ESPON
EUROPEAN SPATIAL PLANNING OBSERVATION NETWORK

Bundesamt
für Bauwesen und
Raumordnung

2nd

Interim Report

ESPON project 3.1

Integrated tools for European Spatial Development

Tuesday, 29 April 2003

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Glossary

Abbreviation	Term
AC	Accession Country
CDCR	Committee for Development and Conversion of Regions
CIP	Community Initiative Programme
CSD	Committee for Spatial Development
CU	Co-ordination Unit
DPSIR	Driving force, Pressure, State Impact Response
ECP	ESPON Contact Point
EEA	European Environmental Agency
E-ESDI	Environment – European Spatial Data Infrastructure now called INSPIRE
ERDF	European Regional Development Fund
ESDP	European Spatial Development Perspective
ESPON	European Spatial Planning Observation Network
GMES	Global Monitoring of Environment and Security
LP	Leadpartner
LP	Lead Partner
MA	Management Authority
MC	Monitoring Committee
NC	Neighbouring Country
NFP	National Focal Point (former ECPs)
PA	Paying Authority
SDS	Sustainable Development Strategy
SEA	Strategic Environmental Assessment
SIA	Sustainability Impact Analysis
SPESP	Study Programme on European Spatial Planing
SUD	Subcommittee on Spatial and Urban Development (working group of the CDCR)
SWOT	Strengths, Weaknesses, Opportunities and Threats
TA	Technical Assistance
TEN	Transeuropean Networks
TERM	Transport and Environment Reporting Mechanism
TIA	Territorial Impact Analysis
TPG	Transnational Project Group

The present 2nd Interim Report of the ESPON Project 3.1 is a team effort of all project partners under the leadership of the BBR.

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NORDREGIO - Nordic Centre for Spatial Development
(Sweden)

ÖIR - Österreichisches Institut für Raumordnung
(Austria)

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TAURUS
(Germany)

UEHR - Institute of Urban Environment and Human Resources (Greece)

UMS RIATE - Interdisciplinary Network for European Spatial Planning (France)

Foreword

The presentation of this 2nd Interim Report of the Transnational Project Group (TPG) 3.1 has been developed and prepared by all 3.1 project partners and through their great effort.

After the delivery of the 1st Interim Report at the end of the year 2002 this report shows the advanced work of the different TPGs in an comprehensive way as well as the good, creative and constructive collaboration between the different project participants, like the ESPON Co-ordination Unit or the DG Regio. Due to the engagement of all, the work shows further results. The integration of the different projects in the ESPON context has taken place and the TPGs started the networking among themselves.[1]

All of the TPGs' interim reports include an executive summary. Therefore this 2nd Interim Report does not include an abstract of the work and results of each TPG, as the first 3.1 Interim Report did. The work concentrates on the integration and use of the TPGs' results to get a good, compact and applicable output on which the further work can be established.

With this 2nd Interim Report the project 3.1 intends to create a profound and comprehensive background for the 2nd ESPON Seminar in May 2003 on the island of Crete, Greece, and lays the grounds for the further work of ESPON on the spatial development of Europe.

[1] See the introduction of the different reports of the TPGs.

1 Executive Summary

The ESPON project 3.1 “Integrated Tools for European Spatial Development” is the co-ordinating and cross-thematic project of the ESPON Programme 2006[2]. It gives support to the technical and scientific co-ordination of the ESPON 2006 Programme and the projects under measures 1 and 2, including data collection, development of a GIS facility and map-making, thematic co-ordination preparing for the cross thematic exploitation of integrated results based on all projects prepared under the programme.

The ESPON Project 3.1 delivered a Draft First Interim Report before the first ESPON seminar in Mondorf-les-Bains and its First Interim Report afterwards in December 2002. Different points were raised in the response to the First Interim Report which will be reflected in this report.

The 2nd Interim Report (IR) of the ESPON project 3.1 is not an extended version of the 1st IR. It is an enhancement. ESPON is a “living” programme and therefore the interim reports have to react in a flexible way.

This report fulfils the requirements of the deliverables mentioned in the addendum of the contract of the TPG 3.1 as well as in the ‘Guidelines for [the] Interim Report in March 2003’ developed by the CU after the 1st Transnational Project Group (TPG) Leadpartner meeting in February 2003[3].

Addendum –Contract for ESPON 3.1

...

April 2003 (second interim report)

d) A first overview on concepts and methodologies and possible results should be provided.

e) Establishment of the ESPON GIS/ database, including territorial indicators and maps developed so far.

f) A well co-ordinated, second revised and extended request for further indicators to be adressed to Eurostat and the EEA by mid 2003

[2] Horizontal and coordinating cross-theme studies (projects under Priority 3) as a key component. Evaluation of the results of the other studies towards integrated results such as indicator systems and data, typologies of territories, spatial development scenarios and conclusions for the territorial development.“ ESPON Programme 2006 (2002).*ESPON Programme 2006* [online] Available from : http://www.espon.lu/online/documentation/projects/index.html [31.03.2003]

[3] see ‘Guidelines for [the] Interim Report in March 2003’ developed by the CU after the 1st Transnational Project Group (TPG) Leadpartner meeting, 28 February 2003

g) Working document being a scientific report on the intermediate results in creating tools for the identification of potentials, weakness, opportunities and threats for a sustainable and more balanced territorial development. This report should cover all themes and make use of the intermediate results in a comprehensive and integrated way, and doing so be able to guide other projects for the elaboration of the third interim reports for September 2003.

...

The 'Guidelines for [the] Interim Report in March 2003'[4] add:

- reporting on the creation of a common platform for ESPON projects, including networking, exchanges, etc. as well as the integration of accession and neighbouring countries, meetings and seminars
- Short report on
  integration of points raised in Response to First Interim Report (1st round only)
  networking undertaken towards other TPG
- expectations towards and results of the 3rd IR

to complete and round off the content of the different reports.

All mentioned points by the addendum or the so called 'guidelines' are fulfilled with this report. In particular,

- the overview on concepts and methodologies (**addendum d**) is given in chapter 3 of this report, additional methodological aspects are addressed in chapters 4, 5 and 6,
- adding a special chapter on Territorial Impact Analysis (chapter 5);
- the ESPON data base (**addendum e**) including the request list for indicators (**addendum f**) is presented in chapter 6 of this report;
- the intermediate results of the SWOT analysis (**addendum g**) are presented in chapter 4 of this report.

With this report the project 3.1 goes straight forward to fulfil requirements of the terms of reference mentioned-.[5] Also the responses towards the 1st IR were taken in mind and are included in the content of the different chapters of this report.

[4] see 'Guidelines for [the] Interim Report in March 2003' developed by the CU after the 1st Transnational Project Group (TPG) Leadpartner meeting, 28 February 2003

[5] see: http://www.espon.lu/online/documentation/projects/cross_thematic/185/tor_3.1.pdf, page no. 10 (Political challanges for the ESPON projects), 4th paragraph and following

This report is subdivided into eight chapters. It integrates the work and current results of meanwhile 15 TPGs of the first, second and third round. Mentioned 15 TPGs started their work at different times and therefore this report includes outcomes of 1st and 2nd interim reports.

Table no 1: Actual ESPON projects, nick names, interim reports and lead partners of the ESPON Programme 2006

PROJECT NUMBER	TITLE	"NICKNAME"	REPORT No.	TPG Lead Partner
1.1.1	The role, specific situation and potentials of urban areas as nodes in a polycentric development	POLYCENTRISM	2nd	NORDREGIO
1.1.2	*Urban-rural relations in Europe*	URBAN-RURAL	2nd	Helsinki University of Technology Centre for Urban and Regional Studies
1.1.3	Particular Effects of enlargement of the EU and beyond on a polycentric spatial tissue with special attention on discontinuities and barriers	ENLARGEMENT	1st	The Royal Institute of Technology (KTH)
1.1.4	The spatial effects of demographic trends and migration	DEMOGRAPHY TRENDS	1st	ITPS (Swedish Institute for Growth Policy Studies)
1.2.1	Transport services and networks: Territorial trends and basic supply of infrastructure for territorial cohesion	TRANSPORT TRENDS	2nd	University of Tours
1.2.2	Telecommunication and energy services and networks: Territorial trends and basic supply of infrastructure for territorial cohesion	TELECOM TRENDS	2nd	Centre for Urban & Regional Studies (CURDS), University of Newcastle
1.2.3	Identification of spatially relevant aspects of information society.	INFORMATION SOCIETY	----------	---------
1.3.1	Territorial effects and management of natural and technological hazards in general and in relation to climate change	NATURAL HAZARDS	1st	Geologian Survey of Finland
1.3.2	Territorial trends in the management of natural heritage	NATURAL HERITAGE	1st	Royal Haskoning
1.3.3	The role and spatial effects of cultural heritage and identity.	CULTURAL HERITAGE	---------	----------

continuation Actual ESPON projects, nick names, interim reports and lead partners of the ESPON Programme 2006

PROJECT NUMBER	TITLE	"NICKNAME"	REPORT No.	TPG Lead Partner
2.1.1	Territorial impact of EU transport and TEN policies	TRANSPORT IMPACTS	2nd	Christian-Albrechts-Universität zu Kiel Institute of Regional Research
2.1.2	Territorial impact of EU research and development policy	R&D IMPACT	2nd	ECOTEC Research and Consulting Ltd.
2.1.3	The territorial impact of CAP and rural development policy	CAP IMPACT	2nd	University of Aberdeen Arkleton Centre for Rural Development Research Department of Land Economy
2.1.4	Territorial trends of energy services and networks and territorial impact of EU energy policy	ENERGY	1st	CEEETA
2.2.1	Territorial effects of EU Structural Funds	STRUCTURAL FUNDS IMPACTS	1st	NORDREGIO
2.2.2	Territorial effects of the "Aquis Communitaire", Pre-accession Aid and Phare/Tacis/Meda Programmes	ENLARGEMENT AID IMPACT	1st	Institute for Regional Development and Structural Planning
2.2.3	Territorial effects of structural funds in urban areas	STRUCTURAL FUNDS URBAN IMPACT	2nd	ECOTEC Research and Consulting Ltd.
2.3.1	The application and effects of the ESDP in Member States	ESDP IMPACTS	---	---
2.3.2	The governance of the territorial and urban oriented policies from the EU to the local level.	GOVERNANCE	---	---
3.1	Integrated tools for European spatial development territorial	SPATIAL TOOLS	2nd	BBR, Federal Office for Building and Regional Planning
3.2	Spatial scenarios and orientations toward the ESDP and the Cohesion Policy.	SCENARIOS	---	---

Since the delivery of the 1st Interim Report of the TPG 3.1 various meetings of the TPGs, the first TPG lead partner meeting as well as the first ESPON Contact Point meeting took place.
Ideas, suggestions, and proposals were discussed and further developed. The results will be echoed in this report.

In the following an overview about the 8 chapters of this report is given.

1.1 The 1st chapter - Executive summary

This first chapter is an abstract and gives a guidance as well as a comprehensive glance for the reader who wants to have a fast and compact overview of the content of the different chapters.

1.2 The 2nd chapter - The role of the ESPON 3.1 Project – Integrated Tools for European Spatial development

The second chapter “The role of the ESPON Project 3.1 – Integrated Tools for European Spatial Development” informs about the achievement of the ESPON and gives an overview about the ESPON project 3.1. In this chapter the relation between ESPON, the ESDP including its spatial goals and EU sectoral policies is described. The before mentioned overview about the project 3.1 introduces briefly into the specific objective of the transnational project group (TPG).
The progress of the project is explained by reporting on the creation of a common platform for ESPON projects, including networking, exchanges, etc. with other TPGs as well as the integration of accession and neighbouring countries, meetings and seminars. Also the way in which the project 3.1 gives guidance to the other TPGs, e.g. through the ESPON data base or discussions on different concepts is presented. Main aspects are the technical and analytical support undertaken since the 1st IR and the progress made towards common concepts, typologies, indicators, data sets and cartography. As the ESPON Programme attaches great importance to the enlargement of the European Union (EU) this subchapter keeps track on the candidate countries.
The last subchapter gives a tabularly overview of the activity plan 2003, its outcome and expected results.

1.3 The 3rd chapter - Common understanding and operationalisation of policy concepts

The third chapter 'Common understanding and operationalisation of policy concepts' is subdivided into three parts and focuses mainly on polycentrism and associated spatial planning concepts from the view of spatial planning. The first subchapter is a clarification of policy aims and concepts in this field, centring on territorial cohesion. The second subchapter concentrates on spatial planning concepts. As mentioned above 'polycentrism' is the central term surrounded by inseparable terms and concepts like accessibility, urban areas, etc. The third and last subchapter is on providing typologies for spatial and regional analysis .

The requested elements of the contract (addendum) and of the ''Guidelines for [the] Interim Report...'[6] on approaches, methodologies, concepts and possible results are fulfilled. The Terms of Reference for project 3.1 include a list of about 15 concepts that have to be checked for its policy relevance in the ESPON context[7]. So, the first decision that had to be made was the selection of the most important concepts and a discussion about the interrelationships between the different concepts.

The first subchapter distinguishes between new concepts and associated concepts. New concepts in this context are polycentric development and territorial cohesion. These two key concepts rely on, or are complemented by, associated concepts. Territorial cohesion is closely linked with the associated concepts social cohesion and spatial integration. Polycentric development refers to the concepts of urban area, rural-urban relationship, accessibility and global economic integration zone. These concepts themselves are fed and complemented by more thematic concepts or notions, which should also be clarified in order to reach comparable results.

Actually territorial cohesion and polycentric development are often associated in documents related to territorial development. Usually, polycentrism is justified by the dual need to improve global competitivity of the European continent and to correct imbalances and disparities. Polycentrism is seen as the contribution of

[6] see 'Guidelines for [the] Interim Report in March 2003' developed by the CU after the 1st Transnational Project Group (TPG) Leadpartner meeting, 28 February 2003

[7] This is presented in detail in subchapter 5.1 of the 3.1 FIR.

spatial planning to more general policy aims, and notably to remove obstacles to cohesion such as territorial disparities. It has to be stressed that the presented approach starts on the European level, not on the regional or municipal level.
Clarifying territorial cohesion should be done in consideration of the finality of the programme, i.e. to deliver operational results that may be useful for European and national policies. The aim is to give a clear picture of the concept to allow translating it into operational tools and relevant political recommendations. Doing this, it is necessary to take into account the numerous existing contributions as well as the ongoing debates on the topic. To build a genuine complementary input is a challenge in the given context. A tentative approach to represent the concept as a step toward its operationalisation is the so called 'hyper-cube', which presents the four identified dimensions of territorial cohesion: cohesion, territory, scale and time, as well as the three sets of conditions for cohesion – potential, position, integration - and the two components of territory, i.e. space and society (see chapter 3.1 figure 4: Components of territorial cohesion). The represented components have a number of potential links with different aspects of the work of other ESPON TPGs (see table 2: Examples of ESPON sources for conditions of territorial cohesion). The issue is how to combine all that information to put it in the territorial cohesion perspective.
Focusing on the conditions for territorial cohesion allows to build typologies based on the situation of territories regarding those conditions; this in turn helps to identify possible policy answers in order to improve territorial cohesion.

Inputs from the TPGs may be considered along two strands:

- inputs explicitly focused on territorial cohesion and associated concepts;
- inputs in matter of indicators, methods, typologies.

Several TPGs give interesting points of view on territorial cohesion and/or associated concepts.(for the other tools, see notably table 3: Indicators and typologies of TPGs reports potentially useful for assessing conditions for territorial cohesion)

The second subchapter deals mainly with the concept of polycentrism including the aspects of accessibility and flows. Polycentrism cannot be discussed without taking into consideration associated concepts, especially accessibility. The subchapter starts by discussing various aspects of accessibility, i.e. the connection

between urban nodes. Accessibility is seen as a key element for polycentrism. The part on accessibility presents different approaches, concepts and indicators. The three basic concepts of accessibility, potential accessibility, daily accessibility and travel costs indicators are shortly explained, including indicators for each of them.
The further step prepares the inventory of the concept of polycentrism going beyond purely morphological aspects by stressing the importance urban/regional specialisation and in particular flows between urban areas, including the aspect of connectivity. The section on polycentrism addresses also discussions on concepts such as global integration zones and urban areas. With the debate on rural-urban relationships the focus turns away from the nodes-only debate. The conceptual debate is finally be rounded off with a discussion on environment, related to sustainable development. The conceptual discussions is built mostly on the works presented in the interim reports of various ESPON projects.
The discussion in this subchapter shows that the question of scale is one of the major challenges of the work ahead, involving the question of the suitable level for taking policies forwards and the questions of the scale at which policy aims are to be achieved. Indeed a spatial policy aim at one scale does not necessarily support the same policy aim at an upper or lower scale.

The third subchapter concentrates on typologies linked to the previous discussion about concepts. Typologies are an important element to assess spatial trends related to types of regions. Concepts (like, e.g., polycentrism) can be related to specific types of regions (cities of different “weight”, functions and positions / links in the urban system), which again form the basis for the analysis of the degree and trend in the development of the respective concept.
With respect to policy applications, typologies are mainly used for the general analytical assessment of policies and their territorial impacts, rather than for a precise regional delimitation and classification (as needed, for example, to define areas eligible within the EU structural funds). In this sense, typologies in the context of operational concepts are not meant to precisely define new areas eligible for financial support, but rather to assess existing spatial trends and develop new spatial policy ideas.

1.4 The 4th chapter - The ESPON European META-SWOT

The ESPON European META-SWOT analysis developed by the TPG 3.1 forms the 4th chapter. It is a test version introduced during the 1st TPG lead partner meeting and integrated in the deliveries of the 2nd IRs of the first round of ESPON projects. A more elaborated analysis will be presented in the next round of Interim Reports (August/September 2003). The ESPON European Meta-SWOT is used as an instrument or procedure which should fit the different parts of the thematic puzzle together in order to draw an all European spatial picture. An interactive approach was implemented to reach a synoptic perspective by carrying out a cross thematic SWOT-Analysis[8].

The SWOT-analysis is based on and summarises the descriptive results of all thematic TPGs, it also includes a Regional Classification of Europe (RCE). The main aims of this step are:

- a harmonised operationalisation of territorial concepts,
- the identification of indicators,
- collection of data and integration into the ESPON database,
- statistical analysis of these data with reference to strengths, weaknesses, opportunities and threats of the development of European regions and
- the evaluation of matching the overall goals of European spatial development.

In practice the ESPON project 3.1 introduced a stepwise approach to create a comprehensive SWOT taking into account the results of all the different ESPON TPGs. The procedure was introduced via a guideline disseminated in February 2003 and explained at the ESPON lead partner meeting in Bruxelles on the 25th of February.

The ESPON project 3.1 asked TPGs to start the SWOT process immediately, so that first preliminary results could be visible for the Second Interim Report (SIR) of the first round projects. The first step of the procedure is the completion of a questionnaire by all TPGs. The second step is carried out by ESPON project 3.1 by the preparation of a synoptic analysis of the TPGs input.

For the TPGs of the first round, which started in summer 2002, it was obligatory to deliver their first inputs for the SWOT. Altogether eight thematic projects were expected to give some input to the META SWOT. Three projects even managed to supply a first complete thematic SWOT. Two projects completed the SWOT with

[8] For a detailed describition see chapter 4 of this report.

only few questions missing. One project began with the identification of strengths and weaknesses, opportunities and threats. Only two projects are not complying with the procedure that was explained beforehand. Project 1.2.1, as far as we know up to this report, seems not to have delivered anything which deals with the ESPON SWOT- analysis. Furthermore, Project 2.2.3 has not delivered the questionnaire form separately, but it appears that the whole structure of their SIR refers to SWOT methodology. TPG 2.2.3 will be asked to add the key results into the SWOT questionnaire form of the next interim report. For the TPGs of the second, third and fourth round the participation was voluntary. A close and in depth analysis will be possible not before the end of the second ESPON seminar on Crete.

One important finding is that some of the priority 2 projects – since they are dealing with policies – answered the questions very closely orientated at the specific EU-policies they are examining.

The first step in evaluating the incoming SWOTs was the check for completeness and level of detail of the answers given. Nearly all TPGs made some great efforts, in order to provide at least preliminary answers to all questions. At the moment some projects are able to define so far identified **s**trengths in the single fields of research very clear, brief and sometimes with a short explanation, while others seem to hesitate to come to a concrete statement. With reference to the **w**eaknesses the picture looks more balanced. It appears to be easier to name specific weaknesses rather than strengths. Nearly all project statements reach the same explicit standard. As with the strengths, it seems that the description of **o**pportunities is more difficult. Some projects got very detailed and explicit, others answer more defensive and reluctant. Also for the **t**hreats the picture is more balanced, the majority of the projects were able to give precise and significant statements, reaching nearly a common standard. The identification of the main driving forces was also an exercise to be positively assessed. Concerning typologies it seems, that although most projects answered, not all of them have elaborated an own and specific typology so far, more or less the usage of existing typologies seems to dominate the field.

All TPGs were asked to draw an intuitive picture of the characteristic of the three dimensions of sustainability. The first impression so far, leads to the conclusion, that for the majority of themes, economy is well ahead of the other two dimensions

As addressed in the questionnaire we have to focus on the thematic field of territorial trends. Therefore, also the priority 2 projects should focus on the territorial trends in their research.
Project 3.1 asks all TPGs, to give a complete feedback every time. All inputs can be revised in the next report, which takes into account that the TPGs of course have not yet completed their specific research work in their fields. The aim is to bring out a cross thematic view, that shows the interdependencies between the different themes, and the spatial effects.
It is necessary that the TPGs stick to the questions as close as possible. This is very relevant for the level of detail of the answers. We all are aware that there is a conflict between the poles: scientific precision on the one hand and over simplification of complex interrelations on the other, a brief but not too excessive form of answers is much appreciated in order to receive applicable result which can be communicated. Also, even if some questions have already been answered, and a revision is not foreseen, the TPGs should repeat the inputs in the form of the SWOT questionnaire. It should be clearly noted if an answer can not be given. This procedure reduces the danger of ignoring new or modified inputs.

Project 3.1 will give a first detailed examination of the single SWOTs latest for the ESPON 3rd IR (September 2003).

1.5 The 5th chapter - Territorial Impact Analysis

Another important tool is the TIA, Territorial Impact Analysis.
A short excursus should be done here with regard to the abbreviation TIA and to clarify it. In the 1st IR the meaning of the term TIA in the ESPON context had to be clarified due to the planning tool Territorial Impact Assessment (TIA). Up to this time TIA had been used only at the project level. After discussing the main differences the recommendation was, when applying the impact approach at the level of programmes and policies, the acronym should be considered standing for *Territorial Impact Analysis*.

Concerning the question to which degree “a general common and co-ordinated approach for assessment” is achievable already the FIR stated:

"It is obvious that the descriptions of the approaches under measure 2 ... show a considerable variety of features which seems to be caused more or less already by the different nature of the subject matter. ...
... even this first review is confirming ... that it seems hardly imaginable to cover the whole range of sectoral EU policy issues by one assessment methodology. The conditions for such a "general model" are lacking at least due to two reasons:

- the very different character of the spatial dimension and implications of the policy areas concerned (in particular the different assignment to spatial goals) and
- the rather different theoretical state of the art in the different areas of applied research and planning.

Therefore, for the time being efforts should go rather towards achieving more transparency of description of the individual approach along minimum standards of methodological information and using a common non-confusing terminology, in order to launch a more effective methodological communication between the different areas of policy analysis and assessment."

