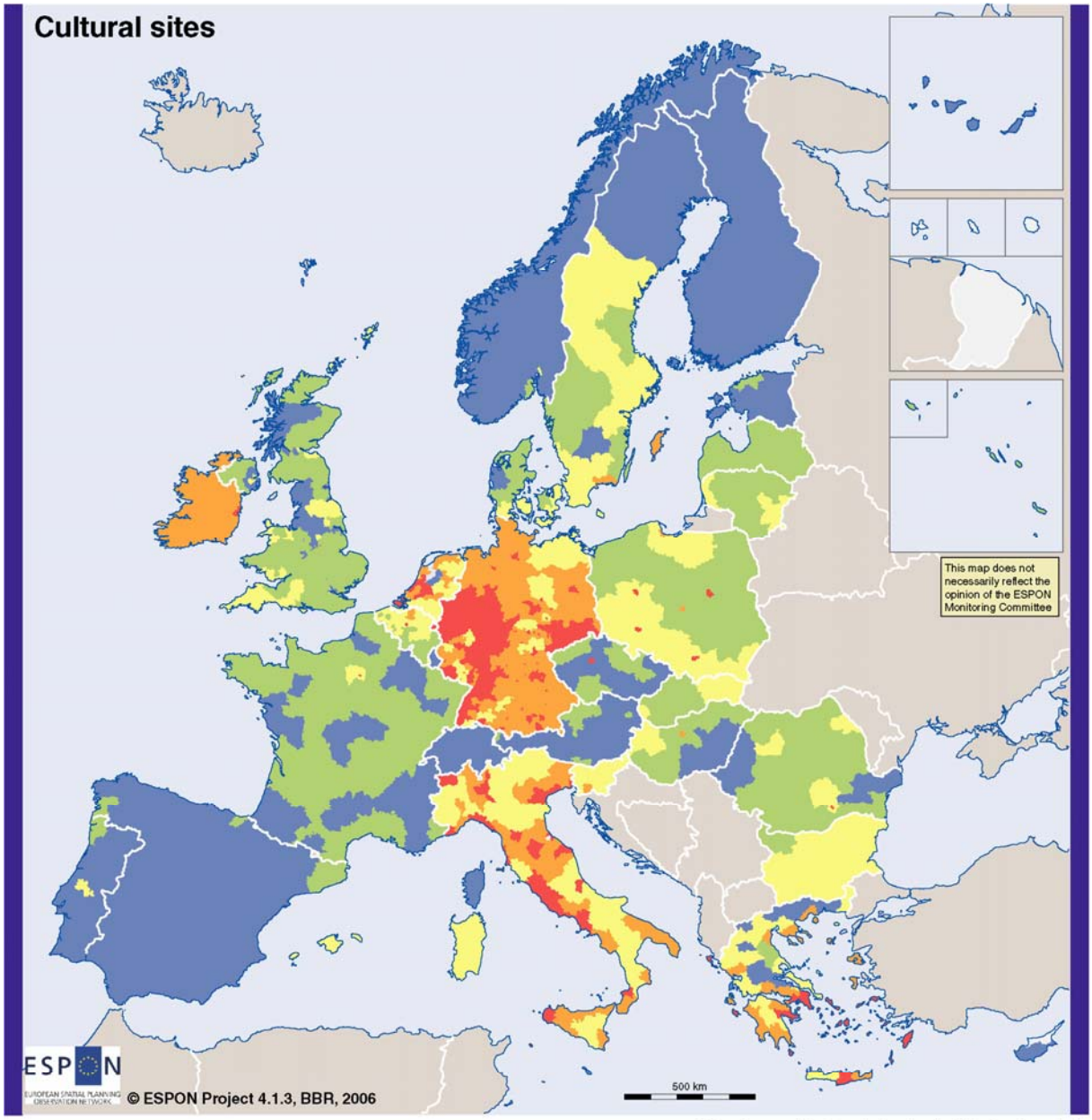
With this indicator, various markers of European history are supposed to be registered. The aggregation of this information is intended to stimulate a European-wide perception of European identity and history and to create a common knowledge about different historic sites. This in turn could boost tourism and the creative industries.

So far, the definitions of markers of European history and identity do not seem to be clear and commonly shared across Europe. Therefore the information collected has to be used with caution. An accurate definition of a monument or other historic markers is needed, agreed upon by all European states, in order to make this indicator valuable for further use.

## Regional distribution

The map representing the data collected so far has to be seen as a first step towards a monitoring of this indicator, and rather represents an indication on data availability. While Germany, Italy, Ireland and Greece stand out with high densities of cultural sites, and obviously rather detailed regional information regarding this indicator, other European countries like e.g. Norway, Spain or Switzerland have registered only very low numbers of monuments.

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 1502 | 0 | 160177 |
| EU 25 | 1586 | 0 | 160177 |
| EU 15 | 1647 | 0 | 160177 |
| EU 10 | 1036 | 3 | 4667 |
| AT | 11 | 5 | 282 |
| BE | 889 | 5 | 1322 |
| BG | 490 | 490 | 2604 |
| CH | 698 | 72 | 790 |
| CY | 14 | 14 | 14 |
| CZ | 1360 | 15 | 1360 |
| DE | 2469 | 42 | 16700 |
| DK | 1854 | 141 | 1854 |
| EE | 264 | 26 | 419 |
| ES | 115 | 9 | 2842 |
| FI | 61 | 4 | 209 |
| FR | 1769 | 44 | 1769 |
| GR | 2 | 0 | 14 |
| HU | 1105 | 201 | 1190 |
| IE | 17768 | 3250 | 24799 |
| IT | 6 | 0 | 22 |
| LT | 608 | 588 | 1930 |
| LU | 116 | 116 | 116 |
| LV | 3015 | 920 | 3015 |
| MT | 11 | 3 | 11 |
| NL | 239 | 34 | 7849 |
| NO | 214 | 96 | 595 |
| PL | 4667 | 339 | 4667 |
| PT | 159 | 16 | 336 |
| RO | 447 | 194 | 2520 |
| SE | 32708 | 3621 | 160177 |
| SI | 1226 | 207 | 3115 |
| SK | 1192 | 532 | 2684 |
| UK | 239 | 0 | 1707 |


Cultural sites
This map does not necessarily reflect the opinion of the ESPON Monitoring Committee
© ESPON Project 4.1.3, BBR, 2006
500 km
© EuroGeographics Association for administrative boundaries
Regional level: NUTS 3
Origin of data: CAF
Source: ESPON database
Density of monuments (per km²)
very low (0,000 - 0,055)
low (0,056 - 0,191)
medium (0,192 - 1,122)
high (1,123 - 2,282)
very high (2,283 - 48,417)
no data

### Spatial coverage

| | Yes/No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | yes |
| EU 15 | yes |
| EU 10 | yes |

### Spatial level / regional level

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | yes | |
| NUTS 3 | yes | NUTS 1999 |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | yes |
| a time series: | no |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | 2003 |
| other | |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | ESPON 1.3.3 |
| Source | various national lists |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| raw | yes | various national lists of registered monuments (varying criteria) |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

### Data gaps (please describe)

### Comments

- data of varying background, collection has to be harmonized

# Indicator Sheet: Employed persons by highest educational level

| | |
|---|---|
| Dimension: | Socially inclusive society and space |
| Objective: | Improving social inclusion |
| Sub-objective: | Improving spatial balance of educational level among the employed |
| Calculation: | Share of employed persons with tertiary education in % of all employed |

**Informational value**

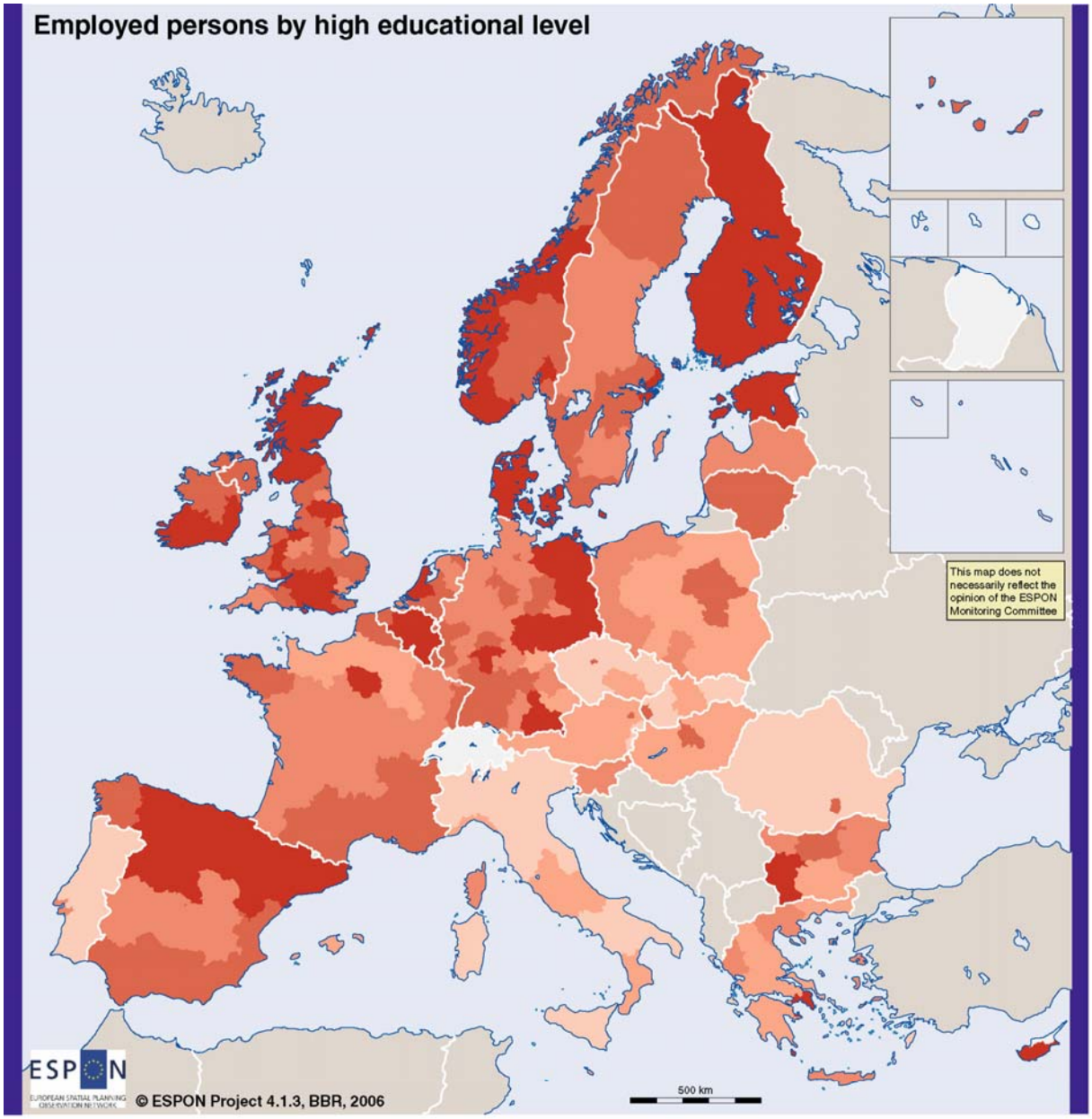
This indicator provides information on the educational level of employees. It helps to find spatial concentrations with high percentages of highly educated employees, therefore providing important information on the balance of conditions for social inclusion in space.

In combination with the indicator measuring the share of population with tertiary education, this indicator also allows to detect imbalances between these two, and thus to detect areas of high unemployment of this resource.

**Regional distribution**

The spatial presentation of values for this indicator clearly reveals higher shares of employed persons with tertiary education in the Western parts of Europe. Especially high values of more than 30 % have been recorded for instance for areas in Northern Spain, parts of the United Kingdom, Norway, Finland, and in regions of Southern and Eastern Germany. Some Eastern European countries (Czech Republic, Slovakia, Romania) and Italy and Portugal stand out for their rather low shares of up to 20 % of higher educated employees.

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 24,10 | 7,30 | 49,60 |
| EU 25 | 24,20 | 7,30 | 49,60 |
| EU 15 | 25,10 | 7,30 | 49,60 |
| EU 10 | 18,80 | 8 | 33,5 |
| AT | 18 | 13,1 | 27 |
| BE | 37,20 | 29,60 | 49,60 |
| BG | 24,60 | 19,5 | 34,30 |
| CH | | | |
| CY | 32,10 | 32,10 | 32,10 |
| CZ | 13,80 | 8 | 28,80 |
| DE | 26,70 | 18,90 | 38,40 |
| DK | 31,40 | 31,40 | 31,40 |
| EE | 33,5 | 33,5 | 33,5 |
| ES | 30 | 19,10 | 44,10 |
| FI | 31,90 | 26,10 | 37,90 |
| FR | 24 | 19,40 | 38,40 |
| GR | 19,40 | 12,1 | 30,10 |
| HU | 18,60 | 15,6 | 29,5 |
| IE | 29,60 | 26,40 | 32,80 |
| IT | 13,70 | 10,20 | 18,80 |
| LT | 29,10 | 29,10 | 29,10 |
| LU | 26,20 | 26,20 | 26,20 |
| LV | 22,70 | 22,70 | 22,70 |
| MT | 15,80 | 15,80 | 15,80 |
| NL | 28,10 | 21,30 | 38,30 |
| NO | 31,5 | 25,70 | 43,40 |
| PL | 40,40 | 16,10 | 25,5 |
| PT | 11,80 | 7,30 | 22,5 |
| RO | 12,9 | 8,5 | 28,80 |
| SE | 26,70 | 22,20 | 36,20 |
| SI | 20,40 | 20,40 | 20,40 |
| SK | 17 | 11,5 | 28,40 |
| UK | 29 | 21,5 | 46,40 |




**Share of employed persons with tertiary education in % of total employed persons 2004**

- up to 15
- 15 up to 20
- 20 up to 25
- 25 up to 30
- more than 30
- no data

© EuroGeographics Association for administrative boundaries
Regional level: NUTS 2
Origin of data: Eurostat

**Source: ESPON database**

### Spatial coverage

| | Yes / No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | yes |
| EU 15 | yes |
| EU 10 | yes |

### Spatial level / regional level

| | Yes / No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | yes | NUTS 2003 |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | yes |
| a time series: | no |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | 2004 |
| other | |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | ESPON database |
| Source | Eurostat |

### Type of data (raw data, model output, survey data etc.)

| | Yes / No | Description |
|---|---|---|
| raw | yes | |
| survey | no | |

| | Yes / No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

### Data gaps (please describe)

### Comments

# Indicator Sheet: Population by highest educational level attained

| | |
|---|---|
| Dimension: | Socially inclusive society and space |
| Objective: | Improving social aspects of the society |
| Sub-objective: | Fostering a balanced development of the educational level of the society |
| Calculation: | % of population with tertiary level education as share of population aged 15 years and above |

**Informational value**

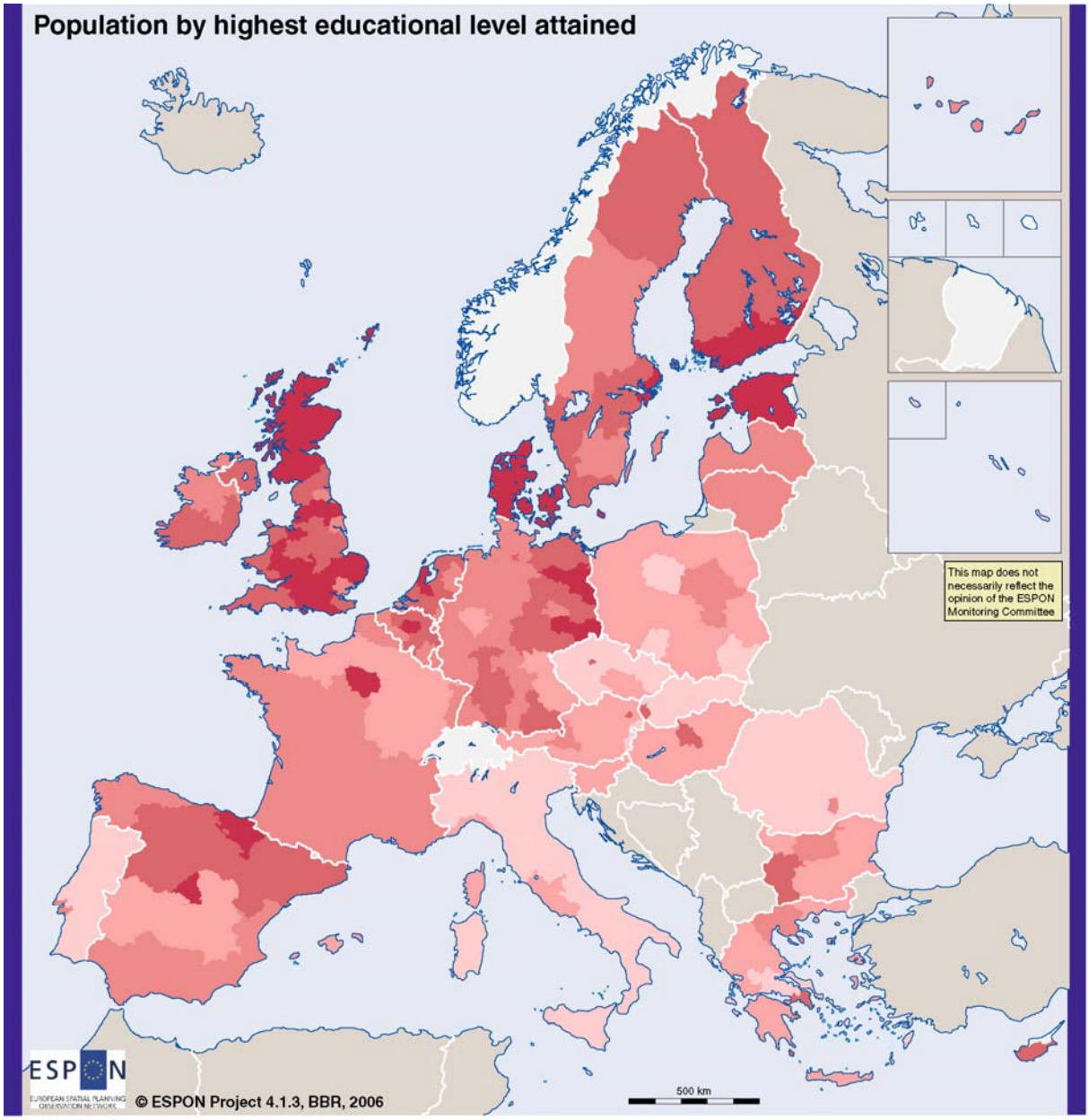
This indicator displays the share of population of 15 years and above of each area, that has reached an education on the tertiary level. This way, an impression can be obtained of the share of the population that possesses the qualifications to actively take part in social and economic life on the highest level. It is the aim of fostering a balanced development regarding this aspect in order to guarantee a better social inclusion; the regular spatial observation of this measurement is therefore of high importance.

**Regional distribution**

In the spatial presentation of this indicator, a strong concentration of high shares of tertiary education in metropolitan areas is visible. Especially the capitals of Western European states reflect this tendency, with values of more than 25%. Furthermore, most parts of the UK, Eastern and Southern Germany, Southern Finland, Denmark, the Benelux and Estonia stand out for their high shares of persons with tertiary education among the population, while most parts of central Eastern and Southern Europe show rather low values in this category.

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 17,30 | 4,70 | 35,80 |
| EU 25 | 17,60 | 4,70 | 35,80 |
| EU 15 | 18,5 | 4,70 | 35,80 |
| EU 10 | 12,30 | 5,5 | 25,20 |
| AT | 13,80 | 9,90 | 20,20 |
| BE | 23,60 | 18,5 | 34 |
| BG | 15,30 | 12,20 | 24 |
| CH | | | |
| CY | 23,10 | 23,10 | 23,10 |
| CZ | 9,90 | 5,5 | 22,10 |
| DE | 19,5 | 13,9 | 27,90 |
| DK | 25,20 | 25,20 | 25,20 |
| EE | 25,20 | 25,20 | 25,20 |
| ES | 19,70 | 13,6 | 29,40 |
| FI | 23,10 | 20,30 | 28,90 |
| FR | 16,5 | 11,80 | 29,40 |
| GR | 12 | 7,70 | 20,30 |
| HU | 12,30 | 10,20 | 21,40 |
| IE | 21,20 | 18,70 | 23,70 |
| IT | 8,40 | 6,40 | 12 |
| LT | 18,90 | 18,90 | 18,90 |
| LU | 17,90 | 17,90 | 17,90 |
| LV | 16,30 | 16,30 | 16,30 |
| MT | 9,40 | 9,40 | 9,40 |
| NL | 22,60 | 16,70 | 31,5 |
| NO | | | |
| PL | 40,40 | 9,5 | 17 |
| PT | 8,20 | 4,70 | 15,4 |
| RO | 8,40 | 5,60 | 19,70 |
| SE | 22,30 | 17,80 | 32,10 |
| SI | 14,6 | 14,6 | 14,6 |
| SK | 11,6 | 7,60 | 21,80 |
| UK | 25,40 | 18,30 | 35,80 |


Co-financed by the European Union through the INTERREG III ESPON Programme.
This fact sheet does not necessarily reflect the opinion of the Monitoring Committee.




**Share of population with tertiary education in % 2004**

- up to 10
- 10 up to 15
- 15 up to 20
- 20 up to 25
- more than 25
- no data


Regional level: NUTS 2
Origin of data: Eurostat
**Source: ESPON database**

### Spatial coverage

| | Yes/No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | yes |
| EU 15 | yes |
| EU 10 | yes |

### Spatial level / regional level

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | yes | NUTS 2003 |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | yes |
| a time series: | no |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | 2004 |
| other | |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | ESPON database |
| Source | Eurostat |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| raw | yes | |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

### Data gaps (please describe)

- no data for NO, CH

### Comments

# Indicator Sheet: Part-time employment

| | |
|---|---|
| Dimension: | Socially inclusive society and space |
| Objective: | Improving social inclusion/cohesion |
| Sub-objective: | Improving equality of chances on the labour market |
| Calculation: | Share of part-time workers as percentage of all employed persons |

## Informational value

By collecting information on different proportions of forms of employment, a clearer picture shall be gained of aspects of social inclusion of the population across Europe. Next to figures on employment and unemployment, the share of persons in part-time employment reveals an important part of information about the social structure and patterns of inclusion of a region.

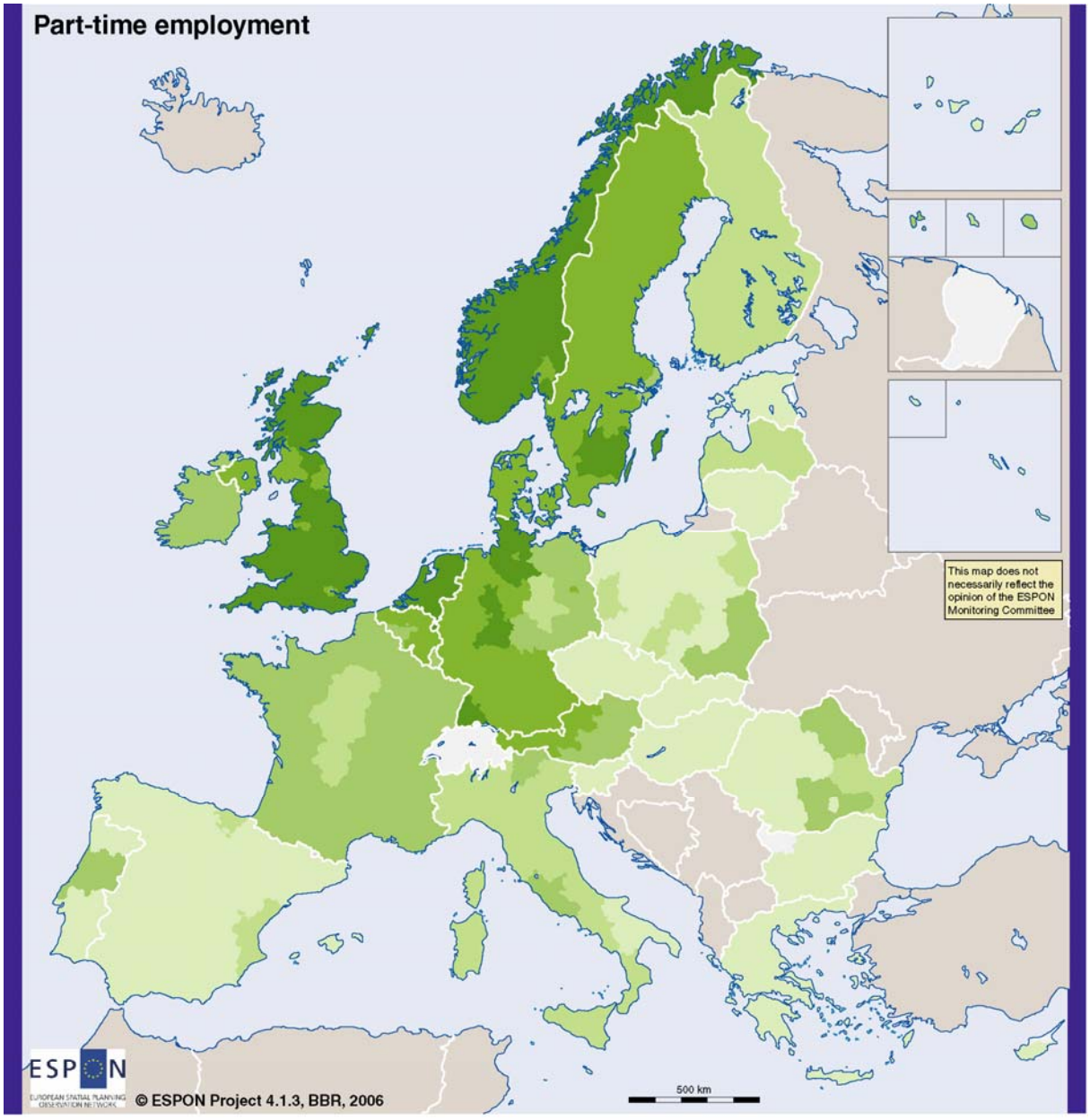
However, interpretations have to be made with caution. Various reasons can be named for part-time employment, especially since flexibility on the labour market has been promoted in many European countries and due to growing numbers of female workers over the last years. Part-time work can be a choice, and can therefore not always be considered as negative.

A possible solution would be the registration of unwanted part-time employment, in order to detect problems of restricted inclusion and underemployment.

## Regional distribution

Part-time employment in Europe shows a strong tendency to concentrate in middle and Northern European countries, with highest values for the UK, the Netherlands, Norway, Sweden and Germany. Very low shares of part-time employment can be found in all Eastern European countries as well as the Iberian peninsula. The variation inside the countries in most cases is not that strong as with other indicators, which shows the closer relation to national structures and conditions of this indicator.

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 17,40 | 1,3 | 50,80 |
| EU 25 | 17,70 | 1,3 | 50,80 |
| EU 15 | 19,20 | 1,3 | 50,80 |
| EU 10 | 7,5 | 1,3 | 19 |
| AT | 19,80 | 17,30 | 21,60 |
| BE | 21,30 | 18,80 | 23,90 |
| BG | 2,60 | 1,8 | 3,40 |
| CH | | | |
| CY | 8,60 | 8,60 | 8,60 |
| CZ | 4,80 | 3 | 6,40 |
| DE | 21,70 | 12,5 | 26,80 |
| DK | 22,20 | 22,20 | 22,20 |
| EE | 8 | 8 | 8 |
| ES | 8,20 | 4,40 | 11,30 |
| FI | 13,6 | 13,30 | 13,9 |
| FR | 16,10 | 0 | 19,80 |
| GR | 5,10 | 3,90 | 7,20 |
| HU | 4,60 | 3,40 | 5,70 |
| IE | 16,70 | 16,60 | 16,90 |
| IT | 12,6 | 8,90 | 16,80 |
| LT | 8,40 | 8,40 | 8,40 |
| LU | 17,80 | 17,80 | 17,80 |
| LV | 10,4 | 10,4 | 10,4 |
| MT | 8,70 | 8,70 | 8,70 |
| NL | 46 | 42,40 | 50,80 |
| NO | 29,90 | 23 | 33,40 |
| PL | 40,40 | 7 | 19 |
| PT | 9,70 | 6,5 | 19,5 |
| RO | 9,70 | 2,30 | 17,10 |
| SE | 24 | 20 | 28,20 |
| SI | 9,30 | 9,30 | 9,30 |
| SK | 2,80 | 1,3 | 3,90 |
| UK | 26,60 | 18,10 | 33,60 |




**Share of part-time employment of total employment 2004**

- up to 10
- 10 up to 15
- 15 up to 20
- 20 up to 25
- 25 and more
- no data


Regional level: NUTS 2
Origin of data: Eurostat
**Source: ESPON database**

### Spatial coverage

| | Yes / No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | yes |
| EU 15 | yes |
| EU 10 | yes |

### Spatial level / regional level

| | Yes / No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | yes | NUTS 2003 |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | yes |
| a time series: | no |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | 2004 |
| other | |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | ESPON database |
| Source | Eurostat |

### Type of data (raw data, model output, survey data etc.)

| | Yes / No | Description |
|---|---|---|
| raw | yes | |
| survey | no | |

| | Yes / No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

### Data gaps (please describe)

### Comments

## Indicator Sheet: Fragmentation index

| | |
|---|---|
| Dimension: | Environment, Hazards |
| Objective: | Healthy environment and hazard prevention |
| Sub-objective: | Habitat size and land consumption |
| Calculation: | Calculated as proportion of fragmented areas to homogeneous areas. |

**Informational value**

Landscape indicators, such as fragmentation, are gaining more and more political and scientific attention, as they help to understand the complexity of the European landscape. The indicator of fragmentation of the natural areas can be used to depict the environmental 'sensitive' areas. For example, the survival of threatened species requires populations which are large enough to maintain genetic diversity. If the habitats of these species are reduced or fragmented by human activities (e.g. transport infrastructures, built-up areas, noise propagation), it may lead to the isolation of individuals and groups from the main population. In the most extreme case a specy is forced to leave a region due to the unfavorable living conditions. The fragmentation index is considered superior compared to similar indicators such as 'proportion of forest areas', because indicators of the latter type do not inform about the spatial distribution and patch sizes, however, both are important for the quality of any habitat. As the forest area of a region may either, in the extreme cases, be constituted by one big overall forest patch or by hundreds of small patches, the impacts of the patch size and distance and their spatial distribution on the habitats and on the species is significant. As the fragmentation index is taking into account both, the patch size and their relative location to each other, this type of indicator is considered more useful than a simple 'proportion of area on territory' indicators, and thus is proposed as routing indicator for healthy environment and hazard prevention.

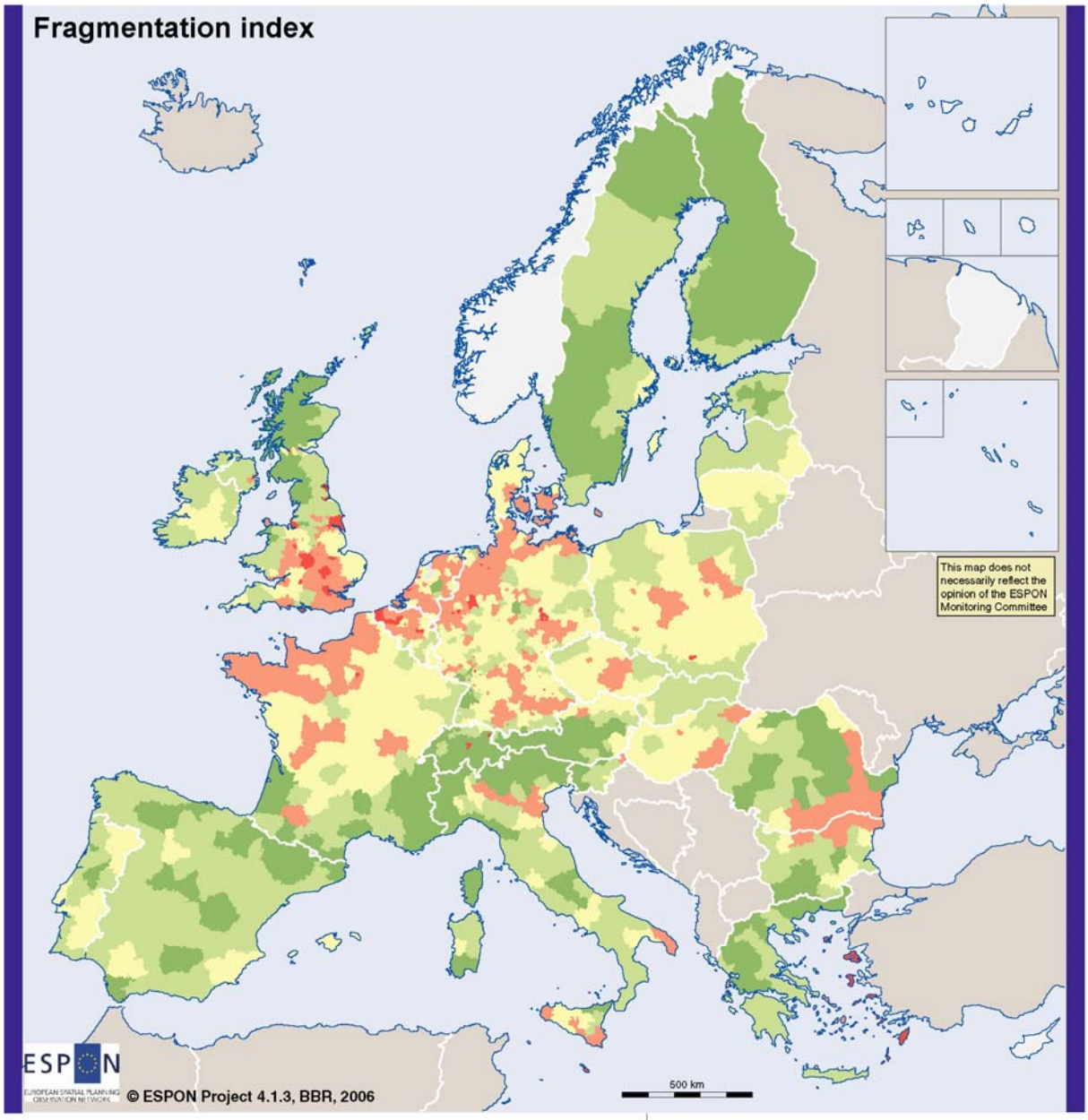
Therefore empirically one has to distinguish between 'proportion indicators' and 'fragmentation indicators'. Regions with a high proportion of forests (or natural areas) are not necessarily less fragmented, and vice versa. That way the different types of proportion and fragmentation indicators

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 0 | 1 | 5 |
| EU 25 | 0 | 1 | 5 |
| EU 15 | 0 | 1 | 5 |
| EU 10 | 0 | 1 | 5 |
| AT | 0 | 1 | 4 |
| BE | 0 | 2 | 5 |
| BG | 0 | 1 | 4 |
| CH | 0 | 0 | 0 |
| CY | 0 | 0 | 0 |
| CZ | 0 | 2 | 4 |
| DE | 0 | 1 | 5 |
| DK | 0 | 3 | 4 |
| EE | 0 | 1 | 2 |
| ES | 0 | 1 | 5 |
| FI | 0 | 1 | 3 |
| FR | 0 | 1 | 5 |
| GR | 0 | 1 | 5 |
| HU | 0 | 2 | 4 |
| IE | 0 | 2 | 3 |
| IT | 0 | 1 | 4 |
| LT | 0 | 2 | 3 |
| LU | 3 | 3 | 3 |
| LV | 0 | 2 | 3 |
| MT | 5 | 5 | 5 |
| NL | 0 | 1 | 5 |
| NO | 0 | 0 | 0 |
| PL | 0 | 2 | 5 |
| PT | 0 | 1 | 3 |
| RO | 0 | 1 | 4 |
| SE | 0 | 0 | 0 |
| SI | 0 | 1 | 4 |
| SK | 0 | 2 | 3 |
| UK | 0 | 1 | 5 |

represent different perspectives (on the same issue): While the proportion of built-up areas on a territory looks from the perspective of human activities (how is the space shaped?), the fragmentation indicator in contrast looks from the perspective of species (how is the habitat affected by human activities), with the view to preserve natural areas. In other words this indicator is adressing environmental sustainability (Gothenburg objectives) rather than economic or social sustainability.

**Regional distribution**

The most fragmented areas in Europe can be found along coastal areas of the North Sea (northern France, Belgium, the Netherlands and Northern Germany), in Southern England and South and East Romania. These are the European regions with remarkably small sized natural areas remaining. However, the map also reveals main biogeographical regions like alpine and boreal regions which can easily be distinguished due to lower fragmentation rates.




**Fragmentation index**

- 5
- 4
- 3
- 2
- 1
- no data

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Regional level: NUTS 3
Origin of data: ESPON Project 2.4.1, GTK
**Source: ESPON database**

### Spatial coverage

| | Yes/No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

### Spatial level / regional level

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | no | |
| NUTS 3 | yes | NUTS 1999 |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | yes |
| a time series: | no |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | indicator available for 1990 |
| other | |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | ESPON project 2.4.1 |
| Source | GTK, based on CORINE 1990 data set |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| raw | no | |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | yes | Indicator calculated based on CORINE dataset by contrasting artificial areas with natural areas in order to derive this composite indicator. |

### Data gaps (please describe)

Norway, Cyprus, French Overseas Departments, Canary Islands (ES), Azores and Madeira (PT)

### Comments

This indicator shows the proportion of fragmented natural areas to all natural areas at NUTS-3 level. Using the Corine 2000 data sets this indicator can easily be calculated for the year 2000 as well, which enables to analysis changes over time from 1990 to 2000. A periodicity of 5 or 10 years seems appropriate, given the rather long planning processes.
The fragmentation index will of course also reflect the limitations of the CORINE dataset with respect to the minimum patch size and minimum widths of the elements to be recognised, as both have direct impacts on the indicator. In some cases this may lead to some distortions in the indicator numbers or even wrong indicators. On the other hand a fragmentation index based on CORINE takes advantage of the harmonised CORINE definitions, in particular through the harmonisation of the different land use classes developed under the CORINE umbrella.

# Indicator Sheet: Flood endangered settlement and artifical areas (Corine)

| | |
|---|---|
| Dimension: | Environment, hazards |
| Objective: | Flood protection for settlement and artifical areas |
| Sub-objective: | |
| Calculation: | Total number of flood events from 1987 to 2002 multiplied with share of artificial surface |

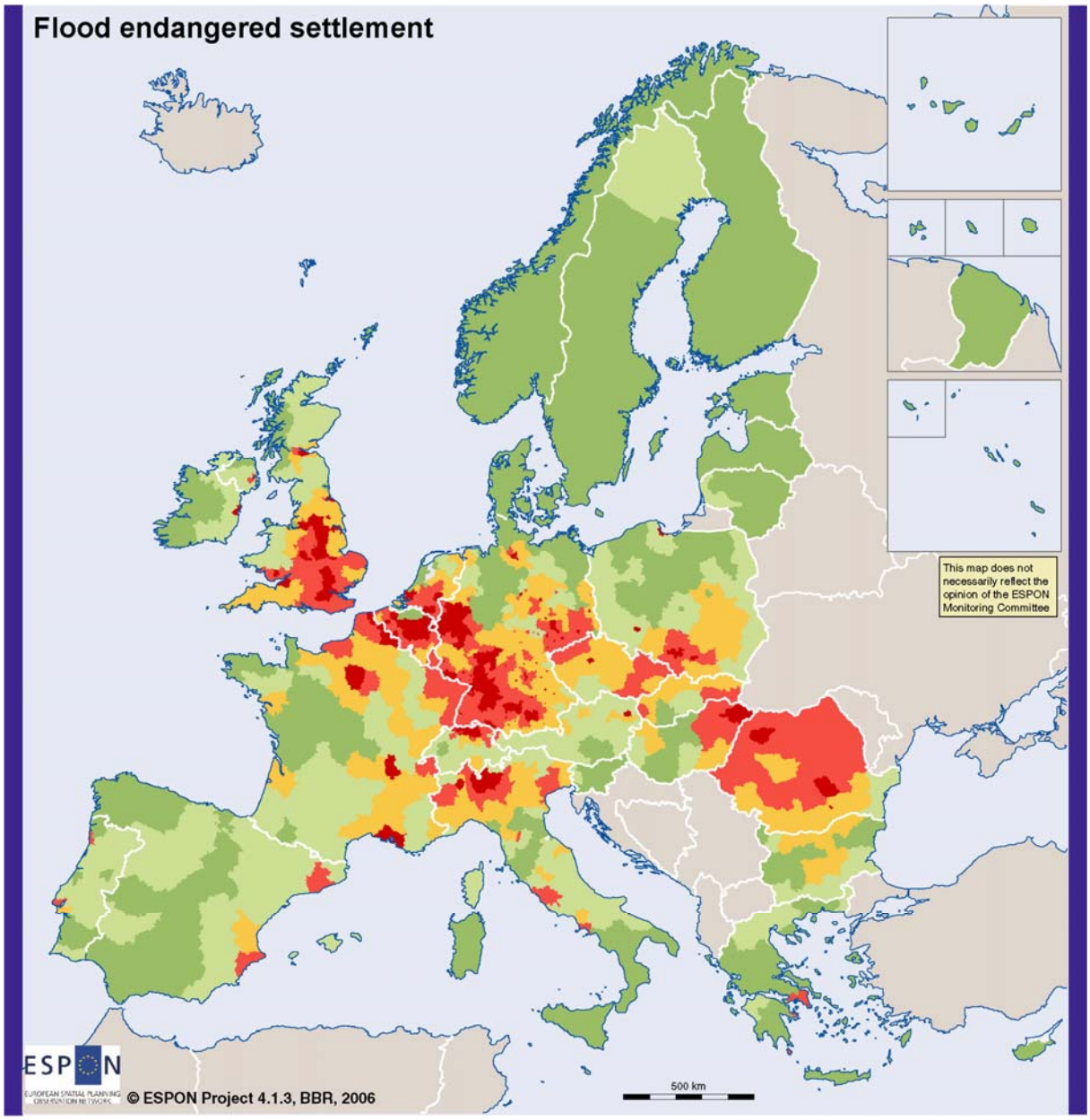
**Informational value**

This indicator identifies flood endangered settlements. Areas with a high number of flood events and a large share of artificial surface (i.e. settlement areas) are considered most vulnerable. Since a multiplication by 0 always results in 0, areas with either no flood events (no matter how high the share of artificial area is) or no/only very little artificial area (no matter how many flood events) show values of 0 or close to 0 and are therefore mapped as least vulnerable. However, this inidcator does not reflect protective measures that have been implemented (e.g. river dikes) that might limit the adverse effects of flood events in densely populated areas.

**Regional distribution**

You can find flood endangered settlements and artifical areas in Germany along the Rhine, parts of East Germany, Bulgaria, England, Northern part of Italy, Benelux and in big cities.

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 7,40 | 0 | 260,72 |
| EU 25 | | | |
| EU 15 | | | |
| EU 10 | | | |
| AT | 4,35 | 0 | 54 |
| BE | 30,03 | 0 | 171,84 |
| BG | 2,71 | 0 | 7,33 |
| CH | 10,86 | 0 | 70,42 |
| CY | 0 | 0 | 0 |
| CZ | 11,57 | 2,71 | 46,54 |
| DE | 27,5 | 0 | 218,23 |
| DK | 0 | 0 | 0 |
| EE | 0 | 0 | 0 |
| ES | 1,18 | 0 | 13,93 |
| FI | 0 | 0 | 0 |
| FR | 13,24 | 0 | 195,97 |
| GR | 0,88 | 0 | 20,90 |
| HU | 6,07 | 0 | 26,76 |
| IE | 8 | 0 | 56,98 |
| IT | 7,27 | 0 | 101,98 |
| LT | 0,67 | 0 | 4,21 |
| LU | 13,33 | 13,33 | 13,33 |
| LV | 0 | 0 | 0 |
| MT | 0 | 0 | 0 |
| NL | 9,13 | 0 | 42,49 |
| NO | 0 | 0 | 0 |
| PL | 8,69 | 0 | 107,92 |
| PT | 1,83 | 0 | 20,43 |
| RO | 14,69 | 2,97 | 64,06 |
| SE | 0,01 | 0 | 0,21 |
| SI | 0,12 | 0 | 1,47 |
| SK | 7,23 | 0 | 12,38 |
| UK | 35,15 | 0 | 260,72 |




Multiplikation absolute Anzahl floods mit Anteil artificial area

- very high
- high
- medium
- low
- very low
- no data


Regional level: NUTS 3
Origin of data: own calculations based on CORINE & GTK
**Source: ESPON database**

### Spatial coverage

| | Yes/No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

### Spatial level / regional level

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | no | |
| NUTS 3 | yes | NUTS 1999 |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | yes |
| a time series: | no |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | |
| other | |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | |
| Source | ESPON database |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| raw | no | |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | yes | Multiplication of number of flood events and share of artificial surface. |

### Data gaps (please describe)

Denmark, Estonia, Finland, Malta, Latvia, Norway

### Comments

# 6 ANNEX

## 7.2 Part 1 Wishlist Indicators / Factsheets

## Indicator Sheet: Investment rate

| | |
|---|---|
| Dimension: | Economy, Innovation (Agriculture) |
| Objective: | Assets for global competitiveness |
| Sub-objective: | |
| Calculation: | From 1.1.1999: Gross fixed capital formation /Gross Domestic Product in millions of euro. Up to 31.12.1998: Gross fixed capital formation /Gross Domestic Product in Millions of ECU. Gross domestic Product is calculated in current market prices. |

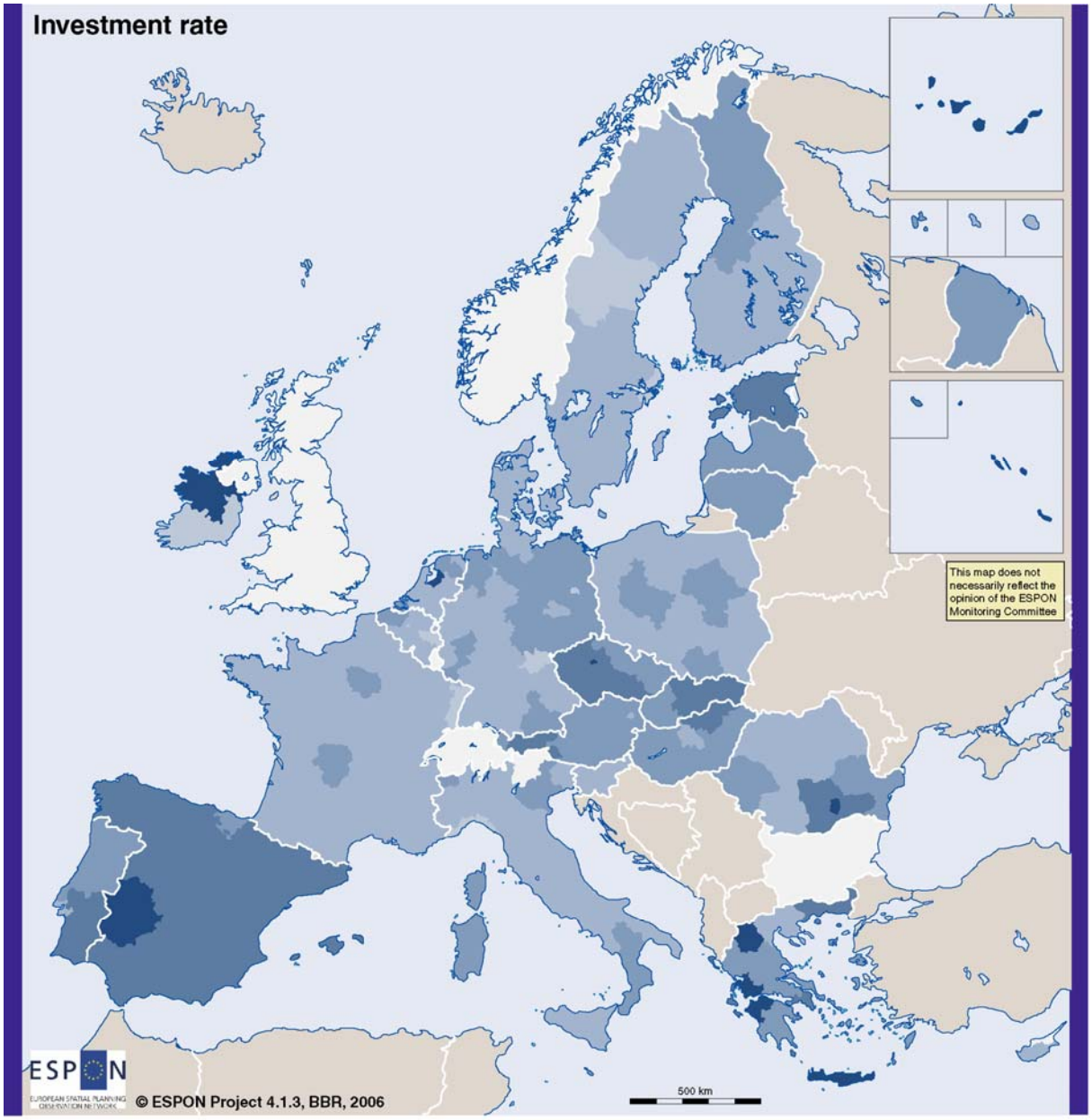
### Informational value

This indicator reveals a country's intensity of economic activity. In a way, it is capable of gauging the country's propensity to postpone today's for future consumption. Along with savings it is also a measure of how postponing today's consumption can be allocated internally or externally. Whatever the absolute dimensions of the two raw indicators with which it is calculated (Gross Fixed Capital Formation and GDP), it gauges the country's (or region's) economic liveliness.

### Regional distribution

More than showing cross country differences, the indicator shows how, within countries, regions can differ in the propensity to invest. In several circumstances differences can be quite remarkable, explaining partially why certain regions grow more than others (and also the other way round, i.e. given GDP, also partially explaining why investments can be relatively lower than elsewhere).