Concerning the diagnosis, this is, what is still true. Concerning the requests for further steps, the SIR shows that progress has been achieved. Nevertheless the doubts are to be announced here again whether "a general common and co-ordinated approach for assessment" can go much beyond the following ´minimum requirements´[9] for EU policy programmes:

- designation of (impact causing) policy intervention(s)
  actually recorded (assignable to EU budget lines)
- designation of hypothesis concerning cause-effect relations
- territorial incidence of results at least for NUTS 2 regions (preferred lower)
- reference to past and future periods
- designation of the topic of calculation
- qualitative appraisals at least (quantitative preferred)
- designation of spatial concepts / goals referring to
- designation of the technique(s) of analysis
- designation of (assumed) meaning of 'territorial'
- coverage of the whole territory relevant
  (one outcome for each region, 'mapable results')

On the basis of this 'common approach' which probably can't go much further in (common) detail, specific conclusions for the individual policy areas may be developed. The chance of such an option depends widely on the progress in

[9] mentioned already in the (amended) table "Review of major features due to TIA designated by the First Interim Report of Priority 2-projects" (see 5.2.1)

achieving the requirements on the side of detailing the concepts to be to referred to (see above).

The work on TIA is an enhancement of the approach presented in the first Interim Report. The consequence was the development of the 'Guidance for Policy Impact Projects concerning TIA minimum requirements, which was sent to the LPs (lead partners) of specific TPGs of the measure 2 projects requesting to follow these 'TIA-terms of references' by describing the methodological approach of their impact studies. The project leaders of the projects 2.1.1, 2.1.2, 2.1.3, 2.2.1 and 2.2.3 were asked to participate in a survey.
Summaries for each TPGs are given.

For the TPG 2.1.1 in summary it is noticeable that the methodology offered, is based on already established highly sophisticated and aggregated models, producing considerably complex results. However, there seems a main dimension lacking probably to be considered crucial regarding policy relevance. Assuming, that the methodological basis of the analysis is already highly determined and that the next step is the application and implementation of these tools, no fundamental change of this diagnosis is to be expected for the next interim report.
For the TPG 2.1.2 in summary it is noticeable that the information to be expected by this study is more about the territorial incidence of the EU R&D policy area (input side) rather than about their territorial impacts (caused by their outputs).

For the TPG 2.1.3 in summary it is noticeable that the approach is a purely ex-post perspective and the information to be expected is more about the territorial (regional) incidence of the CAP/RDP policy area (input side) rather than about ist territorial impacts (caused by their outputs). Also it strikes that there are no goals referred to.

For the TPG 2.1.4 in summary it is noticeable that the FIR states very clearly that it will be difficult to establish a cause-effect relationship between energy and territorial development. Behind that, the responsible easy transportability and non-coincidence of production and consumption are more crucial than the relative big scale (NUTS 2) of analysis and the missing reference to spatial concepts and goals.

For the TPG 2.2.1 in summary**,** since in this case only the First Interim Report is available, it seems too soon for more specific information. This is to make up in particular concerning the issues ´hypothesis on cause-effect-relations´ and ´interventions/effects registered´.

For the TPG 2.2.3 in summary it is noticeable that the study is starting from the assumption of "positive impacts on the objectives of actions undertaken". The information to be expected by this study is about the incidence of the SF interventions (input side) in declining industrial urban areas in relation to context indicators. The analysis is based on a sample of 25 areas.

1.6 The 6th chapter - ESPON data base and GIS

At the end of January 2003, the ESPON data base starts with the first delivery of general socio-economic data and indicators based on the Eurostat data provided at the Mondorf Seminar. Version 1 of the ESPON data base provided mid-March 2003 tries to fill the first data gaps of the most fundamental statistical data. As the results of the Second Interim Reports show, this is also the case within all TPGs, especially of this first round.

At the same time, the ESPON map kit in form of an ArcView3.2 project provides the basis for a common map design agreed at the Mondorf seminar including coverage of all regional levels for the ESPON countries.

Thus, the ESPON TPG's obtain a unique tool to produce regionally based thematic maps.

The 3.1 project responsible for the co-ordination of data requests to Eurostat and EU institutions offers assistance for data acquisition of fundamental socio-economic data in the accession and neighbouring countries. Partly on the basis of the TPG leader meeting offer, but mainly form the Interim Report of the TPG from March/April an overview on ESPON data demand to Eurostat and EU institutions has been defined.

The list of core indicators of ESPON enables an overview on the most relevant and realistic indicators which can be realised in short term for further use within and outside ESPON. Related to the ESPON network the indicators are the minimum stock of exchangeable within the network.

First result on Multiscalar Territorial Analysis have been produced in a j´kind og prototype on the basis of GDP/inh in 1999 because it is certainly the most used index in Europe for political decision and Spatial Planning. In order to produce well-informed and efficient policy options, various multiscalar deviations (European, National, Local) have been examined in combination as alternative to separate analytical views.

Multiscalar Territorial Analysis (MTA) gives the opportunity to derive several indicators from an initial variable of the ESPON database. Some of those indexes derived from spatial analysis should again be included and stored in the ESPON database

Strongly interrelated to this the “Hyper Atlas” is to encourage non-specialist users to produce maps integrating territorial and spatial approaches. Using this tool, policy actors and decision makers will gain a more accurate knowledge of territorial realities as they are reflected by social and economic statistics

The interactive Web-tools will improve the diffusion of ESPON data (geographical – spatial and attribute – non-spatial) through the internet in an interactive way has been elaborated to satisfy the communication within ESPON 2006 (TPGs, MC, ECP, MU,…) and also the possibility of the promotion of the ESPON results to the public (the determination of the “public” is a question which need to clarify soon).

In order to achieve the different Internet GIS requirements the architecture of the ESPON Web GIS was designed in different levels of capabilities

1.7 The 7th chapter - First approach on the topics ‘Europe in the world’ and ‘Interreg IIIB’

This chapter opens the 3.1 work towards two other scales as the European one: the world scale in terms of the various relationships between Europe and the rest of the world, and the infra-European trans-national scale in terms of exchanges between the ESPON and the Interreg IIIB programmes.

The introduction of the topic **“Europe in the world”** in the terms of reference of ESPON (as specific TPG or as work package of ESPON 3.1 and ESPON 3.2) has been proposed several times by some member states[10] to the MC and the CU but was never formally approved or rejected. Therefore, it was not mentioned in the terms of reference of ESPON 3.1. The leading partner and the research teams

[10] Especially the representative of France.

involved in ESPON 3.1 has finally decided to introduce a small work package[11] on this subject in their answer to the tender, on behalf of the Terms of Reference which precise that " *The cross section projects (ESPON 3.1 and ESPON 3.2) help […] to fill gaps, which are unavoidable when different themes are dealt with in different projects[12]".*

The limitation of ESPON databases on EU15+Candidate countries is firstly a scientific problem, because many internal differentiation of Europe (between states, regions, urban areas, …) are related to the existing and potential flows between Europe and the rest of the world. This is especially true when considering major topics of ESPON like gateway cities, polycentrism, spatial integration, social integration, … But this lack of interest for the flows between Europe and the rest of the world (especially neighbouring countries which are not actually candidate) is probably also a very negative political message. According to the funds actually available in ESPON 3.1, the central goal of the short study realised in the framework of ESPON 3.1 is:

(1) propose a methodology on how to answer the following questions: What is the *functional* influence area of Europe in the world? What are the internal differentiation of European territory according to flows with the rest of the world?

(2) give an outlook on empirical results which can be obtained when this methodology is applied to the matrix of air flows and trade flows between all states of the World in 2000.

The connection between ESPON and Interreg IIIB is addressed in the second part of the chapter. Several tracks are pointed out as regards the networking between programmes, the analysis ESPON 3.1 can focus on Interreg IIC/IIIB, and the inputs that ESPON can expect from Interreg.

Although the context for the work needs to be clarified because of Interact's incoming, a general decision on the focus has been started. Mainly two different possible fields of activity are in the debate:

[11] 1% of the resources of ESPON 3.1 = 10 000 euros.

[12] ESPON 3.1, Terms of reference, p. 2, http://www.espon.lu/online/documentation/projects/cross_thematic/185/tor_3.1.pdf

- **Networking and Integration of Activities and Results**
  A large number of Interreg IIIB projects are actually carrying out studies on topics similar to those researched within ESPON. Thus an exchange of ideas and results as well as mutual stimulation of debates in various Interreg IIIB and ESPON projects might be considered a natural part of the pro-active dialogue strategy of ESPON 3.1.
- **Research on Interreg in the Light of Cohesion and Future Structural Funds**
  The debate of the future of the Structural Funds as well as on recent policy ideas such as polycentric development, territorial cohesion and global integration zones suggest that the effect of Interreg co-operation might be analysed regarding possible policy conclusions to be drawn from the experiences so far.

Chapter 7.2 reflects on the ESPON 3.1 internal debate on which focus to choose regarding the work with Interreg.

The chapter 7 consists more on outlooks and perspectives, because of the very low amount of money which have been dedicated to this. Nevertheless the chapter raises crucial questions which need to be developed and answered in the frame of ESPON future political recommendations

1.8 The 8th chapter - Outlook towards expected preliminary results in September 2003

This last chapter gives an outlook towards preliminary results in September 2003, when the 3rd Interim Report of the TPG 3.1 will be delivered. The expected results of the chapters 3 to 6 are pointed out.

The general orientation of the 3rd Interim Report is given by the contract / addendum and includes:

- Compilation of intermediate results on the territorial trends and impact of policies
- Implementation of territorial objectives into EU policies
- tentative recommendations to policy development towards the ESDP and the Structural Funds after 2006
- first steps towards the preparation of methodologies for prospective scenarios

Operationalisation of **policy concepts** contributes to these aspects of the TIR, notably bridging analytical tools and policy measures. Focus will be set on the typology tool. Typologies will be produced for each of the three sets of conditions for territorial cohesion (potential, position, integration) and for their combinations. They will as far as possible be co-ordinated with typologies produced by other TPGs regarding polycentrism and associated concepts such as accessibility.
Typologies will rely on a reasoned selection of indicators based on information produced by ESPON projects (TPGs reports, 3.1 specific contributions on concepts and SWOT analysis), complemented if needed by other readily available information, and on advanced spatial analysis tools for some aspects (particularly those that take into account relationships between territories).

Furthermore, project 3.1 will give a first detailed examination of the single **SWOT**s latest for the ESPON TIR. The next steps to be taken by 3.1 will include an in depth analysis of the SWOT inputs of the TPGs. The aim is too bring out a cross thematic view, that shows the interdependencies between the different themes, and the spatial effects.
So the ambitious aim is to answer questions such as:
”Are the effects of the theme A positive for the all over polycentric development in Europe?”
”Are the effects of the theme A positive for the sustainable development of Europe?”
“Are the strengths of the B sector weakening the strengths of sector D?”
“Are there some key driving forces, that may propel more than one sector in Europe?”

With respect to the **TIA-related methodological approaches**, the work steps to come towards TIR are to apply / implement the methodologies declared in SIR. This is being based on the following ‘minimum requirements’ for EU policy programmes:

- designation of (impact causing) policy intervention(s)
- actually recorded (assignable to EU budget lines)
- designation of hypothesis concerning cause-effect relations
- territorial incidence of results at least for NUTS 2 regions (preferred lower)
- reference to past and future periods

- designation of the topic of calculation
- qualitative appraisals at least (quantitative preferred)
- designation of spatial concepts / goals referring to
- designation of the technique(s) of analysis
- designation of (assumed) meaning of 'territorial'
- coverage of the whole territory relevant

On the basis of this 'common approach' specific conclusions for the individual policy areas may be developed. The chance of such an option depends widely on the progress in achieving the requirements on the side of detailing the concepts to be to referred to.

With the 3rd Interim Report in September the **database** will include and combine all relevant data and indicators sets of the TPG. The combined data base will include coherent regional coverage of all ESPON countries possible at this time.
Common mapping standards will allow coherent presentation via ESPON GIS within project 3.1 and the other TPGs as well.
The base will allow a first regional multivariate analysis of territorial trends and disparities of single TPG results and in combination of data and indicators of different TPG results

According to the feed-back from the members of the ESPON network during the summer 2003, the final version of the first package (MTA) of the **ESPON Hyperatlas** will be improved and connected with the ESPON database before the end of 2003[13].
During the same time, the development of the second package (MSA) will be engaged and experiments will be made on wide data sets (NUTS 5 units, CLC, …).

After having defined the possibilities of the broader Interested Public to have access in the ESPON GIS Portal the first version of the **Interactive Web Tools** will be ready in August and we will have two different functionalities. The first will be the Cartographical Portal the second the Statistical Portal. Both will be based

[13] An operational version of the first package (MTA) of the ESPON Hyperatlas will presented in Paris on 11 June 2003.

on the latest version of the ESPON Database (version ver.3.0) and we will have two different levels of data analysis.

“Light” level with on-line map making facilities and simple statistical retrieval and one level with more sophisticated data analysis capabilities, specialized for professional users (mainly for ESPON projects and CU and EU Com.)

2 The role of the ESPON 3.1 Project – Integrated Tools for European Spatial Development

2.1 Philosophy and approach of the project

The ESPON Project 3.1 is the co-ordinating cross thematic project of the ESPON Programme 2006. In the graphic below, one important task of project 3.1 is formalised as transforming the interaction between project 3.1 and the project environment (other TPGs, European Agencies, Experts from Accession Countries, etc.) into outputs and deliverables. This task is described by the set of rings around the core of the output.

Figure no 1: Project scheme – integrated tools for the spatial dimension

The figure above indicates the input by the outer ring, namely:

- policy impact projects
- thematic spatial projects
- data navigator and data bases
- accession countries and neighbouring countries advisory

The output is indicated by the “Forum of Tools” in the centre of the figure:

- spatial tools
- integrated data bases
- indicators
- typologies
- territorial concepts
- maps

These core outputs are complemented by the deduction of policy recommendations, indicated by the flow from the core towards the users and applicants. These flows are representing the main outputs and deliverables for external use which will be provided by the project.

Between these input and output layers the reference points of the tasks of the project are listed by different partitions:

- thematic structures and reference points deriving from the input provided by other projects and by own additional efforts

- territorial structure reference points such as countries, spatial integration zones, etc.
- data base development and cartography
- policy impact methodologies
- policy development

Project 3.1 will gain added values for the ESPON programme by deliver products which support the programme on different levels. By working in a cross-project manner a significant surplus value will arise.

- Added values (1): final products for the European Policy Makers

The main products will be delivered for the use by the Co-ordination Unit (and via the Co-ordination Unit by the European Commission, the Monitoring Committee and Sub-Committee an Spatial and Urban Development (SUD)). These are, e.g.: common database and indicator system, papers on concepts and policy recommendations, contributions for European documents (3rd Cohesion Report etc.).

- Added values (2): frame-setting for other ESPON projects

Another type of product will be used internally, i.e. within the ESPON programme. These internal products will be addressed to other TPGs and include, for instance, the setting up and delivery of standards and guidelines (referring to data collection, cartography, concepts etc.) which can be used by other TPGs for their work and help the Co-ordination Unit in its co-ordination task.

- Added values (3): exploiting results gained by other ESPON projects

In the other direction, TPG 3.1 makes use of results and recommendations of the other TPGs, e.g. by creating links between the different TPGs synergetic effects could fructify the work in a reciprocative way. for the purpose of integration results will be cross-checked and evaluated the for contributions to synthetic reports.

- Added values (4): genuine contributions by project 3.1

Besides the networking aspect, an important part of added value of project 3.1 is based on genuine contributions that are not covered by the single projects of the themes 1 and 2, i.e. building a common data set and a joint system of indicators and tools, and defining and operationalizing concepts and tools. The activities and outcomes of the project 3.1 should be balanced with respect to giving room for “innovative” methods and thinking without loosing sight of meeting the demand of policy decisions based on EU-wide data and analysis that is currently available.

- Added values (5): promotion strategy / publications / networking

Finally, TPG 3.1 will support the CU in its task for internal and external networking and co-operation and - it will contribute to the promotion and publication of ESPON results.

The outcome of ESPON can be seen as a Policy Support System. The need for a Policy Support System comes from two contradictory demands by policy makers: more advanced and yet more user-friendly and just-in-time decision-making support from experts and scientists. One possible strategy for resolving the conflict between more advanced and more friendly and just-in-time support is developing corporate intelligence inside governmental institutions by introducing efficient management of information and knowledge. The first strategy to move in this direction is to continuously consolidate and formalise disperse information and knowledge generated in the institution. This can be done by simply creating virtual libraries with synthesis of studies, storing databases in compatible formats, creating intelligent search-engines, etc., and linking it all together into open systems, driven by user-friendly and customised interfaces and accessible to any interested policy-advisor or policy-maker from his/her computer desk. The open system should integrate interactive explanatory tools of use for communication and educational purposes, but should also provide access to multiple remote advanced information and knowledge systems developed and maintained by universities, research institutions and consulting firms that can answer a number of legitimate policy-questions.

However, clever computer systems that interface end-users and improving computer tools may not be the complete answer to the problem. The key to close the gap between policy makers and state-of-the-art scientific models is establishing an encouraging and co-operative environment where scientists, experts and policy makers interact personally and can understand each other.

The SPESP experience is an example of a successful experience since most of the information and knowledge generated along the process was actually gathered, harmonised and distributed afterwards by BBR, Nordregio and Mcrit. Today, the virtual library including databases of policy-indicators, reports, interactive mapping facilities etc. is still publicly available through the web.

At this point, it is necessary to develop a clear vision of the future integration of all ESPON information and knowledge in order to guarantee that it becomes operational as a whole once the work programme has been concluded.

In its minimal configuration, the ESPON system could be just like the SPESP; an Internet repository of documents and data, with additional mapping facilities culminating in its dissemination by CDRom. A more ambitious alternative, however, is for ESPON to result in a policy-support system including: a single repository with validated databases, a number of models to compute most important indicators, mapping facilities, virtual libraries with studies, case-studies, reference documentation, directories of experts and institutions, and a friendly web interface to allow remote users to take advantage of non confidential material.

A number of questions need to be answered before bringing more precision to the technical characteristics and the commercial and institutional frame of the system.

2.2 Progress of the project

Since the 1st Interim Report of the TPG 3.1 various action and progress has taken place. This progress is based on different activities and expressed in various fields of work covered by the ESPON Programme and therewith by the co-ordination activities of the TPG 3.1.

2.2.1 Networking undertaken

The central aim of the project 3.1 is to strengthen the ESPON programme level and by supporting the ESPON Co-ordination Unit in its task to secure integrated approaches and results of the whole ESPON programme.

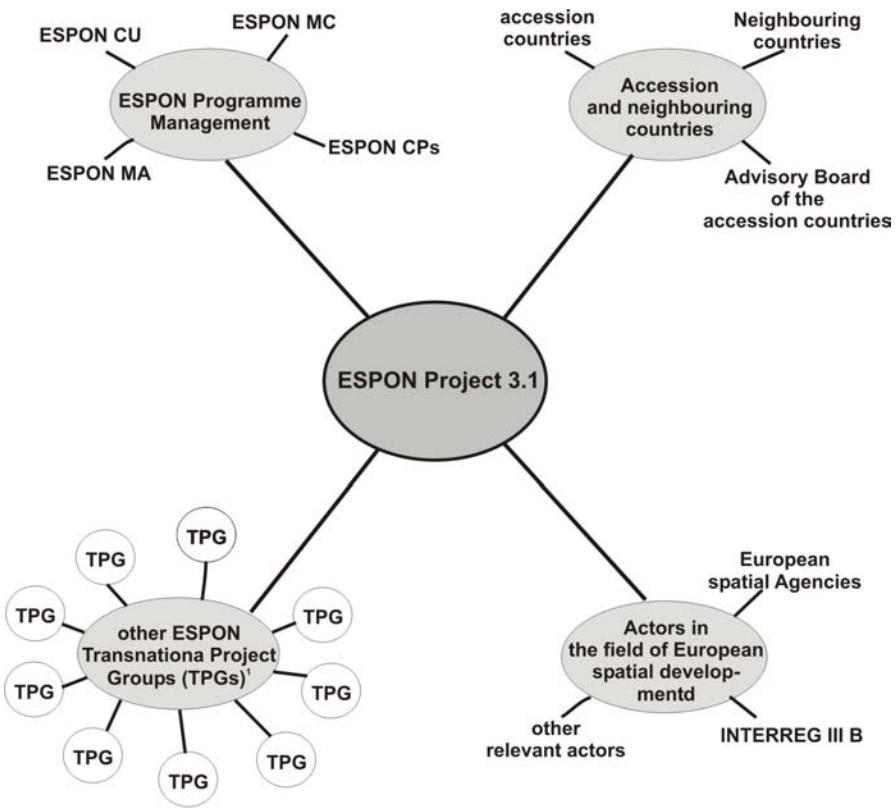
The first step to get good results is to create a fundamental common ground. For the ESPON Programme 2006 this means to get a common understanding about ESPON and a common "ESPON thinking". In this regard it was necessary to establish a good networking using effective tools.

Meetings with different actors were organised and realised by the ESPON CU and the project 3.1 to get, beside of the contact mostly realised by modern telecommunication facilities, real face to face contacts and to bring all key persons together. The TPG 3.1 gave during the last four to five month guidance to the other TPGs in various ways, e.g. through technical and analytical support or indirectly through the ESPON META SWOT and TIA .

The philosophy or model of networking of the 3.1 project was explained already in the 1st IR. The networking activities of the project 3.1 can be subdivided in four groups. Networking with:

- the other ESPON Transnational Project Groups (TPGs)
- ESPON Programme management, i.e. ESPON Co-ordination Unit, ESPON Managing Authority, ESPON Monitoring Committee, ESPON Contact Points etc.
- INTERREG III B co-operation areas, European agencies and other actors in the field of European spatial development
- accession countries and neighbouring countries

Figure no 2: Networking activities of ESPON 3.1

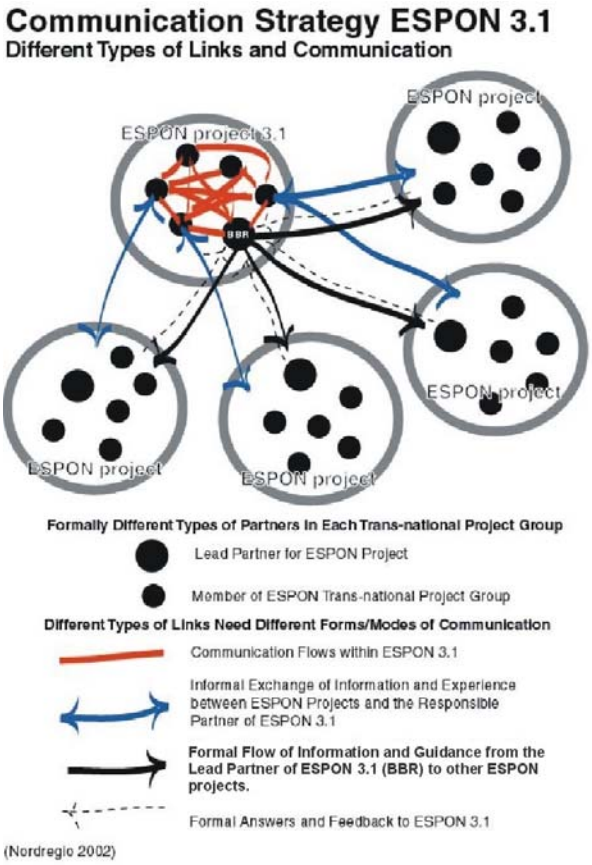


[1]total: 19 other TPGs

In the project 3.1 the team reflects the European range of different perspectives. The main goal will be to come to joint results and conclusions and policy recommendations that are consensual in the working team wherever possible. In this sense, the working method will be based on good internal communication and networking and the search for common results rather than a strict division of labour. Therefore the project is in close contact with the ESPON Programme management, other actors in the field of European spatial development (i.e. European Spatial Agencies), the accession countries as well as some neighbouring countries of the EU.