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | | | |
| EU 25 | | | |
| EU 15 | | | |
| EU 10 | | | |
| AT | | 18,15 | 27,06 |
| BE | | 13,57 | 21,04 |
| BG | | | |
| CH | | | |
| CY | | 17,75 | 17,75 |
| CZ | | 22,52 | 31,70 |
| DE | | 13,25 | 24,71 |
| DK | | 19,46 | 19,46 |
| EE | | 28,87 | 28,87 |
| ES | | 19,01 | 32,51 |
| FI | | 11,51 | |
| FR | | | |
| GR | | 17,25 | 48,34 |
| HU | | 16,12 | 25,72 |
| IE | | | |
| IT | | | |
| LT | | | |
| LU | | | |
| LV | | | |
| MT | | 20 | 20 |
| NL | | 15,47 | 47,79 |
| NO | | | |
| PL | | | |
| PT | | | |
| RO | | | |
| SE | | 14,35 | 17,87 |
| SI | | 17,51 | 17,51 |
| SK | | 23,99 | 26,39 |
| UK | | | |




**Investment rate 2003***

- less than 15
- 15 to below 20
- 20 to below 25
- 25 to below 30
- 30 and more
- no data

*France: 2002


Regional level: NUTS 2
Origin of data: Eurostat
**Source: ESPON database**

### Spatial coverage

| | Yes / No |
|---|---|
| EU 25+2+2 | no |
| EU 25 | yes |
| EU 15 | no |
| EU 10 | no |

### Spatial level / regional level

| | Yes / No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | yes | NUTS 2003 |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | no |
| a time series: | yes |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | Data are updated yearly. They are available from 1995 to 2004 in the Eurostat database, at NUTS 2 level. |
| other | |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | Eurostat |
| Source | Eurostat |

### Type of data (raw data, model output, survey data etc.)

| | Yes / No | Description |
|---|---|---|
| raw | yes | Gross Fixed Capital Formation consists of residents' product acquisitions, less disposals, of fixed assets during a given period, plus certain additions to the value of non-produced assets realised by the productive activity of producer or institutional units in a region. Fixed assets are tangible or intangible assets produced as outputs from processes of production that are themselves used repeatedly, or continuously, in processes of production for more than one year. Disposals of fixed assets are treated as negative acquisitions. |
| survey | no | |

| | Yes / No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

### Data gaps (please describe)

Data are evenly available for most NUTS 2 regions in the Eurostat database. However, a few missing values show up in certain cases, while a systematic lack of data seems to affect UK regions. Thus it seems necessary to pay even more attention to fill in the gaps, not to lose explanatory power in cross country analyses.

### Comments

Some single observations in the Eurostat database seem to have troubles, both because of missing data and beacuse the two components - GFCF and GDP- seem to be contradictorily in relation. Thus one might have such extremes values as 3% and 80%. This is the reason why some national minima and maxima haven't been calculated. National and European values also suffer from missing data problem.

# Indicator Sheet: Location of multinational headquarters

| | |
|---|---|
| Dimension: | Economy, Innovation (Agriculture) |
| Objective: | Competitiveness |
| Sub-objective: | |
| Calculation: | Number of headquarters |

**Informational value**

Location of transnational headquarters gives a good idea of the distribution of economic command in Europe, especially if you complete this information with the level of financial services.

**Regional distribution**

The map shows the strong concentration of economic command in the "blue banana", between England and central Italy, where most of the transnational headquarters are located. Inside this area, it is interesting to notice the opposition in the urban structure between the United Kingdom and France, on the one hand, and Germany and Italy, on the other hand. In the first case, we observe the concentration of nearly all headquarters in the capital city (in France, it concerns all except one), while in Germany for example, all major cities have a part of the headquarters. In Randstad in Holland there is a high level of economic command, in relation to the high level of internationalisation of the Dutch economy. Outside the "blue banana", only capital cities of the most important economies appear with a significant number of headquarters, notably Madrid and Stockholm.

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 0 | 0 | 0 |
| EU 25 | 0 | 0 | 0 |
| EU 15 | 0 | 0 | 0 |
| EU 10 | 0 | 0 | 0 |
| AT | 0 | 0 | 0 |
| BE | 0 | 0 | 0 |
| BG | 0 | 0 | 0 |
| CH | 0 | 0 | 0 |
| CY | 0 | 0 | 0 |
| CZ | 0 | 0 | 0 |
| DE | 0 | 0 | 0 |
| DK | 0 | 0 | 0 |
| EE | 0 | 0 | 0 |
| ES | 0 | 0 | 0 |
| FI | 0 | 0 | 0 |
| FR | 0 | 0 | 0 |
| GR | 0 | 0 | 0 |
| HU | 0 | 0 | 0 |
| IE | 0 | 0 | 0 |
| IT | 0 | 0 | 0 |
| LT | 0 | 0 | 0 |
| LU | 0 | 0 | 0 |
| LV | 0 | 0 | 0 |
| MT | 0 | 0 | 0 |
| NL | 0 | 0 | 0 |
| NO | 0 | 0 | 0 |
| PL | 0 | 0 | 0 |
| PT | 0 | 0 | 0 |
| RO | 0 | 0 | 0 |
| SE | 0 | 0 | 0 |
| SI | 0 | 0 | 0 |
| SK | 0 | 0 | 0 |
| UK | 0 | 0 | 0 |

### Spatial coverage

| | Yes/No |
|---|---|
| EU 25+2+2 | no |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

### Spatial level / regional level

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | yes | |
| NUTS 2 | yes | |
| NUTS 3 | yes | |
| | | |
| NUTS 5 | yes | |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | no |
| a time series: | no |
| | |
| updated data (intervals): | yearly |
| periodicity (i.e. available years etc.): | |
| other | data comes by address which can be geocoded to any NUTS-level required |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | ESPON 3.4.2 |
| Source | Forbes 2000 http://www.forbes.com/2006/03/29/06f2k_worlds-largest-public-companies_land.html |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| raw | yes | |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

### Data gaps (please describe)

As data covers the 2000 largest global companies, of which around 500 are European, only those cities/regions where at least one of these companies is located are covered, i.e. countries having companies within the Forbes 2000

### Comments

For this indicator, it does not make any sense to work in terms of minimum - maximum or in terms of relative values. Absolute values are the only valid option.

# Indicator Sheet: Enterprises in innovation

| | |
|---|---|
| Dimension: | Innovative knowledge society |
| Objective: | Improving balance of distribution of knowledge economy |
| Sub-objective: | Improving balance of distribution of enterprises in innovation |
| Calculation: | Share of enterprises with innovation activities as percentage of all registered enterprises |

**Informational value**

This indicator provides information on innovation activities on the level of enterprises. It displays the share of enterprises, that have introduced technologically new or improved products to the market, or have applied new or improved technological processes.

Hereby, a more detailed picture of the innovation potential of an economy shall be gained, thus allowing for an assessment of the regional knowledge economy. The innovation activities of an enterprise are of high importance in this respect, since they have valuable effects on the competitiveness, employment, economic growth and trade patterns of a region. Detailed knowledge of the spatial distribution of these innovation activities in enterprises is therefore a basic precondition for possible efforts of improvement of a spatial balance of knowledge-intensive economies.

**Regional distribution**

The existing data so far only represent the share of enterprises in innovation on the national level, restricted to the EU15. The values in this category vary between 28 and 61 percent of the total of registered enterprises. Germany stands out with the highest share by far (61%), while in most European countries about half of the enterprises are involved in innovation activities. In a few countries, most of them located in the South of the EU (ES,GR,IT), only about a third of the enterprises show innovation activities. Anyhow, more regionally disaggregated data are necessary for a useful spatial monitoring of this indicator.

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | | | |
| EU 25 | | | |
| EU 15 | | | |
| EU 10 | | | |
| AT | 49 | | |
| BE | 50 | | |
| BG | | | |
| CH | | | |
| CY | | | |
| CZ | | | |
| DE | 61 | | |
| DK | 44 | | |
| EE | | | |
| ES | 33 | | |
| FI | 45 | | |
| FR | 41 | | |
| GR | 28 | | |
| HU | | | |
| IE | | | |
| IT | 36 | | |
| LT | | | |
| LU | 48 | | |
| LV | | | |
| MT | | | |
| NL | 45 | | |
| NO | 36 | | |
| PL | | | |
| PT | 46 | | |
| RO | | | |
| SE | 47 | | |
| SI | | | |
| SK | | | |
| UK | | | |

### Spatial coverage

| | Yes/No |
|---|---|
| EU 25+2+2 | no |
| EU 25 | no |
| EU 15 | yes |
| EU 10 | yes |

### Spatial level / regional level

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | yes | NUTS 1999 |
| NUTS 2 | no | |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | yes |
| a time series: | yes |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | 2000, 1996 (survey conducted every 4 years) |
| other | + NO |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | Eurostat online |
| Source | Eurostat, CIS |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| raw | no | |
| survey | yes | CIS 3 - Third community innovation survey (CIS 2 -1996) |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

### Data gaps (please describe)

no data available for the UK, IE

### Comments

# Indicator Sheet: Utilised agricultural area (UAA)

| | |
|---|---|
| Dimension: | Economy, Innovation (Agriculture) |
| Objective: | |
| Sub-objective: | |
| Calculation: | % of total area |

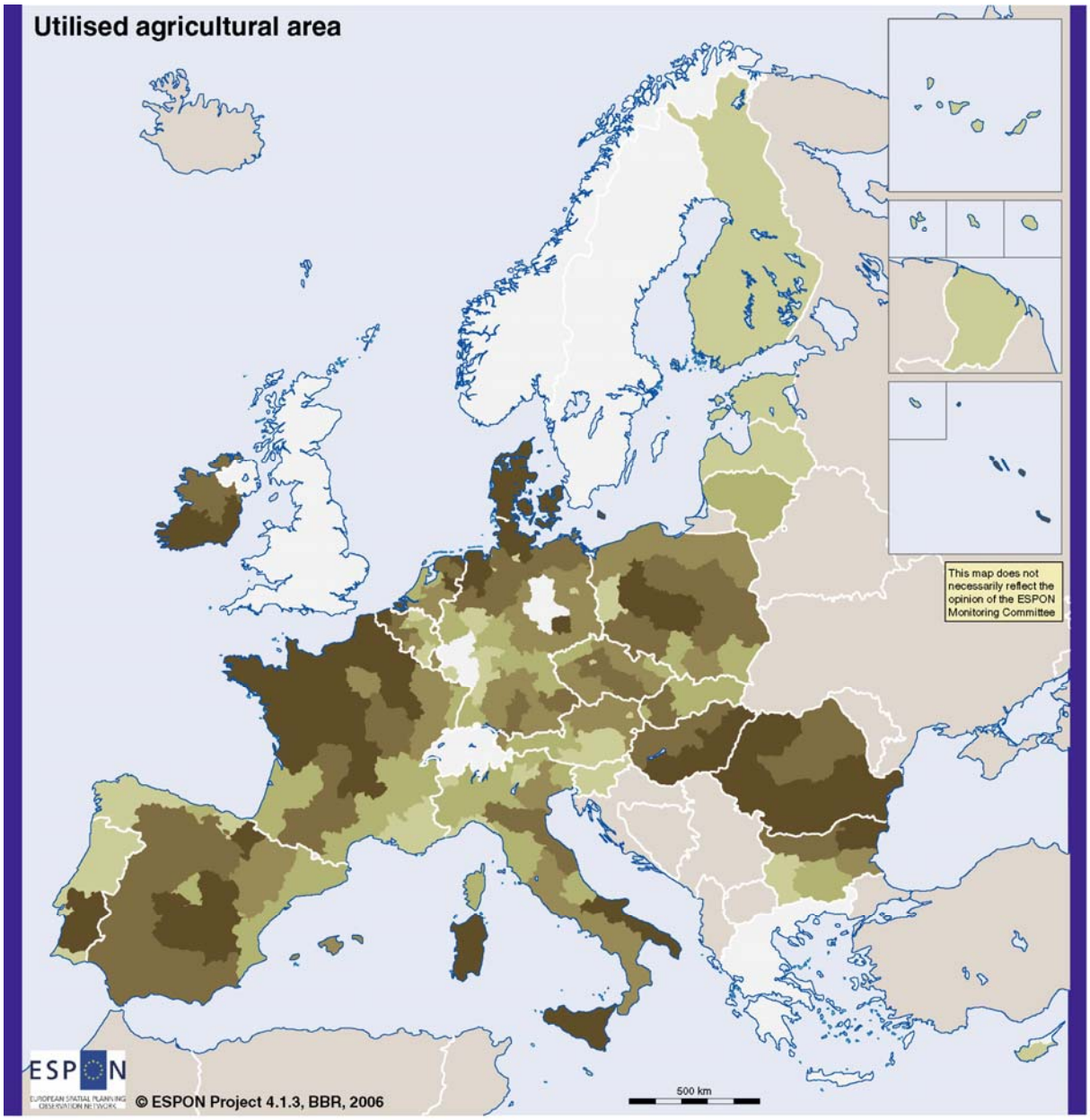
**Informational value**

**Regional distribution**

High percentage of utilised agcricultural area in the South of Ireland, Denmark, in parts of France, Spain and in the South of Portugal. Also in Bulgaria, Hungary and in Sardinia and Sicily.

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | | | |
| EU 25 | 41,52 | 0,30 | 78,40 |
| EU 15 | | | |
| EU 10 | | | |
| AT | 39 | 20,70 | 48,90 |
| BE | 42,5 | 1,2 | 67,40 |
| BG | 49 | 33,5 | 63,40 |
| CH | | | |
| CY | 14,70 | 14,70 | 14,70 |
| CZ | 42,80 | 21,60 | 54 |
| DE | 43,5 | 2 | 64,60 |
| DK | 61,30 | 61,30 | 61,30 |
| EE | 15,4 | 15,4 | 15,4 |
| ES | 44,10 | 11 | 59,60 |
| FI | 9,70 | 2,20 | 17,90 |
| FR | 49 | 0,30 | 77,40 |
| GR | | | |
| HU | 61,40 | 53,30 | 71,5 |
| IE | 62 | 57 | 66,90 |
| IT | 45,20 | 13,30 | 78,40 |
| LT | 38,80 | 38,80 | 38,80 |
| LU | 49,60 | 49,60 | 49,60 |
| LV | 24,5 | 24,5 | 24,5 |
| MT | 34,20 | 34,20 | 34,20 |
| NL | 51,80 | 37,10 | 67,70 |
| NO | | | |
| PL | 50,90 | 34,20 | 59,90 |
| PT | 35 | 7,80 | 65,20 |
| RO | 62 | 55,5 | 70,90 |
| SE | | | |
| SI | 25,10 | 25,10 | 25,10 |
| SK | 45 | 37 | 58,10 |
| UK | | | |


Co-financed by the European Union through the INTERREG III ESPON Programme.




**Utilised agricultural area in % of total area**

- less than 34.3
- 34.3 to below 43.5
- 43.5 to below 51.6
- 51.6 to below 58.9
- 58.9 and more
- no data


Regional level: NUTS 2
Origin of data: Eurostat
**Source: ESPON database**

### Spatial coverage

| | Yes / No |
|---|---|
| EU 25+2+2 | no |
| EU 25 | yes |
| EU 15 | no |
| EU 10 | no |

### Spatial level / regional level

| | Yes / No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | yes | NUTS 2003 |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | no |
| a time series: | yes |
| | |
| updated data (intervals): | annually |
| periodicity (i.e. available years etc.): | up to 2004 |
| other | |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | ESPON database |
| Source | Eurostat |

### Type of data (raw data, model output, survey data etc.)

| | Yes / No | Description |
|---|---|---|
| raw | no | |
| survey | no | |

| | Yes / No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | yes | Utilized agricultural area (in 1000 ha) * 100 / total area (1000 ha) |

### Data gaps (please describe)

Switzerland, Greece, Norway, Sweden, United Kingdom, Koblenz, Trier, Rheinhessen-Pfalz, Dessau, Halle, Magdeburg, Ciudad Autónoma de Ceuta, Ciudad Autónoma de Melilla

### Comments

## Indicator Sheet: Capital /labour ratio

| | |
|---|---|
| Dimension: | Economy, Innovation (Agriculture) |
| Objective: | Assets for global competitiveness |
| Sub-objective: | |
| Calculation: | Capital stock/Total number of occupied |

**Informational value**

Capital / labour ratio is deemed to be one of the main determinants of economic growth. In the Solow model (1956) and in the Dixon and Thirwall one 1975), to name but a few, it is the real source of productivity increase, along with technological change.

**Description of current status of the indicator**

### Spatial coverage

| | Yes/No |
|---|---|
| EU 25+2+2 | no |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

### Spatial gaps

### Spatial level / regional level

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | no | |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| **data for a point of time:** | no |
| **a time series:** | yes |
| | |
| **updated data (intervals):** | |
| **periodicity (i.e. available years etc.):** | Data should be updated yearly. |
| **other** | None: capital stock is not available at regional level. |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| **Origin** | |
| **Source** | |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| **raw** | yes | The indicator is just the ratio of the stock of accumulated capital to people in the workforce. |
| **survey** | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| **modified** | no | |
| **model** | no | |

### Difficulties with the indicator

This indicator is known to have a relevant and positive impact on the quality of economic studies. However estimating the dimesnions of the accumulated capital stock in a country is particularly difficult and costly. In general, its measurement would involve review local firms' balance sheets. This would be easily done only in presence of a proper electronic archive.

### Specific difficulties for the use in ESPON

ESPON countries reflect of course wide differences in data maintenance processes and uses. Furthermore, a big issue would be that of coordinating different countries on the same way of calculating data, in order to avoid biases in interpreteting the series made available.

# Indicator Sheet: Import-Export ratio EU – Non-EU

| | |
|---|---|
| Dimension: | Economy, Innovation (Agriculture) |
| Objective: | Assets for global competitiveness |
| Sub-objective: | |
| Calculation: | Sum of total imports/Sum of total exports |

**Informational value**

This indicator is of fundamental value in representing the degree of dependency from external economies of a region or country. However, ideally it should be matched with other similar indicators, such as the degree of openness itself, ie. (Import+Export) / GDP.

**Description of current status of the indicator**

**Spatial coverage**

| | Yes / No |
|---|---|
| EU 25+2+2 | no |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

**Spatial gaps**

**Spatial level / regional level**

| | Yes / No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | no | |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| **data for a point of time:** | no |
| **a time series:** | yes |
| | |
| **updated data (intervals):** | |
| **periodicity (i.e. available years etc.):** | Data are available yealy only for countries. |
| **other** | None at regional level |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| **Origin** | |
| **Source** | Eurostat. |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| **raw** | yes | Data are raw, in that currently Eurostat provides trade flows in quite a detailed way to and from European countries for several years. Ideally, the same should be done at regional level. |
| **survey** | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| **modified** | no | |
| **model** | no | |

### Difficulties with the indicator

The indicator is quite straightforward to calculate at national level, given the fact that freight has to pass fiscal frontiers and that flows are regularly monitored for paying taxes (e.g., VAT refunds). The same cannot be said at regional level. Thus the absence of frontiers between regions, which is for other aspects stimulating economic research, is a major hurdle for regularly recording data at disaggregated level.

### Specific difficulties for the use in ESPON

# Indicator Sheet: Energy intensities by industries

| | |
|---|---|
| Dimension: | Economy, Innovation (Agriculture) |
| Objective: | Assets for global competitiveness |
| Sub-objective: | |
| Calculation: | Million Joule required per tonne of output. At a wider, less disaggregated level, Million Joule required per Euro value of output, or GDP. In this last case Eurostat officially defines the indicator as "Gross inland consumption of energy divided by GDP (at constant prices, 1995=100), kgoe (kilogram of oil equivalent) per 1000 euro". |

### Informational value

This indicator is necessary to assess another face of the capital intensity of the production of certain goods. Factor prices influence a region's competitiveness by distorting relative prices. Suppose a region has a strong competitive advantage in repoducing a high energy-intensive good: then an increas in energy prices would have a major effect on the region's economic performance. In a way this indicator offers a wide perspective of the kind of technology required to produce goods, and given the region's specialization framework, this also offers relevant indications on possible future developments of the regions themselves.

### Description of current status of the indicator

#### Spatial coverage

| | Yes / No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

#### Spatial gaps

None. Data are currently available only at national level.

#### Spatial level / regional level

| | Yes / No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | no | |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| **data for a point of time:** | no |
| **a time series:** | yes |
| | |
| **updated data (intervals):** | |
| **periodicity (i.e. available years etc.):** | Yearly data might best suit the need for frequently updated sources of information, without losing in easiness of managing data. |
| **other** | |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| **Origin** | |
| **Source** | Eurostat |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| **raw** | yes | Data are calculated from sector studies on energy requirements to produce goods, depending on the state of the art of the available technology, in the country or the region analyzed. |
| **survey** | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| **modified** | no | |
| **model** | no | |

### Difficulties with the indicator

Very disaggregated data both in a geographical and a sectoral sense mean managing a wide spectre of information. Not all statistical offices might be capable of coping with this additional load, thus making less explanatory the data that could be effectively collected.

### Specific difficulties for the use in ESPON

# Indicator Sheet: Total Factor Productivity

| | |
|---|---|
| Dimension: | Economy, Innovation (Agriculture) |
| Objective: | Assets for global competitiveness |
| Sub-objective: | |
| Calculation: | Calculating this indicator is quite a cumbersome task. Usually it involves two different techniques. Either statistical offices record firms' balance sheets, thus updating capital stocks every year and gauging capital and labor productivity year by year. Otherwise, a less expensive method might involve an estimation of TFP by estimating the relationship between factor inputs (mainly capital, in all its definitions, and labor) and GDP output. What is left, the so called "residual", could be regarded as TFP. |

### Informational value

Total factor productivity allows scholars and policymakers to measure an economy's effectiveness in transforming inputs into outputs. TFP therefore entails more information than simple labour productivity such as the already mentioned productivity per hour worked. Having the series available at regional level would endow scholars with a powerful tool of analysis, suitable of a wide range of uses in growth analyses.

### Description of current status of the indicator

#### Spatial coverage

| | Yes / No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

#### Spatial gaps

None. The indicator is not available at regional level, mainly for the absence of regional data on capital stock.

#### Spatial level / regional level

| | Yes / No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | no | |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | no |
| a time series: | no |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | |
| other | |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | |
| Source | |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| raw | no | |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | yes | Defined GDP as Y= (K^alpha * L^beta), where K stands for capital and L for labor, the residual, i.e. what regression analysis cannot explain, can be regarded as TFP. This paragraph is intended to be only an example. More detailed treatment on TFP estimation techniques is available in a wide literature. For a survey, see "Total Factor Productivity: a short biography", by Charles Hulten, NBER WP 7471, Jan. 2000. |

### Difficulties with the indicator

The usual caveat applies to the difficulties, and costs, of estimating capital stock at disaggregated level. Also, whereas TFP would be calculated by national statistical offices, clear indications on the techniques and models to be used should be made available to them, possibily by Eurostat, in order to get confrontable and meaningful data.

### Specific difficulties for the use in ESPON

## Indicator Sheet: Consumption per capita

| | |
|---|---|
| Dimension: | Economy, Innovation (Agriculture) |
| Objective: | Balanced distribution of wealth |
| Sub-objective: | |
| Calculation: | Consumption in Euro divided by the number of inhabitants. |

### Informational value

Consumption per capita is a rough but nevertheless meaningful indicator. It is used to show the possibility of enjoying acquired wealth and, in combination with other GDP components in a time series setting, it measures the evolution of expenditure capability and the changes in propensity to postpone today's for future consumption. When used in time series, deflation has to be applied.

### Description of current status of the indicator

#### Spatial coverage

| | Yes / No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

#### Spatial level / regional level

| | Yes / No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | no | |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

#### Spatial gaps

Although not currently available, the indicator shall probably, if recorded, show consistent international, but also intranational, differences. With the recent enlargement the EU has grown in dimensions and population; however, the new entrants are on average lagging behind previous EU15 living standards. Although many of them are fastly recovering the lost ground, the lag is still present. Even at national level, given the on average high correlation between consumption and GDP, it seems reasonable to forecast consistent interregional differences, exactly as one can see in GDP data (see the relative indicator sheet).

### Time reference / actuality

| data is available as... | |
|---|---|
| **data for a point of time:** | no |
| **a time series:** | yes |
| | |
| **updated data (intervals):** | |
| **periodicity (i.e. available years etc.):** | Data should be updated yearly. |
| **other** | None: consumption is not available at regional level. |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| **Origin** | |
| **Source** | |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| **raw** | yes | The indicator is just the ratio of the stock of consumption to population. |
| **survey** | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| **modified** | no | |
| **model** | no | |

### Difficulties with the indicator

Consumption can be identified as general consumption (probably the most interesting one, since it also includes companies' and government's data), household consumption and so on. Many of these series are available for the years 1988-1998-1999 on the Eurostat database, but only at national level. Ideally, data should be compiled yearly; however, not all statistical offices might be endowed with resources sufficient to accomplish this task at regional level.