Beside of the important external work of the project, the internal co-operation and collaboration plays an important role. The internal project networking consists of an internal network between the members of the 3.1 project.

Figure no 3: Communication Strategy ESPON 3.1



The graphic shows that the partners inside of the 3.1 project are responsible for the informal exchange and information flows between 3.1 and the other TPGs.

Networking of the TPGs

The biggest success is that a lot of TPGs started the networking between themselves. It's obvious that this activities has to be improved, extended and strengthened. Beside of the success made, it seems that some TPGs need the advice and guidance of the TPG 3.1 and the ESPON CU to get in touch with content related TPGs.

At this stage it can be said that the TPGs have to make more use of the TPG network by their own effort, for example, if data gaps are obvious they have also to contact related TPGs. TPGs of the first round of ESPON projects don't have to be seen only as providers or distributors. Also the projects of the further rounds have to do fundamental research and scientific work to support the programme.

An important aspect is also to call on the ECPs, if data or documents are needed. It is one of the ECP roles.

Networking between the project 3.1 and the TPGs

A lot of progress has been made in the field of networking in different ways since the 1st ESPON seminar in Mondorf-les-Bains and the 1st IR of the TPG 3.1.
The networking between the TPGs and the project 3.1 extended and since the December 2002 nearly all TPGs are in contact with the co-ordinating, cross thematic project. Especially the work on the ESPON META SWOT and the TIA supported the networking and communication.
Former existing prejudices and doubts of the TPGs disappeared through good practise. More and more also informal ways of communication are being used, which shows good relationship between the different actors. Most of the networking activities currently is related to the data and GIS. Beside of this the networking covers the full range of inquiries concerning practical aspects as well as theoretical aspects of the work. The participation of most of the 3.1 project partners in other TPGs helps networking.
Nevertheless, networking has to be further improved and some TPGs should be more active in the future. Networking is a mutual activity! The TPG 3.1 needs the input, e.g. queries of the TPGs to EUROSTAT and the EU institutions or a response on key territorial concepts[14], to do its work and to provide useful base.

Networking between the project 3.1, the ESPON CU and the DG Regio

The networking in particular with the ESPON CU and now also with the DG Regio was implemented in different co-ordinating meetings as well as in an intensive and stable contact via modern telecommunication media. The ex-change is of utmost importance for the success of ESPON. It generated until now fruitful outcomes and facilitated the work of the parties.

Networking with the accession and neighbouring countries

ESPON project 3.1 tries to integrate the Accession Countries (ACs) as well as Neighbouring Countries (NCs) to facilitate common views on the spatial development trends and policy issues in an enlarging European Union. It should help to bring in the knowledge and specific views of ACs into the ESPON results and allow exchange of experience between the 3.1 TPG and experts of the ACs and NCs.

[14] see 'Guidelines for [the] Interim Report in March 2003' developed by the CU after the 1st Transnational Project Group (TPG) Leadpartner meeting, 28 February 2003

At this stage the networking of the 3.1 project with the ACs and NCs focus on the field of database and GIS. Especially inquiries towards the accession and neighbouring countries have been realised and will be done during the next time. The data of mentioned countries is very important for the creation of a well founded and comprehensive data base.
Some ACs and NCs acceded the ESPON Programme formally and participate in an active way. At present, these countries are Hungary, Slovenia, Norway, Switzerland. Other countries still are observer countries. The acceded countries will join different TPGs. Until now there is no detailed information about this process, the role of these new partners and the possible effects on outcomes.
As mentioned in the 1st IR the TPG 3.1 will start deepening its networking with the ACs and NCs after delivering the 2nd IR. It should deal with specific thematic, political and methodological issues concerning the enlargement and neighbouring areas in the context of the ESPON 2006 Priorities and Measures.

Networking with other actors in the field of European Spatial Development
At the present time the networking with other related actors is not very developed in a formal way. A lot of ESPON TPG participants are working also for other European programmes or initiatives. In this way an 'informal' and limited exchange takes place. But the foreseen intensive networking with the different Interreg offices has not yet been started. To start any activity in this direction the ESPON common platform has to be established solidly and the programme needs useful results with which activities can tie in. The future role of the INTERACT Points, which are currently being implemented, with reference to ESPON 3.1 and the ESPON CU will have to be explored.

2.2.2 Guidance undertaken

As mentioned above a main task of the TPG 3.1 is to give guidance to the other TPGs.

Technical and analytical support since the 1st IR
Since the first ESPON Seminar and the 1st IR of the TPG 3.1 great efforts and good progress were made in the field of the ESPON data base, which is one of the headstones of the further work.

The version of the list of core indicators, extracted from the different inputs of the TPGs, has been further developed and is part of this report. See table chapter 2.3 Activity Plan and chapter 6.
Again it has to be stressed that the TPG 3.1 needs the queries of the other TPGs to EUROSTAT and the EU institutions to perform its work and contribute to the TPGs.

Operational and methodological support undertaken since the 1st IR

Most project started trying to define the concepts as well as typologies they are using. The project 3.1 noted that especially in this field guidance is needed to come to a common ESPON understanding. Only in this way excellent results are achievable.
Mayor effort is made since the last report on central issues: polycentrism and related spatial concepts (e.g. accessibility, spatial integration, etc.), territorial impact analysis (TIA) and a the ESPON European META-SWOT analysis.
Polycentrism plays a mayor role in this report and will have such significance also in the future. Here it's to stress that the TPGs had to deliver responses on key territorial concepts at the end of march 2003. Work can only be realised in a mutual way.

The undertaken activities, namely the SWOT analysis and the territorial impact analysis, show that for a lot of the corresponding TPGs the work on these types of analysis gave a good and productive impulse.

Beside of this, 'Guidance undertaken' of the TPG 3.1 goes also a little bit beyond the TPG frontier. Enquiries of different ESPONians[15] were managed and fulfilled in an informal way.

[15] ESPONians = people participating in the projects of the ESPON Programme 2006

2.3 The activity plan 2003

Time	Activity
January	
20./ 21.01.2003	2nd 3.1 Meeting
30.01.2003	Meeting with the ESPON CU
February	
26.02.2003	TPG Leadpartner meeting
March	
06.03.2003	TPG 3.1 sends papers on key territorial concepts to the other TPGs
06.03.2003	TPG 3.1 sends "SWOT-questionnaires" to the TPGs of the first round
06.03.2003	TPG 3.1 provides guidance and minimum requirements for TIA to selected TPGs
07.03.2003	Expected feed-back to 3.1 on core typologies and indicators
11.03.2003	Special meeting with the CU, DG Regio and the lead partner of the TPG 1.1.1
17.03.2003	TPG 3.1 delivers the ESPON ACCESS data base V1.0 to all TPGs
17.03.2003	Determination of data request for special queries to EUROSTAT from all TPGs to the TPG 3.1 – 3.1 forwards the requests to mentioned organisations
28.03.2003	The TPG 3.1 forwards special queries of the TPGs to EUROSTAT and EU Institutions (Delayed until end of April (consideration of TPG Interim Reports) caused by lack of response)
28.03.2003	Provision of TPG data and indicators to the TPG 3.1
28.03.2003	All TPGs respond on papers on key territorial concepts towards TPG 3.1
28.03.2003	Respond of the TPGs of the first round on the 3.1 "SWOT-questionnaire"
31.03.2003	Delivery of reports of the other TPGs as an input for the 2nd IR of the TPG 3.1
April	
10.04.2003	Meeting of the TPG 3.1 with the ESPON CU and DG Regio
29.04.2003	TPG 3.1 delivers its 2nd IR
May	
04.05.2003	Informal 3.1 meeting
05. / 06 05.2003	2nd ESPON Seminar
07.05.2003	3rd Meeting of the TPG 3.1
xx.0x.2003	4th Meeting of the TPG 3.1
xx.05.03	Meeting with the ESPON CU and DG Regio
June	
xx.06.03	Meeting with the ESPON CU and DG Regio
16.06.2003	Meeting of the TPG Lead Partners
August	
xx.08.03	Meeting with the ESPON CU and DG Regio
mid of August 2003	5th Meeting of the TPG 3.1
31.08.2003	Delivery of interim reports by the other TPGs

Time	Activity
September	
xx.09.03	Meeting with the ESPON CU and DG Regio
26.09.2003	Delivery of the 3rd IR of the TPG 3.1
October	
06./ 07.10.2003	3rd ESPON Seminar
08.10.2003	6th Meeting of the TPG 3.1
xx.10.03	Meeting with the ESPON CU and DG Regio
November	
xx.11.03	Meeting with the ESPON CU and DG Regio

3 Common understanding and operationalisation of policy concepts

3.1 General policy aims and concepts

The three ESDP objectives - "*economic and social cohesion, conservation of natural resources and cultural heritage and more balanced competitiveness of the European territory, which build the cornerstones of the sustainable spatial development of the EU*" – are translated in three policy guidelines, among which the first one particularly innovates when recommending "*development of a polycentric and balanced urban system*" as alternative to the increasing centre-periphery duality.

One and a half year later, the second cohesion report, notably referring to the ESDP, introduces territorial cohesion - a concept entered a few years before in European political debates in relation with the Amsterdam Treaty - as a new dimension for regional and cohesion policies.

Whereas some aims such as sustainable development and economic and social cohesion have already been explicitly introduced in European policies, polycentric development as well as territorial cohesion are new concepts. They have not yet been implemented at European scale and remain largely unexplored, notwithstanding that a lot has already been said and written about and around them. This in turn perhaps favoured some degree of political consensus until now.

Hence the demand addressed to the ESPON to clarify these policy concepts, along with other concepts relevant for territorial development. At the same time, even if still fuzzy, they appear as a reference through the whole project.

These two key concepts rely on, or are complemented by, associated concepts to clarify as well. Among the concepts to address, territorial cohesion is closely linked with social cohesion and spatial integration. Polycentric development refers to the concepts of urban area, rural-urban relationship, accessibility and global economic integration zone.

These concepts are themselves fed and/or complemented by more thematic concepts or notions, which should also be clarified in order to reach comparable results.

Not only must the contents of both key policy concepts be clarified, the relations that link them must also be investigated. There are indeed various views about their hierarchy / priority, which may reflect standpoints more specific of regional policy or of spatial development.

A number of official documents emphasise the policy role that territorial cohesion is expected to play in European policies, starting with the Amsterdam Treaty which has introduced it in article 16 of the EC Treaty. After the public debate launched by the second cohesion report, the first progress report even mentions the suggestion of the "*creation of a coherent overall vision as a frame of reference for cohesion policies, which could in turn serve as the basis for a policy which has territorial cohesion as an explicit objective*".

Actually territorial cohesion and polycentric development are often associated in documents relating to territorial development. Most of the time polycentrism is justified by the dual need to improve global competitivity of the European continent and to correct imbalances and disparities generated by the centre-periphery scheme. Polycentrism is seen as a way to concretise "higher" policy aims, and notably to remove obstacles to cohesion such as growing territorial disparities.

In this perspective, polycentric development appears as a "spatialised" expression of territorial cohesion. In other terms, polycentrism is viewed as the operational concept – or development / spatial model - corresponding, in terms of spatial planning, to the "abstract" concept of territorial cohesion, as the way chosen to concretise it. Several reports and contributions underscore this relation, notably:

- *"It may be assumed that the concept of polycentric development is the proper spatial model for pursuing the goal of territorial cohesion"* (1.1.3 FIR, page 5).
- *"territorial cohesion, to be considered the superior policy goal, for which polycentric development serves as the corresponding planning concept"* (Schindegger and Tatzberger, February 2003).

But even if polycentrism is seen as a better answer to territorial imbalances than the centre-periphery scheme, there is no indication that polycentric development as such is a guarantee for territorial cohesion. There is no certitude either that territorial cohesion will spontaneously generate polycentric forms of development. Thus the conditions for a synergy between both concepts will have to be explored in order to orient policy approaches.

The first subchapter of chapter 3 aims to clarify the concept of territorial cohesion, having in mind that it is a keystone rather than a cornerstone. The second section focuses on polycentrism and related concepts like accessibility. The third one deals with typologies as a tool to monitor process against concepts.

3.1.1 Operationalisation of territorial cohesion

Territorial cohesion is rarely questioned as an aim - even if there are questions about its added value with respect to economic and social cohesion - but it raises many debates about its role and implications. Since the last few years, many such debates are going on in the European spheres, notably in political organs (European Parliament, Committee of the Regions, European Commission), in interest groups (Assembly of the European Regions), and in the SUD expert group of the CDCR. The concept has also been adopted by organisations like the Council of Europe and the OECD and by a number of Member States and regional authorities. On the other hand, there are also reflections from experts and scientists. Territorial cohesion interests both the political and scientific spheres between which the ESPON must establish a link.

The approach adopted is to clarify the concept, not to discuss its validity (this can best be done on basis of the tools that will be developed). Clarifying territorial cohesion should be done in consideration of the finality of the programme, i.e. to deliver operational results that may be useful for European and national policies. Hence the approach is at the same time different and complementary of the mentioned debates in political and scientific spheres (which by the way do not always differ significantly by their contents). The aim is to give a clear picture of the concept to allow translating it into operational tools and relevant political recommendations. To build a genuine complementary input is a challenge in the given context, where it is necessary to innovate to be relevant.

Extracting common features from the multitude of standpoints expressed until now, we identify in a first stage what is considered to be territorial cohesion, as it has not been formally defined yet. It has hardly been explored either as a purely scientific concept, and its political significance makes that indeed difficult. It is almost always defined by some of its supposed implications and not as such. A better delineation of the possible meaning(s) is requested. In turn, this could also help to feed the debates on its role and implications.

The link of territorial cohesion with economic and social cohesion - acknowledged as a fundamental aim of the European Union - has often been discussed. Economic and social cohesion have generally been interpreted in policies as an aim of greater equity between countries (Cohesion policy), and in a second stage

between regions (Regional policy). This is notably expressed in article 158 of the EC Treaty which focuses on the reduction of disparities between regions and of the backwardness of some of them as a way to foster economic and social cohesion.

This does not mean that cohesion may be assimilated with mere homogeneity. The introduction of a territorial dimension of cohesion has indeed shown that the meaning of cohesion may be richer and more complex, taking into account the diversity of the European continent. For example, under the heading focused on territorial cohesion, the Second Cohesion report mentions issues as varied as polycentric development, urban and rural areas, regions submitted to geographical constraints and border regions. This fits with the observation that taking the territory into account, there is no way to strive toward total homogeneity. Each territory enjoys assets and supports constraints that cannot be fundamentally modified by policies. There is thus a need to have a broader vision of cohesion that encompasses other dimensions of the development of territories and of their relationships.

Territorial cohesion is envisaged as a possibly "federating" concept ("umbrella") that might help to give consistency to a broad range of policy interventions. Hence its frequent association with the aim of better territorial coherence of policies.

The objective here is accordingly to build on common elements of the various views about territorial cohesion, focusing on two strands:

- measurement, if not of territorial cohesion in the absolute, at least of the potential for its attainment, especially in its spatial and temporal differentiations;
- identification of elements useful to elaborate policy recommendations.

These two complementary approaches may be linked by way of the "typologies" tool, which seems particularly appropriate in this context, being at the same time practicable for description and useful for interpretation in terms of policies.

For this, the ESPON framework defined for project 3.1 offers the opportunity to work simultaneously and interactively on two complementary approaches:

- the building of a common framework that should give consistency to the work of the TPGs in a first stage, and to the final results of the ESPON in a second stage (top-down) (3.1.3);
- the synthesis of the inputs the TPGs provide, in order to enrich contents and ensure a broad and multifaceted vision (bottom-up) (3.1.4).

3.1.2 Setting a frame for a common elaboration

In order to contribute to clarification and provide a consistent framework, the structure must take into account not only the diverse uses, contexts and implications of the concept, but also the more fundamental principles to which it refers.

Bases have already been mentioned for what concerns the "cohesion" aspect. But taking the territorial dimension into account, there are other frameworks to which reference can be made:

- the ESDP with its focus on "*balanced and sustainable development of the territory of the EU*" and its concern to "*aim at a spatial balance designed to provide a more even geographical distribution of growth across the territory of the EU*";
- the Lisbon strategy with its aim of making the Union in 2010 "*to 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*", which has implications in matter of territorial developments;
- the conclusions of the Gothenburg European Council agreeing on "*a strategy for sustainable development which completes the Union's political commitment to economic and social renewal, adds a third, environmental dimension to the Lisbon strategy and establishes a new approach to policy making*";
- the CEMAT guiding principles[16], particularly the first one: "*promoting territorial cohesion through a more balanced social and economic development of regions and improved competitiveness*".

These references have different focuses (balance of growth, sustainability, social cohesion, competitiveness) and thus provide different lights on the context in which territorial cohesion must fit. Together they also indicate that the European territory should be able to contribute to enhance and possibly reconcile these different dimensions.

In this perspective, it seems important to maintain a broad standpoint at this stage. This is possible if we consider the primitive sense of cohesion, i.e. the fact to feel and act as distinct yet interlinked components of a whole. In this view, balance and equity may indeed be seen as conditions that foster cohesion, but they will not necessarily generate alone the type of territorial cohesion needed to ensure

[16] Although this is not a Union framework, it has the advantage to involve all countries of the EU 27+2.

competitiveness and sustainability of the whole. Other conditions must be met notably in matter of sustainable potential and of possibility of synergies. This approach through the conditions that foster the "ideal aim" of territorial cohesion is consistent with the ESPON focus on implications for policies.

1) Operationalisation is based on the different and complementary conditions that should allow **cohesion** to develop on a territory and to play its expected role in its sustainable development. Each of the three sets of conditions integrates an aspect of the territorial dimension:

- potential for sustainable development of each constitutive territory encompasses all factors that provide opportunities for a sustainable (possibly endogenous) development of the territory concerned and that do not depend on what happens in the other territories. The notion is close to the one of "endowment" and expresses the fact that territorial cohesion can only be achieved by entities that have enough resources to develop their own identity, and to act as partners in a process that will bring added value.
  Potential also reflects what the Second Cohesion Report considers as "factors determining real convergence", i.e. economic performance, demography, investment, infrastructure endowment, human resources, R&D and innovation, and knowledge economy.
  Potential includes resources available in the area as well as constraints it is submitted to (some factors such as a coast or a mountain area may be seen as both at the same time). These resources / constraints may be natural (resources, hazards), generated / influenced by human activities (spatial structure, infrastructures, gateways[17], level of services, environmental quality, capital) or linked to the social fabric and structure (level of education, employment, internal cohesion, governance).
- position with regard to other areas expresses that cohesion does not only rely on the individual situation of entities but also on their relative situation. The situation of an area can not be fully assessed without taking into account the features of the areas that are nearby and/or which have relations with the considered area (possible complementarity or competition, risks of conflict,…). A feeling of relative equity is also needed in order to foster cohesion.

[17] In the sense of points of access to and from the outside of the territory at the scale of which cohesion is approached. Gateways give a measure of the "external accessibility" of the considered territory, as opposed to its internal accessibility, i.e. from one of its part to the others.

Position encompasses aspects that were studied in the SPESP under the "geographical position" topic, but adds other dimensions that are not necessarily linked to space and distance, and which are more in the range of "equity" or "homogeneity", such as situation of the entity with regard to the other ones in matter of GDP, population, employment, etc. This allows making the link with usual approaches of economic and social cohesion.

Position thus covers different facets:

- accessibility to other areas in terms of transport, telecommunications, etc;
- presence of borders and discontinuities between the area and the others;
- potential of neighbouring areas in matter of complementary resources;
- convergence / divergence in time of the evolution of the area with regard to other areas; this can be measured in "traditional" terms of GDP, population, employment but also in terms of spatial potential;
- proximity of other convergent / divergent areas (indicates if the situation is more or less stable or if it could evolve toward a different balance).

Position varies depending on the spatial context considered (it may as well be the neighbouring same level entities other cities in a network for example).

- integration with other areas focuses on the effective relations that link an area to the other areas of the considered territory, in the form of material or immaterial flows and exchanges, including co-operation. Integration allows to enhance the potential of the territory but may also strengthen disparities (e.g. pump and tunnel effect mentioned in the ESDP). Although necessary to territorial cohesion, integration is not in itself a guarantee of cohesion. Integration depends on potential and position, but also on other parameters, such as those linked to conditions imposed by the global context or those which have to do with historical patterns of relationships.

The three sets of conditions are interlinked and complementary. What we strive to do here is to delineate them enough to be able to express them by different types of indicators and to build typologies on this basis (an example is given at the end of this section, see table no 2 ‘Examples of ESPON sources for conditions of territorial cohesion’).

2) Another step toward operationalisation is to distinguish two components of **territory**. Territory not only points to places but also to the people who live in it, with their way of organising themselves in societies and to build an own identity.

Accordingly, territory includes "space" and "society", the latter being focused on the relationship between the people includes their institutions and organisations and the place they live in.
This distinction helps to better situate the associated concept of social integration / cohesion with regard to territorial cohesion, but also to structure more clearly the way indicators may be defined and typologies built.
Each set of conditions for cohesion may indeed be split into sets of conditions that have more to do with space or with society.

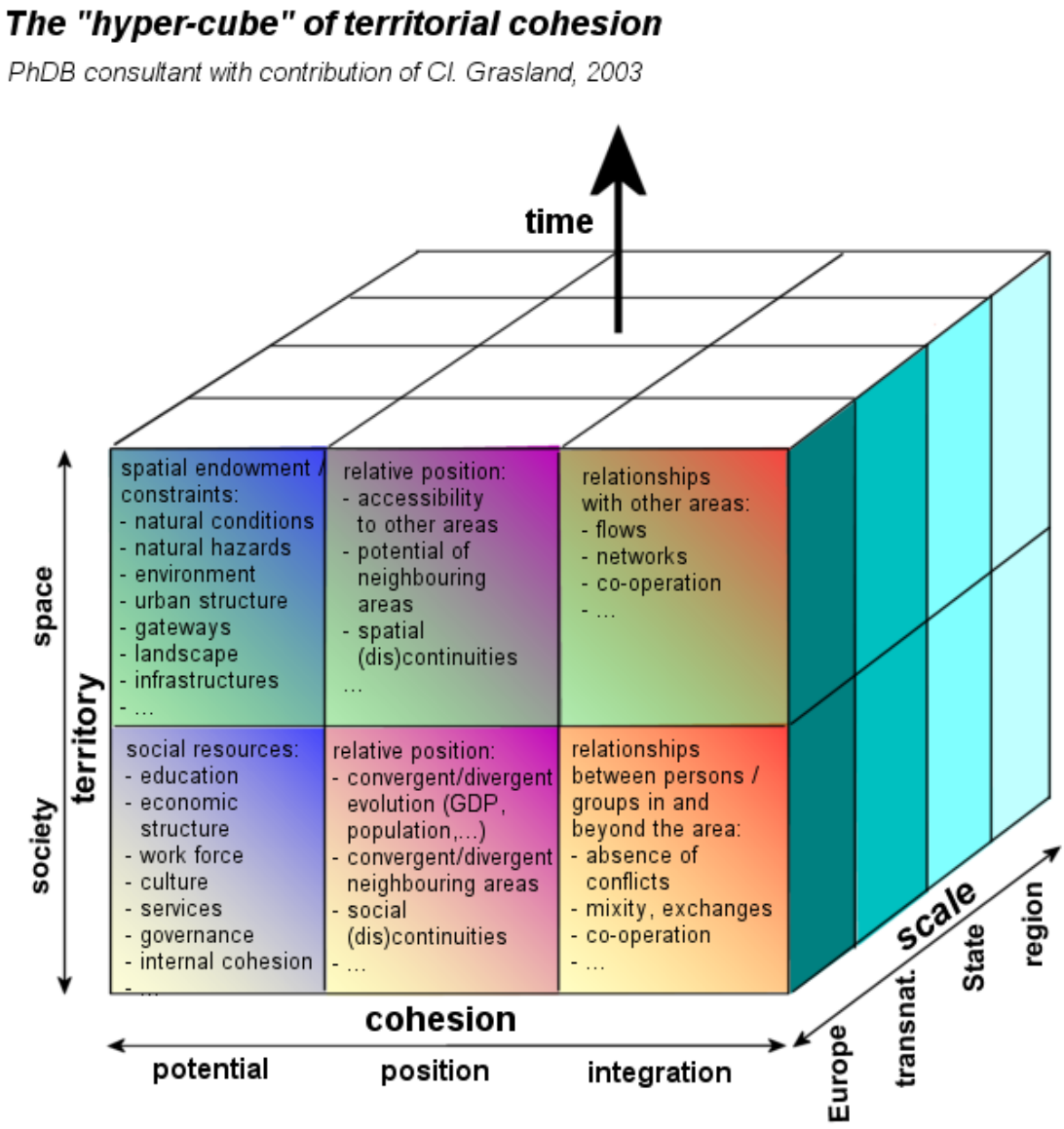
3) The **scale** at which territorial cohesion is envisaged has a considerable importance in terms of policies - the territorial scale corresponding to a scale where actions can be led by political / administrative actors. The subsidiarity principle, as well as the objective of vertical cooperation recommended by the ESDP take all their significance here.
Scale must be distinguished from the units of measurement. The scale points to the territory whose cohesion is considered, while the units point to the sub-territories where conditions for cohesion at that scale are measured. At the European scale for example - which is the main focus in the ESPON framework - , cohesion may be measured in terms of countries, regions or even transnational spaces.
According to scale, not all components of territorial cohesion have the same importance or at least the same role in the whole. There can be different combinations of indicators or different formulas for typologies according to the scale.
The question whether territorial cohesion at one scale does necessarily enhance territorial cohesion at the upper scale has no obvious answer. It may even be considered that it strengthens borders between the components of the upper scale. Territorial cohesion at the scale of the unit of measurement (internal cohesion) could be considered as a factor of potential for this unit. This allows confronting it with position and integration (of this unit) when assessing territorial cohesion of the whole.

4) **Time** gives the dynamic prospect and is particularly important when working with scenarios. The time dimension may also be integrated in some

measurements of conditions for cohesion (for example in matter of evolution of disparities).

These four dimensions are represented in the so-called "hyper-cube" of territorial cohesion. This representation aims notably to see how the different "bricks" of the concept of territorial cohesion may be assembled.

Figure no 4: Components of territorial cohesion



Among the six rectangles corresponding to (spatial / social) (potential / position / integration), two correspond to an associated concept, i.e. spatial integration and social integration. This means that indicators / typologies defined for those concepts should be usable to operationalise the concept of territorial cohesion, of course combined with other indicators / typologies in an appropriate way.

In the rectangles of spatial and social potential, appear a number of conditions which may be linked either to concepts or to topics studied elsewhere in the ESPON. A number of potential links are illustrated in the table hereafter.

Table no 2: Examples of ESPON sources for conditions of territorial cohesion

Condition	TPG	Aspect(s)
natural conditions	1.3.2	natural resources
	2.1.4	potential for energy sources
hazards	1.3.1	exposure to hazards
environment		
	1.3.2	environmental quality
	2.2.3	environmental problems in old industrial areas
urban structure	1.1.1	urban poles / networks
	1.1.2	links between urban and rural areas
gateways	1.2.1 / 2.1.1	identification of gateways
landscape	1.3.2 / 1.3.3	landscape as part of natural / cultural heritage
infrastructures	1.2.1 / 2.1.1 / 2.1.2	infrastructure endowment (transport and telecom)
economic structure	2.1.3	agriculture
	2.1.2	R&D
governance	1.1.1	link between polycentrism and governance
accessibility	1.2.1 / 2.1.1	measurement of "internal" accessibility
social discontinuities	1.1.4	demographic discontinuities
	1.1.3	barrier effects
flows	1.1.4	migrations
	1.1.1, 1.2.1, 2.1.1	transport flows
	1.2.2	telecommunication flows
co-operation	1.1.1	polycentrism across borders

A number of indicators and typologies referred to more in detail in section 3.2 – centred on polycentrism - can be used for operationalisation of territorial cohesion. Such "overlaps" are only logic, as territorial cohesion has to link with polycentrism.

For other conditions, information may be found in other existing European sources than ESPON. This is for example the case for natural constraints: specific areas are listed in the Second Cohesion Report, and studies have been commissioned (islands, ultraperipheric areas, mountain areas).

All this shows that a great deal of information needed to measure the potential for territorial cohesion is already available in the form of figures, indicators, typologies and maps, or should be soon produced by the ESPON. The real issue is how to

combine all that information in a way relevant with respect to territorial cohesion, to put it in the territorial cohesion perspective. For example:

- it cannot be asserted that territorial cohesion will grow in proportion of territorial potential, but it can be assumed that insufficient potential in some domains is an obstacle to cohesion; in those cases (which should be explored more in-depth and for which other ESPON partners may bring useful information), a threshold should be defined under which development problems are probable;
- some components of territorial potential may be combined in a multitude of ways that may give an "equivalent" potential built on very different combinations of elements; this should be taken into account in the measurement;
- for some elements of potential (e.g. infrastructures, equipments, or even urban structure), it might be necessary to combine the potential with the position and include the potential of neighbouring areas, particularly if the measurement is made on basis of low-level NUTS. This is a question for which advanced spatial analysis techniques such as multi-scalar analysis may be useful (see chapter 6).

Measurement of the conditions for territorial cohesion helps to build typologies able not only to describe the situation of territories regarding territorial cohesion but also to identify possible policy answers in order to improve it. The following table gives a tentative example of such a typology.

In addition to general typologies, there may also be "thematic" typologies built on such bases, where potential, position and integration are assessed in relation with a particular topic, e.g. economic activity, employment, culture, environment,… This could help strengthen the coherence of thematic approaches.

Table no 3: Example of typology based on conditions for territorial cohesion

Potential	Position	Integration	Indicates	Possible answers
Weak	Weak	Weak	Unfavourable situation with weak prospects of spontaneous improvement Possible "islands of deprivation"	Integrated approach with actions on potential accessibility and integration Possible "area approach" when several territories faced with similar issues
		Strong	Unfavourable situation Possible "islands of deprivation" Suspicion of pump effect Probable potential for improvement through more profitable integration	Analyse flows and relationships with potential => detect opportunities and threats and better orient dynamics Possible "area approach" when several territories faced with similar issues
	Strong	Weak	Unfavourable situation but with low risks of aggravation Potential for improvement through better integration	Strengthen integration with better-off areas => diffusion of positive effects
		Strong	Unfavourable situation but with good prospects for improvement depending on effects of integration	Analyse flows and relationships with potential and position => detect opportunities and threats and better orient dynamics
Strong	Weak	Weak	Situation not favourable to territorial cohesion Possible "islands of growth" without redistribution	Foster / strengthen integration / co-operation with worse-off areas => diffusion of positive effects Possible "area approach" when several territories faced with similar issues
		Strong	Situation possibly negative for territorial cohesion Possible "islands of growth" with risks of "pumping" other areas	Analyse flows and relationships with potential => detect opportunities and threats and better orient dynamics Possible "area approach" when several territories faced with similar issues
	Strong	Weak	Good situation for the area itself but not necessarily for its contribution to territorial cohesion	Foster / strengthen integration / co-operation while ensuring win-win relationships
		Strong	Good situation, should be used to enhance and diffuse growth	To use these areas to structure territorial competitiveness and diffuse spill-over effects

3.1.3 Contributions from the TPGs

Inputs from the TPGs may be considered along two strands:

- inputs explicitly focused on territorial cohesion and associated concepts;
- inputs in matter of indicators, methods, typologies.

Concepts

Several TPGs give interesting points of view on territorial cohesion and/or associated concepts:

- TPG 1.1.1 has built in its SIR a "*critical dictionary of polycentrism*" which includes a definition and an in-depth discussion of the concept of spatial integration and analyses the links with territorial cohesion:
  - integration is presented as "*a process of increasing interaction between the various elements of a territory carried through increasing flows between these elements*" and as tightly linked with the notion of
  - cohesion: "*Unlike integration - a dynamics increasing interaction between geographical targets - cohesion organises these dynamics for the benefit of the entire spatial setting with a concern for equity. The integration process increases the potential for interaction between spaces and can benefit their interdependence and therefore their cohesion. It can also create situations of dependence and domination enhancing spatial disparities and entailing the marginalisation of some spaces.*"
- TPG 1.1.3 also defines spatial integration in its FIR, in a way which seems more focused on convergence than interactions: "*spatial integration means the convergence of different geographical sites and regions in terms of time costs and psychological distance*"; it also presents a discussion of the various techniques to measure integration, continuities / discontinuities and convergence / divergence and notably mentions that:
  - "*according to neo-classical economic theory convergence is an indication of integration and better resource allocation*";
  - "*according to centre-periphery models, divergence between regions may be an indicator of increased integration - the 'backwash effect' is larger than the 'spread effect'*";
  - "*increased mobility is generally a sign of increased integration, especially if this is not a one way process*".

- TPG 1.2.2 mentions the concept of territorial cohesion without discussing it: "*Territorial cohesion is another important concept for ESPON 1.2.2. In theory TN&S can contribute to territorial cohesion, by which we assume greater equality, however measured, across territories*."
- TPG 2.1.1 mentions territorial cohesion and spatial integration as concepts of interest for their work without defining them. There is however a discussion related to cohesion under section 4.4: "*Equality of certain key variables is often an important policy target, even though there are important differences. Some are in favour of equality of opportunity, others tend to stress equality of outcomes. Pronounced inequality threatens the cohesion of a society or a community and is therefore undesirable. In all cases, the measurement of equality is an important issue*."
- TPG 2.2.1 provides an in-depth discussion (12 pages) about the concept of territorial cohesion, with a historical background and a wide angle of view. It cannot be summarise in a few words, but interesting questions about the issue of scale are notably: "[…] *regional disparities in economic development within countries are often larger than between countries. Similarly, disparities may also be larger within cities in a given region than between regions and one should not forget about disparities between neighbourhoods in a given city. A European policy needs to take all these different kinds of disparities into account. Questions also arise as to whether cohesion can be achieved simultaneously at all levels, or whether certain levels are to be prioritised. […] the appropriate territorial focus for such a cohesion policy needs to be defined. Is cohesion policy mainly necessary within the European Union or parts of it, or is this kind of policy to be directed in particular to the EU in its wider geographical context*?"
- In the same chapter, 2.2.1 SIR discusses the related concepts of spatial integration and endowment:
  - spatial integration is considered with a quite different standpoint than the one developed in SIR 1.1.1, i.e. focused on spatial homogeneity rather than on actual interactions: "*In the conceptual debate three strands of territorial integration haven been proposed. For the purpose of our study, it may be possible to focus on the question of spatial homogeneity and discontinuity and keep the aspects of flows, barriers and co-operation on a secondary level, mainly as the secondary results of the above- mentioned aspects*."

This vision is thus close to the "position" set of conditions described under point 3.1.3.;

- as for endowment, it seems close to the set of conditions described as "potential": "*Cohesion, if referred to as "endowment" may also be analysed in relation to the whole range of assets and sectoral measures in place (in sectors such as education, health, transport, R&D etc) that are necessary (but not sufficient) to induce and sustain endogenous development over time".*

Other tools

As indicated under 3.1.3, results produced by the TPGs in matter of indicators and typologies may be expected to be useful for operationalisation of territorial cohesion. Table 3 presents a first inventory.

The selection of possible indicators / typologies has to take several constraints into account:

- they must be comparable: it will for example not be possible to mix indicators describing actual reality with indicators that represent forecasts;
- they must be combinable: prevent redundancy and auto-correlation as much as possible, in order to avoid to give some parameters a weight that would reflect data availability more than relevance;
- they must apply to the whole ESPON space: partial data, even if instructive, should be left for another type of processing (case studies for example);
- they must apply to any territory (even if it is not urban, does not have an airport, a university, etc.); some tools proposed to assess polycentrism for example may prove less appropriate to measure territorial cohesion;
- each unit of the territory must have its own values for potential, position and integration: therefore methods that give a single measurement of the cohesion of the whole will not be directly usable, but might possibly enter in the mode of measurement of the "position" factor.

Table no 4: Indicators and typologies of TPGs reports potentially useful for assessing conditions for territorial cohesion

TPG	nature	description	potentially useful for	in
1.1.1	I	location of top 1500 companies	economic structure	social potential
	I	R&D personnel	economic structure	social potential
	I	high education level	education	social potential
	T	level of FUA(s)	urban structure	spatial potential
	I	passengers top 500 airports	flows	spatial integration
	I	international air traffic in 2000	gateways	spatial potential
1.1.2	I	labour participation rate	work force	social potential
	T	urban-rural typology?	urban structure	spatial potential
1.1.3	T	border regions	borders	spatial position
	I	(un)employment	work force	social potential
1.1.4	I	intra-European migratory balance	migrations	social integration
	T	depopulation processes	population	social potential
1.2.1	I	multimodal accessibility	accessibility	spatial position
	I?	transport impact on environment	environment	spatial potential
	I?	nodal points	infrastructure	spatial potential
1.2.2	I	broadband access of households to Internet	infrastructure	spatial potential
1.3.1	T	regions exposed to risks	hazards	spatial potential
1.3.2	M	natural heritage	natural resources	spatial potential
2.1.3	T	declining industrial areas	economic structure	social potential

I: indicator - T: typology - M: map (see also chapter 3.3 and chapter 61.)

At this stage, the list is still indicative:

- each potential tool will have to be analysed more in depth in order to guarantee relevance and compatibility of their use and combination in measuring conditions for territorial cohesion.
- gaps appear in some domains:
  - flows (particularly transport and telecommunication flows);
  - equipments, infrastructure and services others than those linked to transport and telecommunications;
  - social integration;
  - governance;
  - cultural aspects;
  - environmental aspects.

- the current approach does not mention GDP per capita (or a similar parameter) as element of potential, although many TPGs make use of such indicator in order to assess competitiveness. This indicator could indeed give a measure of available resources for investments, for example, but the question is to avoid redundancy with indicators potentially useful for the "position" set of conditions, which takes the relative position of the entity in matter of GDP per capita into account.

3.1.4 Further developments

Sections 3.1.3 and 3.1.4 show that gaps still remain in the information available to approach territorial cohesion. Some of these gaps could be filled by TPGs under way, while others should wait for TPGs of the next rounds, for example TPG 1.3.3 for cultural heritage and TPGs 2.3.1 and 2.3.2 for an update on governance and possibly other aspects of co-operation. However, these projects do not start before 2004.

For other topics such as equipments, services of general economic interest, and some aspects related to culture, there will probably remain a need for territorial studies that would provide the needed information, because it seems impossible to collect and handle it in the frame of project 3.1. These aspects will thus have to be left aside for the moment.

The focus of work on clarification of concepts will now clearly shift from the definition to the more technical aspects of operationalisation. This does certainly not exclude feedbacks toward the definitions.

What is intended in view of the TIR is:

- to take into account comments and concrete proposals made by ESPON partners in order to improve and validate the framework, especially the list of conditions for territorial cohesion;
- to have a further look into the available results of TPG's work, notably in order to rapidly precise expectations; this supposes to make realistic choices on the indicators that will be used, at least in view of the TIR; the approach can still be refined during the final phase of the programme;
- to fill the gaps for which there is information but techniques of handling have to be refined: this is particularly the case for the "position" set of conditions, where existing information on GDP, population, employment… has to be processed in a way to explain the effect of divergence in time, scale, territory and cohesion

- to develop methods allowing to combine in a relevant way existing indicators and typologies;
- on this basis to provide a first attempt of typologies that may give account of the potential for territorial cohesion and indicate possible policy interventions;

to present some (at least partly existing) regional examples in order to validate and/or illustrate assumptions / theses when this is not possible for EU 27+2 due to data shortcomings.

3.2 Spatial Planning Concepts relevant for ESPON

The ESDP bridges the gap between two archetypes of European spatial conceptualisation: the Blue Banana and the European Bunch of Grapes (Waterhout 2002).

Two concepts in particular are used here, namely accessibility and polycentrism. Embedded in the discussion of these two concepts however are a range of related concepts that will be the subject of this chapter. We will start by discussing various aspects of accessibility, i.e. the connection between urban nodes. This discussion is essentially preparatory to the following inventory of the concept of polycentrism, which goes beyond its purely morphological aspects by stressing the importance of urban/regional specialisation and in particular flows between urban areas. The section on polycentrism also relates to discussions on concepts such as global integration zones and urban areas. With the debate on rural-urban relationships the focus turns away from the nodes-only debate. The conceptual debate is then rounded off with a discussion on the environment, related to the concept of sustainable development. The conceptual discussions build mostly on the works presented in the interim reports of the various ESPON projects.

This section will conclude with some preliminary indications on policy relevance and policy recommendations.

3.2.1 Accessibility

In the context of spatial development, the quality of transport services in terms of safety, frequency and reliability, travel speed, cost, intermodal connections etc. determines the relative advantage of locations in terms of attraction of exogenous activities and productivity of already existing activities Investment in transport

infrastructure – needed to provide transport services and support logistic chains – leads to changing locational qualities and may induce changes in spatial development patterns, even though the dynamics are much more complex and counterintuitive that foreseen few decades ago (when more accessibility meant more development opportunities in the short term).

In what follows we will discuss various concepts relating to the accessibility of European regions, and round off by stressing the issues of transportation infrastructure and the issue of access to services.

There are numerous definitions and concepts of accessibility available to us. Broadly speaking, the accessibility of a given place is defined as the facility and the interest to establish relations with other places, moving people and resources. A general definition is that “accessibility indicators describe the location of an area with respect to opportunities, activities or assets existing in other areas and in the area itself, where ‘area’ may be a region, a city or a corridor” (Wegener et al., 2002). Accessibility indicators can differ in complexity. More complex accessibility indicators take account of the connectivity of transport networks by distinguishing between the network itself and the activities or opportunities that can be reached by it. These indicators always include in their formulation a spatial impedance term that describes the ease of reaching other such destinations of interest. Impedance can be measured in terms of travel time, cost or inconvenience.

Accessibility is based on the assumption that the attraction of a destination increases with size, and declines with distance, travel time or cost. Population or economic indicators such as GDP or income usually represent destination size. Accessibility to population is seen as an indicator of the size of market areas for suppliers of goods and services; accessibility to GDP an indicator of the size of market areas for suppliers of high-level business services.

Indicators for the three basic concepts of accessibility, potential accessibility, daily accessibility and travel cost indicators have been defined and demonstrated for the ESPON space. Each of the different accessibility types can be seen to have their own advantages and disadvantages. Travel time indicators and daily accessibility are easy to understand and communicate, tough they generally lack a

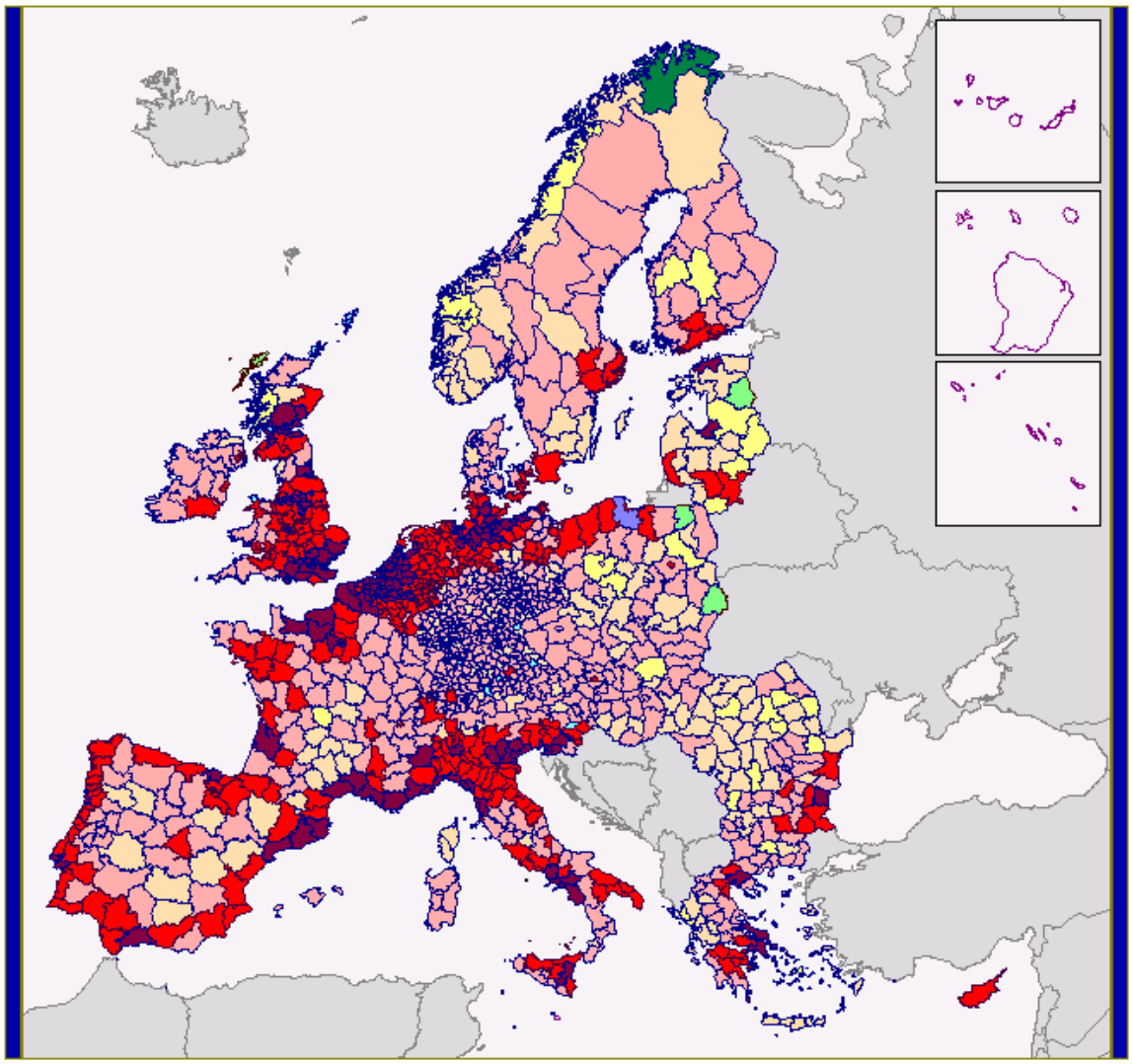
theoretical foundation. Potential accessibility is founded on a sound behavioural principle but contains parameters that need to be calibrated, while their values cannot be expressed in familiar units.

Travel cost indicators

Travel cost indicators measure the accumulated or average travel costs to a pre-defined set of destinations, e.g. the average travel time to transport terminals. Connectivity to transport terminals by car and cost in terms of minimum time to transport nodes by car (motorway access, high-speed rail stations, commercial ports and commercial airports) have all been defined. Connectivity to transport terminals: Most regions in the ESPON space show good connectivity to transport terminals; in general, regions in EU15+Norway and Switzerland show better connectivity than do the Accession countries, but in some cases peripheral regions show better connectivity due to port and airport infrastructure (coastal Bulgarian regions, etc.).