### Specific difficulties for the use in ESPON

# Indicator Sheet: Land use (Agriculture, fisheries and rural development) (Corine)

| | |
|---|---|
| Dimension: | Economy, Innovation (Agriculture) |
| Objective: | Spatial distribution of agricultural land use |
| Sub-objective: | Importance of the agriculture, change of agricultural sector |
| Calculation: | |

**Informational value**

The identification of agriculturual land use helps recognising rural areas, also measuring the importance and spatial distribution of the agricultural sector. This information is also useful for interpreting urban-rural relations.

**Description of current status of the indicator**

**Spatial coverage**

| | Yes / No |
|---|---|
| **EU 25+2+2** | no |
| **EU 25** | yes |
| **EU 15** | no |
| **EU 10** | no |

**Spatial gaps**

**Spatial level / regional level**

| | Yes / No | Version |
|---|---|---|
| **NUTS 1** | no | |
| **NUTS 2** | no | |
| **NUTS 3** | no | |
| | | |
| **NUTS 5** | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | yes |
| a time series: | no |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | |
| other | raster (250 and 100 m) and vector data |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | |
| Source | |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| raw | no | |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

### Difficulties with the indicator

### Specific difficulties for the use in ESPON

Corine data on agricultural land use not available in ESPON database

# Indicator Sheet: Economic Importance of Agriculture (GDP)

| | |
|---|---|
| Dimension: | Economy, Innovation (Agriculture) |
| Objective: | Diversified economy |
| Sub-objective: | Importance of the agriculture, change of agricultural sector |
| Calculation: | Share of GDP of agricultural sector in total GDP |

**Informational value**

The economic importance of the agricultural sector illustrates the sectoral structure of the economy. In combination with other indicators suggested in this project, this indicator allows detailed conclusions about the efficiency of the agricultural sector, the status quo of the economy in terms of development towards the secondary and tertiary sectors.

**Description of current status of the indicator**

**Spatial coverage**

| | Yes / No |
|---|---|
| EU 25+2+2 | no |
| EU 25 | yes |
| EU 15 | no |
| EU 10 | no |

**Spatial gaps**

**Spatial level / regional level**

| | Yes / No | Version |
|---|---|---|
| NUTS 1 | yes | |
| NUTS 2 | no | |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | no |
| a time series: | yes |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | annually, 1994-2005 |
| other | |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | |
| Source | |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| raw | no | |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

### Difficulties with the indicator

Data is only available at NUTS 1 level for gross value added, agriculture, hunting and fishing

### Specific difficulties for the use in ESPON

## Indicator Sheet: Share of organic area in UAA

| | |
|---|---|
| Dimension: | Economy, Innovation (Agriculture) |
| Objective: | Sustainability |
| Sub-objective: | Increasing organic farming, sustainable development |
| Calculation: | Surface of collective organic crops. Complete reconverted surfaces in hectare. |

**Informational value**

Organic farming can be defined as an approach to agriculture where the aim is to create integrated, human, environmentally sustainable agricultural production systems. Maximum reliance is placed on self-regulating agro-ecosystems, locally or farm-derived renewable resources and the management of ecological and biological processes and interactions. Dependance on external inputs, whether chemical or organic, is reduced as far as possible.

The main advantages of organic farming are generally seen as:

- the market price for such products are higher,

- the way in which they are produced involves less intensive use of land,

- the attainment of a better balance between supply of, and demand for, agriculture products,

- better protection of the environment.

Another advantage is that organic farms are in general, more labour intensive than conventional farms, and therefore, should contribute to rural employment and help keep in business small farms which would otherwise not be able to cope with intensification and global competition.

## Description of current status of the indicator

### Spatial coverage

| | Yes/No |
|---|---|
| EU 25+2+2 | no |
| EU 25 | yes |
| EU 15 | no |
| EU 10 | no |

### Spatial gaps

### Spatial level / regional level

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | no | |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

# Indicator Sheet: Share of organic area in UAA

## Time reference / actuality

| data is available as... | |
|---|---|
| **data for a point of time:** | no |
| **a time series:** | yes |
| | |
| **updated data (intervals):** | annually |
| **periodicity (i.e. available years etc.):** | 1997 - 2005 |
| **other** | NUTS 0 |

## Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| **Origin** | |
| **Source** | Eurostat |

## Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| **raw** | yes | |
| **survey** | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| **modified** | no | |
| **model** | no | |

## Difficulties with the indicator

Data only available on NUTS 0 level.

## Specific difficulties for the use in ESPON

## Indicator Sheet: Labour productivity per hour worked

| | |
|---|---|
| Dimension: | Assets for global competitiveness |
| Objective: | Improving global competitiveness |
| Sub-objective: | Improving labour productivity |
| Calculation: | GDP per hour worked |

**Informational value**

This indicator would provide information on the different levels of labour productivity in space. This would allow for well directed actions to improve the level of economic productivity and competitiveness of certain regions.

**Description of current status of the indicator**

### Spatial coverage

| | Yes/No |
|---|---|
| EU 25+2+2 | no |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

### Spatial gaps

### Spatial level / regional level

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | no | |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

**Time reference / actuality**

| data is available as... | |
|---|---|
| data for a point of time: | no |
| a time series: | no |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | |
| other | |

**Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)**

| | Description |
|---|---|
| Origin | |
| Source | |

**Type of data (raw data, model output, survey data etc.)**

| | Yes/No | Description |
|---|---|---|
| raw | no | |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

**Difficulties with the indicator**

**Specific difficulties for the use in ESPON**

# Indicator Sheet: Urban growth 1990 - 2000

| | |
|---|---|
| Dimension: | Spatial structure (Urban, urban-rural, urban hierarchy) |
| Objective: | Balanced spatial development |
| Sub-objective: | Limiting land use |
| Calculation: | Relative growth between 1990 and 2000 |

**Informational value**

Urban growth during the period 1990 to 2000 shows the total amount of increase of artificial surfaces as defined by the CORINE land cover data.

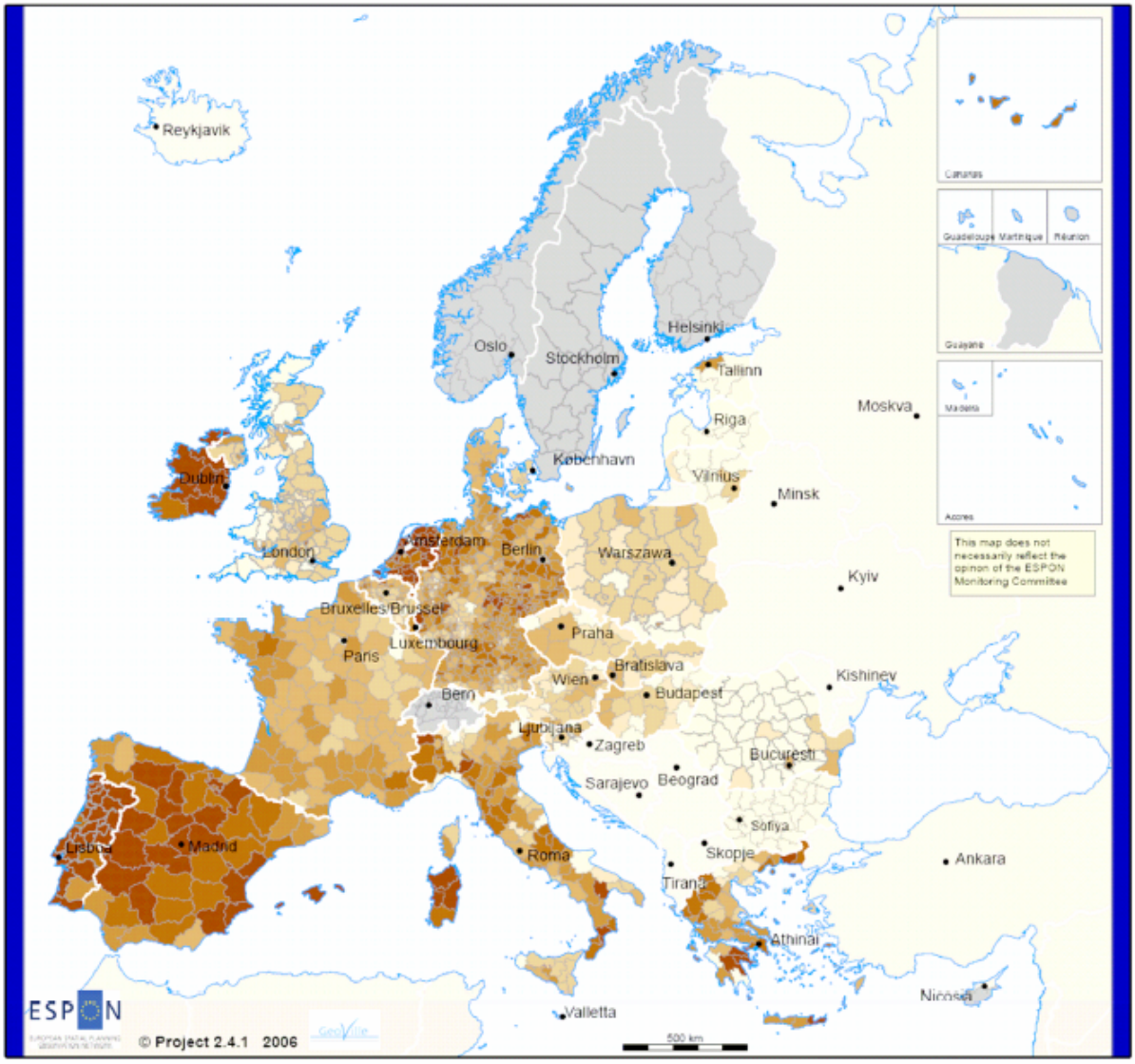
**Regional distribution**

The spatial pattern of relative urban growth during the period 1990 to 2000 in Europe follows largely a gradient from East to West. It is very low (mainly < 1%) in the Baltic States and Bulgaria and Romania, increases to moderate values in the new Eastern states and Austria. Germany, Belgium, Luxemburg, Italy and France show heterogeneous increases in an overall upper medium range, with Germany "leading". As an exception of the East-West gradient, Greece belongs to this group, and the UK has a comparatively moderate increase, similar as the new Eastern EU states. Maxima and relatively homogeneous areas of very large urban growth are found in Spain, Portugal, and Ireland, as well as the Netherlands.

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 0 | 0 | 0 |
| EU 25 | 0 | 0 | 0 |
| EU 15 | 0 | 0 | 0 |
| EU 10 | 0 | 0 | 0 |
| AT | 0 | 0 | 0 |
| BE | 0 | 0 | 0 |
| BG | 0 | 0 | 0 |
| CH | 0 | 0 | 0 |
| CY | 0 | 0 | 0 |
| CZ | 0 | 0 | 0 |
| DE | 0 | 0 | 0 |
| DK | 0 | 0 | 0 |
| EE | 0 | 0 | 0 |
| ES | 0 | 0 | 0 |
| FI | 0 | 0 | 0 |
| FR | 0 | 0 | 0 |
| GR | 0 | 0 | 0 |
| HU | 0 | 0 | 0 |
| IE | 0 | 0 | 0 |
| IT | 0 | 0 | 0 |
| LT | 0 | 0 | 0 |
| LU | 0 | 0 | 0 |
| LV | 0 | 0 | 0 |
| MT | 0 | 0 | 0 |
| NL | 0 | 0 | 0 |
| NO | 0 | 0 | 0 |
| PL | 0 | 0 | 0 |
| PT | 0 | 0 | 0 |
| RO | 0 | 0 | 0 |
| SE | 0 | 0 | 0 |
| SI | 0 | 0 | 0 |
| SK | 0 | 0 | 0 |
| UK | 0 | 0 | 0 |


Co-financed by the European Union through the INTERREG III ESPON Programme.

## Urban growth 1990 - 2000




**Relative growth in %**

- to below 0.5 %
- 0.5 to below 1 %
- 1 to below 2.5 %
- 2.5 to below 5 %
- 5 to below 10 %
- 10 to below 20 %
- 20 % and more
- CORINE data not available

Origin of data: CORINE 1990 & 2000: European Environment Agency
Geographical base: Eurostat GISCO

Regional level: NUTS 3

**Spatial coverage**

| | Yes/No |
|---|---|
| EU 25+2+2 | no |
| EU 25 | no |
| EU 15 | yes |
| EU 10 | no |

**Spatial level / regional level**

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | no | |
| NUTS 3 | yes | NUTS 1999 |
| | | |
| NUTS 5 | no | |

**Time reference / actuality**

| data is available as... | |
|---|---|
| data for a point of time: | yes |
| a time series: | no |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | |
| other | |

**Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)**

| | Description |
|---|---|
| Origin | ESPON project 2.4.1 |
| Source | Corine |

**Type of data (raw data, model output, survey data etc.)**

| | Yes/No | Description |
|---|---|---|
| raw | no | |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | yes | relative change between 1990 and 2000 of CORINE artificial area |

**Data gaps (please describe)**

EU-25 plus Bulgaria and Romania (excl. Cyprus, Malta, Finland, Sweden and remote areas of France and Portugal)

**Comments**

# Indicator Sheet: Percentage of artificial area - Corine

| | |
|---|---|
| Dimension: | Spatial structure (Urban, urban-rural, urban hierarchy) |
| Objective: | Balanced spatial development |
| Sub-objective: | Limiting land use |
| Calculation: | Share of artificial area in total area |

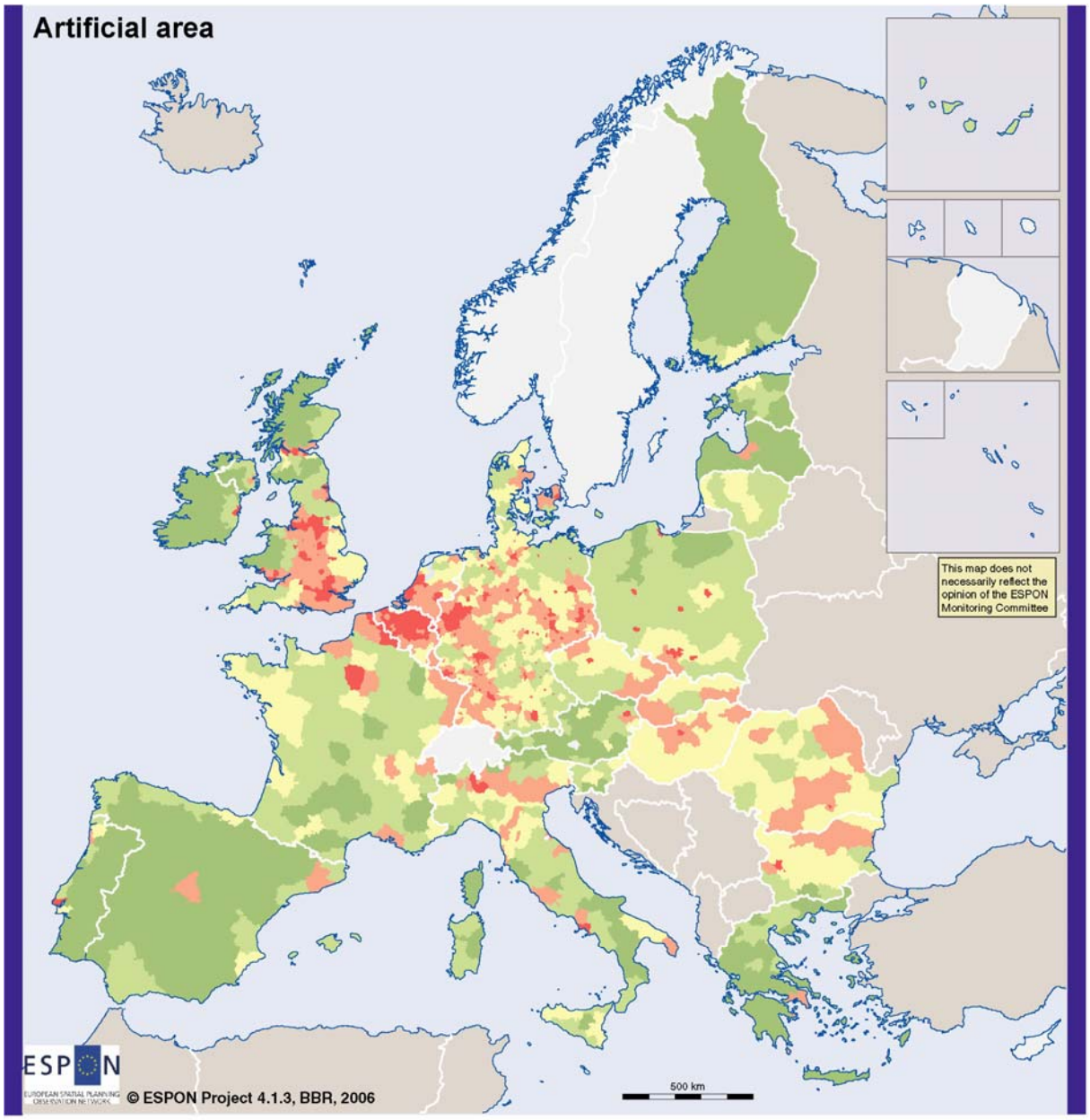
**Informational value**

Land take by the expansion of artificial areas and related infrastructure is the main cause of the increase in the coverage of land at the European level. Agricultural zones and, to a lesser extent, forests and semi-natural and natural areas, disappear in favour of the development of artificial surfaces. This affects biodiversity since it decreases habitats, the living space of a number of species, and fragments the landscapes that support and connect them.

**Regional distribution**

In big cities and capitals. High percentages in Germany, England and the countries of Benelux.

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | | | |
| EU 25 | 7,38 | 0 | 97,99 |
| EU 15 | | | |
| EU 10 | | | |
| AT | 3,5 | 0,04 | 54 |
| BE | 21,07 | 4,26 | 85,92 |
| BG | 5,53 | 1,38 | 21,60 |
| CH | | | |
| CY | | | |
| CZ | 8,33 | 2,71 | 46,54 |
| DE | 14,84 | 1,65 | 82,06 |
| DK | 14,14 | 2,82 | 87,33 |
| EE | 2,18 | 1,05 | 4,75 |
| ES | 1,47 | 0 | 7,68 |
| FI | 0,95 | 0,08 | 5,48 |
| FR | 7,53 | 0,45 | 97,99 |
| GR | 1,06 | 0 | 11,6 |
| HU | 8,41 | 3,69 | 66,09 |
| IE | 4 | 0,40 | 29,01 |
| IT | 4,94 | 0,65 | 33,99 |
| LT | 3,13 | 1,93 | 4,60 |
| LU | 6,66 | 6,66 | 6,66 |
| LV | 2,24 | 0,64 | 7,68 |
| MT | | | |
| NL | 13,01 | 3,26 | 48,20 |
| NO | | | |
| PL | 8,93 | 0,88 | 54,87 |
| PT | 2,42 | 0 | 20,43 |
| RO | 7,02 | 2,41 | 64,06 |
| SE | | | |
| SI | 2,73 | 1,13 | 5,18 |
| SK | 6,25 | 3,31 | 11,02 |
| UK | 26,78 | 0,11 | 97,97 |




**Share of artificial area in %**

- less than 1.5
- 1.5 to below 3.7
- 3.7 to below 6.1
- 6.1 to below 14.8
- 14.8 and more
- no data


Regional level: NUTS 3
Origin of data: CORINE
**Source: ESPON database**

**Spatial coverage**

| | Yes / No |
|---|---|
| EU 25+2+2 | no |
| EU 25 | yes |
| EU 15 | no |
| EU 10 | no |

**Spatial level / regional level**

| | Yes / No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | no | |
| NUTS 3 | yes | NUTS 1999 |
| | | |
| NUTS 5 | no | |

**Time reference / actuality**

| data is available as... | |
|---|---|
| data for a point of time: | yes |
| a time series: | no |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | |
| other | |

**Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)**

| | Description |
|---|---|
| Origin | Corine |
| Source | ESPON database |

**Type of data (raw data, model output, survey data etc.)**

| | Yes / No | Description |
|---|---|---|
| raw | yes | Corine |
| survey | no | |

| | Yes / No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | yes | |

**Data gaps (please describe)**

Switzerland, Cyprus, Malta, Norway, Sweden, French Overseas Departments, Acores

**Comments**

# Indicator Sheet: Percentage of urban fabric - Corine

| | |
|---|---|
| Dimension: | Spatial structure (Urban, urban-rural, urban hierarchy) |
| Objective: | Balanced spatial development |
| Sub-objective: | Limit consumption of natural surfaces |
| Calculation: | Share of urban areas in total surface |

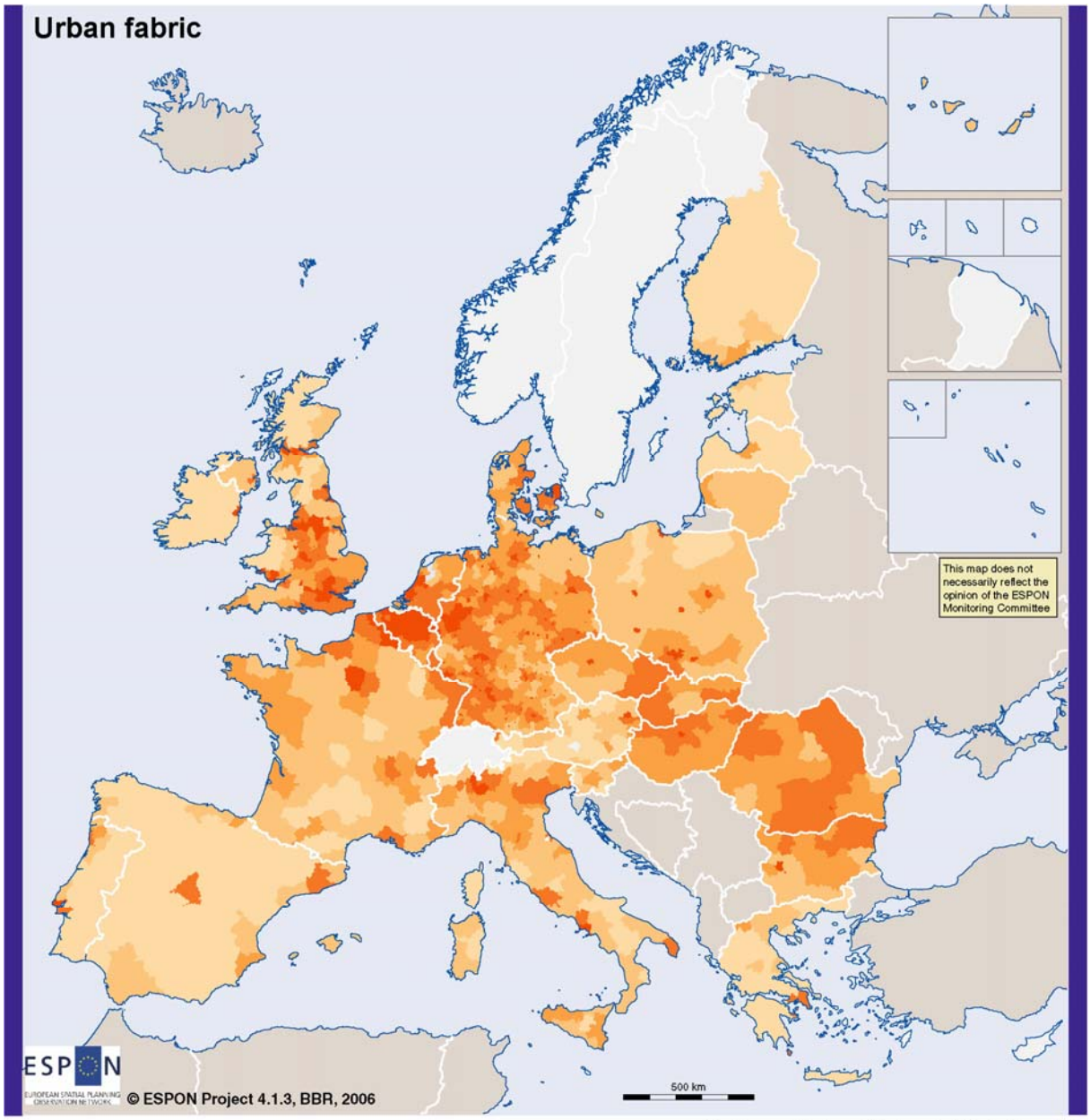
**Informational value**

This indicator should allow the characterisation of urbanisation, and through the use of time series, the evaluation of urban sprawl.

**Regional distribution**

The share of urban fabric is eminently high in big cities and capitals. In Germany and England an area-wide urban fabric can be found.