- **Cost to motorways by car** shows the minimum time to motorway access and is characterised by a clear difference between regions in EU15+ Norway and Switzerland and those of the Accession countries, and this coincides with the map of motorways and expressways density indicator. The indicator illustrated the map of motorway and expressways network.
- **Cost to high-speed rail stations by car** reflects the regions that have a high-speed rail station with at least 75 trains/day well connected by road. Apart from connectivity, it gives an idea of the endowment of high-speed rail stations.
- **Cost to commercial airports by car** shows the minimum time by road to commercial airports with at least 0,5 Mpassenger/year. The map indicates the situation of commercial airports with high flows of passengers per year and its connectivity to the road network.
- **Cost to commercial ports by car** shows the same concept as the previous indicator, but considers commercial ports. In this case it shows the minimum time to commercial ports with 0,5 Mtonnes/year.

Map no 1: Connectivity to transport terminals by car, 2001



Source: ESPON Project 1.2.1, Mcrit Geographical Base:Eurostat GISCO

Connectivity (hours)

- 0,0 to 0,25
- 0,25 to 0,5
- 0,5 to 0,75
- 0,75 to 1
- 1 to 1,25
- 1,25 to 1,5
- 1,5 to 1,75
- 1,75 to 2
- 2 to 2,5
- 2,5 to 3

Potential accessibility

Accessibility potential is one of the most common and most extensively tested accessibility indicators. Potential accessibility is based on the assumption that the attraction of a destination increases with size, and declines with distance, travel time or cost. Population or economic indicators such as GDP or income usually represent destination size. Accessibility to population is seen as an indicator for the size of market areas for suppliers of goods and services; accessibility to GDP an indicator of the size of market areas for suppliers of high-level business services. Potential accessibility is founded on sound behavioural principles but contains parameters that need to be calibrated, while their values cannot be expressed in familiar units.

There are four potential accessibility indicators defined and demonstrated in maps for the NUTS 3 regions of the ESPON space: potential accessibility by road, by rail, by air and multi-modal accessibility aggregated over the three modes and thus expressing the combined effect of alternative modes for a location.

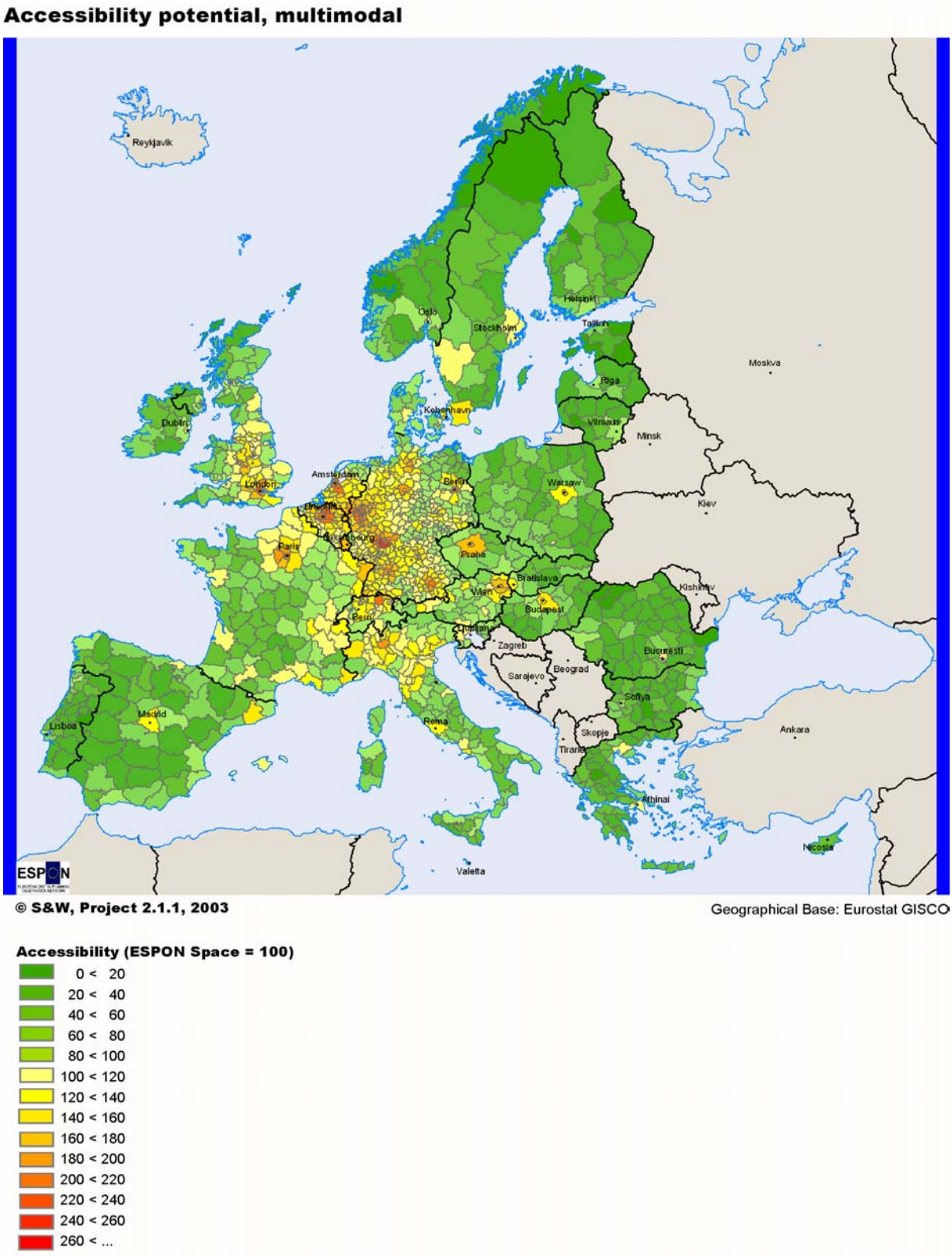
- **Potential accessibility by road** is characterised by a clear distinction of centre and periphery. Accessibility by road is the only modal accessibility indicator that reproduces the 'Blue Banana', the central area now referred to as the European pentagon. All other accessibility indicators in this section demonstrated below provide different results.
- **Potential accessibility by rail** also provides a core-periphery pattern in Europe. However, there are two important distinctions from that provided by the accessibility by road indicator. Firstly, the highest scores for accessibility are much more concentrated in the central areas and are visible primarily in the cities serving as the main nodes in the high-speed rail networks and along the major rail corridors. Secondly, it becomes apparent that investments in high-speed rail links and networks can enlarge the corridors of higher potential accessibility by road. This is mainly visible in France where the TGV lines towards the Mediterranean Sea and the Atlantic Ocean lead to corridors of accessibility that are clearly above the European average.
- **Potential accessibility by air** shows a strong concentration of the highest values around major airports, yet as these are dispersed across Europe. Nevertheless, airport regions in the central EU areas have higher values than airport regions in other areas. The hinterland of these airports is often

very narrow, and this become clear through charting the steep decline in accessibility values when moving away from the airport. Potential accessibility by air yields a completely different picture to that of the two accessibilities based on surface transport. The map of Europe is converted into a patchwork of regions with high accessibility surrounded by regions with low accessibility. Low accessibility is however no longer a concern solely for those in the 'traditional' European periphery, but is now also an issue for regions located in the European core.

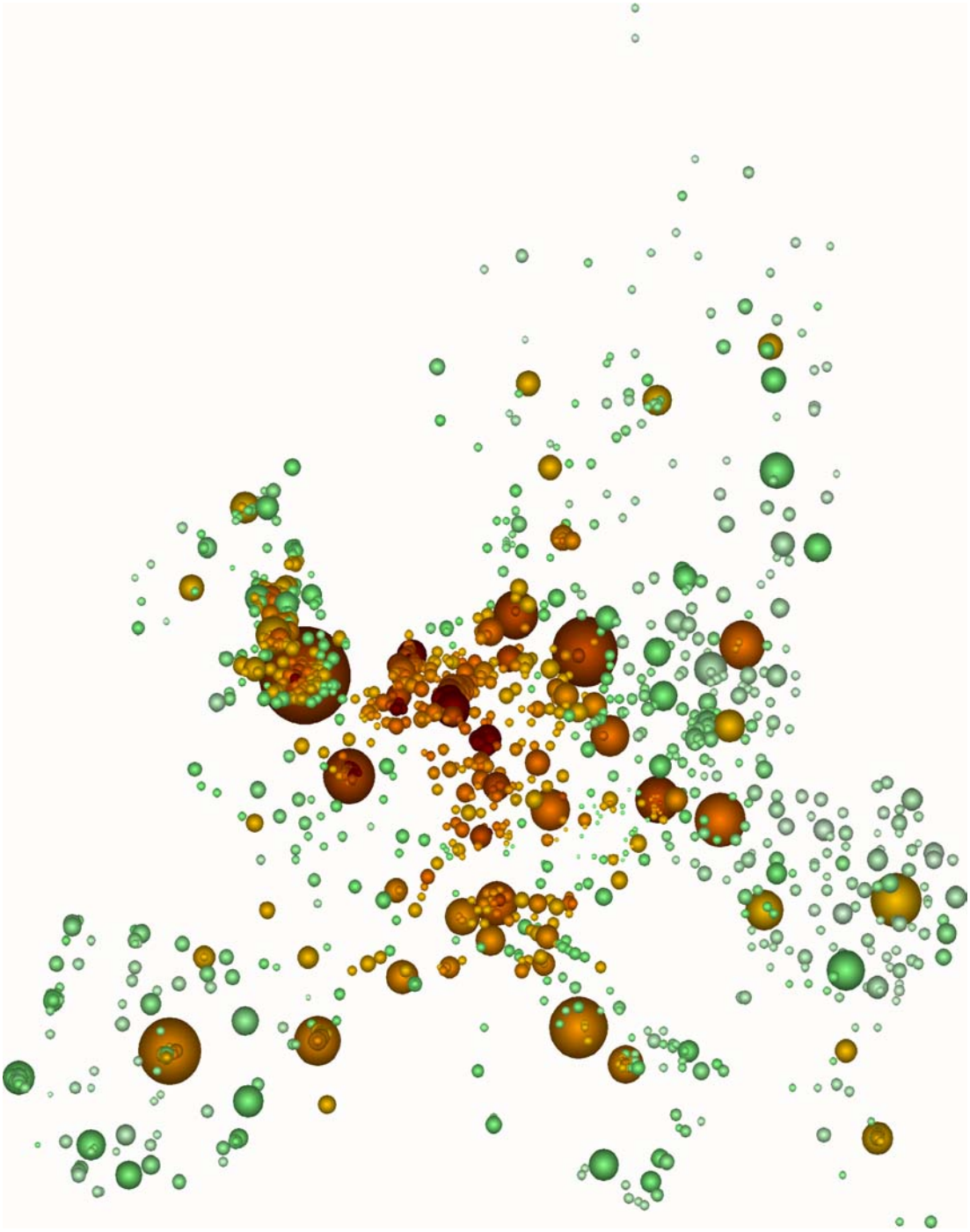
- **Multi-modal potential accessibility** locates regions with clearly above average accessibility mainly in an arc stretching from Liverpool and London via Paris, Lyon, the Benelux regions, and along the Rhine in Germany to Northern Italy. However some agglomerations in more remote areas such as Madrid, Barcelona, Dublin, Glasgow, Copenhagen, Malmö, Göteborg, Oslo, Rome, Naples, Thessalonica and Athens are also classified as being central or at least intermediate because their international airports improve their accessibility. At the same time the European periphery begins in regions that are usually considered to be central. Several regions in Germany, Austria and France have below average accessibility values, while some are even considered to be extremely peripheral. Many regions in Portugal, Spain, Ireland, Scotland, Wales, Norway, Sweden, Finland, southern Italy and Greece have very low accessibility values. Those regions do not have good access to international flight services. Nearly all of the regions of the candidate countries do suffer from below average accessibility. The only exceptions to this general observation are the capital cities and on occasion, their surrounding regions, because of international airports and other important connections. For all other regions the combined effect of low quality surface transport infrastructure and a lack of air accessibility leads to the low performance in terms of accessibility. In general, the enlargement of the European Union leads to a decrease in average accessibility.

This approach utilising the aggregation over modes has major advantages over single mode indicators. If a single indicator is required to assess the European territory in terms of accessibility and peripherality, multi-modal or inter-modal accessibility should be chosen.

Map no 2: Accessibility potential, multimodal



Map no 3: Multimodal accessibility of the European urban system (draft)



Source: ESPON 1.1.1 – S & W

Explanatory remark:

The figure shows first results of applying the multimodal potential accessibility concept to cities with more than 50,000 population of the ESPON space. In the map cities are indicated in two ways. The size of the circle represents the size of the population. The colour of the circle reflects multimodal accessibility, i.e. a combination of road, rail and air accessibility in one single indicator. Light green reflects lowest values, dark red highest accessibility values. The map has to be seen as a very first outcome. The main purpose is to demonstrate the type of result that will be provided for the accessibility indicator.

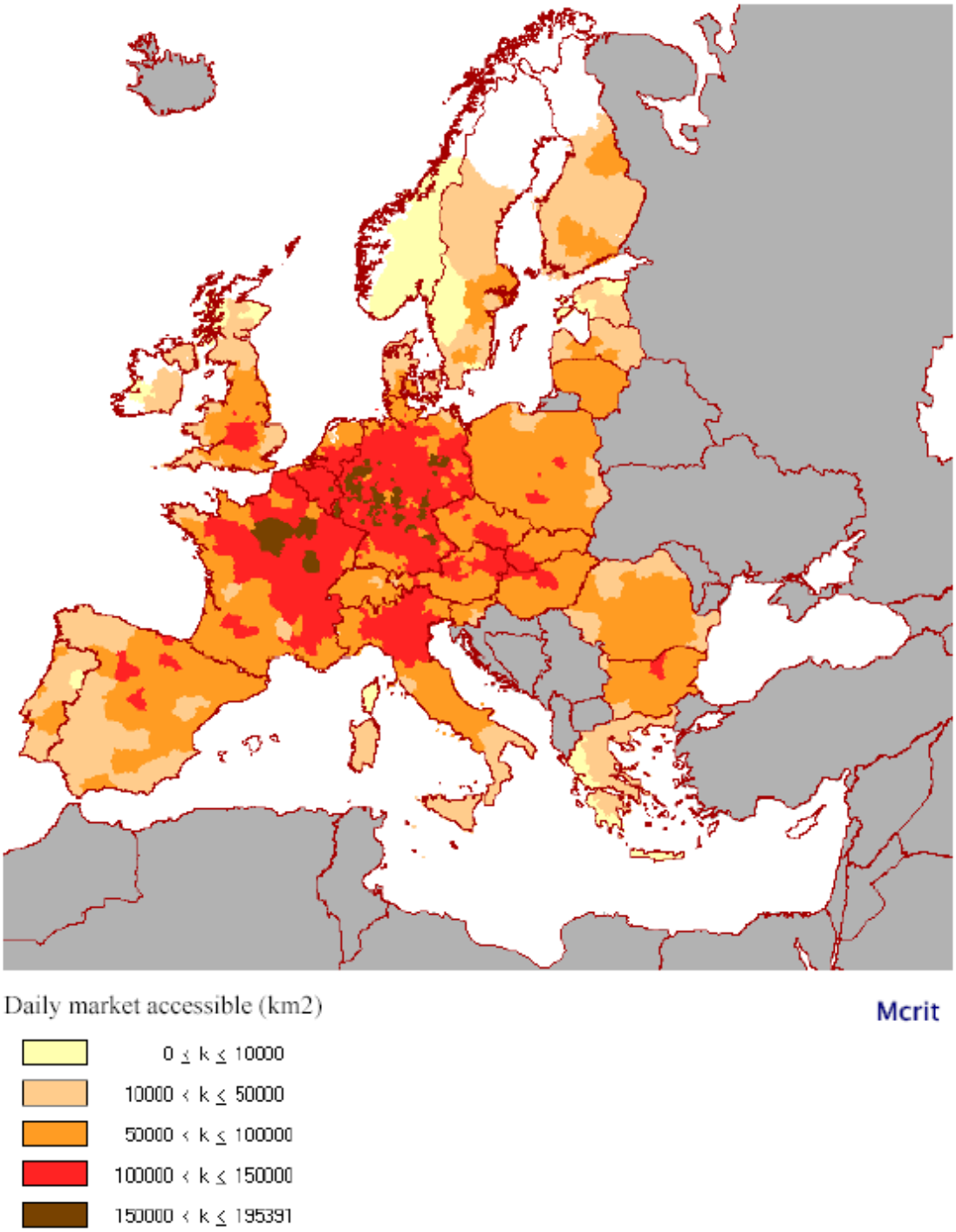
Daily accessibility

Daily accessibility is based on the notion of a fixed time-budget for travel in which a destination has to be reached to be of interest. The indicator is derived from the example of a business traveller who wishes to travel to a certain place in order to conduct business there and who wants to be back home in the evening (Törnqvist, 1970). Maximum travel times of between three and five hours one-way are commonly used for this indicator type.

There is a daily accessibility indicator defined and demonstrated in maps for NUTS 3 regions of the ESPON space:

- **Daily accessibility by road** is characterised by a clear distinction of regions with high motorway and expressway density and high population density in NUTS 3 nearby-regions. Central regions in the EPON space (central Europe (the so-called European pentagon), the south-east of England and the north of Italy) and peripheral regions are clearly differentiated in the map.
- **'City network' daily accessibility by air** is based on commercial timetables and on the possibility of undertaking typical business trips in a single day with a minimum of 6 hours spent at the destination city; with trips belonging to the time interval 6h to 23h. The indicator is decomposed into three levels of accessibility: no 'existing flight', 'existing flights but no possibility for business trips', and, 'business trips possible'. The results show deeply asymmetrical situations that validate the method and illustrate significant dysfunctions in the supply structure that cannot be revealed by the classical indicators predominantly relying on shortest time and frequencies. The functioning of a city network supposes the activation of a limited set of links in which each city is at least connected to its closest neighbours. Supporting a 'city network' in Europe could mean reinforcing some specific air or rail-air relations, the weaknesses of which are revealed by this indicator.

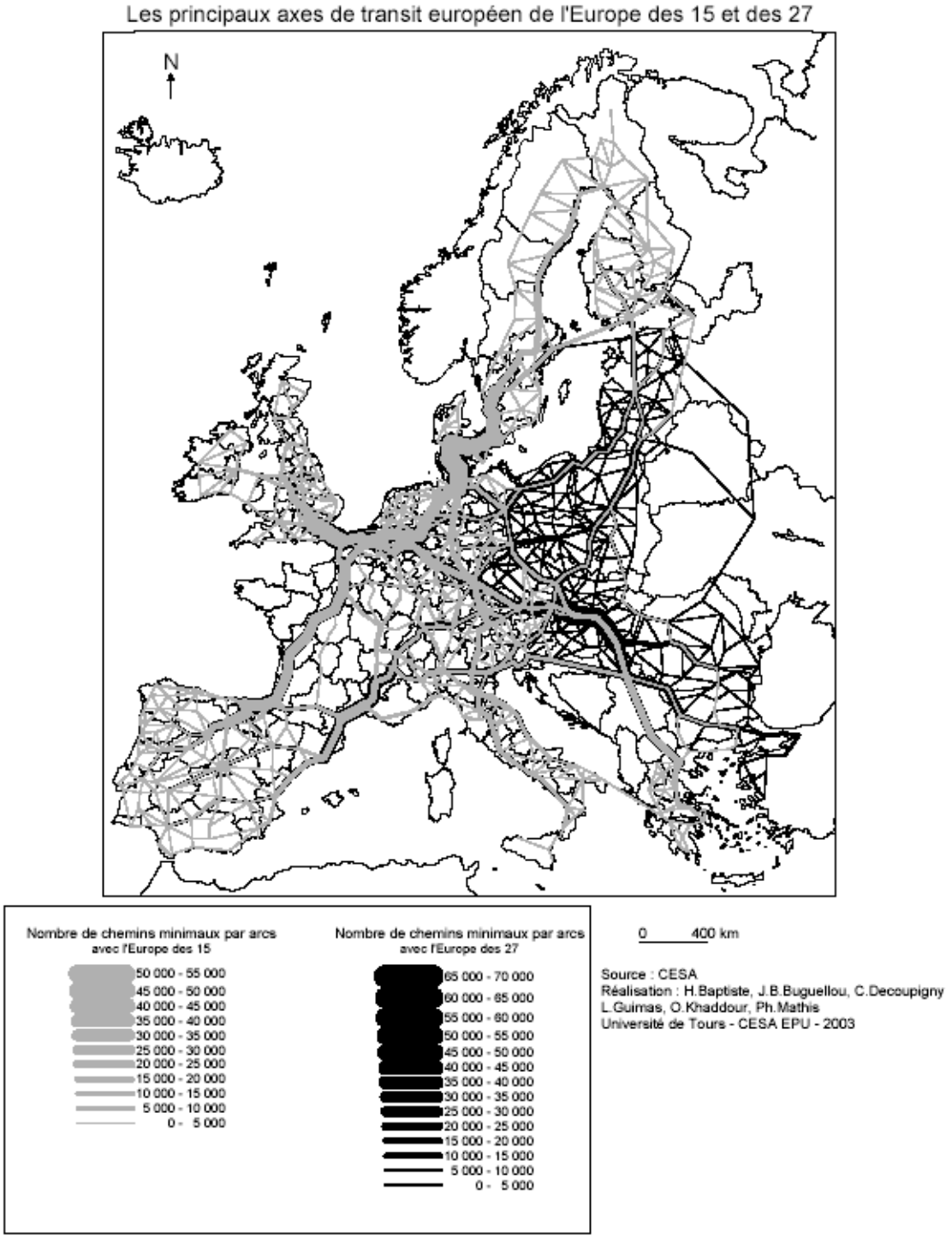
Map no 4: Daily marked accessibility by car, 2001



Potential Flows

The debate on accessibility is interlinked to the debate on flows and potential flows. The debate on flows focuses mainly on the flow of goods along European corridors. The idea is that the modal transfer is possible for only some types of trips because of the distance covered in international transit.

Map no 5: Differential map of potential flows between Europe 15 and Europe 27



Accessibility of services

Following the argument put forward in the ESDP, accessibility has an additional dimension, namely that of access to services. The EC Treaty emphasises the aspect of access to service of general (economic) interest, underlining the benefit to citizens of the proper functioning of services. The availability, price and quality of these services are, by definition, of great importance to consumers.

Availability and access to services depends upon the infrastructure for providing and disseminating those services. ESPON 1.2.2 focuses on the work done on telecommunication services and networks. In this context accessibility is most commonly used to denote the ability to access services. In the context of telecommunication networks and services this implies access via networks to services. Thus accessibility increasingly being related to the speed, reliability and cost of access. The notion of an information society for all seems to embrace the view that all citizens should have equal access to network technologies, though there remains a debate as to what the basic levels of access should be. – Should all citizens and, from the ESPON perspective, all regions and sub-regions, have access to the most advanced technologies (broadband), as implied in the *e*Europe Action Plans, or is access via older technologies sufficient, as in the Universal Service Directive? Another key issue is whether users have *access to the knowledge* required to use the technology to enhance their economic or social position or their quality of life more generally.

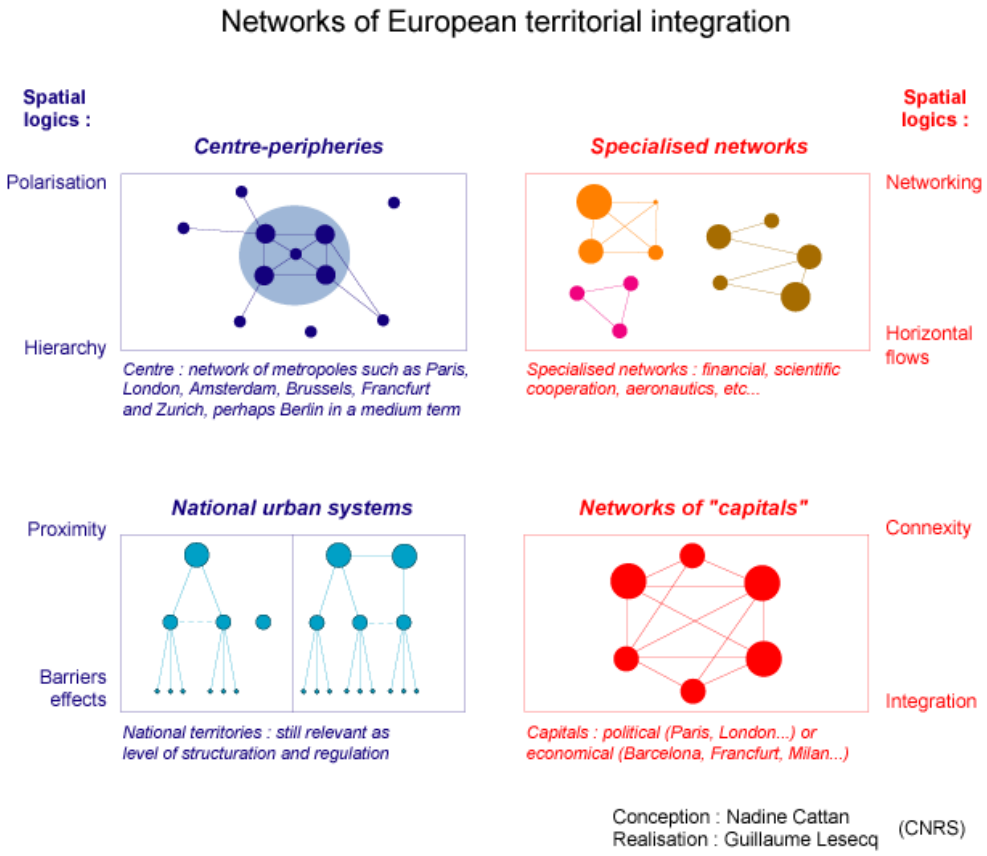
3.2.2 Polycentrism

The concept of polycentric spatial development can be described as a “bridging concept” as it merges two not always congruent policy aims encompassed in the ESDP, namely, the aims of “economic growth” and “balanced development”. Thus this concept bridges the different interests of the Member Sates and encapsulates the economic and social cohesion objectives, particularly as regards the need to encourage a move towards a more balanced competitiveness.

Indeed, interest in polycentric development is fuelled by the hypotheses put forward in the ESDP that polycentric urban systems are more efficient, more sustainable and more equitable than either monocentric urban systems or dispersed small settlements.

ESPON 1.1.1 SIR points out that there are several definitions offered for the concept of polycentrism. The classic definition of morphological polycentrism is that a region (1) consists of more than two cities that are (2) historically and politically independent (no hierarchy) and that (3) are in proximity to each other and (4) have a functional relation and are complementary to each other. However, these criteria are applied differently on the national and European levels. Furthermore, functional (systems of FUAs consisting of different specialised and complementary urban functions), economic (systems of FUAs highly integrated into the labour market, industrial clusters and trade) and political (systems of FUAs working together on joint strategies) polycentrism all have their own definitions. All of which also have regional, national and European levels. This point simply underlines the fact that in addition to the morphological definition, the functional or relational dimension of urban systems needs to be taken into account. Whereas the morphological dimension is determined by the distribution of urban areas in the territory, the functional or relational dimension is based on the existence of networks, flows and co-operation between the urban areas of a given territory (i.e. the European Union).

Map no 6: Networking of European territorial integration



Source : N. Cattan, Th. Saint-Julien, 1998

Accordingly, the morphological approach may help us to better paint a picture of the distribution of urban areas of various sizes across a territory. In order to achieve a better impression of the degree of polycentrism, the economic specialisation of urban areas and the flows between them need to serve as the basis of any typology.

The background to a polycentric policy is always formed by a notion of some kind of a relationship between urbanised areas. These relationships can be either functional or conceptual, or both. In cases where functional relationships form the background, the policy will address its empirical necessity. When a conceptual relationship forms the background for a polycentric policy, this is mostly put forward through maps and visualisations that sketch a system or pattern of interrelated or connected urbanised areas. While in these cases there do not necessarily have to be functional relationships, it is the spatial vision or conceptualisation of an area that creates the, somewhat artificial, relationship. The functional and/or conceptual relationships that underlie a policy will influence the general strategy. (ESPON 1.1.1 SIR page 49)

Going into further detail, we would like to stress four dimensions of the debate reflected in various ESPON interim reports. Firstly, static aspects related to morphology will be discussed. As we have already noted, polycentrism is not only about the distribution of urban areas in space but also about the interaction between them. Therefore, the second dimension addresses the aspect of connectivity, i.e. the potential for interaction. This potential for interaction leads us to the third dimension, the reason for interaction and flows between urban areas. Finally, we will conclude this section with a reflection on the question of scale.

I. Morphological aspects of polycentrism

The morphological aspects of polycentrism address both the size of functional urban regions and their distribution in a given territory.

ESPON projects 1.1.1 and 2.2.1 in particular argue that the simplest prerequisite of polycentrality is that there is a distribution of large and small cities. Rank-size distributions of cities in different European countries show that some countries have a predominantly monocentric city-size distribution (e.g. France), whereas other countries (e.g. Germany) have a historically grown polycentric urban system. A first step in analysing the polycentrality of an urban system then would be to derive its population rank-size distribution. In addition, other measures of city size and importance may be used, such as economic activity, human capital, higher education, cultural importance, administrative status etc. Indeed, this is a standard approach followed by numerous studies in the field.

Following this line of argumentation, some projects (1.1.1 and 2.2.1) argue that an additional prerequisite of a polycentric urban system is that its centres of equal size or rank are equally spaced from each other. This prerequisite is derived from the optimal size of the catchment areas or market areas of centrally provided goods and services. Therefore, a uniform distribution of cities across a territory is more appropriate for a polycentric urban system than a highly polarised one where all major cities are clustered in one part of the territory. A second step in analysing polycentrality would therefore be to analyse the distribution of airline distances between cities of equal size or rank.

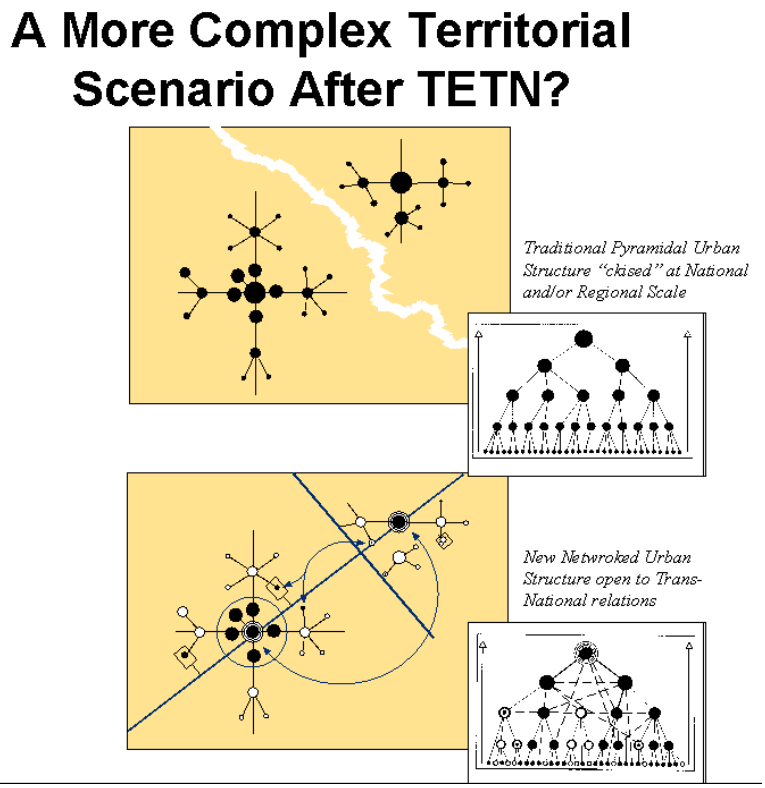
This rather formalist approach deriving form the classic central place theory, provides a strong argument supporting the aspect of building larger regions for increasing the potential of polycentrism. The question remains however; as to

what this approach entails for less densely populated areas, and whether the size of a city can indicate its function within an urban system, and thus its position in a non-hierarchical polycentric urban system.

II. Connectivity as a pre-condition for interaction and flows

Again, following the tenor of ESPON interim reports, an important though very difficult to measure property of polycentric urban systems is their connectivity. Appropriate indicators of such interactions would be flows of goods or services, travel flows or immaterial kinds of interactions, such as telephone calls or e-mails. At the level of municipalities, information on such interactions is rarely available or considered an economic asset, as in the case of travel flow data held by private transport carriers or telecommunications data held by private telecommunications operators. Proxies to be used instead of such data could be infrastructure supply, i.e. the level of road connections (motorways, roads) or the level of service of rail (number of train) or air (number of flight) connections. The third step in analysing polycentrality would therefore be to analyse the quality of transport connections between cities.

Figure no 5: Spatial patterns of urban networking open to trans-national relations



Source: (Mcrit-INRETS for DGTREN, 1996)

III. Towards a relational polycentrism: the reasons for flows

The ESDP also stresses the idea of strengthening co-operation between urban areas. This reflects the idea of polycentrism as city systems being non-hierarchical networks, characterised through the functional sharing of tasks and specialisation. This notion can however be represented in a number of different ways.

On the one hand this involves (a) the formation of regional clusters, focusing on polycentrism at the regional level and the enlargement of (functional urban) regions (key word, cities as development engines for a region). On the other hand this involves (b) "non-place-bound" networking and co-operation between cities with similar or complementing functional profiles.

In both cases networking certainly involves co-operation as well as competition. Thus, one may argue that the concept results in the formation of (polycentric) functional urban regions, which are part of the (polycentric) trans-national specialised networks that strengthen Europe's competitiveness. This entails the fact that (despite any urban hierarchy) all urban areas are able to develop direct links to specialised European networks and to participate in specialised European co-operation and competition. The participation of an urban area naturally depends on the specialisations, i.e. functions and profiles, an area has.

Coming back to the morphological dimension discussed above, it can be argued that larger functional urban areas have better opportunities for functional co-operation. On the one hand they are more likely to have a larger number of specialisations and on the other hand the degree of specialisation may be higher. Following this rationale, size matters. Therefore, functional urban regions that can enhance their catchment areas through a strategy of polycentric development and division of labour between different nodes may have a relative advantage in international networking. This would support the morphological argument put forward earlier.

Furthermore, the mass criterion may be of importance as a basis for connectivity, as a critical mass is needed for good services etc. Indeed, connectivity/accessibility seems to be the major stepping-stone when it comes to the potential for relational polycentrism.

Regional specialisation and accessibility are thus the major elements for functional or relational polycentrism at the European level, i.e. the networking, co-operation and competition of functional urban regions showing similar or complementing profiles. Here, the actual size of an urban area is not of importance. Specialisation

and endogenous development potentials are however key factors. As regards playing a role in a polycentric (non-hierarchical) urban network, the specialisation of a region needs to be interesting enough to make flows stop-by and not only pass-by.

IV. Scale, the interconnecting trap of polycentrism as a conceptual paradox

The debate illustrates that polycentrism or polycentric development is possible at all geographical levels. However, only in a few European countries, as e.g. in Germany, the Netherlands or Italy, does it seem to be possible at all levels simultaneously. In other countries, especially rather monocentric organised and peripheral countries, it is simply not possible, at least as regards the morphology and mass criterion. Here the establishment of an urban agglomeration as a node in a trans-national polycentric urban system requires too high a level of resources (mass) to be able to form a polycentric national urban system at the same time (cf. also the debate on macro-meso constellations during the ESPON Lead Partner meeting in Brussels, February 2003). Thus as regards playing a role in the European urban system, polycentrism should not be aimed at the national level, but rather at the regional level in order to strengthen existing nodes. In consequence, polycentric development at one level requires monocentric development at the level below which in turn is supported by polycentric development at the level beneath. Without considering the co-actioning of the different levels the whole concept of polycentric development is going to be weakened.

Keeping in mind the relational approach to polycentrism, it can however, be argued that cities of all categories/sizes can be part of trans-national co-operation networks and thus play a role in functional polycentrism and in the division of labour. Indeed, the ESPON 1.1.1 project touches on the fact that in some respect the smaller rather than the larger cities have become global, because of a specific specialisation which allows them to act as partner or sub-contractor and become integrated into international business. Thus all cities independent of their size can become nodes in a European wide functional network, i.e. a step towards relational polycentrism.

Through this they can act as a motor for local and regional development and contribute to the formation of functional urban regions.

3.2.3 Global Integration Zones

ESDP policy option no 1 aims at strengthening larger zones of global integration in the EU, equipped with high-quality, global functions and services, including the peripheral areas. Indeed, the main elements of the strategy for polycentric development are the global integration zones (of which the Pentagon is Europe's sole example) and the polycentric metropolitan regions. The idea is that by linking towns, cities, metropolitan regions and their hinterland with each other via infrastructure and strategic co-operation, and by forming polycentric urban regions, the competitive potentials of these regions will improve and dynamic global integration zones can be formed. In so doing, the aim is to spread the benefits of good social and economic performance across the continent, while at the same time, strengthening Europe's global competitive positions. In this way the polycentrism strategy is hoped will achieve balanced competitiveness across the European territory.

The creation of several territorial entities of metropolitan regions performing together as dynamic zones of global economic integration will play a key role in the improvement of the spatial balance in Europe. The implementation of a polycentric development model calls for a shift of paradigm in current policies away form the centre-periphery thinking in European policies as well as national and local policies.

Zones of global economic integration offer high-quality global economic functions and services, which enable a high-income level and a well-developed infrastructure.
Important components of these zones are the internationally accessible metropolitan regions. The functionality of metropolitan regions is characterized by good accessibility, headquarters of enterprises and international institutions, concentration of decision power, and a solid integration in global markets.

Further hallmarks:

- global services and well-developed (international) transport infrastructure (e.g. international airports)
- strongly developed service centres, particularly in the field of business services, banking and public administration

- well-developed physical and telecommunications infrastructure as well as dense traffic networks
- international finance services (e.g. banks, stock exchange)
- the existence of advanced services supporting international market development, high-level business related services
- seat / home of R & D facilities, Universities, IGO's, INGO's, supranational organisations, advanced producer services
- centre of information transfers

3.2.4 Urban areas

The discussion on polycentrism illustrated the importance of urban areas. Following the foregoing debate urban areas can be defined either in rather morphological ways or in terms of functional areas.

Standard definitions of urban areas focus often on the number of inhabitants and the built-up areas. Today, the majority of EU citizens lives and work in urban areas, and the EU is one of the most urbanised areas in the world. There are approximately 170 cities with more than 200,000 inhabitant and 32 cities with more than a million inhabitants (Berg et al, 1998) ESPON 2.2.3 underlines that urbanisation is understood differently in each EU Member State: whereas in Sweden, a population centre is defined as built-up area with 200 inhabitants and a maximum of 200 meters between the houses, in Germany, there are at least 10,000 inhabitants needed for an urban designation. If the degree of urbanisation is judged by the proportion of population living in (large) towns, the conclusion is that Europe contains strongly urbanised countries (such as Belgium, Denmark, Germany, the Netherlands and the UK), slightly urbanised ones (Austria, Finland and Sweden) and a number of countries occupying a position in-between the two extremes (France, Italy and Luxembourg). How much various possible definitions of urbanisation differ is simply illustrated by the fact that e.g. Sweden has an 'urbanisation degree' of 55 percent according to United Nations and 84 percent according to national statistics.

According to National Statistics (2002), there are three main approaches to defining urban areas, (a) approaches tracing the extent of built up areas (land use type), (b) approaches classifying level of population and something other densities

(such as employment density), and (c) approach plotting the functional areas of the town.

The ESPON 1.1.1 SIR distinguishes between different types of urban areas. Key concepts related to polycentrism are urban agglomeration (UA), Functional urban area (FUA), the notion of different dimensions of polycentrism (morphological, functional, economic, political as well as various territorial dimensions of polycentrism), Metropolitan Growth Areas (MEGAs) and Trans-national Regions of Integration (TNRI).

- Urban Agglomerations (UA), which refers to contiguous build-up areas. There is no common definition of UA in Europe (the UN has the most common definition, but it is not standardised, also e.g. CORINE and N.U.R.E.C have information concerning contiguous build-up areas). Thus our only option is to look at the national definitions of UAs. The most important issue is to identify the core of FUAs (to pinpoint where the centroid of the FUA is situated). Secondly, the share of total population that lives in contiguous build-up areas can be used as an estimation of the urbanisation rate of country (this exercise has been carried out in project 1.1.2. where population is indexed based on rural population, the same map can be produced and indexed to urban populations). Population UAs are also however important factors in the analysis: it can be argued that only UAs that exceed a certain threshold level (e.g. 10 000) can be labelled urbanised areas. Only those UA cores of that are centres of Functional Urban Areas (see below) that have more than 20 000 inhabitants are identified
- Functional Urban Areas (FUA): UA/core municipality + adjacent commuting areas (fringe municipalities). FUA has no common European definition. Commuting data on the NUTS 5 level is a prerequisite for defining FUAs, but commuting data (according to Data Navigator) is available only available for this territorial level for Austria, Belgium, Denmark, Finland, France, Germany Luxembourg, Norway and Sweden. FUA has a national counterpart (functional urban region, travel-to-work-area, commuting catchments area, commuting zones or similar) in 18 countries (Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary (regional labour centres), Italy, Norway, Luxembourg, Netherlands,

Sweden, Switzerland, Slovak Republic, Slovenia and the United Kingdom). Due to the lack of data, 1.1.1 uses national definitions of FUAs, or the closest available counterparts. FUAs that have a population of 20 000 inhabitants are considered urban.

FUA's are the building blocks of the polycentric region. Polycentric regions are established by two or more FUA's reinforcing each other. At two levels we are dealing with polycentric urban regions, the (sub) national level (national polycentric regions) and the trans-national level (cross-border polycentric regions).

- The concept of European Polycentrism was suggested by the CPMR study. The idea behind the study was to identify cities beyond the pentagon that could function as economic centres ("Metropolitan European Growth Areas (MEGAs)") and thus that were capable of competing with the pentagon. Related to the MEGAs are the large trans-national integration regions. Special interest is paid here to the INTERREG regions. These regions have not been defined as polycentric urban regions. However, in the context of the 1.1.1 it seems reasonable to comment on these regions, since if they are successful they might contribute to development beyond the pentagon – thus contributing to greater polycentric development.

Furthermore, there are a number of related concepts which might be of interest, e.g. urban networks and differential urbanisation, as discussed by ESPON 1.1.2. Urban networks are regarded not only as a description of the changing settlement systems but also as a new spatial development policy concept emphasising co-operation and competitiveness (Müller 2001). At the same time any urban areas can be said to fulfil two functions, (a) a serve as a centre for its (rural) surroundings and ass a mediators of hinterland within a larger context. Furthermore, ESPON 1.1.2 stresses that a according to the theory of differential urbanisation, any urban system undergoes ideally various phases in its development, passing through a complete cycle of urbanisation, polarisation, reversal and counter-urbanisation. The actual phase an urban area undergoes is related to it national context, i.e. national economic and urbanisation processes.

3.2.5 Rural-urban

The ESDP makes a strong point of the need to overcome the outdated dualism between the rural-urban distinction and to focus instead on rural-urban partnership.

Thus far discussion has focused predominantly on urban areas. As rural areas however are a substantial part of Europe, they need to be taken into account when discussing spatial policies. As illustrated not least by ESPON 1.1.2 and 2.1.3, there are variations in how "rural" different parts of Europe actually are, and how "rural" is defined in different parts of Europe. As such, the term rural is widely used as an expression for non-urban or sometimes even peripheral regions without necessarily defining the concept or its spatial implications.

Being assigned the role of analysing rural-urban relations in Europe, ESPON 1.1.2 emphasises that definitions of both "urban" and "rural" are required. Having discussed urban areas above, the focus of what follows will now be on rural areas. The problems of defining rural areas are more intractable than defining those of urban areas. The main challenge lies in capturing both the multiplicity of types of rural areas that exist , and the economic and social changes that have taken place in rural places that link them ever more closely with an urban style of life and work.

In its FIR, ESPON 1.1.2 presented a number of definitions of rural areas:

Table no 5: Approaches to Defining Rural Areas

General Approach	*Theoretical Context and Methodologies Employed*	*Data Sources*
(a) Implicit definitions/ differentiation of rural areas (often policy-relevant)	Normally a consideration of different rural 'types' based on intuition, theory and existing empirical evidence – not statistically based or tested, although could serve as preliminary to subsequent empirical investigation and statistical analysis: • CEC (1988) – 'standard types' of rural area, based on perceived developmental challenges • OECD (1993) – urban-rural gradient differentiating between rural areas by their degree of integration with major urban centre • Marsden et al (1993) – economic, social, political and cultural 'parameters' • von Meyer (1997) – dynamic versus lagging rural regions • Copus and Crabtree (1996) socio-economic sustainability within rural areas, 3 attributes (population, density, economic activity), measurable across three dimensions	Multi-dimensional considerations based on literature review and existing empirical analyses

General Approach	*Theoretical Context and Methodologies Employed*	*Data Sources*
	(structure, performance, dependence).	
(b) Statistically derived policy-relevant differentiation of rural areas	Normally a classification/regionalisation conducted in an *exploratory* fashion, but with a selection of variables based on some theoretically based pre-defined criteria: • cluster analysis (e.g. Williams et al, 1996 – socio-economic profile) • principal components analysis (PCA) (e.g. Malinen et al, 1995 – socio-economic profile; Haase, 1998 – deprivation; Hannan and Commins, 1993 – social ecology of rural areas) • PCA and cluster analysis combined (e.g. Walsh, 1980 – agricultural regions; Lafferty et al, 1999 – agricultural regions; Cawley, 1986 – rural deprivation) • detailed spatial mapping of individual variables (e.g. Cooke et al, 2000 – deprivation analysis)	Multivariate – mostly census-based variables
(c) Statistically derived index of rurality	Normally a classification of areas based on *subjective, pre-defined* criteria relating to 'rurality': • principal components analysis (e.g. Cloke, 1977 and 1978; Cloke and Edwards, 1986; Harrington and O'Donoghue, 1998; Mitchell and Doyle, 1996) • chi square (e.g. Hodge et al, 1996) • cluster analysis (e.g. Robinson, 1990; Mitchell and Doyle, 1996)	Multivariate-mostly census-based variables
(d) Neutrally defined rural delimitation	Normally a preliminary stage in a more detailed analysis: • weighted population density (e.g. Craig, 1985) • population density cut-off point (e.g. OECD, 1994; Walford and Hockey 1991; Commins and Keane, 1994) • gravity model (e.g. Copus and Crabtree, 1996)	Mostly univariate (often variations on populations density, distribution of population, or some accessibility/distance measures)

Source: ESPON 1.1.2 – First interim Report 2002

Despite the conceptual problems of capturing exactly what 'rurality' entails , rural areas are generally observed as having particular attributes which give them a distinct character. These attributes include tracts to open countryside, a scattering of small to medium sized settlements, a less developed transport infrastructure, and a lack to access to services and amenities, especially of the type provided in larger urban centres. Each of these characteristics has, at one time or another, been built into attempts to define 'rurality' for practical purposes. (National Statistics 2002)

A similar debate can found in the reports of ESPON 2.3.1. Both ESPON 1.1.2 and 2.3.1 are working with concepts and typologies of rural areas. Whereas ESPON

2.3.1 decided to focus on the definition the OECD put forward in its Rural Development Programme, ESPON 1.1.2 decided to establish its own reference framework.