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | | | |
| EU 25 | 5,71 | 0 | 86,37 |
| EU 15 | | | |
| EU 10 | | | |
| AT | 3,03 | 0,04 | 46,59 |
| BE | 17,30 | 3,88 | 60,18 |
| BG | 4,23 | 1,06 | 14,12 |
| CH | | | |
| CY | | | |
| CZ | 6,45 | 2,20 | 35,02 |
| DE | 11,14 | 1,23 | 59,52 |
| DK | 11,22 | 1,95 | 68,53 |
| EE | 1,15 | 0,63 | 2,42 |
| ES | 1,07 | 0 | 5,41 |
| FI | 0,75 | 0,05 | 4,45 |
| FR | 5,76 | 0,33 | 76,24 |
| GR | 0,84 | 0 | 8,61 |
| HU | 6,79 | 3,18 | 50,37 |
| IE | 3 | 0,32 | 21,45 |
| IT | 3,67 | 0,38 | 25,14 |
| LT | 2,21 | 1,37 | 2,99 |
| LU | 5,42 | 5,42 | 5,42 |
| LV | 1,24 | 0,48 | 3,86 |
| MT | | | |
| NL | 9,21 | 2,61 | 33,77 |
| NO | | | |
| PL | 5,95 | 0,67 | 35,30 |
| PT | 1,94 | 0 | 17,77 |
| RO | 6,13 | 2,06 | 49,82 |
| SE | | | |
| SI | 1,99 | 0,91 | 3,74 |
| SK | 4,89 | 2,64 | 7,17 |
| UK | 21,60 | 0 | 86,37 |




**Share of urban fabric area in %**

- less than 1.1
- 1.1 to below 3.0
- 3.0 to below 4.9
- 4.9 to below 11.8
- 11.8 and more
- no data


Regional level: NUTS 3
Origin of data: CORINE
**Source: ESPON database**

**Spatial coverage**

| | Yes/No |
|---|---|
| EU 25+2+2 | no |
| EU 25 | yes |
| EU 15 | no |
| EU 10 | no |

**Spatial level / regional level**

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | no | |
| NUTS 3 | yes | NUTS 1999 |
| | | |
| NUTS 5 | no | |

**Time reference / actuality**

| data is available as... | |
|---|---|
| data for a point of time: | yes |
| a time series: | no |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | |
| other | |

**Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)**

| | Description |
|---|---|
| Origin | ESPON project 3.1 / 3.2 |
| Source | EEA - Corine Landcover - 250m grid |

**Type of data (raw data, model output, survey data etc.)**

| | Yes/No | Description |
|---|---|---|
| raw | no | |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | yes | classified satellite (grid) data recalculated into NUTS areas |
| model | yes | Calculation of km² value by area tabulation of Corine Land use values and NUTS 3 GISCO 1 Mio set and redistribution on REGIO land area value |

**Data gaps (please describe)**

Switzerland, Cyprus, Malta, Norway, Sweden, French Overseas Departments, Acores

**Comments**

# Indicator Sheet: Demographic trend in urban areas compared to rural areas

| | |
|---|---|
| Dimension: | Spatial structure (Urban, urban-rural, urban hierarchy) |
| Objective: | Balanced distribution of population, wealth, cities |
| Sub-objective: | |
| Calculation: | Total change of population within areas identified as urban, as compared to the rest of the regional territory identified as rural |

**Informational value**

A regional demographic evolution can hide important discrepancies between different sub-entities, typically between urban and rural areas. The objective with this indicator is to reveal where such discrepancies can be identified.

**Description of current status of the indicator**

**Spatial coverage**

| | Yes/No |
|---|---|
| **EU 25+2+2** | no |
| **EU 25** | no |
| **EU 15** | no |
| **EU 10** | no |

**Spatial gaps**

**Spatial level / regional level**

| | Yes/No | Version |
|---|---|---|
| **NUTS 1** | no | |
| **NUTS 2** | no | |
| **NUTS 3** | no | |
| | | |
| **NUTS 5** | yes | |

### Time reference / actuality

| data is available as... | |
|---|---|
| **data for a point of time:** | no |
| **a time series:** | yes |
| | |
| **updated data (intervals):** | Depends on the country. Generally updated yearly, but sometimes only estimates between census years. |
| **periodicity (i.e. available years etc.):** | has been collected for the period 1991-2001 |
| **other** | with NUTS boundaries from SABE 1997 (except UK, CZ, SK, PL) |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| **Origin** | ESPON NUTS 5 data gathering |
| **Source** | National Statistical Offices |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| **raw** | no | |
| **survey** | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| **modified** | yes | Aggregated according to different definitions of urban and rural |
| **model** | no | |

### Difficulties with the indicator

National definitions of urban and rural are not comparable. In many parts of the European territory, one can furthermore question the value of the "urban" and "rural" concepts, when urban labour markets encompass the entire rural hinterlands. In the absence of reliable and comparable commuting data for the ESPON Space, "rural" should be approached as the municipalities beyond commuting distance of cities of a certain size.

### Specific difficulties for the use in ESPON

Some ESPON countries (UK, especially) have local statistical boundaries (LAU 2) that are not stable enough to calculate evolutions over time. It however needs to be tested to which extent this affects the aggregation of LAU 2 areas within commuting distance of a given city or town - it may be possible to calculate reasonable proxy values. The identification of the relevant urban centre points is also problematic. Different size and functional importance thresholds can be envisaged, in order to capture the variety of "urban-rural" contrasts across the European territory.

# Indicator Sheet: Balance of commuters

| | |
|---|---|
| Dimension: | Spatial structure (Urban, urban-rural, urban hierarchy) |
| Objective: | Sustainable settlement structures |
| Sub-objective: | |
| Calculation: | Difference between employed persons in-commuting and those out-commuting to/from a place/territory |

**Informational value**

Helps identifying economic centres in each territory. Important when assessing GDP per capita values, otherwise overestimated because of commuter surplus or underestimated because of out-commuting.

**Description of current status of the indicator**

**Spatial coverage**

| | Yes/No |
|---|---|
| **EU 25+2+2** | no |
| **EU 25** | no |
| **EU 15** | no |
| **EU 10** | no |

**Spatial gaps**

**Spatial level / regional level**

| | Yes/No | Version |
|---|---|---|
| **NUTS 1** | no | |
| **NUTS 2** | no | |
| **NUTS 3** | no | |
| | | |
| **NUTS 5** | yes | |

### Time reference / actuality

| data is available as... | |
|---|---|
| **data for a point of time:** | yes |
| **a time series:** | no |
| | |
| **updated data (intervals):** | |
| **periodicity (i.e. available years etc.):** | |
| **other** | |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| **Origin** | |
| **Source** | Some national statistical offices have data on commuter flows |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| **raw** | yes | |
| **survey** | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| **modified** | no | |
| **model** | no | |

### Difficulties with the indicator

Usually commuter flows are measured at the border of a territory (e.g. municipality). Hence the commuter balance of an areas is largely dependent on its size. Furthermore applying this indicator above LAU 2 level is meaningless because most commuter distances are too short to be measured when using a regional boundary.

### Specific difficulties for the use in ESPON

# Indicator Sheet: Proportion of long-distance commuters

| | |
|---|---|
| Dimension: | Spatial structure (Urban, urban-rural, urban hierarchy) |
| Objective: | Sustainable settlement structures |
| Sub-objective: | |
| Calculation: | Share of commuters with a certain distance to the workplace out of all persons employed |

## Informational value

Helps understanding regional economic dynamics and the functional structure and dynamic of a territory. For example in terms of a lack of local job opportunities forcing the active population to commute over large distances; in terms of an inflow of revenue stemming from employment in other regions; in terms of the structure and dynmaics of the reigonal housing market etc.

## Description of current status of the indicator

### Spatial coverage

| | Yes/No |
|---|---|
| **EU 25+2+2** | no |
| **EU 25** | no |
| **EU 15** | no |
| **EU 10** | no |

### Spatial gaps

### Spatial level / regional level

| | Yes/No | Version |
|---|---|---|
| **NUTS 1** | no | |
| **NUTS 2** | no | |
| **NUTS 3** | no | |
| | | |
| **NUTS 5** | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| data for a point of time: | no |
| a time series: | no |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | |
| other | |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| Origin | |
| Source | Eurostat provides data on employment and commuting among NUTS level 2 regions, indicating the number of persons working in the same region and in other regions, respectively. Some gaps. |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| raw | no | |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

### Difficulties with the indicator

Firstly, the calculation of the commuting distance is highly dependent on the definition of origin and destination. For example measuring commuting distances based on municpal centroids gives distance approximations which are highly dependent on the size of municipalities. Furthermore the threshold of what is a long distance has to be defined. However, this can vary significantly from territory to territory.

### Specific difficulties for the use in ESPON

## Indicator Sheet: Accessibility of services of general interest

| | |
|---|---|
| Dimension: | Spatial structure (urban, urban-rural, urban hierarchy) |
| Objective: | Sustainable settlement structures |
| Sub-objective: | |
| Calculation: | Proportion of regional population living within certain car travel times to important public services (such as universities, major hospitals). In a first step the car travel time isochrones around each facility will be constructed. Secondly, the number of people living within these isochrones are calculated. In a third step the proportion of NUTS-3 population living within these isochrones will be calculated. This algorithm requires that the population is either available at NUTS-5 level or at raster level, in order to perform overlay analysis and aggregate the population figures to NUTS-3 level. |

**Informational value**

The provision and securing of adequate access to major public services such like hospitals or universities became politically more and more important over the last decade, for various reasons: firstly, demographic trends (over-aging, migration) fundamentally change the amount and structure of the demand for such services; secondly, increasing car usage also changed people´s travel behaviour and also their patterns of movements in space, so that many locations of such services nowadaways are questioned, many of them being in danger to be closed. On the other hand, missing public services may also foster demographic erosion trends in (rural) areas, leading to a negative downward spiral. The travel time to such facilities alone does not inform about the quality of the supply, as isochrones say only little whether their spatial coverage comply with the population distribution. Therefore, this indicator provides information on the proportion of population living within the service area of such facilities, after the isochrones have been overlaid with population figures. Because of the impacts on the demographic trends and for regional planning (as briefly described above), this indicator is of high political relevance. Apart from these practical considerations, this indicator also illustrates the (hierarchy) of the urban system in countries and regions: one may find situation where such services are concentrated in only few (big) cities, compared to situations where they are scattered around in small and medium sized towns and villages. That way the spatial distribution of these facilities, and the spatial coverage of their isochrones, not only reflect the different spatial planning strategies, but also illustrates some supply side considerations: a concentration of facilitis usually leads to bigger facilities which are expected to generate economies of scale and so to reduce running costs, compared to smaller facilities which may be more effective in responding to local needs, and which transfer commuting costs from the people to the suppliers, as travel distances are shorter. From a spatial planning point of view, it is widely accepted that a balanced distribution of such facilities across the territory contributes best to a sustainable development (however, in some countries one can observe remarkable exceptions from this convention).

**Description of current status of the indicator**

**Spatial coverage**

| | Yes / No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

**Spatial level / regional level**

| | Yes / No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | no | |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

**Spatial gaps**

The mountain study revealed different results at massif level, depending on the type of service considered. Concerning airports and universities, massifs in central and South-West Europe experience a high proportion of massif population living within one hour driving time, whereas massifs in the Nordic regions and also in Eastern Europe only show a small proportion of population within one hour. If hospitals are considered, massifs in many East European countries perform much better, as they now have a high proportion of population living within one hour driving time to next facility.

### Time reference / actuality

| data is available as... | |
|---|---|
| **data for a point of time:** | yes |
| **a time series:** | no |
| | |
| **updated data (intervals):** | |
| **periodicity (i.e. available years etc.):** | 2004 |
| **other** | Mountain massifs |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| **Origin** | DG Regio Mountain Study |
| **Source** | IRPUD, Nordregio |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| **raw** | no | |
| **survey** | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| **modified** | no | |
| **model** | yes | Indicator calculated by network model based on shortest route and overlay algorithms. Necessary base data are: Transport networks (road network, railway stations), raster system or NUTS-5 layer, NUTS-3 region layer. |

### Difficulties with the indicator

The available European-wide examples from the DG Regio mountain study have the drawback that they only cover massif areas in Europe, i.e. only halft of the ESPON territory are covered, and that the massif delimitation does not comply with any NUTS territories, so that the indicator results can hardly be adjusted to any NUTS level. From a technical point of view, the indicator calculation is quite complex, as it entails not only the generation of isochrones but also the overlay of the isochrones with a detailed spatial population distribution. Furthermore, a full coverage of the facilities in question is required, which may be difficult to establish for the whole ESPON space. A sufficiently dense road network database must also be established to generate the isochrones. Until now such an indicator has, consequently, not yet been calculated for the ESPON space; examples of such indicators have been calculated in the framework of the so-called 'Mountain Study' for DG Regio in 2004 for massifs in Europe: however, as the study name suggests, the results are only available for mountain areas and were not calculated for the entire ESPON territory. Selected results from the mountain study are presented as maps. The indicator results highly depend on the quality and completeness of the input data, in particular on the completeness of the rail station data, but also on the accuracy of the road networks used.

### Specific difficulties for the use in ESPON

An appropriate network model ist not yet available free of charge for the whole of Europe. For instance, the available network database at Eurostat/GISCO is sufficiently dense for analyses at strategic level, however, it is not dense enough to enable sound raster-based analyses. Similarly, appropriate facilitiy layers for the whole of Europe are not available free of charge, but probably could be licensed from private data companies.

# Indicator Sheet: Evolution of natural surfaces

| | |
|---|---|
| Dimension: | Spatial structure (Urban, urban-rural, urban hierarchy) |
| Objective: | Limiting loss of natural surfaces |
| Sub-objective: | Protecting habitats and biodiversity |
| Calculation: | Share of natural surfaces in total surface |

**Informational value**

The increase of artificial surfaces goes along with a decrease of natural surfaces, such as grassland and forested areas. Land take by the expansion of artificial areas and related infrastructure is the main cause of the increase in the coverage of land at the European level. Agricultural zones and, to a lesser extent, forests and semi-natural and natural areas, are disappearing in favour of the development of artificial surfaces. This affects biodiversity since it decreases habitats, the living space of a number of species, and fragments the landscapes that support and connect them.

**Description of current status of the indicator**

**Spatial coverage**

| | Yes/No |
|---|---|
| EU 25+2+2 | no |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

**Spatial gaps**

**Spatial level / regional level**

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | no | |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| **data for a point of time:** | yes |
| **a time series:** | no |
| | |
| **updated data (intervals):** | |
| **periodicity (i.e. available years etc.):** | |
| **other** | |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| **Origin** | |
| **Source** | Corine |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| **raw** | no | |
| **survey** | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| **modified** | no | |
| **model** | no | |

### Difficulties with the indicator

### Specific difficulties for the use in ESPON

Data should be available through the Corine Land Use database, but is currently not available to ESPON

# Indicator Sheet: Average travel time to next three regional cities

| | |
|---|---|
| Dimension: | Energy, Transport, ICT |
| Objective: | Balanced distribution of population, wealth and cities |
| Sub-objective: | Regional supply quality and city distribution |
| Calculation: | This indicator is calculated as the average car travel time over the road network from each raster cell to the next three regional cities with more than 100,000 inhabitants. The resolution of the raster cells should 1x1 km or 2x2 km; the results at raster level should then be aggregated to NUTS-3 level. |

**Informational value**

This indicator relates the density and quality of the transport networks to the spatial distribution of cities. Cities are considered here as functional nodes offering public and private services, jobs and social contacts, shopping and culture facilities. The better the access to these cities, i.e. the shorter the travel times to these cities and the bigger their service areas, the more people can benefit from the opportunities offered in regional cities. Thereby, regional cities play an even more important role for the provision of basic services (such as education or health facilities) to rural areas as the big agglomerations or global cities do. People living in areas located within the service area of more than one regional city can even select day-by-day which regional city offers the opportunities serving best their actual needs. Therefore, in many countries (e.g. Germany, the Netherlands) regional cities play an important role in regional planning for the provision of services of any kind. Consequently, many infrastructure projects have a strong regional character in that they aim to contribute to the increase of the accessibility of regional cities. Thus the main objective of this indicator is to assess the direct impacts of the improvements of the regional roads networks, by capturing travel time savings. For this reason the indicator has been widely used in spatial monitoring systems (for example, Germany, the Netherlands). The city size threshold of 100,000 inhabitants represents a compromise of the city systems in the different ESPON countries. However, this threshold may not be appropriate for Nordic countries or island regions, as regional cities there tend to have smaller population numbers. For these areas it may be discussed to use smaller cities (such as more than 50,000 inhabitants). However,

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 0 | 0 | 0 |
| EU 25 | 0 | 0 | 0 |
| EU 15 | 0 | 0 | 0 |
| EU 10 | 0 | 0 | 0 |
| AT | 0 | 0 | 0 |
| BE | 0 | 0 | 0 |
| BG | 0 | 0 | 0 |
| CH | 0 | 0 | 0 |
| CY | 0 | 0 | 0 |
| CZ | 0 | 0 | 0 |
| DE | 0 | 0 | 0 |
| DK | 0 | 0 | 0 |
| EE | 0 | 0 | 0 |
| ES | 0 | 0 | 0 |
| FI | 0 | 0 | 0 |
| FR | 0 | 0 | 0 |
| GR | 0 | 0 | 0 |
| HU | 0 | 0 | 0 |
| IE | 0 | 0 | 0 |
| IT | 0 | 0 | 0 |
| LT | 0 | 0 | 0 |
| LU | 0 | 0 | 0 |
| LV | 0 | 0 | 0 |
| MT | 0 | 0 | 0 |
| NL | 0 | 0 | 0 |
| NO | 0 | 0 | 0 |
| PL | 0 | 0 | 0 |
| PT | 0 | 0 | 0 |
| RO | 0 | 0 | 0 |
| SE | 0 | 0 | 0 |
| SI | 0 | 0 | 0 |
| SK | 0 | 0 | 0 |
| UK | 0 | 0 | 0 |

using smaller cities such as all cities with more than 50,000 inhabitants for the whole of Europe would result in a huge number of cities to be considered for countries in central Europe, such as Germany, Poland, or France, many of which, despite their size, are lacking basic public services. Analysing the raster level results furthermore provides the possibility to identify and delimitate those areas in Europe or within a country with travel times above/below certain thresholds which are commonly considered as maximum travel times for the provision of public services, i.e. to identify those areas that are not served. If the regional cities are evenly spread across the territory, this indicator would result in similar numbers for all regions, i.e. all regions would show similar average travel times, and no region would be privileged or disadvantaged because their location compared to regional cities. On the contrary, great variations in average travel times illustrate a polarised spatial distribution of regional cities, with either a monocentric city structure, or where the relevant cities are spatially concentrated in certain areas (for example, along costs, or in specific parts of the territory). Such patterns privilege certain areas on the dispense of other disadvantaged regions. In regional sciences such variations are often considered as driving forces for migration processes, either within short or medium distances, or within long distances. Besides the spread and location of the regional cities, other factors influencing the indicator output are the density and quality of the transport infrastructures. There may be cases where there are great variations in accessibility although the cities are rather evenly distributed over the territory, but because the quality of the transport infrastructure in certain parts of the territory is poor. Similar indicators consider the (average) travel times to only one regional city (i.e. next regional city) or to more than 3 regional cities, depending on the application. To date there have been many applications calculating the travel times to three regional cities, while there are only few studies considering more than three cities. The indicator should be calculated every five years, reflecting the rather slow development of the transport networks.

**Regional distribution**

This indicator shows very distinct spatial patterns both at European and national scale. At European scale countries such as Germany, the UK, Italy, and the Benelux countries show generally shorter average travel times compared to more peripheral countries such as Portugal, Greece, Ireland or Norway, Sweden and Denmark. On the other hand, all countries also reveal great differences within their territory. For example, the coastal areas of Spain and the greater Madrid area with generally short travel times compared to the other parts of Spain with relative long travel times, or the southern parts of Sweden and Finland compared to their Northernmost regions. Both observations reflect (a) the number and spatial distribution of regional cities (> 100,000 inhabitants), but also (b) the density and quality of the (regional) road networks to reach them. Assuming that many public, administrative but also private services and jobs are located in regional and main cities, one can conclude that the accessibility level in many parts of Europe is not sufficient, while observing travel times of 2 hours or more.

**Spatial coverage**

| | Yes/No |
|---|---|
| **EU 25+2+2** | yes |
| **EU 25** | no |
| **EU 15** | no |
| **EU 10** | no |

**Spatial level / regional level**

| | Yes/No | Version |
|---|---|---|
| **NUTS 1** | no | |
| **NUTS 2** | no | |
| **NUTS 3** | no | |
| | | |
| **NUTS 5** | no | |

**Time reference / actuality**

| data is available as... | |
|---|---|
| **data for a point of time:** | yes |
| **a time series:** | no |
| | |
| **updated data (intervals):** | |
| **periodicity (i.e. available years etc.):** | Data available for 2004 only |
| **other** | Raster level |

**Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)**

| | Description |
|---|---|
| **Origin** | ESPON project 1.2.1 |

| Source | CITERES |
|---|---|

## Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| raw | no | |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | yes | Indicator calculated based on network model results. |

### Data gaps (please describe)

Cyprus, French Overseas Departments, Azores and Madeira (PT), Canary islands (ES)

### Comments

In ESPON 1.2.1 this indicator was calculated and mapped at raster level, and it was, unfortunately, not aggregated to NUTS-3 level. Thus the indicator is currently not included in the ESPON database, and summary figures on a country-by-country basis can also not be produced.. The proposed 5-year intervals seem sufficient as both the transport networks and also the size of the regional cities are not changing rapidly year by year, but rather in intermediate time intervals. A city size threshold of 100,000 inhabitants seems appropriate to take into account the different settlement and city structures in most EU Member States, however, in case of the Nordic countries a lower threshold of about 50,000 inhabitants could be discussed. The road mode is taken into account here as car is the predominant mode in all ESPON countries, particular for medium-distance travel to regional citis. Besides this indicator it may also be discussed to calculate similar indicator based on rail transport. The calculation of a similar rail indicator is hampered mainly because of two reasons: (i) some of the regional cities in question in Europe are not directly connected to the rail network, and (ii) rail travel times for the whole of Europe are rarely available at reasonable prizes which could be utilized for the indicator calculation. The travel times calculated at raster level should not only be used to produce aggregated results at NUTS-3 level but should also be used to calculate proportions of NUTS (0, 1, 2 or 3)-territories or population with travel times above a certain threshold. These thresholds could also be mapped at raster level in order to derive isochrones maps and visualise areas with least accessibilities on a detailed spatial level. This will reveal even great disparities within individual NUTS entities.

# Indicator Sheet: Intensity of traffic flows per network segment

| | |
|---|---|
| Dimension: | Energy, Transport, ICT |
| Objective: | Sustainable transport and energy |
| Sub-objective: | Local traffic loads |
| Calculation: | This indicator provides information on the intensity of traffic flows per network segment (or corridor). For roads this indicator is usually expressed in average annual daily traffic (AADT) or passenger car units (PCU), for rail usually it is expressed as trains per hours, and for inland waterways it is usually expressed as vessels per day. |

**Informational value**

The analysis of regional traffic needs to be complemented by the analysis of traffic on each of the main network segments or corridors, if one is to understand the issues of traffic flows for regional development in full depth. Individual segments may be overloaded (and so fostering further investments in infrastructure on a particular region) or additional capacities may be available, which could be promoted (as it is the case for inland waterways). A comparison of the actual segment loads of different modes (road compared to parallel railways or inland waterways) may yield interesting information about capacities, capacity restrictions and actual modal split within that corridor. Such network-type analyses are also needed to understand ongoing political discussions about transport projects in sensible areas (for instance, the discussions about additional railway corridors through the Alps, bridge/tunnel projects like Öresund or Fehmarnbelt etc.), where a corridor or network approach is more appropriate as a regional approach (on which ESPON is up to now focussing on).

Link loads are basically needed not only to derive information on congested network segments, or bottlenecks, but they are also the starting point to derive further environmental indicators such as emission indicators, traffic noise and pollutant propagation indicators, or fragmentation indicators.