- **The OECD approach**

  The new approach of the OECD methodology developed focuses on the territorial scheme on a sub-national level covering the entire territory of member states, and addresses two hierarchical levels of geography. At the local level it uses the basic administrative unit (in most cases the community or municipality) as the lowest geographical level for classification of rural or urban. The basic administrative units were split by the simple criterion of population density (threshold of 150 inhabitants per km2) into rural and urban communities, municipalities etc. At the second stage, as regions usually comprise rural as well as urban basic administrative units, the degree of rurality was ascribed by the share of population living in rural basic administrative units, thus distinguishing the following three types of regions:

  - predominantly rural areas (more than 50 % of the population lives in „rural“ basic administrative units),
  - significantly rural areas (the share of the population in rural basic administrative units is 15 - 50 %) and

  predominantly urbanised areas (less than 15 % of the population is in rural basic administrative units).

- **Rural-urban population approach**

  Taking into account the significant differences in delimitation approaches on urban and rural population between countries, and thus the incomparability of those figures across the ESPON space, the method proposed by ESPON 1.1.2 introduces a more comparable picture of Europe’s urban and rural population based on national delimitation approaches, i.e. paying attention to national characteristics and European diversity. In a first step the share of rural population in the regions was indexed with the country average. Since figures on urban and rural population are comparable within each country the index provides a measure of rurality within a national context. In a second step the total population density has been used for the definition of the concentration of population. Regions can then be classified as existing between four extreme cases. On the one hand there are densely

populated urban regions (1) standing opposite to sparsely populated rural regions (2). Secondly there are also densely populated rural regions (3) or sparsely populated urban regions (4). Figure 2 depicts the regional pattern of Europe’s urban and rural population on a map.

Map no 7: Rural urban population in Europe

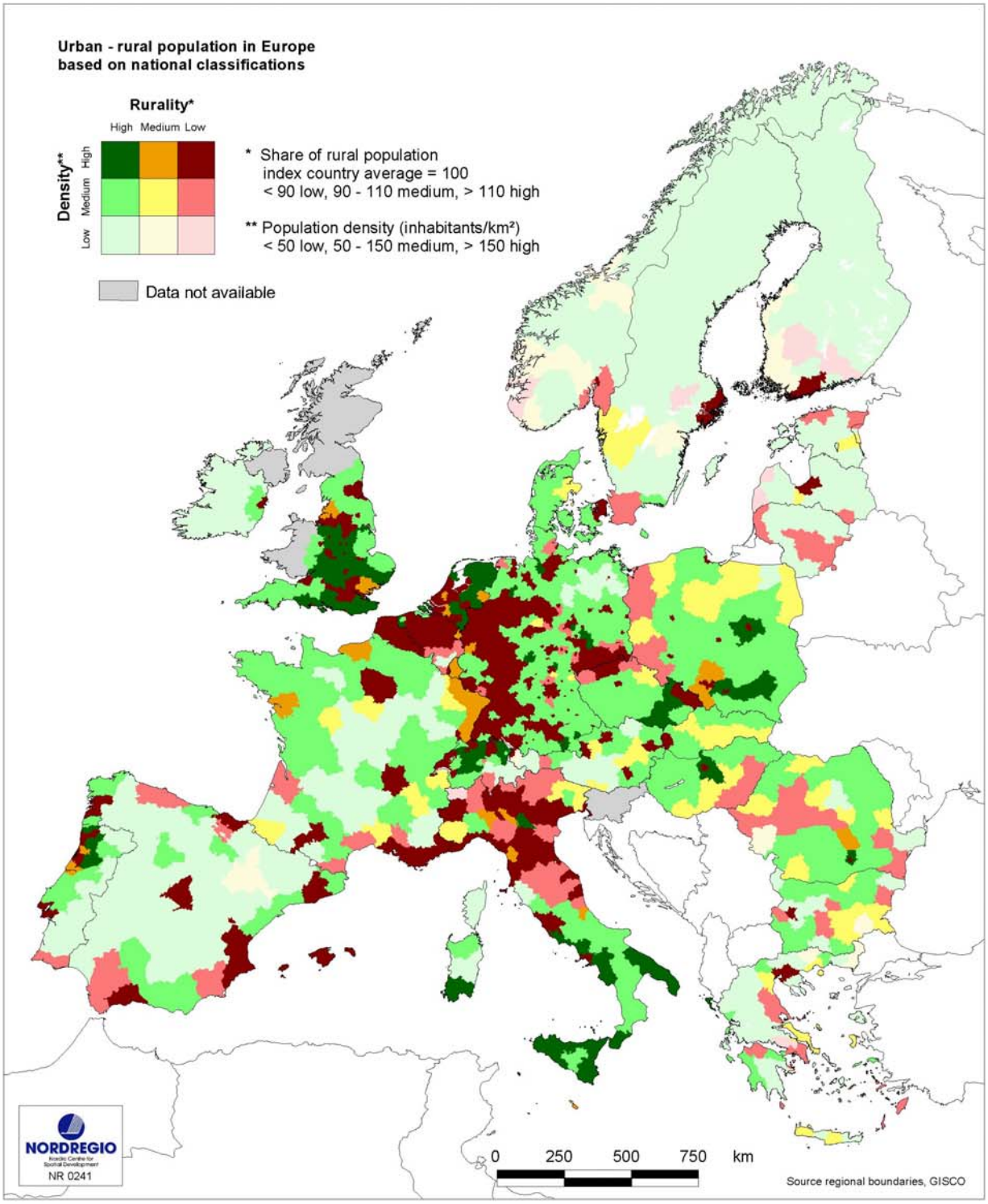
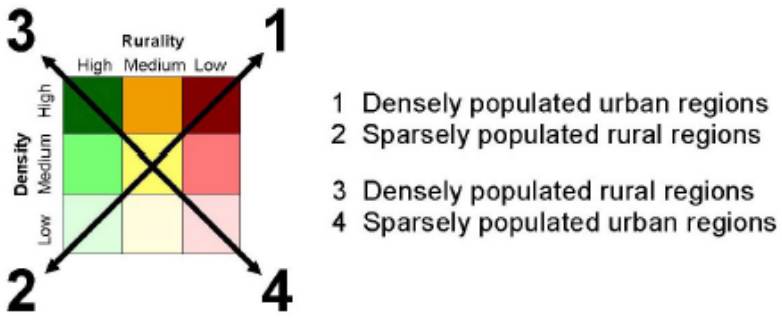


Figure no 6: Extremes of urban – rural population pattern

Figure 1: Extremes of the urban – rural population pattern



Both projects refer also to the work carried out under the SPESP as regards typologies of urban-rural settings in Europe (cf. SPESP figures 2 and 4).

During the analysis of existing definitions, ESPON 1.1.2 has identified a number of aspects distinguishing urban and rural areas, i.e. population size, population density, economic activity, accessibility and administrative status.

As regards interaction between rural and urban areas, Camagni (2002) pointed out that Krugman rightly shows us that the true purpose of trade is imports, not exports. Exports are a cost, the way of financing cheap imports which is worth doing because it is more efficient than producing such goods locally. The spatial division of labour – including the most spectacular, between city and countryside – is based on this principle which allows all partners to exploit fully the benefits of specialisation, increasing its own and each other's level of well-being."

As regards the overall structure for analysing rural-urban relationships, the analytical framework of the project is formed by physical structures and functional flows characterising rural-urban relationships. Rural-urban linkages are increasingly moving beyond single one-way exchanges demonstrating a more complex and dynamic web of interdependencies shaping the fortunes of urban and rural areas alike (Davoudi and Stead 2003). The approach taken by ESPON 1.1.2 emphasises in particular the flow of people and materials. It is noted that there are also economic links, involving monetary flows between urban and rural areas, as well as information links. However, analysis of urban-rural relationships and of these kinds of flows has hardly been done previously, and data is often scarce. Thus, the focus of ESPON 1.1.2 is focussed on the analysis of the structures

underling urban-rural relationships. The perspective of flows will mainly be opened via case studies.

3.2.6 The Environment

Whereas the concepts of different sorts of urban areas or rural areas are clearly related to overall spatial planning concepts such as “accessibility” and “polycentrism”, there are also a number of more subtle concepts that also need to be taken into consideration, e.g. environment or sustainability. Traditionally, sustainable development is broken down into economic, social and environmental dimensions.

The economic dimension clearly underlies the concepts of accessibility (e.g. access to market, comparative advantages) and polycentrism (e.g. economic specialisation, global competitiveness). As such, the economic dimension is addressed to a certain degree in almost all reports often by employing GDP-related indicators.

The social dimension, i.e. social integration, has been subject to the chapter 3.1. As with the economic dimension, there is a rather comprehensive understanding of what the social dimension implies. However, breaking it down into indicators (for which data is available) illustrates similar challenges as those faced in the economic dimension: the complexity of the concept cannot be reflected by the indicators and thus the pictures painted based on indicators will always be insufficient.

The environmental dimension faces the same challenge. Indeed, there is no shortage of definitions. However, definitions suitable for the work carried out under ESPON and possible to map with meaningful indicators and available data are another issue.

However, the ESDP underlines the necessity of the environment for spatial development, as do a number of European and national documents. The 1987 Single European Act mandated the consideration of environmental protection in all EU policies (Article 130R). “Environment” is still however considered to be a rather general term that is very difficult to limit to one single concept.

Since it is not clear yet, which connotation “environment” will have in the ESPON framework, it is important to first mention that there is a wide range of different

aspects associated with “environment”, such as nature, landscape, environmental protection, and sustainability.

A tentative working definition of the concept at this stage which may be considered as a useful stepping stone could be as follows: Natural surrounding of humans, animals and plants, each of which interact with the others. The environment needs to be in a condition that allows for the survival of all of the above -mentioned species. Despite the fact that certain species became extinct before human activity lead to the mass extinction of animals and plants, the survival of mankind depends on an environment that supports the basic needs (i.e. for survival) of all living beings. The action of one species is not without effect on itself and upon others. These actions as such are not necessarily bad or unnecessary; they need to be designed in such a way that they do not lead to the destruction of these mandatory living conditions, e.g. pollution of the air to a greater extent than “digestible”.

An indication of what the environment may be comprised of is offered by the Sixth European Environment Action Programme highlighting four priorities, namely, climate change, nature and biodiversity, environment and health and natural recourses and waste.

Daily et al (1991) formulated five management rules for the finite system earth:

1. Sustainable yield: Use of renewable resources only to the extend that they are able to develop or grow (e.g. forest)
2. Sustainable waste disposal: charging natural media (water, air, soil, flora, fauna) only to the extent that they are able to process (e.g. agriculture: use of fertilizer/nitrates; production of CO2)
3. Make use of non-renewable resources as little as possible and mainly for the purpose of developing alternatives/substitutes for use with renewable resources (difference: man-made capital ⇔nature capital; e.g. very sparing use of materials to produce solar energy)
4. Create or improve conformity of human and natural production processes. Currently the concept of time in society and economy is contrary to the natural time. A change in the awareness of Man is necessary. Revolutionised efficiency and sufficiency (i.e. changes in purchasing behaviour and consumption patterns) are one way to achieve this.

5. Avoid big risks (e.g. slash and burn in former times, nuclear energy nowadays), because small mistakes can result in enormous catastrophes.

This may be the background when various interim reports underline the environmental dimension or the quality of the environment, without going into further detail. At least two of the ongoing ESPON projects have made an attempt at conceptualising the environment for further work.

ESPON 2.1.3 takes a legalistic approach and suggests using the GISCO - Inventory of sites designated under community/national legislation (DAEUINPT/DAEUINPTV2) to derive a simple indicator of environmental quality for each NUTS III region.

ESPON 1.3.2 takes a more eco-system-oriented approach embracing the concept of environment by addressing biodiversity and semi-natural areas:

- 'Biodiversity' is defined according to the Convention on Biological Diversity 'The variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems'.
- Semi-natural areas can be defined as those parts of the land on which natural and ecological processes fulfil a dominant role. Areas that are characterised by dominant human influences are therefore excluded. In more practical terms, the CORINE land cover data set provides a good basis for making this distinction on a European scale:
  - Class 1 of the CORINE nomenclature (artificial surfaces), falls entirely under 'non-natural areas';
  - Class 2 (agricultural areas) can be divided into non-natural (2.1 Arable land and 2.2 Permanent crops) and semi-natural areas (2.3 Pastures and 2.4 Heterogeneous agricultural areas);
  - Class 3 (Forests and semi-natural areas), class 4 (Wetlands) and class 5 (Water bodies) are all regarded as 'semi-natural areas'.

Another aspect of the environmental dimension is at stake when 2.1.3 points out that in relation to the balance between conflicting EU objectives, increasing

emphasis is likely to be placed on the objectives of environmental sustainability and food safety.

In addition, to those “pure” environment concepts, the environmental dimension is also included in a series of other concepts, one of which is landscape. Indeed, the concept of landscape is partly shimmering through in the ESPON context, although this approach is predominantly a North American domain. Terms such as landscape types (e.g. ESPON 1.3.2) or landscape quality (ESPON 2.1.3) are used.

The only project putting some emphasis on landscape is ESPON 1.3.2. In their report they suggests that for ‘landscape’ the definition of the European Landscape Convention could be adopted:

‘An area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors’.

Of major concern is the pace at which land is being consumed by urban development in Europe. Rural settlements further down the urban hierarchy and more remote from major cities are also subject to urbanization pressures. Also within urban settlements, the loss of green space is a major issue. The outward spread of cities, with dwellings and commercial and business developments on the outskirts threaten rural areas and landscapes.

3.2.7 Policy Relevance

Drawing from the various interim reports, first indications on possible policy recommendations can be identified. At this moment no comprehensive overview can be given. Thus the following section gives a rather fragmented or scattered picture. A more detailed approach will be presented in the next interim report.
One main observation is that EU regional policies, and the Structural Funds in particular, are the predominant policy field addressed. Other policy fields with spatial implications such as transportation, environment, and agriculture are only considered in a few reports. Furthermore, most reports concentrate entirely on EU policies and hardly consider national policies at all.

The Agricultural sector

Traditional agricultural policy does not involve a strongly spatialised approach to policy making. Territorial effects are rather considered to be side effects. In that context ESPON 2.1.3 SIR underlines the fact that the CAP has **unintended side-effects**, that themselves have a significant negative territorial dimension. For example, (a) ecological effects such as a decrease in biodiversity and landscape quality, (b), economic effects such as unemployment, or (c) social effects such as population change especially in intensively farmed areas.

Furthermore, ESPON 2.1.3 SIR points out that only a little of the CAP/RDP is specified in a way related to settlement patterns. Thus it cannot be expected that the policy will assist in **polycentric development**, except in so far it provides support for economic activities much more geographically dispersed than those related mainly in the core area of the EU. However, with regard to **rural-urban** relations the spatialisaion of agricultural policy needs to be considered in the context of European spatial planning.

The information and communications sector

Despite the fact that the EC Treaty emphasises access to services of general (economic) interest, ict-services cannot be discussed without looking into the question of **infrastructure**. Moreover, infrastructure seems to be the main bottleneck, while the extent and quality of infrastructure form the basic pre-conditions for service provision.

Generally speaking, the telecommunications sector has only a weakly developed territorial view. According to profitability criteria, this view represents a certain **centre-periphery pattern**. Infrastructure tends to differ according to population density and probably also to socio-economic characteristics.

In that context it is argued that e.g. **Structural Funds** could be used for assisting rural areas, as e.g. (cheap) broadband access will be essential for knowledge based enterprises, i.e. establishments and investments.

Translated to the overall concepts of polycentrism, rural-urban partnership and accessibility, this implies that recent bottlenecks in the infrastructure development **favour existing spatial patterns**. Thus potential contributions of the information and communication sectors to the policy aims in the ESDP are probably rather weak.

EU-Transportation policy

Following ESPON 1.2.1 SIR, **vulnerability of networks**, **capacity to modal transfer** and the **core-periphery dilemma** are at stake when discussing transport policies and developments in relation to the aims of the ESDP. Generally speaking, their work indicates future policy recommendations related to accessibility in relation to economic performance (GDP) and infrastructure supply/capacity in relation to demand, i.e. infrastructure endowment per population density. This would allow us to draw conclusions on the territorial differences of the transportation situations and investments.

Looking more concretely at investments, including Structural Funds investments, in infrastructure, two types have to been distinguished, (a) intra-regional investments and (b) inter-regional investments. Intra-regional investments can contribute to the building of more sufficient functional regions, and so e.g. to a regional polycentrism. Inter-regional investments contribute to the link with other regions and thus potentially to European polycentrism.

However, a major difficulty with transport investments, and TEN developments in particular, is that the **spatial incidence of expenditure does not necessarily imply actual spatial impact in terms of economic and social development**. Following that line of argumentation the ESPON 2.1.1 SIR paints a rather modest picture regarding the spatial impacts of transportation infrastructure. The two main arguments are:

- Road and rail investments are not very important for the European pattern of for face-to-face accessibility.
- Relatively large improvements in accessibility will translate into only relatively small increases in regional economic activity

Generally speaking, ESPON 2.1.1 SIR asks for a more critical view of investments in transportation infrastructure, and in particular whether such investments are always good for a region.

With regard to the aims put forward in the ESDP, the effects of transportation investments on the European spatial pattern are rather limited. Heavily simplified, improvements in the road and rail network show tendencies to **reinforce existing core-periphery patterns**, whereas air traffic shows a more polycentric pattern. As regards the level of functional urban regions, traffic investments can **contribute to enlargement, strengthening and better function of single regions**.

The Regional policy sector

After these brief spotlights on related sectors, this section will concentrate on the regional policy sector, addressing the issue of polycentrism, rural-urban relations, Interreg and some general impressions.

Polycentrism – Building regional competence via urban networking

ESPON 1.1.1 argues that the strategy of building regional competence via urban networking is the key model for the future. Indeed, regional development depends on local capacity, opportunities or endowment factors. International links are considered to be of secondary importance. Accordingly, attention is concentrated on the capacity of **endogenous urban and regional development** (incl. Institutional capacity) and thus on the development of **specialised competences**.

Economic regional specialisation is in turn linked to the question of regional identities. Thus the **branding of regional identities** has become an integral element of regional policy making.

Looking at the Structural Funds, ESPON 2.1.1 SIR argues that SF expenditure, which is effective in changing the economic position of a region, will have an **impact on the demand for transport** and thus also on the use of the transportation networks, both in the particular regions and in other regions. Thus the infrastructure demand side rather than the supply side (cf. in the section on transportation policy it has been argued that investments in transportation show only very limited spatial impacts) form the link between economic performance and accessibility.

Nevertheless, the conceptual debate of polycentrism, underlined **the importance of flows** (between nodes in a polycentric system) rather than morphological pre-conditions. *The question remains whether this implies, by the end of the day, that specialised regional competences (priority no 1, cf. above) need to be strong enough to create a transportation demand that enables sufficient flows.* In other words, the specialisation of a region needs to be interesting enough to make flows stop-by and not only pass-by.

Rural-urban

Because of predominant mind-sets, rural and urban issues are treated separately in recent policy-making and research. This implies that there is too little understanding about the exact nature of urban and rural interdependencies.

ESPON 1.1.2 SIR argues that rural-urban policies cannot replace urban or rural policies but can only be of **complementary nature**. Furthermore, rural-urban policies need to be exercised at the **appropriate scale**, which is not necessarily the same scale appropriate for urban or rural policies.

Interreg

First appraisals of Interreg co-operation argue that Interreg focuses on **regional integration** rather than on polycentrism. Regional integration form an economic point of view is very much connected to **competitive relations and less to complementary relations**. (cf. ESPON 1.1.1 SIR page 228). Thus a tentative conclusion might be that Interreg has the potential to support regions in developing their specialisation and at the same time to develop trans-national contacts in the field.

General remarks

The debate throughout this chapter and in the various ESPON interim reports has shown that the question of scale is one of the major challenges of the work ahead. This involves (a) the question of the suitable level for taking policies forward and (b) the question of the scale at which policy aims are to be achieved. Indeed a spatial policy aim at one scale does not necessarily support the same policy aim at an upper or lower scale.

ESPON 1.1.1 SIR poses the question whether from a policy point of view, neighbouring regions should be joined within the same development programmes, or whether they should be separated into different programmes of regional assistance.

Taking into account the tentative conclusions on the importance of endogenous development, flows and Interreg co-operation, another question therefore arises: Instead of, or in addition to, delimiting eligible areas as continuous territories, regions with similar endowment or endogenous development potentials could form a non-continuous co-operation area. This would imply that a region needs to be eligible for Structural Funds (e.g. under Objective 1 or 2) plus that a programme/project is carried out in co-operation with at least one other region showing a similar regional specialisation. Thus projects supporting the specific development potentials could simultaneously contribute to creating international links in the field of specialisation, involving opportunities for co-operation and

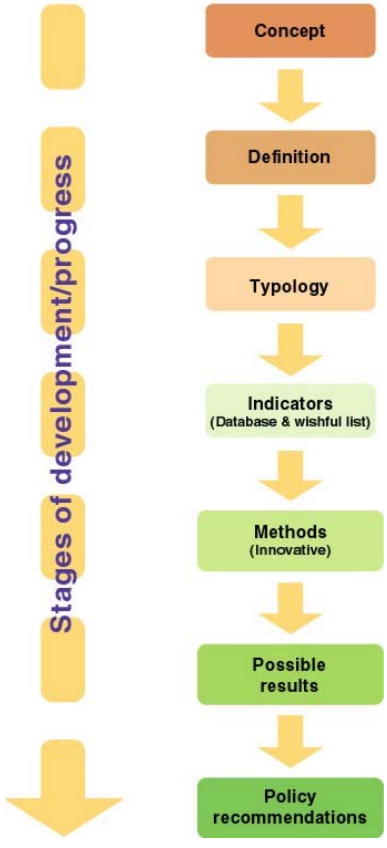
mutual learning. This mixture of traditional objective 1 and 2 selection of region and Interreg (IIIB / C) type of project formation should thus favour polycentric development.

3.3 Spatial – Regional analysis

One of the main aims of the ESPON Programme is to analyse spatial and territorial development trends and the impact of policies on these trends against the background of policy aims and options. Operational spatial planning concepts, like polycentrism or accessibility, are the first step towards a more concrete assessment and evaluation of territorial trends which is needed to generate new and innovative policies.

For statistical analysis, concepts have to be translated into a more concrete and measurable base. Typologies are an important element to assess spatial trends related to types of regions. Thus, concepts (like polycentrism) can be related with specific types of regions (cities of different "weight", functions and positions /links in the urban system), which again form the basis for the analysis of the degree and trend in the development of the concept (polycentrism).