Comparing the traffic intensities for different modes, furthermore, provides valuable information on the main transport corridors in Europe, on potential available capacities (for instance, of inland waterways compared to roads) and on potential impacts on nature reserves. As sectoral authorities in the transport sector generally tend to work on

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 0 | 0 | 0 |
| EU 25 | 0 | 0 | 0 |
| EU 15 | 0 | 0 | 0 |
| EU 10 | 0 | 0 | 0 |
| AT | 0 | 0 | 0 |
| BE | 0 | 0 | 0 |
| BG | 0 | 0 | 0 |
| CH | 0 | 0 | 0 |
| CY | 0 | 0 | 0 |
| CZ | 0 | 0 | 0 |
| DE | 0 | 0 | 0 |
| DK | 0 | 0 | 0 |
| EE | 0 | 0 | 0 |
| ES | 0 | 0 | 0 |
| FI | 0 | 0 | 0 |
| FR | 0 | 0 | 0 |
| GR | 0 | 0 | 0 |
| HU | 0 | 0 | 0 |
| IE | 0 | 0 | 0 |
| IT | 0 | 0 | 0 |
| LT | 0 | 0 | 0 |
| LU | 0 | 0 | 0 |
| LV | 0 | 0 | 0 |
| MT | 0 | 0 | 0 |
| NL | 0 | 0 | 0 |
| NO | 0 | 0 | 0 |
| PL | 0 | 0 | 0 |
| PT | 0 | 0 | 0 |
| RO | 0 | 0 | 0 |
| SE | 0 | 0 | 0 |
| SI | 0 | 0 | 0 |
| SK | 0 | 0 | 0 |
| UK | 0 | 0 | 0 |

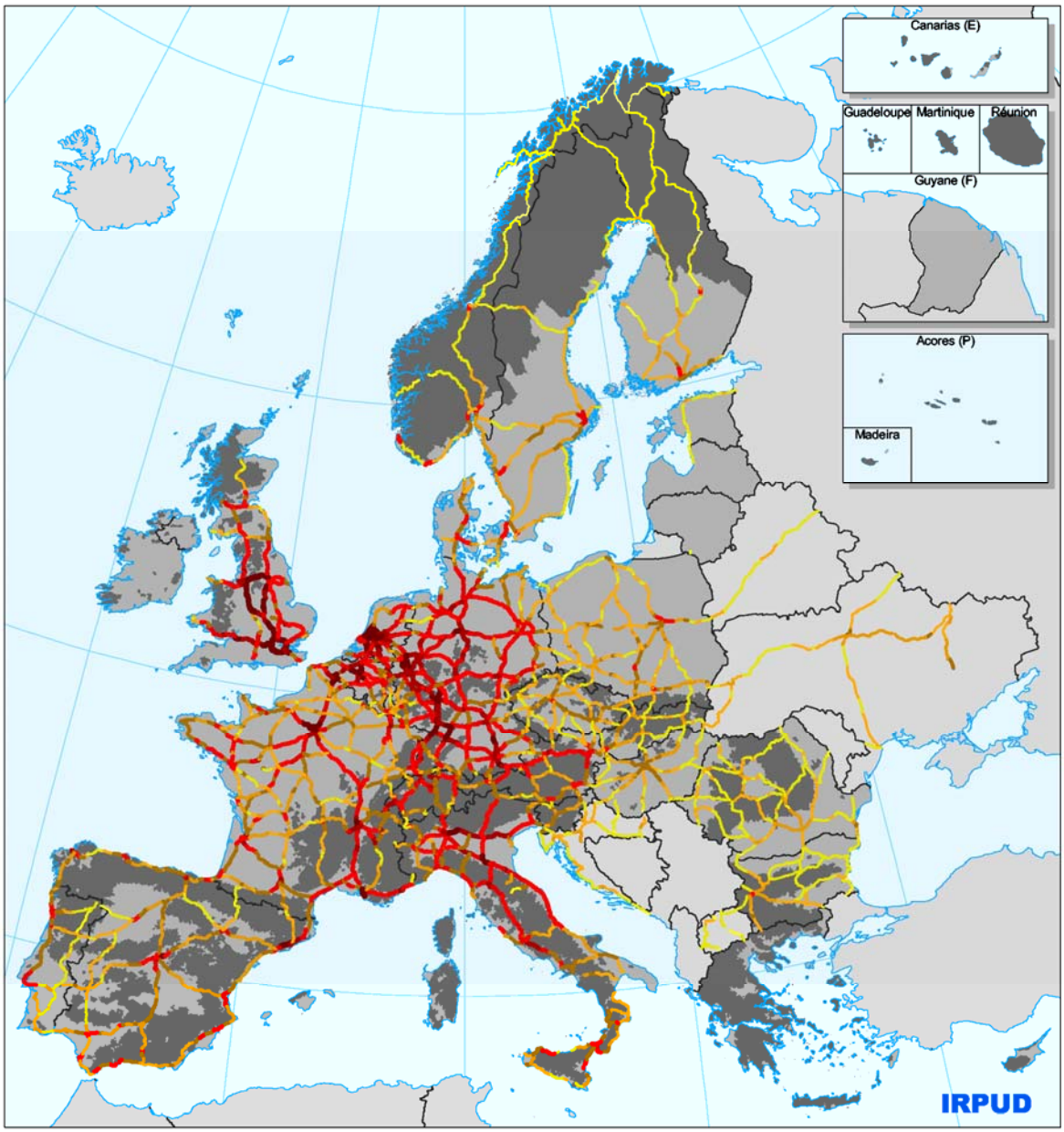
network segments (or corridors) rather than on regions, ESPON should enlarge its spatial concept from a purely regional focus by a another pillar, i.e. by network or corridor approaches.

For these reasons the indicator is proposed as a routing indicator for sustainable transport and energy.

**Regional distribution**

This indicator reveals different spatial patterns on different spatial levels. Generally speaking, a first observation is that transport segments located in economically higher developed regions with high population potentials in central and Western Europe have on-average higher link loads compared to links located in more peripheral regions or in economically lagging regions. Secondly, links in agglomerations (most often the capital city regions) do also have higher link loads compared to other parts of a country, regardless whether this country, in general, is a rather peripheral country, or whether the general economic performance of a country is comparatively low. Thirdly, as an exception from the previous two observations, links in difficult topographic or difficult physical situations also may experience higher link loads, even if they are remotely located from any big city. Such regions are, for instance, mountain areas (Alps, Pyrenees), or sealinks (e.g. Germany-Denmark, Germany-Sweden, Netherlands-UK) or generally links and corridors along coasts or between islands (see, for instance, the interlinkages between the Danish islands, where traffic has to be channelled through single routes).

Comparing the different modes with each other, one can generally conclude that inland waterways still have lots of free capacities in almost all countries (except for some particular locks and/or harbours), and that in many regions rail segments are running out of capacity, and that the situation conerning roads very much depends on their (general/local) geographical location.




Traffic flows on E-roads in 1995

Number of vehicles (average daily traffic by peak hour)

| | |
|---|---|
| 0 - 1,000 | 25,000 - 40,000 |
| 1,000 - 2,000 | 40,000 - 60,000 |
| 2,000 - 6,000 | 60,000 - 80,000 |
| 6,000 - 10,000 | 80,000 - 100,000 |
| 10,000 - 15,000 | 100,000 - 120,000 |
| 15,000 - 25,000 | 120,000 - 150,000 |
| | 150,000 < ... |

Source: UN / ECE

0 500Km

Administrative boundaries: EuroGeographics, ESRI Romania, NCRD, Oikos, Swiss Federal Statistical Office, Eurostat/GISCO

**Spatial coverage**

| | Yes/No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

**Spatial level / regional level**

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | no | |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

**Time reference / actuality**

| data is available as... | |
|---|---|
| data for a point of time: | no |
| a time series: | no |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | annual (for many country sources), 10-year intervals (UN-ECE) |
| other | Network segments / corridors |

**Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)**

| | Description |
|---|---|
| Origin | DG Regio Mountain Study, UN-ECE |
| Source | UN-ECE, national transport ministries and or road and railway and inland waterway authorities |

**Type of data (raw data, model output, survey data etc.)**

| | Yes/No | Description |
|---|---|---|
| raw | no | |
| survey | yes | Empirical data are gathered for this indicators, either based on surveys and (automatic) traffic counts, or based on timetables or shipping registers. Sometimes surveyed data are accompanied by modelled data (for secondary infrastructures). |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

**Data gaps (please describe)**

**Comments**

Unlike the other ESPON indicators which are regional indicators, this indicator is based on (road/rail/inland waterway) network segments or corridors. This indicator also implies that ESPON is opening to include not only regional data but also network-oriented types of data and analyses. UN-ECE is the only data source providing data on road traffic for the whole of Europe, but for E-roads only. Currently coordinated attempts for the establishment of a coherent traffic flows

database at European level are lacking, although such data were gathered (or modelled) in a number of projects (including projects funded by the EU/EC such as TINA, Trans-Stac, several World Bank and EuropeAid projects for Eastern Europe, regional transport studies (sone of which fincanced through INTERREG programmes etc.).
National transport ministries usually collect (or model) traffic flow data on network basis as one of the principal information used to develop their transport action and outline plans, so there should be possibilities to set up such a European-wide database on traffic flows based on a coordinated attempt.
As far as railways or inland waterways are concerned, data gathering should be even more straightforward as the relevent information could be derived from timetables or from shipping registers (at locks and harbours).

## Indicator Sheet: Proportion of population living within 30 minutes of next railway station

| | |
|---|---|
| Dimension: | Energy, Transport, ICT |
| Objective: | Socially inclusive society and space |
| Sub-objective: | Basic supply of sustainable mobility to people who don´t have a car or cannot drive a car |
| Calculation: | In a first step 30-minutes isochrones around each railway station based on car travel time will be constructed. Secondly, the number of people living within these isochrones are calculated. In a third step the proportion of NUTS-3 population living within these isochrones will be calculated. This algorithm requires that the population is either available at NUTS-5 level or at raster level, in order to perform overlay analysis and aggregate the population figures to NUTS-3 level. |

**Informational value**

Despite the increasing car usage in all European countries, access to and accessibility by public transport has received growing awareness over the last decade both because of environmental concerns and to ensure a best level of mobility for those people that cannot drive a car or cannot use a car for whatever reason (kids and young people without driving permission, elderly people, handicapped people, unemployed people who cannot afford a car, low-income households with no or only one car that is used by another household member, etc.). Based on recent demographic trends in many EU Member States (overaging, migration, long-time unemployment), but also because of heavy congested road networks, it becomes more and more important to strengthen public transport and so to ensure a high-quality level of mobility, not only in rural areas but also in the agglomerations. A good access to the respective railway stations and stops is a prerequisite for this. The present indicator is capturing this access by calculating the travel time by car from each raster cell to the next rail station. Afterwards, the population living within 30-minutes isochrones is summed-up and the proportion on the total NUTS-3 region population is aggregated. Regions with a high proportion will become immediately visible on the map. Compared to the second best indicator ('Connectivity to railway stations') this indicator not only calculates the travel times but also looks whether areas with short connecting times comply with those areas where most people live, honouring the fact that the location of railway stations should be in compliance with the population distribution. However, one can draw conclusions in areas where such a compliance is missing, either by saying that public transport facilities are really lacking, or that a country (or a region) is applying different transport strategies (for example such as in France where HRL stations sometimes are not located in city centres but between two cities). However, such a composite indicator overlaying the travel times with the population is not yet available in ESPON. This wishlist indicator is intended to substitue the 'connectivity to railway stations' indicator.

**Description of current status of the indicator**

**Spatial coverage**

| | Yes / No |
|---|---|
| **EU 25+2+2** | no |
| **EU 25** | no |
| **EU 15** | no |
| **EU 10** | no |

**Spatial gaps**

**Spatial level / regional level**

| | Yes / No | Version |
|---|---|---|
| **NUTS 1** | no | |
| **NUTS 2** | no | |
| **NUTS 3** | no | |
| | | |
| **NUTS 5** | no | |

**Time reference / actuality**

| data is available as... | |
|---|---|
| **data for a point of time:** | no |
| **a time series:** | no |
| | |
| **updated data (intervals):** | |
| **periodicity (i.e. available years etc.):** | indicator should be available in 5-year increments |
| **other** | |

**Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)**

| | Description |
|---|---|
| **Origin** | |
| **Source** | |

**Type of data (raw data, model output, survey data etc.)**

| | Yes / No | Description |
|---|---|---|
| **raw** | no | |
| **survey** | no | |

| | Yes / No | Description of modification and if basic data is necessary: |
|---|---|---|
| **modified** | no | |
| **model** | yes | Indicator calculated by network model based on shortest route and overlay algorithms. Necessary base data are: Transport networks (road network, railway stations), raster system or NUTS-5 layer, NUTS-3 region layer. |

**Difficulties with the indicator**

Indicator has to be calculated at raster level or NUTS 5 level and then has to be aggregated to NUTS-3 level. Disaggregated population figures at raster or NUTS-5 level are required for this analysis. All rail stations must be coded in a database. Furthermore, a dense road network database must also be available to calculate shortest paths from each raster cell/NUTS-5 entity to the next rail stations. Until now such an indicator has, consequently, not yet been calculated for the ESPON space. The indicator results highly depend on the quality and completeness of the input data, in particular on the completeness of the rail station data, but also on the accuracy of the road networks used.

**Specific difficulties for the use in ESPON**

An appropriate network model is not yet available free of charge for the whole of Europe. For instance, the available network database at Eurostat/GISCO is sufficiently dense for analyses at strategic level, however, it is not dense enough to enable sound raster-based analyses.

## Indicator Sheet: Modal split passenger transport

| | |
|---|---|
| Dimension: | Energy, Transport, ICT |
| Objective: | Sustainable transport and energy |
| Sub-objective: | |
| Calculation: | This indicator expresses the share of individual modes on total traffic within a region. The indicator should be derived from surveys and traffic counts (i.e. empirical data), or, if this is not possible, should be derived from transport model applications. In order to illustrate a full picture of transport within a region, the indicator should take account of transit traffic, interregional traffic, intraregional traffic, traffic originating and departing in the region, as well as local traffic, and should also consider non-motorised modes (the latter ones are often excluded, as local traffic is most often excluded). |

**Informational value**

This indicator should help to assess how car-dependent a transport system in a particular region is, and what role other modes (rail, air, public transport, non-motorised) play. Although it is to be expected that car/lorry are the predominant modes in many regions, the trains and public transport (in cities and agglomerations), non-motorised modes (within settlements) and even planes (for instance, in Nordic regions, for island regions) may also contribute a significant proportion of traffic. In addition to infrastructure measures (such as length or density of motorways or railway stations), this indicator illustrates the actual usage of the transport infrastructure; the actual usage, in turn, may be the outcome of the preferences of regional population, of the actual infrastructure supply and the actual taxation and financial system, or it may also represent actual bottlenecks of lack of infrastructure supply (for instance, people use the car or go by plane because attractive train connections are missing). This indicator may contribute in two ways to the monitoring of sustainability:Firstly, it is widely accepted that cars and planes are the least sustainable means of transport, so high proportions of these means may indicate a situation where transport pattens cannot be considered as sustainable in the long run. Secondly, the absence of certain modes of transport in a region or a city is reducing the option set for daily travel behaviour of families and households, and thus the fewer the available options, the more pre-determined the travel behaviour will be (for example, households are forced to buy a second car in areas where rail infrastructure is missing). In extreme cases the set of options available to people may determine daily life to a high degree, that way influcencing social sustainability.

## Description of current status of the indicator

### Spatial coverage

| | Yes / No |
|---|---|
| **EU 25+2+2** | yes |
| **EU 25** | no |
| **EU 15** | no |
| **EU 10** | no |

### Spatial gaps

### Spatial level / regional level

| | Yes / No | Version |
|---|---|---|
| **NUTS 1** | no | |
| **NUTS 2** | yes | NUTS 1999 |
| **NUTS 3** | no | |
| | | |
| **NUTS 5** | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| **data for a point of time:** | yes |
| **a time series:** | no |
| | |
| **updated data (intervals):** | |
| **periodicity (i.e. available years etc.):** | 2001 |
| **other** | |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| **Origin** | ESPON 1.2.1 |
| **Source** | Mcrit / Eurostat |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| **raw** | no | |
| **survey** | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| **modified** | no | |
| **model** | yes | Indicator results at regional level modelled using elaborated transport model. |

### Difficulties with the indicator

The available indicator is based on composite model results, for passenger transport only, and for only one point in time. The model results focussed on interregional trips, and thus intraregional trips and short-distance trips are not taken into account. Consequently, public transport modes other than rail (such as busses and coaches, subway, tram, ferry) and non-motorised modes (walking, cycling) are not considered at all, nor are goods transport. As a positive example, at least as far as passenger transport is concerned, in Germany the 'Kontinuierliche Erhebung zum Verkehrsverhalten (KONTIV)' (Continuous Survey on Travel Behaviour) can be used to derive modal split estimates at NUTS-3 level based on sample surveys of households. So far, this survey was conducted non-periodically in 1976, 1982, 1989 and 2002, allowing to derive time-series comparisons. Potential data sources at European level to derive modal split estimates for European regions are the Dateline project (5th Framework Programme). The generation of this indicator through surveys and traffic counts, as proposed, would entail huge efforts in empirical field trips, however, in many (regional) traffic forecasting and transport planning studies such field work is already conducted. Still, if such an indicator is to be derived through modelling work, the outcome highly depends on the traffic forecasting model applied, and the methods and assumptions applied, which eventually do not allow for direct comparisons between model results of different traffic models.

### Specific difficulties for the use in ESPON

# Indicator Sheet: Renewable energies in total energy production

| | |
|---|---|
| Dimension: | Energy, transport, ICT |
| Objective: | Sustainable Transport and Energy |
| Sub-objective: | |
| Calculation: | Proportion of renewable enery produced of the total amount of energy produced |

**Informational value**

This indicator shows how far energy production is covered by renewable energy sources - thus having two effects: 1. How far the dependency on fossile fuels is reduced at the regional scale - and in due course how far this region is capable of meeting primary energy demand in the future; 2. How far the path towards a sustainable energy production mix is followed. Sure enough this indicator only covers the supply side of the energy market thus neglecting the option of reducing energy demand at the same time (e.g. by raising energy efficiency) and producing the same two effects as mentioned before.

**Description of current status of the indicator**

**Spatial coverage**

| | Yes/No |
|---|---|
| EU 25+2+2 | no |
| EU 25 | no |
| EU 15 | yes |
| EU 10 | no |

**Spatial gaps**

**Spatial level / regional level**

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | yes | |
| NUTS 2 | yes | |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

**Time reference / actuality**

| data is available as... | |
|---|---|
| **data for a point of time:** | no |
| **a time series:** | no |
| | |
| **updated data (intervals):** | |
| **periodicity (i.e. available years etc.):** | |
| **other** | |

**Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)**

| | Description |
|---|---|
| **Origin** | |
| **Source** | |

**Type of data (raw data, model output, survey data etc.)**

| | Yes/No | Description |
|---|---|---|
| **raw** | yes | |
| **survey** | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| **modified** | no | |
| **model** | no | |

**Difficulties with the indicator**

**Specific difficulties for the use in ESPON**

# Indicator Sheet: Energy consumption per type of user and source

| | |
|---|---|
| Dimension: | Energy, transport, ICT |
| Objective: | Sustainable Transport and Energy |
| Sub-objective: | |
| Calculation: | Amount of energy consumed split up by type of user (transport, heating, etc.) and source (electricity, heat, power) per period of time |

**Informational value**

This indicator covers the demand side of the energy market, i.e. how much energy is consumed within a specific period of time. The informational value lies in the possibility to guide energy markets towards sustainability in two ways, i.e. the supply side and the demand side. Thus this indicator provides valuable information whether on a regional basis energy efficiency has increased (by reducing the amount of energy consumed - without reducing the total economic output at the same time).

**Description of current status of the indicator**

**Spatial coverage**

| | Yes/No |
|---|---|
| EU 25+2+2 | no |
| EU 25 | no |
| EU 15 | yes |
| EU 10 | no |

**Spatial gaps**

**Spatial level / regional level**

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | yes | |
| NUTS 2 | yes | |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

**Time reference / actuality**

| data is available as... | |
|---|---|
| data for a point of time: | no |
| a time series: | no |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | |
| other | |

**Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)**

| | Description |
|---|---|
| Origin | |
| Source | |

**Type of data (raw data, model output, survey data etc.)**

| | Yes/No | Description |
|---|---|---|
| raw | no | |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

**Difficulties with the indicator**

**Specific difficulties for the use in ESPON**

# Indicator Sheet: Trust in the legal system

| | |
|---|---|
| Dimension: | Territorially oriented governance |
| Objective: | Improving territorially oriented governance |
| Sub-objective: | Improving accountability and coherence in territorially oriented governance |
| Calculation: | Share of persons having complete trust/ no trust at all in the legal system of a counrty |

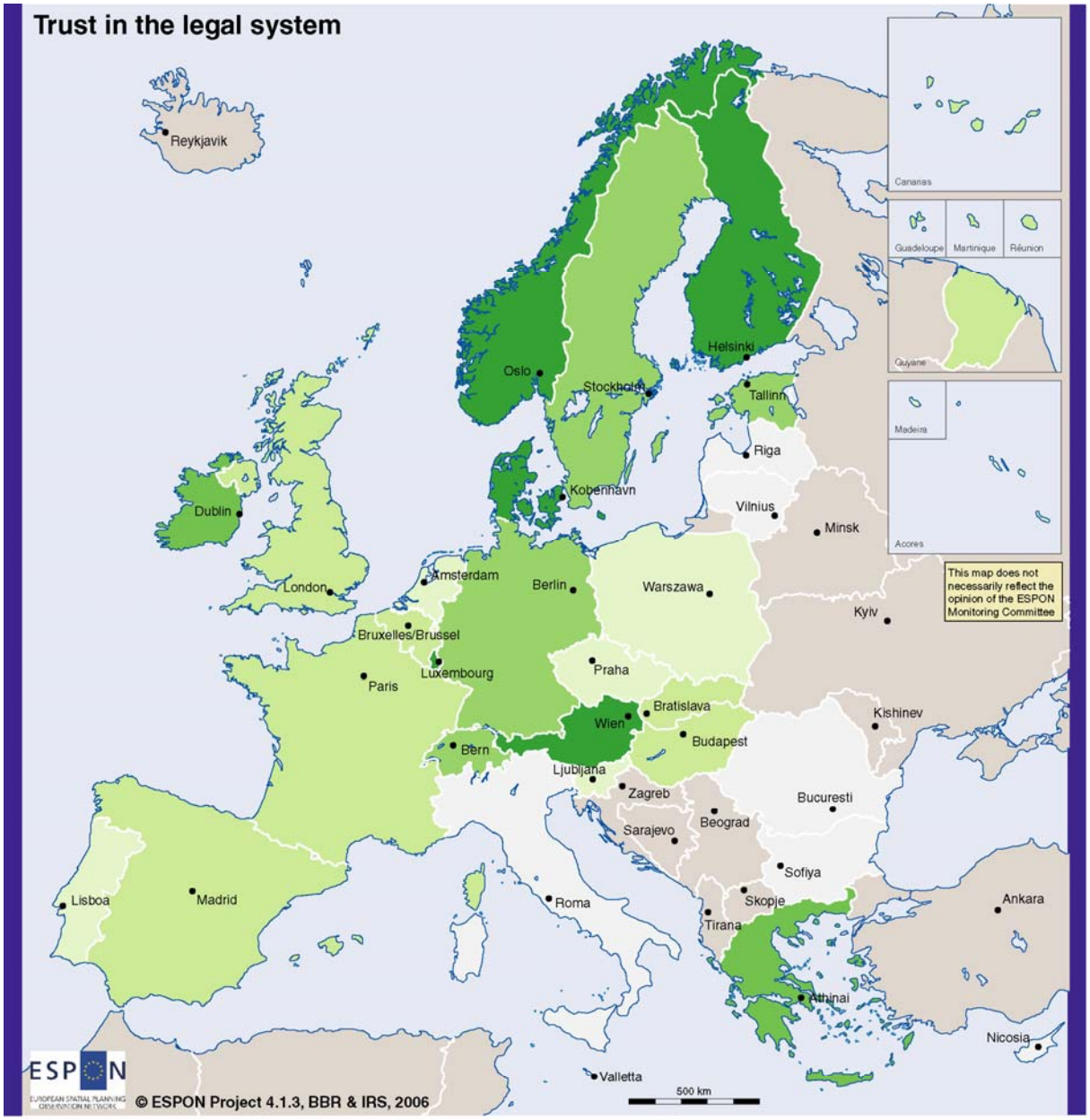
**Informational value**

The legal system of a state represents a main framework and precondition for all governance processes. Therefore, the degree of trust the people have in this legal system is of high value for the monitoring and assessment of governance structures and processes, and expresses to a great extent the accountability of the legal system, which is a necessary precondition for good territorially oriented governance. A solid and trusted legal system also provides a necessary basis for the development of consistent policies, and for a stable coordination among authorities and other actors. The trust in the legal system therefore also reflects the possibility of coherence in all governance structures and processes. The data available so far originates from survey results (European Social Survey) of limited scope and might therefore reflect rather individual opinions. The measurement is taken on a scale from 'no trust at all' via 9 different levels up to 'complete trust', thus allowing for a highly differentiated monitoring of trust in the legal system.

## Regional distribution

The Nordic countries generally show higher shares of people having complete trust in the legal system, especially Denmark. But also some mid- and southern European countries show above-average shares of people trusting the legal system completely (LU, GR). Most Eastern European countries show very low shares of people in this category of answers. This distribution is mirrored in the shares of people indicating to have no trust at all. Here, only four countries reach shares higher than 10 %, therefore showing a widely spread of mistrust in the legal system, all situated in Eastern Europe.

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | | | |
| EU 25 | | | |
| EU 15 | | | |
| EU 10 | | | |
| AT | | 3 | 4,90 |
| BE | | 7,70 | 1,10 |
| BG | | | |
| CH | | 1,3 | 2,70 |
| CY | | | |
| CZ | | 12,1 | 1 |
| DE | | 3,70 | 2,70 |
| DK | | 0,80 | 10,80 |
| EE | | 6,30 | 2,30 |
| ES | | 7,90 | 1,5 |
| FI | | 1,10 | 4,40 |
| FR | | 6,30 | 1,5 |
| GR | | 6,20 | 3,90 |
| HU | | 7,70 | 1,8 |
| IE | | 5,10 | 3,30 |
| IT | | | |
| LT | | | |
| LU | | 2,10 | 8 |
| LV | | | |
| MT | | | |
| NL | | 3 | 0,40 |
| NO | | 1,5 | 4,90 |
| PL | | 18,70 | 0,90 |
| PT | | 9,60 | 0,90 |
| RO | | | |
| SE | | 2,40 | 2,80 |
| SI | | 11 | 1 |
| SK | | 12,4 | 1,2 |
| UK | | 4,30 | 1,40 |




**Complete trust - percentage of interviewed persons**

- up to 1,0
- 1,1 up to 2,0
- 2,1 up to 3,0
- 3,1 up to 4,0
- 4,1 and more
- no data

© EuroGeographics Association for administrative boundaries
Regional level: NUTS 2
Origin of data: ESS Round 2, 2004
**Source: ESPON database**

**Spatial coverage**

| | Yes/No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | yes |
| EU 15 | yes |
| EU 10 | yes |

**Spatial level / regional level**

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | no | |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

**Time reference / actuality**

| data is available as... | |
|---|---|
| data for a point of time: | yes |
| a time series: | yes |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | 2002, 2004 |
| other | NUTS 0 |

**Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)**

| | Description |
|---|---|
| Origin | European Social Survey (online) |
| Source | European Social Survey, ESS Edition 2.0 (2004), released 2006 |

**Type of data (raw data, model output, survey data etc.)**

| | Yes/No | Description |
|---|---|---|
| raw | no | |
| survey | yes | results from ESS, a multi-country survey, every 2 years in more than 20 countries, monitoring social change and continuity, including aspects of governance |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

**Data gaps (please describe)**

- spatial gaps: no data available for Italy, Cyprus, Malta, Latvia, Lithuania, Bulgaria, Romania
- data would be needed on different spatial levels below the national level (e.g. region, municipality), in order to better investigate territorially oriented governance

**Comments**

Min – 'no trust at all'
Max – 'complete trust'

# Indicator Sheet: Politics too complicated to understand

| | |
|---|---|
| Dimension: | Territorially oriented governance |
| Objective: | Improving territorially oriented governance |
| Sub-objective: | Improving openness of territorially oriented governance |
| Calculation: | Share of persons finding politics too complicated to understand (never+seldom/regularly+frequently) |

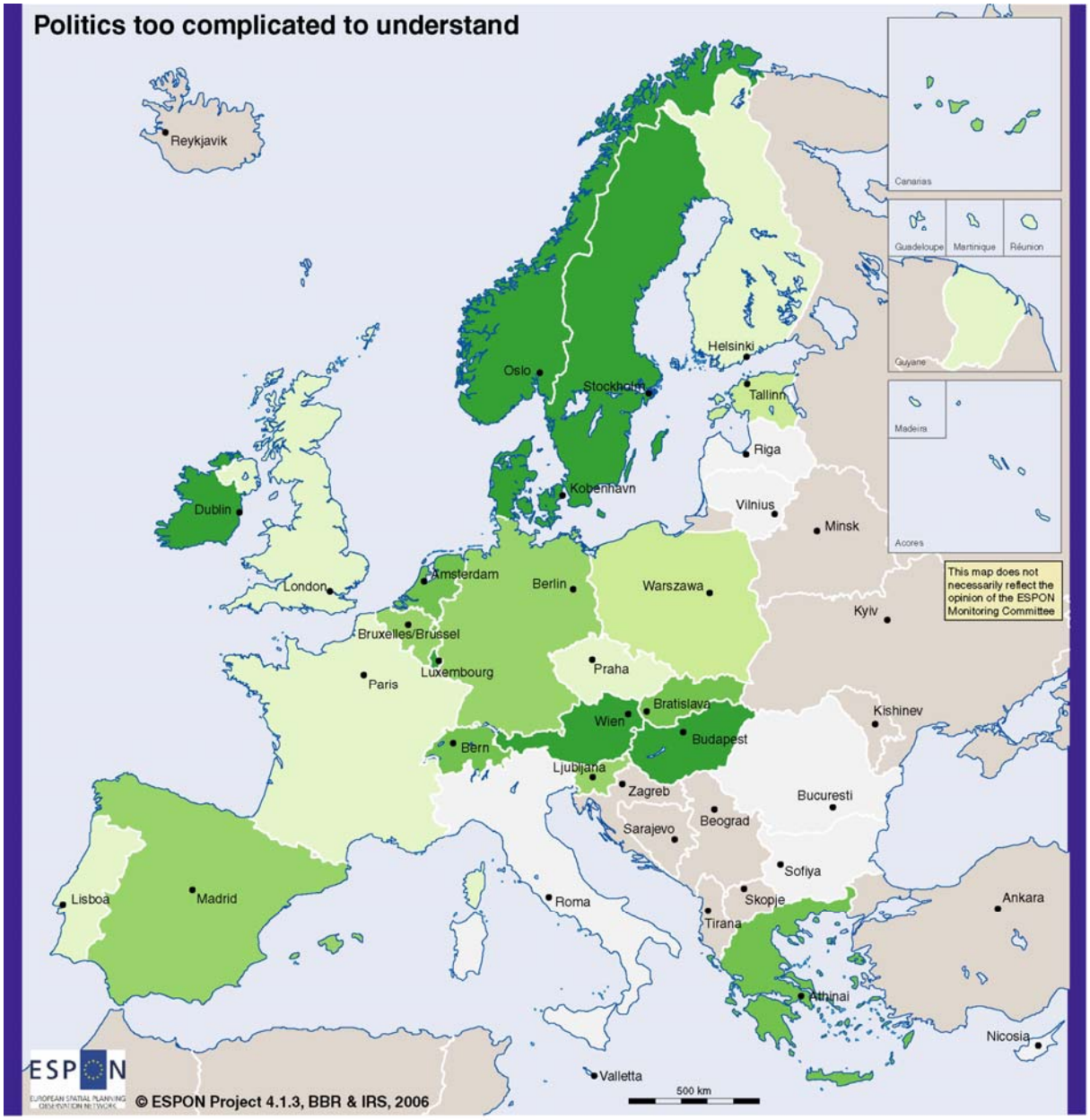
**Informational value**

This indicator allows for a measurement of the transparency of governance. The according data show, how often the interviewed persons find politics too complicated to understand (with the categories never, seldom, occasionally, regularly and frequently). Although the level of understanding of politics is linked to the educational level of the interviewee, the indicator still reflects the clearness and transparency of politics, and can therefore give an indication for the possible necessity of improvement of the transparency of politics, which would improve also the openness of territorially oriented governance structures

**Regional distribution**

In the examined countries, the share of the interviewed persons that find politics regularly or frequently too complicated to understand varies between 20 and 50%. Higher numbers for these shares can mostly be found in the Western and Southern European countries (F, PT, GR), as well as in some Eastern European countries (PL, CZ). The Nordic countries predominantly show higher shares of people, who indicate to only seldom or even never find politics too complicated to understand.

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | | | |
| EU 25 | | | |
| EU 15 | | | |
| EU 10 | | | |
| AT | | 34,20 | 28,5 |
| BE | | 27,30 | 37 |
| BG | | | |
| CH | | 27,70 | 30,80 |
| CY | | | |
| CZ | | 20 | 41,20 |
| DE | | 27,5 | 32,10 |
| DK | | 34,5 | 29,20 |
| EE | | 24,10 | 38,10 |
| ES | | 26,40 | 43,20 |
| FI | | 20,10 | 46,90 |
| FR | | 20,90 | 45,20 |
| GR | | 29,70 | 44,5 |
| HU | | 33,90 | 37 |
| IE | | 35,90 | 31,5 |
| IT | | | |
| LT | | | |
| LU | | 31 | 36,10 |
| LV | | | |
| MT | | | |
| NL | | 29,10 | 36,5 |
| NO | | 31 | 21,90 |
| PL | | 23,90 | 47 |
| PT | | 21,60 | 44,70 |
| RO | | | |
| SE | | 33 | 29,80 |
| SI | | 25,5 | 37,5 |
| SK | | 28,20 | 28,40 |
| UK | | 21 | 42,5 |


Politics too complicated to understand
Reykjavik
Canarias
Guadeloupe
Martinique
Réunion
Guyane
Madeira
Acores
Helsinki
Oslo
Stockholm
Tallinn
Riga
Kobenhavn
Dublin
Vilnius
Minsk
Amsterdam
Berlin
Warszawa
London
Bruxelles/Brussel
Luxembourg
Paris
Praha
Kyiv
Bratislava
Wien
Budapest
Kishinev
Bern
Ljubljana
Zagreb
Bucuresti
Beograd
Sarajevo
Sofiya
Lisboa
Madrid
Roma
Skopje
Tirana
Ankara
Athinai
Nicosia
Valletta
This map does not necessarily reflect the opinion of the ESPON Monitoring Committee
ESPON
© ESPON Project 4.1.3, BBR & IRS, 2006
500 km
Policies never/seldom to complicated - percentage of interviewed persons
up to 22,5
22,6 up to 25,0
25,1 up to 27,5
27,6 up to 30,0
30,1 and more
no data
© EuroGeographics Association for administrative boundaries
Regional level: NUTS 2
Origin of data: ESS Round 2, 2004
Source: ESPON database

**Spatial coverage**

| | Yes/No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | yes |
| EU 15 | yes |
| EU 10 | yes |

**Spatial level / regional level**

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | no | |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

**Time reference / actuality**

| data is available as... | |
|---|---|
| data for a point of time: | yes |
| a time series: | yes |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | 2002, 2004 |
| other | NUTS 0 |

**Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)**

| | Description |
|---|---|
| Origin | European Social Survey (online) |
| Source | European Social Survey, ESS Edition 2.0 (2004), released 2006 |

**Type of data (raw data, model output, survey data etc.)**

| | Yes/No | Description |
|---|---|---|
| raw | no | |
| survey | yes | results from ESS, a multi-country survey, every 2 years in more than 20 countries, monitoring social change and continuity, including aspects of governance |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

**Data gaps (please describe)**

- spatial gaps: no data available for Italy, Cyprus, Malta, Latvia, Lithuania, Bulgaria Romania
- data would be needed on different spatial levels below the national level (e.g. region, municipality), in order to better investigate territorially oriented governance

**Comments**

comment on data table:
Min – 'never'+'seldom'
Max – 'regularly'+'frequently'

# Indicator Sheet: Worked in an organisation or association (other than party) last 12 months

| | |
|---|---|
| Dimension: | Territorially oriented governance |
| Objective: | Improving territorially oriented governance |
| Sub-objective: | Improving participation in territorially oriented governance |
| Calculation: | Share of persons working in an organisation or association (other than a political party) within the last 12 months |

**Informational value**

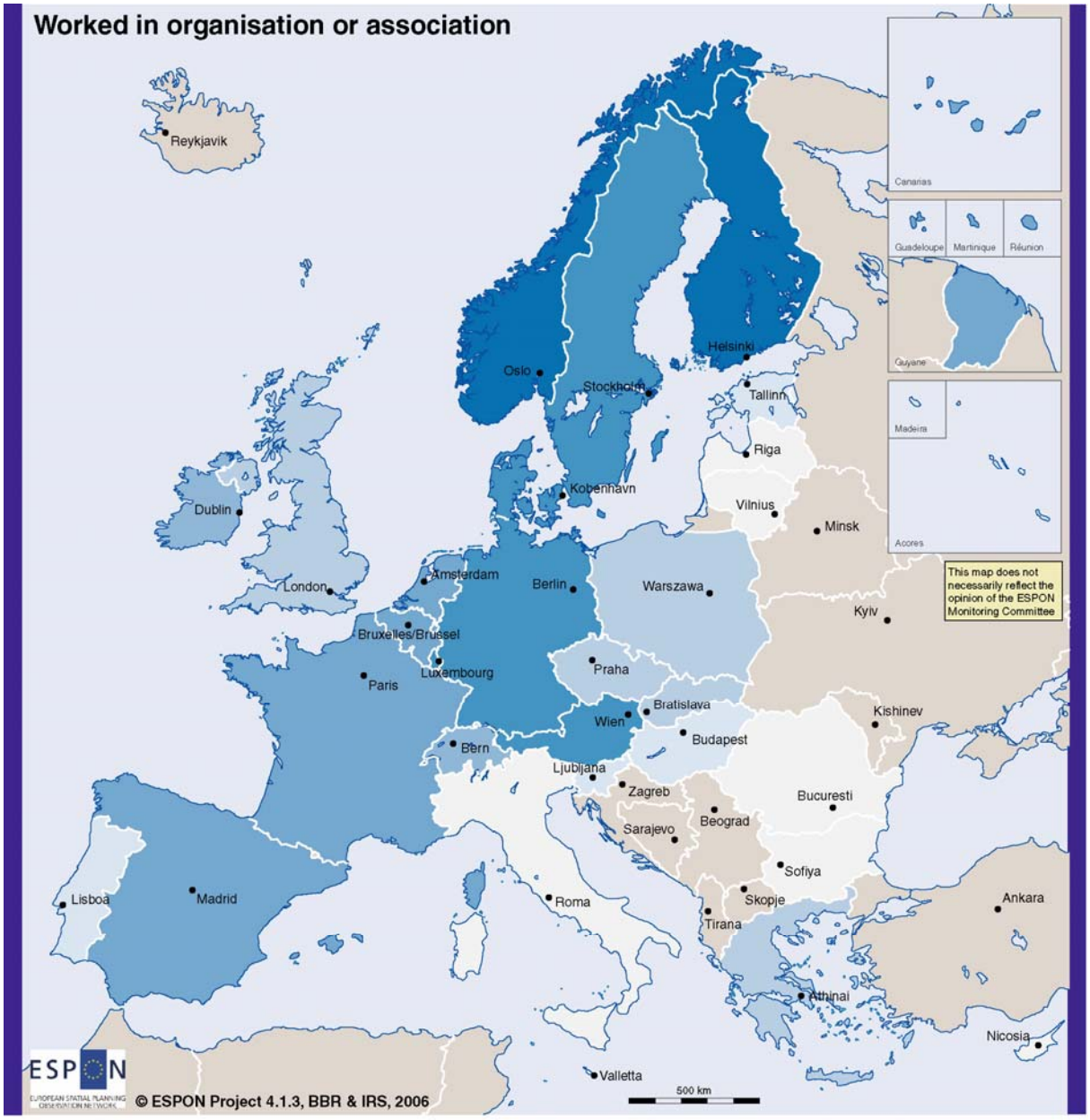
Participation is one of the main pillars of governance. Without a high number of actors getting involved, good governance would not be possible. The degree to which the public gets involved in political decision making processes not only expresses criteria of participation but also openness of governance structures.

A very active form of political involvement or participation is the regular participation in the work of a group of people like an organisation or association. It indicates a high motivation to get involved with various issues of the society. This sort of participation can be a rather important aspect for the territorially oriented governance processes of an area.

**Regional distribution**

As this indicator shows, the share of people taking part in the work of organisations and associations other than political parties is relatively high in most Scandinavian and Benelux countries. Here, this share lies mostly at about 20% or more. The rest of Europe shows a high variation in this respect, ranking from 1 to 20 %. The extremely low values of only 1-3% of people working in an organisation or association have been recorded for Southern and Eastern European countries (PT, SI, HU).

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | | | |
| EU 25 | | | |
| EU 15 | | | |
| EU 10 | | | |
| AT | 23,5 | | |
| BE | 15,20 | | |
| BG | | | |
| CH | 13,30 | | |
| CY | | | |
| CZ | 8,10 | | |
| DE | 20,5 | | |
| DK | 23,70 | | |
| EE | 3 | | |
| ES | 17,70 | | |
| FI | 31,20 | | |
| FR | 16,90 | | |
| GR | 5,30 | | |
| HU | 1,90 | | |
| IE | 13 | | |
| IT | | | |
| LT | | | |
| LU | 24,40 | | |
| LV | | | |
| MT | | | |
| NL | 17,20 | | |
| NO | 25,20 | | |
| PL | 5,70 | | |
| PT | 2,60 | | |
| RO | | | |
| SE | 24,30 | | |
| SI | 1,7 | | |
| SK | 8,40 | | |
| UK | 8 | | |




**Worked in organisation or association (other than party), last 12 months - percentage of interviewed persons**

- up to 5,0
- 5,1 up to 10,0
- 10,1 up to 15,0
- 15,1 up to 20,0
- 29,1 up to 25,0
- 25,1 and more
- no data


Regional level: NUTS 2
Origin of data: ESS Round 2, 2004
**Source: ESPON database**

**Spatial coverage**

| | Yes/No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | yes |
| EU 15 | yes |
| EU 10 | yes |

**Spatial level / regional level**

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | no | |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

**Time reference / actuality**

| data is available as... | |
|---|---|
| data for a point of time: | yes |
| a time series: | yes |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | 2002, 2004 |
| other | NUTS 0 |

**Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)**

| | Description |
|---|---|
| Origin | European Social Survey (online) |
| Source | European Social Survey, ESS Edition 2.0 (2004), released 2006 |

**Type of data (raw data, model output, survey data etc.)**

| | Yes/No | Description |
|---|---|---|
| raw | no | |
| survey | yes | results from ESS, a multi-country survey, every 2 years in more than 20 countries, monitoring social change and continuity, including aspects of governance |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

**Data gaps (please describe)**

- spatial gaps: no data available for Italy, Cyprus, Malta, Latvia, Lithuania, Bulgaria Romania
- data would be needed on different spatial levels below the national level (e.g. region, municipality), in order to better investigate territorially oriented governance

**Comments**

comment on data table:
Value = 'yes'

# Indicator Sheet: Intra-regional income dispersion

| | |
|---|---|
| Dimension: | Social and territorial cohesion |
| Objective: | Balanced distribution of wealth |
| Sub-objective: | Low disparities of income |
| Calculation: | - Gini index<br>- Highest income quantile / lowest income quantile (example S80/S20 = highest quintile / lowest quintile) |

**Informational value**

An indicator of intra-regional dispersion of income would give an idea of the intra-regional realities hidden behind aggregated indicators such as GDP/cap or mean household income.

**Description of current status of the indicator**

**Spatial coverage**

| | Yes/No |
|---|---|
| **EU 25+2+2** | yes |
| **EU 25** | no |
| **EU 15** | no |
| **EU 10** | no |

**Spatial level / regional level**

| | Yes/No | Version |
|---|---|---|
| **NUTS 1** | no | |
| **NUTS 2** | no | |
| **NUTS 3** | no | |
| | | |
| **NUTS 5** | no | |

**Spatial gaps**

Currently available: quintile ratio (S80/S20).

The lowest inequalities at national level can be found in some of the eastern member states (Slovenia, Hungary, Czech Republic), the Nordic countries as well as France. The highest inequalities are to be found in Portugal, Greece, Latvia and Estonia.

### Time reference / actuality

| data is available as... | |
|---|---|
| **data for a point of time:** | no |
| **a time series:** | no |
| | |
| **updated data (intervals):** | yearly |
| **periodicity (i.e. available years etc.):** | |
| **other** | NUTS 0 |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| **Origin** | |
| **Source** | Eurostat, National Statistical Offices |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| **raw** | yes | household income by quantiles |
| **survey** | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| **modified** | no | |
| **model** | no | |

### Difficulties with the indicator

Currently only aggregated data (total and mean household income) is available at regional level, not quantiles.
Should obviously be complemented with regional price index.

### Specific difficulties for the use in ESPON

Implies either extensive work of collection from national sources, or a new initiative via Eurostat concerning their existing household income data.

## Indicator Sheet: Regional price index

| | |
|---|---|
| Dimension: | Social and territorial cohesion |
| Objective: | Low disparities of income |
| Sub-objective: | Qualify income data through price data; measure available purchasing power |
| Calculation: | Price (in common currency) of a selected basket of goods (adapted to the local culture and habits)<br><br>Could be approached through some proxy, such as just one or two products (e.g. average house prices), but this does not take into account cultural differences |

**Informational value**

Much of the information concerning regional wealth and household income is currently strongly biased by the absence of regional price indices. Thus the income in metropolitan areas (often more expensive) is often overestimated, and that in rural areas underestimated if one does not take into account the price differences between these regions.

**Description of current status of the indicator**

**Spatial coverage**

| | Yes/No |
|---|---|
| EU 25+2+2 | yes |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

**Spatial gaps**

The most expensive countries are the Nordic countries, Switzerland and Ireland. The cheapest countries are the eastern member states, notably Bulgaria, Romania and Lithuania.

**Spatial level / regional level**

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | no | |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| **data for a point of time:** | no |
| **a time series:** | no |
| | |
| **updated data (intervals):** | yearly |
| **periodicity (i.e. available years etc.):** | |
| **other** | NUTS 0 |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| **Origin** | |
| **Source** | Eurostat |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| **raw** | no | |
| **survey** | yes | based on price of a fixed basket of goods |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| **modified** | no | |
| **model** | no | |

### Difficulties with the indicator

Elaborating a regional price index would mean an extensive survey work across all of Europe in order to collect representative samples for each spatial unit.
Examples do exist, however, as in the United Kingdom.

### Specific difficulties for the use in ESPON

## Indicator Sheet: Level of adminstrative functions in cities

| | |
|---|---|
| Dimension: | Territorially oriented governance |
| Objective: | Improving territorially oriented governance |
| Sub-objective: | Improving balance of public governance structures |
| Calculation: | number of administrative functions in cities (functions responsible for levels higher than NUTS5 or higher than the city itself) |

**Informational value**

This indicator focuses on the structural aspects of governance, since it gives information on the different levels of administrative functions and their spatial locations. The observation of these structures gives insight in the hierarchical structures of the different administrative systems and their balance, as they constitute a precondition for well-balanced governance structures. Thus, the intention with this indicator is to check the administrative systems of the countries as well as the European administrative system as to how well their functions are balanced.

The suggested calculation for this indicator is to register the numbers of administrative functions according to their levels, and present their shares in small pie charts on the map, in order to visualize not only the amount of functions (size of pie chart), but also their relative importance (shares of higher functions in the pie chart).

**Description of current status of the indicator**

**Spatial coverage**

| | Yes/No |
|---|---|
| EU 25+2+2 | no |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

**Spatial gaps**

**Spatial level / regional level**

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | no | |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

**Time reference / actuality**

| data is available as... | |
|---|---|
| data for a point of time: | no |
| a time series: | no |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | |
| other | |

**Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)**

| | Description |
|---|---|
| Origin | |
| Source | |

**Type of data (raw data, model output, survey data etc.)**

| | Yes/No | Description |
|---|---|---|
| raw | no | |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

**Difficulties with the indicator**

**Specific difficulties for the use in ESPON**

# Indicator Sheet: Proportion of households with internet access

| | |
|---|---|
| Dimension: | Innovative knowledge society |
| Objective: | Improving ICT infrastructure & accessability |
| Sub-objective: | Improving access to the internet for private households in all regions of Europe |
| Calculation: | Proportion of households with internet access as share of all households in a region |

**Informational value**

The access to the internet has become a crucial precondition for the development of a knowledge society in economic as well as social terms. This indicator reflects the access to the internet in private households, and therefore gives important information for the improvement of the balance of internet access across Europe.

Unfortunately, it is difficult to find reliable data at regional level across Europe. As examples have shown, it is very important to collect data at the most disaggregated level as possible.

**Description of current status of the indicator**

**Spatial coverage**

| | Yes/No |
|---|---|
| EU 25+2+2 | no |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

**Spatial level / regional level**

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | no | |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

**Spatial gaps**

The exemplary map shows the proportion of households with internet access in the German 'Länder'. For the year 2003, the proportions vary between 35 and 50 percent for the observed regions. Already on this still rather aggregated level, the map reveals the still quite diverse accessibility of internet by private households. A rather strong North-South and East-West division can be observed for the German 'Länder' in this aspect.

**Time reference / actuality**

| data is available as... | |
|---|---|
| data for a point of time: | no |
| a time series: | no |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | |
| other | |

**Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)**

| | Description |
|---|---|
| Origin | |
| Source | |

**Type of data (raw data, model output, survey data etc.)**

| | Yes/No | Description |
|---|---|---|
| raw | no | |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

**Difficulties with the indicator**

**Specific difficulties for the use in ESPON**

# Indicator Sheet: Gini coefficient of household incomes

| | |
|---|---|
| Dimension: | Socially inclusive society and space |
| Objective: | Maintaining and improving an equal distribution of income in the space |
| Sub-objective: | Preventing social segregation and maintaining a good regional mix of social groups in society |
| Calculation: | Extent of household income disparities within one region; percentage of divergence between a Lorenz curve and an absolute equal distribution horizontal curve |

**Informational value**

Even better than the household income (adjusted to PPP) this indicator would provide information about social segregation and the ghetto building within a region. Moreover - combined with accessibilty indicators the reasons such seggregation could be detected and tackled.

**Description of current status of the indicator**

**Spatial coverage**

| | Yes/No |
|---|---|
| **EU 25+2+2** | no |
| **EU 25** | yes |
| **EU 15** | no |
| **EU 10** | no |

**Spatial gaps**

Not available for all MS for all years.

**Spatial level / regional level**

| | Yes/No | Version |
|---|---|---|
| **NUTS 1** | no | |
| **NUTS 2** | no | |
| **NUTS 3** | no | |
| | | |
| **NUTS 5** | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| **data for a point of time:** | no |
| **a time series:** | yes |
| | |
| **updated data (intervals):** | annually but with national gaps |
| **periodicity (i.e. available years etc.):** | from 1995 |
| **other** | NUTS0 |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| **Origin** | ESPON 1.4.2. |
| **Source** | Eurostat |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| **raw** | yes | |
| **survey** | yes | under EU-SILC responsibility for the fieldwork at NSI |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| **modified** | no | |
| **model** | no | |

### Difficulties with the indicator

Only available at national level!

### Specific difficulties for the use in ESPON

## Indicator Sheet: At persistent risk of poverty rate

| | |
|---|---|
| Dimension: | Social, culture and governance |
| Objective: | Socially inclusive society and space |
| Sub-objective: | Ensure an equal distribution of income and thus reducing social instability of a region |
| Calculation: | Equivalised income below the threshold of 60 per cent of the national equivalised median income |

### Informational value

This indicator provides a good picture of the share of population which dropped below a specific income level thus being at risk to loose contact to civil society. Poverty is not only a problem of income distribution but goes hand in hand with other social problems, such as declining health status, long term unemployment due to a loss of job experience.

### Description of current status of the indicator

#### Spatial coverage

| | Yes/No |
|---|---|
| **EU 25+2+2** | yes |
| **EU 25** | no |
| **EU 15** | no |
| **EU 10** | no |

#### Spatial gaps

Rather heterogenous picture of Europe, no clear cut tendency with respect to specific groups of ESPON countries.

#### Spatial level / regional level

| | Yes/No | Version |
|---|---|---|
| **NUTS 1** | yes | NUTS 2003 |
| **NUTS 2** | no | |
| **NUTS 3** | no | |
| | | |
| **NUTS 5** | no | |

### Time reference / actuality

| data is available as... | |
|---|---|
| **data for a point of time:** | no |
| **a time series:** | no |
| | |
| **updated data (intervals):** | |
| **periodicity (i.e. available years etc.):** | |
| **other** | |

### Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)

| | Description |
|---|---|
| **Origin** | ESPON 1.4.2. |
| **Source** | Eurostat |

### Type of data (raw data, model output, survey data etc.)

| | Yes/No | Description |
|---|---|---|
| **raw** | yes | |
| **survey** | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| **modified** | no | |
| **model** | no | |

### Difficulties with the indicator

There is no data available for Switzerland

### Specific difficulties for the use in ESPON

# Indicator Sheet: Share of jobless households

| | |
|---|---|
| Dimension: | Social, culture and governance |
| Objective: | Diversified regional economies, Socially inclusive society and space |
| Sub-objective: | Ensure a maximum employment of Europe´s resources by using them efficiently and up to their potential |
| Calculation: | Percentage of households with at least one member unemployed within a region within a specific period of time |

**Informational value**

Unlike the traditional unemployment rate the share of jobless households provides a picture on how many households in a region are affected by unemployment. This information is valuable for estimating how large the proportion of the population (including all household members) is which is directly and indirectly affected by unemployment. This figure sheds some light on the dependency of household members on a reduction of income and provides in due course a picture on how far households are at risk to face social problems.

**Description of current status of the indicator**

**Spatial coverage**

| | Yes / No |
|---|---|
| EU 25+2+2 | no |
| EU 25 | no |
| EU 15 | no |
| EU 10 | no |

**Spatial gaps**

**Spatial level / regional level**

| | Yes / No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | no | |
| NUTS 3 | no | |
| | | |
| NUTS 5 | no | |

**Time reference / actuality**

| data is available as... | |
|---|---|
| data for a point of time: | no |
| a time series: | no |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | |
| other | |

**Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)**

| | Description |
|---|---|
| Origin | |
| Source | |

**Type of data (raw data, model output, survey data etc.)**

| | Yes/No | Description |
|---|---|---|
| raw | no | |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | no | |

**Difficulties with the indicator**

**Specific difficulties for the use in ESPON**

# Indicator Sheet: Land consumption by transport infrastructure

| | |
|---|---|
| Dimension: | Environment, hazards |
| Objective: | Sustainable transport and enegry |
| Sub-objective: | Sustainable land usage |
| Calculation: | Proportion of region area consumed by transport infrastructure (road and railways, port areas, airports) in percent of total region area. |

**Informational value**

As transport demand is constantly growing year by year, the land occupied by transport infrastructure is also constantly growing. For some regions the (annual) increase of transport infrastructures is significant, so it is a matter of concern to analyse in which region and to which degree transport developments take place. Furthermore, it is interesting to analyse the relation between the increase of the settlement areas (or built-up areas) as a whole and the transport areas in particular. Land take is one of the major human-made causes for floods and other hazards, which may lead to severe damages, whith transport infrastructure being one of its main driving forces. So from an environmental point of view monitoring and controlling the land take as a whole and the land take for transport infrastructure in particular is seen crucial for achieving sustainability.

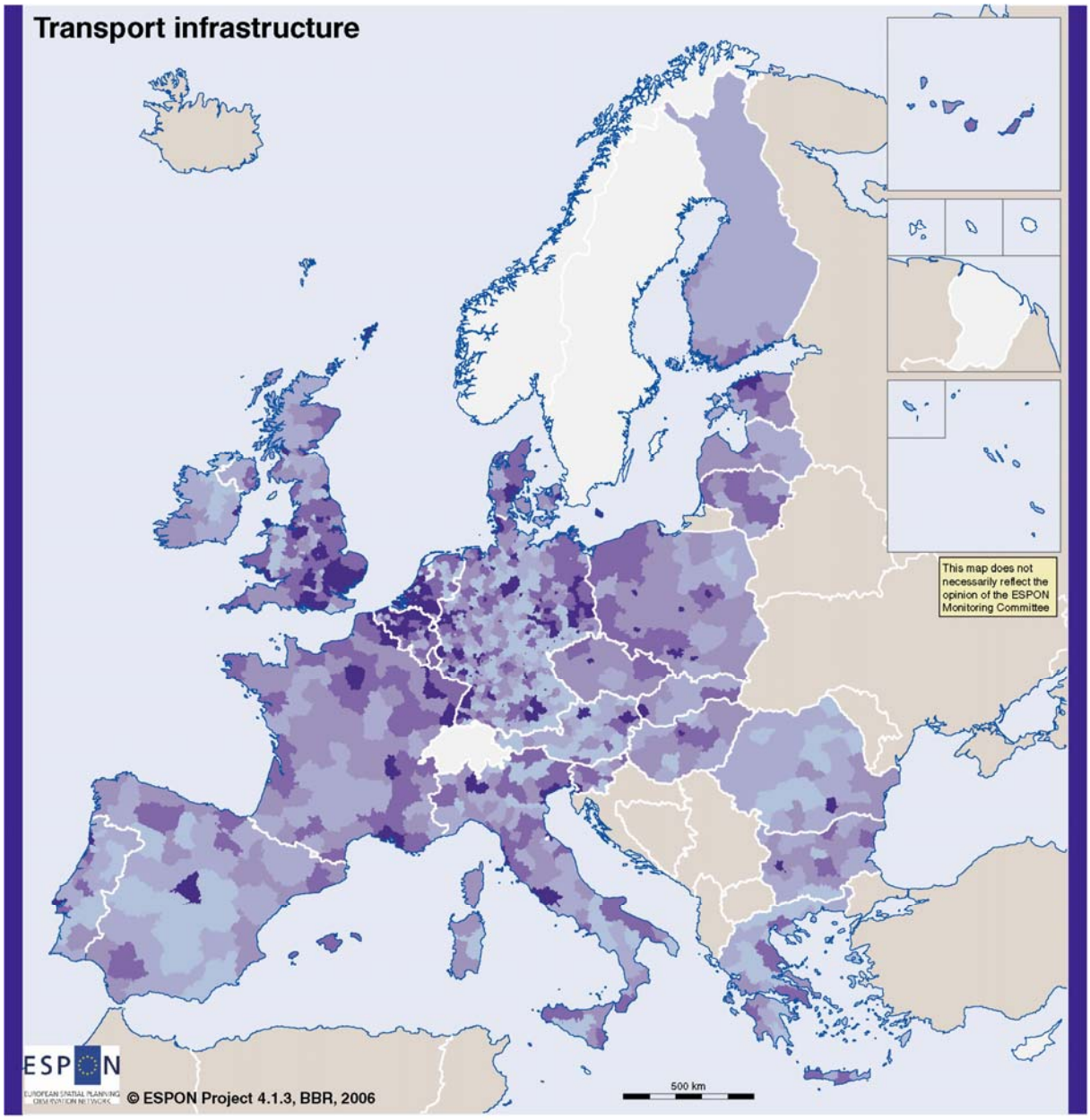
The advantage of the CORINE data set is that it is able to provide land-use indicators for almost all European regions based on a harmonised definition, using the rich set of 44 land use classes. Through CORINE it is ensured that same definition of land-use classes are applied for all countries, thus making results comparable across all regions. Besides the PELCOM database, CORINE represents the only pan-European land use and land cover data source; while PELCOM is focussing on different land coverage categories for open space (without further differentiating built-up areas), CORINE also provides several classes for built-up areas. Today CORINE is available for two points in time (1990 and 2000), enabling the analysis of land use changes over this period, using the same definitions. Since the CORINE data were derived from satellite images, the database also entails some drawbacks with respect to the resolution of the base images which has some implications for the explanatory power of this indicator: The basic scale of CORINE is 1:100 000, with a minimum area of 25 ha for polygon

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | 0,35 | 0 | 7,74 |
| EU 25 | 0,36 | 0 | 7,74 |
| EU 15 | 0,38 | 0 | 7,74 |
| EU 10 | 0,43 | 0 | 7,74 |
| AT | 0,10 | 0 | 1,06 |
| BE | 0,71 | 0 | 5,44 |
| BG | 0,09 | 0 | 0,72 |
| CH | 0 | 0 | 0 |
| CY | 0 | 0 | 0 |
| CZ | 0,27 | 0,04 | 2,37 |
| DE | 0,46 | 0 | 7,74 |
| DK | 0,66 | 0,03 | 5,13 |
| EE | 0,18 | 0,02 | 0,49 |
| ES | 0,07 | 0 | 0,46 |
| FI | 0,03 | 0 | 0,15 |
| FR | 0,26 | 0 | 3,38 |
| GR | 0,05 | 0 | 0,30 |
| HU | 0,16 | 0 | 2,08 |
| IE | 0 | 0,01 | 1,64 |
| IT | 0,19 | 0 | 4,60 |
| LT | 0,11 | 0,02 | 0,28 |
| LU | 0,21 | 0,21 | 0,21 |
| LV | 0,08 | 0,01 | 0,22 |
| MT | 0 | 0 | 0 |
| NL | 0,48 | 0 | 3,28 |
| NO | 0 | 0 | 0 |
| PL | 0,42 | 0 | 3,5 |
| PT | 0,07 | 0 | 0,44 |
| RO | 0,08 | 0 | 1,93 |
| SE | 0 | 0 | 0 |
| SI | 0,12 | 0 | 0,39 |
| SK | 0,13 | 0,02 | 0,59 |
| UK | 0,61 | 0 | 6,48 |

objects to be recognised and a minimum width of 100 m for linear objects to be recognised. So by applying these thresholds several areas consumed by smaller transport infrastructures such as roads or railways are dropped and are not taken into account. Consequently, basing this indicator on CORINE results in underestimated proportions of transport infrastructures on the region area

**Regional distribution**

There are two main types of regions experiencing high proportions of land consumed by transport infrastructure on the total area, which on the one hand are the big cities and agglomeration centres (in many countries the capital city regions), on the other hand also the old-industrialised regions show high proportions, compared to the rural parts of the countries. So, apart from the big cities, many regions in the Benelux countries, in Northern France and Western Germany, but also regions in East Germany and West Poland, as well as many regions in the Baltic countries and in the South of the UK yield high proportions of land consumed by transport. In contrast, there are only few regions in Europe experiencing only very small proportions of transport infrastructure. These are regions in the Nordic countries, regions on the Iberian Peninsula and some regions in Ireland and in the Alps. The new EU Member States generally are not distinct from the old member states, as the share of transport infrastructure is similar. This is mainly not a reflection of extraordinary high transport demand in those regions, rather than a reflection of careless waste of land during the socialist age. Besides, some of these regions also represent old industrialised regions (e.g. Upper Silesia in Poland, parts of Czech Republic), wherefore high indicator values illustrate traces of history rather than actual transport demand.




**Land consumption by transport infrastructure in % of total area**

- less than 0.005
- 0.005 to below 0.052
- 0.052 to below 0.135
- 0.136 to below 0.362
- more than 0.363
- no data


Regional level: NUTS 3
Origin of data: CORINE
**Source: ESPON database**

**Spatial coverage**

| | Yes / No |
|---|---|
| EU 25+2+2 | no |
| EU 25 | yes |
| EU 15 | no |
| EU 10 | no |

**Spatial level / regional level**

| | Yes / No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | no | |
| NUTS 3 | yes | NUTS 1999 |
| | | |
| NUTS 5 | no | |

**Time reference / actuality**

| data is available as... | |
|---|---|
| data for a point of time: | no |
| a time series: | yes |
| | |
| updated data (intervals): | 1990; 2000 |
| periodicity (i.e. available years etc.): | |
| other | |

**Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)**

| | Description |
|---|---|
| Origin | ESPON 3.1 |
| Source | CORINE 2000 |

**Type of data (raw data, model output, survey data etc.)**

| | Yes / No | Description |
|---|---|---|
| raw | no | |
| survey | no | |

| | Yes / No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | yes | The respective CORINE 2000 land use categories are taken and overlaid with the NUTS-3 regions layer in order to calculate the proportion of the territory consumed by transport infrastructure. |
| model | no | |

**Data gaps (please describe)**

Sweden, French Overseas Departments, Malta, Norway, Acores and Madeira (PT), Switzerland

**Comments**

Using CORINE 1991 dataset one can also calculate this indicator for the year 1990. Currently the ESPON database does not include exactly this indicator definition, as transport infrastructure is subdivided in CORINE in three categories (road and railways, airports, port areas). An composite indicator combining these three categories was not calcuated in ESPON project 3.1. Because of the limitations of the CORINE dataset (with respect to minimum patch sizes and minimum widths of the elements to be recognised), the proportion of region area consumed by transport is likely to be highly underestimated. Despite the harmonised definition of land use classes applied for CORINE, for further updates of this indicator statistical data sources should be used instead, in order to overcome the shortcomings of CORINE. Unfortunately, to date, Eurostat´s Regio database does not include transport-related land-use classes for the regions in Europe.

# Indicator Sheet: Natural areas (NATURA 2000)

| | |
|---|---|
| Dimension: | Environment, hazards |
| Objective: | Protecting the environment |
| Sub-objective: | Maintaining and improving connected natural areas |
| Calculation: | Share NATURA 2000 area of total area in % |

**Informational value**

NATURA 2000 is the European Union network of sites designated by Member States under the birds directive (79/403/EEC) and under the habitats directive (92/43/EEC).

**Regional distribution**

Huge surfaces of natural areas (NATURA 2000) in Spain and in the Northern parts of Sweden and Finland.

| | Value | Min | Max |
|---|---|---|---|
| EU 25+2+2 | | | |
| EU 25 | 15,456 | 0 | 59,90 |
| EU 15 | | | |
| EU 10 | | | |
| AT | 14,80 | 0,10 | 40,70 |
| BE | 15,1 | 0,10 | 51,30 |
| BG | | | |
| CH | | | |
| CY | 12,4 | 12,4 | 12,4 |
| CZ | 14,70 | 1,5 | 29,10 |
| DE | 14 | 0 | 59,90 |
| DK | 9,90 | 5,10 | 15 |
| EE | 17,40 | 7,90 | 26,80 |
| ES | 27,40 | 7,30 | 53,10 |
| FI | 6,70 | 2,20 | 36,60 |
| FR | 8,40 | 0 | 37,70 |
| GR | 19,80 | 0,90 | 44,70 |
| HU | 22,5 | 8,60 | 42,5 |
| IE | 10 | 4,90 | 20,5 |
| IT | 15,80 | 0,90 | 52,10 |
| LT | 7 | 1,2 | 17,60 |
| LU | 23,90 | 23,90 | 23,90 |
| LV | 12,20 | 7,60 | 14,80 |
| MT | 14,1 | 13,20 | 14,9 |
| NL | 12,80 | 0,80 | 50,10 |
| NO | | | |
| PL | 7,80 | 0 | 32,80 |
| PT | 19,5 | 0 | 46,10 |
| RO | | | |
| SE | 7 | 1,5 | 47,20 |
| SI | 37,90 | 19,30 | 59,10 |
| SK | 30,40 | 15 | 52,10 |
| UK | 4,90 | 0 | 29,5 |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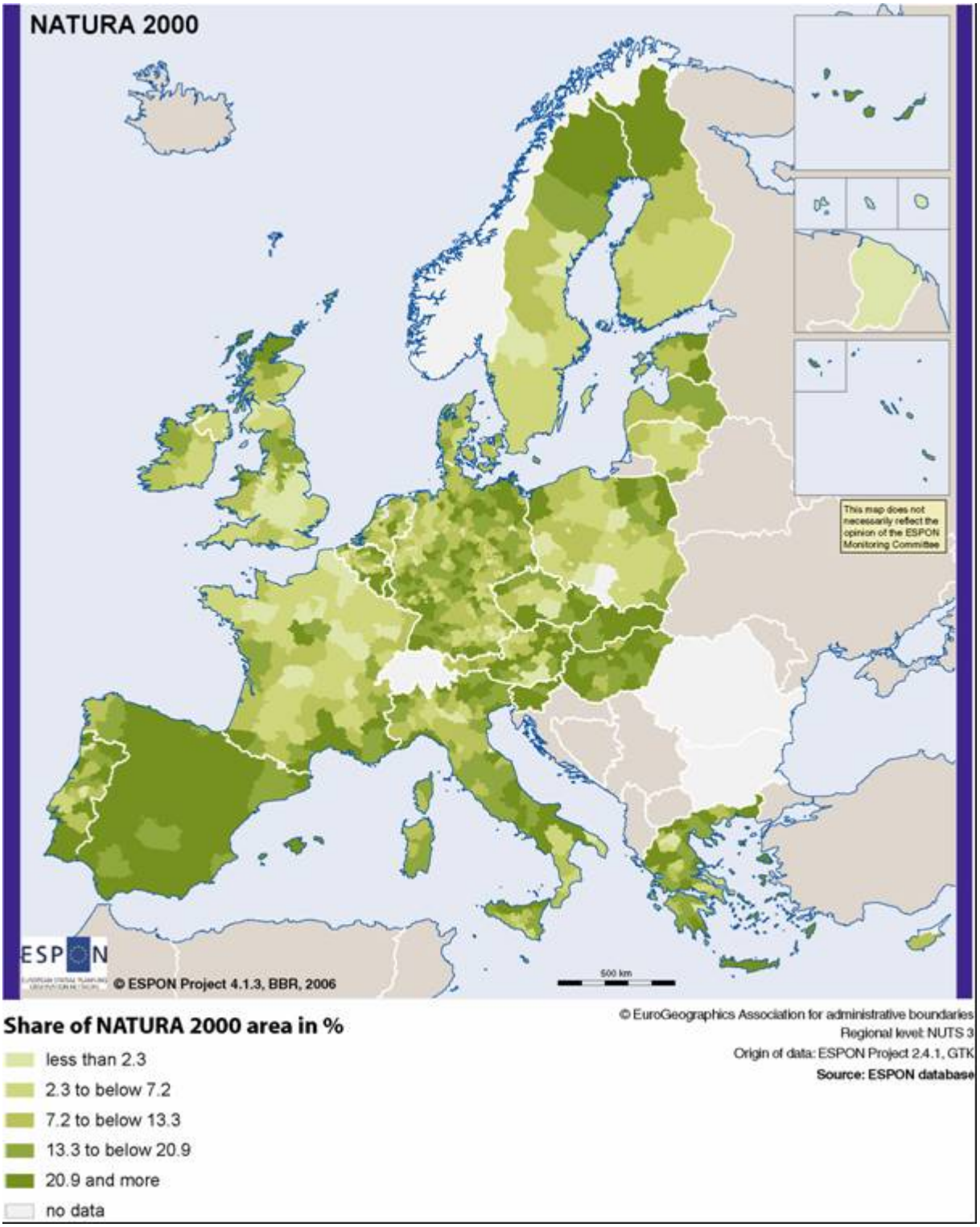
NATURA 2000
This map does not necessarily reflect the opinion of the ESPON Monitoring Committee
ESPON
© ESPON Project 4.1.3, BBR, 2006
500 km
© EuroGeographics Association for administrative boundaries
Regional level: NUTS 3
Origin of data: ESPON Project 2.4.1, GTK
Source: ESPON database
Share of NATURA 2000 area in %
less than 2.3
2.3 to below 7.2
7.2 to below 13.3
13.3 to below 20.9
20.9 and more
no data

**Spatial coverage**

| | Yes/No |
|---|---|
| EU 25+2+2 | no |
| EU 25 | yes |
| EU 15 | no |
| EU 10 | no |

**Spatial level / regional level**

| | Yes/No | Version |
|---|---|---|
| NUTS 1 | no | |
| NUTS 2 | no | |
| NUTS 3 | yes | NUTS 1999 |
| | | |
| NUTS 5 | no | |

**Time reference / actuality**

| data is available as... | |
|---|---|
| data for a point of time: | yes |
| a time series: | no |
| | |
| updated data (intervals): | |
| periodicity (i.e. available years etc.): | |
| other | |

**Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)**

| | Description |
|---|---|
| Origin | ESPON project 3.1 |
| Source | Corine, EEA, DG Environment |

**Type of data (raw data, model output, survey data etc.)**

| | Yes/No | Description |
|---|---|---|
| raw | no | |
| survey | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| modified | no | |
| model | yes | Total area for each NATURA 2000 site ist available and can be aggregated to total NATURA 2000 area per NUTS 3 region. It is then divided by the total size of the repsective NUTS 3 region. |

**Data gaps (please describe)**

Bulgaria, Switzerland, Norway, Romania, Berlin-West Stadt, Berlin-Ost Stadt, Pólnocnoslaski, Poludniowoslaski, Centralny slaski

**Comments**

The Natura 2000 database available from EEA data service is a sub-sample of the Natura 2000 descriptive database that holds information about sites designated by EU Member States under the Birds Directive (79/403/EEC) and the Habitats Directive (92/43/EEC). The sub-sample database has information on sites officially adopted by the European Commission. Examples of the information provided are site code, location, lists of fauna, flora and habitat types. The sub-sample database is also available for interactive querying in the EUNIS portal.

# Indicator Sheet: Protected areas (European definition)

| | |
|---|---|
| Dimension: | Environment, Hazards |
| Objective: | Protection of natural surfaces |
| Sub-objective: | Limiting loss of biodiversity |
| Calculation: | |

**Informational value**

Several EU policies (e.g., NATURA 2000, Gothenburg strategy) focus on sustainability and environmental protection, which is best illustrated through the creation of protected areas that are prevented from anthropogenic change.

**Description of current status of the indicator**

**Spatial coverage**

| | Yes/No |
|---|---|
| **EU 25+2+2** | no |
| **EU 25** | no |
| **EU 15** | no |
| **EU 10** | no |

**Spatial gaps**

**Spatial level / regional level**

| | Yes/No | Version |
|---|---|---|
| **NUTS 1** | no | |
| **NUTS 2** | no | |
| **NUTS 3** | no | |
| | | |
| **NUTS 5** | no | |

**Time reference / actuality**

| data is available as... | |
|---|---|
| **data for a point of time:** | no |
| **a time series:** | no |
| | |
| **updated data (intervals):** | |
| **periodicity (i.e. available years etc.):** | |
| **other** | |

**Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)**

| | Description |
|---|---|
| **Origin** | |
| **Source** | |

**Type of data (raw data, model output, survey data etc.)**

| | Yes/No | Description |
|---|---|---|
| **raw** | no | |
| **survey** | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| **modified** | no | |
| **model** | no | |

**Difficulties with the indicator**

There are several categories of protected areas that are spread over various data sources.

**Specific difficulties for the use in ESPON**

# Indicator Sheet: Municipalities waste

| | |
|---|---|
| Dimension: | Environment, Hazards |
| Objective: | Reducing waste, increasing recycling, saving natural non-renewable resources |
| Sub-objective: | Sustainable development |
| Calculation: | |

**Informational value**

The amount of municipal waste collected by the municipality or by order of the municipality illustrates the degree of sustainability that a region has reached.

**Description of current status of the indicator**

**Spatial coverage**

| | Yes/No |
|---|---|
| **EU 25+2+2** | no |
| **EU 25** | yes |
| **EU 15** | no |
| **EU 10** | no |

**Spatial gaps**

**Spatial level / regional level**

| | Yes/No | Version |
|---|---|---|
| **NUTS 1** | yes | |
| **NUTS 2** | no | |
| **NUTS 3** | no | |
| | | |
| **NUTS 5** | no | |

**Time reference / actuality**

| data is available as... | |
|---|---|
| **data for a point of time:** | no |
| **a time series:** | yes |
| | |
| **updated data (intervals):** | 1989 - 2000 annually |
| **periodicity (i.e. available years etc.):** | 1980, 1985, 1989 - 2000 |
| **other** | |

**Data source(s) and origin of data (ESPON subtask, institution, statistics etc.)**

| | Description |
|---|---|
| **Origin** | |
| **Source** | Eurostat |

**Type of data (raw data, model output, survey data etc.)**

| | Yes/No | Description |
|---|---|---|
| **raw** | no | |
| **survey** | no | |

| | Yes/No | Description of modification and if basic data is necessary: |
|---|---|---|
| **modified** | no | |
| **model** | no | |

**Difficulties with the indicator**

Data not available in complete coverage.

**Specific difficulties for the use in ESPON**