Figure no 7: Abb. From concepts to policy recommendations



To identify regional typologies, indicators are used that represent the specific issue. As indicators change over time, this is essentially true also for typologies. In order to analyse spatial concepts in time and space looking for developments and spatial effects regional references and typologies have to be kept constant. Regional typologies related to spatial concept ensure adequate territorial partition and differentiation for the observation of different developments in receptive effect on distinguished regional types.

With respect to policy applications, typologies are mainly used for the general analytical assessment of policies and their territorial impacts, rather than for a precise regional delimitation and classification. The

latter, which is a special application of typology (or better: classification) is needed, for example, for the implementation of the classical spatial objectives which need a precise regional delimitation and identification related for example to define areas eligible within the EU structural funds. In contrast to this, typologies in the context of operational concepts, are not meant to precisely define new areas eligible for financial support, but rather to assess existing spatial trends and develop new spatial policy ideas.

In this context, precise regional structure do not meet territorial policy orientations. Structures and developments are spatially orientated; they are hardly or only inadequately caught with the help of administrative areas and partly even functional regions.
Furthermore the spatial orientation of policy wilfully neglects precise regional conceivability. Politically the degree of concretion diminishes in spatial context with likewise reducing scale.

Table no 6: List of TPG specified Regional Typologies

Typology	Regional Types	TPG responsible	Spatial scope			Regional level			Year
Urban areas	**1 Global level**	**1.1.1**	EU27+2	as possible		NUTS 3	NUTS 5		2000
	2 International level								
	3 National/tansnational level								
	4 Regional level								
	5 Local level								
Functional urban areas	**1 Diversified global FUA**	**1.1.1**	EU27+2	as possible		NUTS 3	NUTS 5		2000
	2 Diversified European FUA								
	3 Fairly diversified national FUA								
	4 Fairly one-sided transport oriented regional FUA								
	5 One-sided industrialised local FUA								
MEGAs (CPMR)	**1 Global MEGAs**	**1.1.1**	EU27+2	as possible		NUTS 3	NUTS 5		2000
	2 European MEGAs								
	3 Strong MEGAs								
	4 Potential MEGAs								
	5 Weak MEGAs								
"Third typology" urban areas (3.1)	**1 Polycentric Metropolitan area**	**1.1.1**	EU27+2	as possible		NUTS 3	NUTS 5		2000
	2 Monocentric Metropolitan area								
	3 Polycentric regions with medium sized cities								
	4 Monocentric regions with medium sized cities								

Typology	Regional Types	TPG responsible	Spatial scope			Regional level			Year
	5 Polycentric regions dominated by smaller cities								
	6 Monocentric regions dominated by smaller cities								
	7 Region with only fairly small citues								
Rural - urban Relation	**1 regions dominated by a large metropolis**	**1.1.2**	EU27+2	as possible		NUTS 3			2000
	2 polycentric regions with high urban and rural densities								
	3 polycentric regions with high urban densities								
	4 rural areas under metropolitan influence								
	5 rural areas with small and medium sized towns								
	6 remote rural areas								
Settlement structure	**1 Central Areas in agglomerated regions**	**1.1.2 / 3.1**	EU27+2	as possible		NUTS 3			2000
	2 Highly densely areas in agglomerated regions								
	3 Densely areas in agglomerated regions								
	4 Rural areas in agglomerated regions								
	5 Central Areas in densely populated regions								
	6 Densely areas in in densely populated regions								
	7 Rural areas in in densely populated regions								

Typology	Regional Types	TPG responsible	Spatial scope			Regional level			Year
	8 Rural area more densely populated								
	9 Rural area less densely populated								
Accessibility and GDP	1 Successful regions with high accessibility	1.2.1	EU27+2	as possible		NUTS 3	NUTS 5		2000
	2 Successful peripheral regions								
	3 Lagging regions in the European core								
	4 Lagging peripheral regions								
Nodal structure of telecommunication networks	to be specified	1.2.2							
Differentation related to advanced technologies	to be specified	1.2.2							
TN&S related spatial selectivity	to be specified	1.2.2							
Mountainous Regions	to be specified	1.3.1	EU27+2	as possible		NUTS 3	NUTS 5		2000
Extent and magnitude of natural and technological hazards	to be specified	1.3.1	EU27+2	as possible		NUTS 3			2000
Hazard potential and vulnerability	Ordinal typology taking inti account degree of hazards and vulnerability	1.3.1	EU27+2	as possible		NUTS 3			2000
Costal Regions	to be specified	1.3.2	EU27+2	as possible		NUTS 3	NUTS 5		2000

Typology	Regional Types	TPG responsible	Spatial scope			Regional level			Year
Central-peripherical typology	**1 Most accessible region**	**2.1.1**	EU27+2	as possible		NUTS 3	NUTS 5		2000
	+ or - centrality and periperality								
	n peripheral regions								
R&D Regions	**1 R&D Rich Regions**	**2.1.2**	EU27+2	as possible				NUTS 2	2000
	2 R&D Poor Regions								
R&D Market Regions	**1 R&D Producing Regions**	**2.1.2**	EU27+2	as possible				NUTS 2	2000
	2 R&D Using Regions								
	3 R&D Poor Regions								
Rural Areas (OECD)	**1 predominantly rural areas**	**2.1.3**	EU27+2	as possible				NUTS 2	2000
	2 significantly rural areas								
	3 predominantly urbanised areas								
Less favoured areas	**1 permanent handicaps (altitude, poor soils, climate, steep slopes)**	**2.1.3**	EU27+2	as possible				NUTS 2	2000
	2 undergoing depopu-lation or having very low densities of settlement								
	3 experiencing poor drainage, having inade-quate infrastructures, or needing support for rural tourism, crafts and other supplementary activities.								
Predominant Farmtype	**to be specified**	**2.1.3**							
Agricultural holdings	**Level 1: General farm types**	**2.1.3**	EU27+2	as possible				NUTS 2	2000
	Level 2: Principal farm types								
	Level 3: Particular farm types								

Typology	Regional Types	TPG responsible	Spatial scope			Regional level			Year
	Level 4: Subdivisions of level 3								
Urban Structural changes	**1 Declining urban industrial areas**	**2.2.3**	EU27+2	as possible		NUTS 3			2000
	2 Strengthening urban industrial areas								
	3 Urban industrial areas in transformation to a service economy								
	4 Urban areas exhibiting strong socio-economic disparities								
	5 Urban areas exhibiting a balanced distribution of wealth and opportunity								
Underlying urban features	**1 Economic capital**	**2.2.3**	EU27+2	as possible		NUTS 3			2000
	2 Social capital								
	3 Network capital								
	4 Environmental capital								
Border regions		**3.1**	EU27+2	as possible		NUTS 3	NUTS 5		2000
Cross-border functionality and participation	**to be specified**	**1.1.3**	EU27+2	as possible		NUTS 3	NUTS 5		
Dominant Structural funds spending	**1 Regional developement, productive infra-structure**	**2.2.1**	EU15			NUTS 3			Structural fund period
	2 Agricultural, fishery, rural development								
	3 Social integration, human resources								
	4 Basic infrastructure, European cohesion								

Typology	Regional Types	TPG responsible	Spatial scope			Regional level			Year
	5 innovation and experimental spendimg								
Depopulation	**to be specified**	**1.1.4**	EU27+2	as possible		NUTS 3	NUTS 5		
Population change	**Comination types of natural population growth and Net migration/Migration balance between**	**1.1.4**	EU27+2	as possible		NUTS 3			
	1 Fast increase in all components and								
	n Depopulation								
Energy involvement and sensitivity	**1 economically dynamic and energy efficient regions**	**2.1.4**	EU27+2	as possible		NUTS 3			2000
	2 regions where energy is a bottleneck impeding development								
	3 regions with a strong potential for alternative energies								
	4 regions that are more influenced (either positively or negatively) by energy trends								
Interreg III A regions		**3.1**	EU27+2	as possible		NUTS 3	NUTS 5		2000
Interreg III B regions		**3.1**	EU27+2	as possible		NUTS 3	NUTS 5		2000
Objective 1 regions		**3.1**	EU27+2	as possible				NUTS 2	2000
Objective 2 regions		**3.1**	EU27+2	as possible				NUTS 2	2000

4 The ESPON European META - SWOT

4.1 Introduction / formal schedule

The major aim of the ESPON- programme is to provide an overview of the actual spatial situation of Europe including the identification of the actual trends, constraints and of course to give political relevant guidance. It is obvious that such an ambitious aim is hard to achieve with a broad range of thematic projects each working with a strong focus on their field of research. Therefore the need for an instrument or procedure which fits the different parts of the thematic puzzle together in order to draw the all European spatial picture is apparent. This ambitious aim requires a special procedure developed by the ESPON project 3.1. An interactive approach was implemented in order to reach a synoptic perspective by carrying out a cross thematic SWOT- Analysis[18].

Figure no 8: The roots of SWOT analysis

*The roots of SWOT-Analysis can be easily traced back to business management literature and business practice where it is widely used as an instrument for strategic planning. SWOT-analysis basically consists of two elements, the first being an **internal**, more static analysis of the companies' **strengths and weaknesses**. The second and more dynamic part of the analysis is concentrating on the **external surrounding** of the companies possibly affecting the companies' well being in the sense of **future opportunities and threats**. On a general basis the SWOT-analysis postulates (i) to build on and stabilize strengths, (ii) to eliminate weaknesses, (iii) to exploit future opportunities and (iv) to repel threats. Against this background SWOT-analysis can be classified as an instrument that stands at the interface of analysis on the one hand and strategic planning on the other hand.*

Not only recently SWOT-analysis has been adapted to other fields of interests and institutions. Prominent examples in the field of spatial and regional policy are SWOT-analyses of structural funds programmes where the instrument has been successfully used to summarize results of socio economic analysis and to build the link to the policy part. There can be found global SWOT-analyses for the whole programme region as well as sectoral/thematic differentiated SWOT-analyses.

As highlighted by Karppi et al. (2001) and Bergs (2002) there are a number of qualitative criteria an elaborated SWOT-analysis should fulfill:

- ***consistency and coherence** in the sense that logical inconsistencies between S, W, O and T as well as with the underlying analysis should be avoided*
- ***balance between SW and OT***
- *concentration on **factors that can be influenced***
- ***measurability** and **operationality** of the factors*
- *clearing **interdependencies** when doing several thematic SWOT-analyses*

[18] The SWOT description mainly relies on European Commission (1999), Bergs (2000), Schmid (2000) and Karppi et al. (2001).

The SWOT-analysis is based on and summarizes the descriptive results of all thematic TPGs, it also includes a Regional Classification of Europe (RCE). The main aims of this step are:

- a harmonized operationalisation of territorial concepts,
- the identification of indicators,
- collection of data and integration into the ESPON database,
- statistical analysis of these data with reference to strengths, weaknesses, opportunities and threats of the development of European regions and
- the evaluation of matching the overall goals of European spatial development.

In practice the ESPON project 3.1 introduced a stepwise approach to create a comprehensive SWOT taking into account the results of all the different ESPON TPGs. The procedure was introduced via a guideline disseminated in February 2003 and explained at the ESPON lead partner meeting in Bruxelles on the 25th of February.

The ESPON project 3.1 asked TPGs to start the SWOT process immediately, so that first preliminary results could be visible for the Second Interim Report (SIR) of the first round projects. The first step of the procedure is the completion of a questionnaire by all TPGs. The second step is carried out by ESPON project 3.1 by the preparation of a synoptic analysis of the TPGs input. The TPGs where asked to follow the guidelines as set out below:

1.) All thematic TPGs (no matter if they belong to priority 1 or 2) summarize their descriptive results in a short thematic SWOT, following the questionnaire introduced in this paper. Furthermore the main data used have to be prepared and made available for project 3.1.

2.) This questionnaire is obligatory for the TPGs which started in summer 2002 (first round), but it addresses also the TPGs of the second round. They should fill in the form as far as it is possible right now. They will be asked to carry out this SWOT for the Third Interim Report (TIR) completely. The TPGs which belong to round three of the tendering procedure should take notice of the SWOT, they will be asked to start with first results for the TIR and for them the procedure is obligatory for the Final Report.

3.) The filled in questionnaires should be delivered parallel to the contribution of the particular report. So the first deadline for the TPGs of first round is the deadline for the SIR (31st March 2003) and so on.

4.) The SWOT aims at the 'EU 27+2 pan- European perspective', the level of detail are the European regions (NUTS III) at least for the Regional Classification, all TPGs should regard to this.

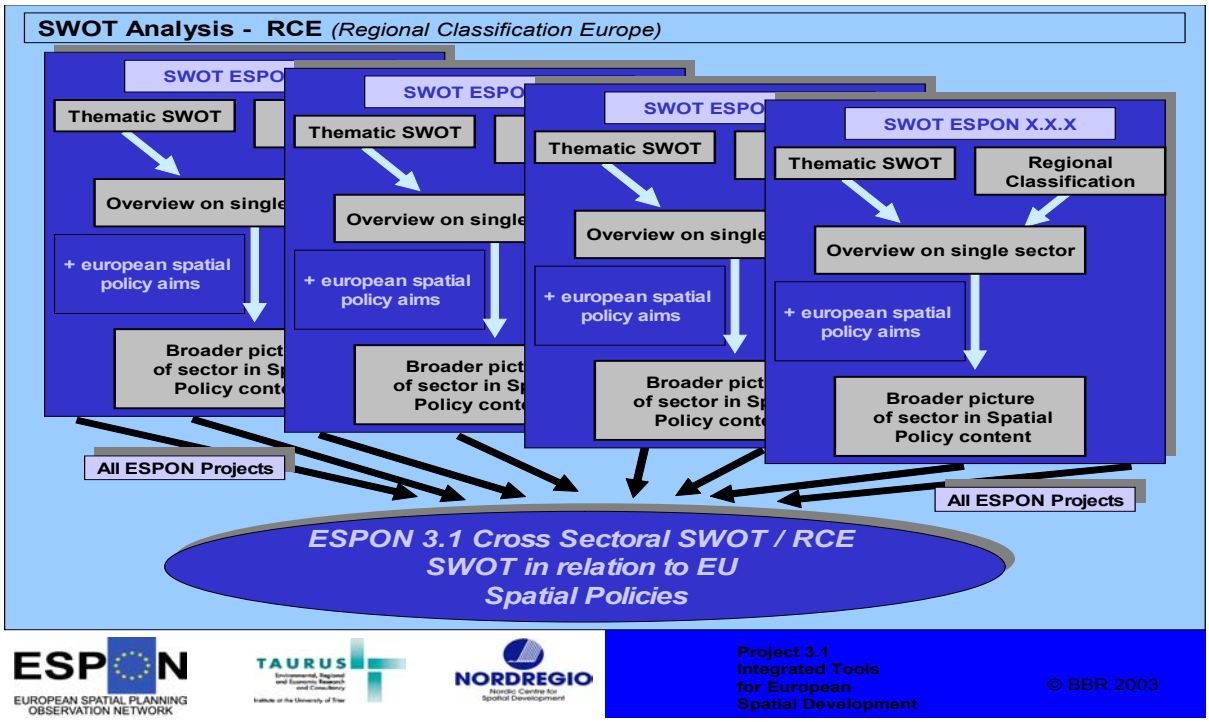
5.) The SWOT questions 1- 4 of the questionnaire are aiming at the overall thematic perspective, to highlight indicators is possible but not compulsive. Question 5 is the linkage between SWOT and the RCE (Regional Classification Europe). The RCE questions 6- 8 than require thematic statements including concrete indicators on a NUTS III level. The questions 9 – 10 are focussing on the major policy concepts and are referring to the ESDP.

6.) On that basis the TPG under measure 3.1 will elaborate a SWOT-analysis on the meta-level by synthesizing the thematic results, working out analogies and differences as well as crossthematic trends and interdependencies between the themes. 3.1 will report the results during the ESPON- Seminars and on a more detailed level within their SIR, TIR and FR.

For the first deadline (SIR) the SWOT form should be filled in the projects as far as possible. The META SWOT process is an open and iterative one. That means also interim results and conclusions at the moment are very much welcomed! While the ESPON process continues, these interim inputs of the TPGs can be revised or updated within the ESPON process (TIR / FR).

This procedure and the interrelated guidelines were accepted by the TPGs. Therefore the ESPON programme META SWOT is carried out as sketched below:

Figure no 9: The ESPON META-SWOT



Source: Taurus & NORDREGIO, 2003

4.2 Formal aspects of deliverables

As mentioned, it was obligatory for the TPGs of the first round, which started in summer 2002, to deliver their first inputs for the SWOT. Altogether eight thematic projects were expected to give some input to the META SWOT.

From a quantitative point of view, the feedback can be considered very satisfying, because nearly all TPGs used the questionnaire form and started to answer the questions (see table below).

Table no 7: First Round Projects

Project no.	*Tender round*	*Reports available*	*SWOT available*	*Source of SWOT*	*Questions answered*
1.1.1	1	FIR, SIR	X	Form filled	all
1.1.2	1	FIR, SIR	X	Form filled	1-4
1.2.1	1	FIR, SIR	(?)*	(?)*	(?)*
1.2.2	1	FIR, SIR	X	Form filled	1-10
2.1.1	1	FIR, SIR	X	Form filled	1-6, 10-11
2.1.2	1	FIR, SIR	X	Form filled	all
2.1.3	1	FIR, SIR	X	e-mail – Form filled	all
2.2.3	1	FIR, SIR	X**	SIR	1-6, 8-11**
Remarks: * The TPG once or twice refers to the concept of SWOT, but not in the sense of the questionnaire ** The whole structure of the SIR refers to SWOT.					

Three projects even managed to supply a first complete thematic SWOT. Two projects completed the SWOT with only few questions missing. One project began with the identification of strengths and weaknesses, opportunities and threats. Only two projects are not complying with the procedure that was explained beforehand. Project 1.2.1, as far as we know up to this report, seems not to have delivered anything which deals with the ESPON SWOT- analysis.

Furthermore, Project 2.2.3 has not delivered the questionnaire form separately, but it appears that the whole structure of their SIR refers to SWOT methodology. TPG 2.2.3 will be ask to add the key results into the SWOT questionnaire form or the next interim report.

Table no 8: Second Round Projects

Project no.	*Tender round*	*Reports available*	*SWOT available*	*Source of SWOT*	*Questions answered*
1.1.3	2	FIR			strength and opportunities will be analysed in SIR
1.3.1	2	FIR			
1.3.2	2	FIR			
2.2.1	2	FIR			will be answered in SIR, TIR

Table no 9: Third Round Projects

Project no.	*Tender round*	*Reports available*	*SWOT available*	*Source of SWOT*	*Questions answered*
2.2.2	3	FIR			
1.1.4	3	FIR			
2.1.4	3	FIR			

All other projects, which started later, have not reacted to the SWOT procedure so far, sporadic the answering is announced for the SIR. For them the participation was voluntary.

4.3 First findings

Due to tight time schedule between the delivery of the TPGs SIRs resp. SWOTs and projects 3.1 own Second interim Report, the following considerations can not be more then a first preliminary check. A close and in depth analysis will be possible not before the end of the second ESPON seminar on Crete. At the moment an executive summary of the four key questions dealing with S,W,O and T is given, also the answers to question 5, concerning the main driving forces and question 6, dealing with the typologies, are listed in separate tables. An evaluation of questions 7 to 10 is not yet possible, because of incomplete or missing answers at present.

The first step in evaluating the incoming SWOTs was the check for completeness and level of detail of the answers given. This first table presents a general overview; at first some general remarks are made, the further parts of the table follows the outline of the questionnaire.

Table no 10: ESPON SWOT- Check for completeness and level of detail

ESPON SWOT – Check for completeness and level of detail								
	1.1.1	**1.1.2**	**1.2.1**	**1.2.2**	**2.1.1**	**2.1.2**	**2.1.3**	**2.2.3**
overall remarks	ESDP policy	ESDP policy		comprehensive reproduction of ESPs policy aims with respect to telecommunication services and net-works; questions worked out so far are in a form as envisaged	all ESDPs policy aims listed in SIR, remarks in SWOT questionnaire only include list of relevant aims	short reproduction of ESPs policy aims with relevance for R&D and innovation	General remarks on CAP and RDP aims	The structure of the whole SIR refers to SWOT
1 strengths	**answered** (detailed)	**answered**		**answered** detailed argumentation	**answered** no further explanations	**answered** no further explanations	**answered** no further explanations	short reproduction of ESP´s policy aims with urban relevance
2 weaknesses	**answered** (detailed)	**answered**		**answered** detailed argumentation	**answered** no further explanations	**answered** no further explanations	**answered** no further explanations	**answered** with short explanation
3 opportunities	**answered** (detailed)	**answered**		**answered** detailed argumentation	**answered** no further explanations	**answered** no further explanations, the statements focus mainly on a macro level and partially lacking the territorial dimension	**answered** detailed argumentation	**answered** no further explanations
4 threats	**answered** (detailed)	**answered**		**answered** detailed argumentation	**answered** no further explanations	**answered** no further explanations	**answered** detailed argumentation	**answered** with a few explanations
5 driving forces	**answered** (detailed))	to be answered in next report		**answered** forces identified and explained, first lines for measurement set out and illustrated by examples, but not yet fully concretised	**answered** forces identified and explained	**answered** forces stick very closely to EU R&D Policies; potential driving forces are shortly described, but remain rather vague, will be improved after case studies	**answered** forces and consequences identified and explained	**answered** no further explanations

6	**typology**	**answered** (detailed)	to be answered in next report		**answered** development of a typology relying on the identified driving forces and leading to a 2x2x2 matrix with 8 classes, implementation envisaged for TIR	**answered** 3 main classes identified, each subdivided into absolute and relative change, based on comparisons between projections and business-as-usual scenarios	**answered** 3 main classes identified, possibly extended by one more class later on; variables standing behind the identified classes remain unclear. Therefore there is no clear link between the classes and driving forces of question 5 as intended by the questionnaire	**answered** 4 territorial typologies considered and explained in detail	**answered** very detailed explanation (several pages)
7	**mapping**	**answered**, but no mapping of typology of the driving forces	to be answered in next report		will be delivered with TIR	to be developed	will be delivered with TIR	several maps available (e.g. OECD rural are typology), own maps still to be developed as soon as requested data is available	could be very extensive, therefore limited to 5 principle issues)
8	**data set**	to be prepared	to be answered in next report		will be delivered with TIR	to be developed	will be delivered with TIR	limited dataset available	**not answered**, no indication on future delivery
9	**reference to concepts**	**answered**, only referring to concept of regional competi-tiveness	to be answered in next report		worked out on a 1/3 page, could go into more detail	to be developed	worked out on a 1/3 page, very cautious statements	worked out on 1.5 pages	general indicators listed with the assumption of exisitng datasets (only NACE explicitly mentioned)
10	**indicators**	**answered**	to be answered in next report		one indicator mentioned, not concretised in detail; cross reference to chapter 5 in SIR, where many indicators can be found	to be developed	judged as beyond the scope of the study	6 indicators listed but not explained	table ("brief initial assessment")
11	**reference to sustainability**	**answered**	to be answered in next report		**not yet answered**	**answered**	**answered** with some explanatory statements	**answered**	**4 indicators listed** but not explained

It is obvious, that nearly all TPGs made some great efforts, in order to provide at least preliminary answers to all questions. However, the quantity and the quality of the answers differ from TPG to TPG. ESPON 1.1.1, for example, gave very detailed and extensive answers for the whole questionnaire. Other projects like e.g. ESPON 1.1.2 were not yet able to provide information for all the questions due to the project's process, but ensured to elaborate the answers for the next report. This can be seen as very positive, only by vitally joining this successive approach, the development the META SWOT seems to be manageable.

One important finding is, that some of the priority 2 projects -*since they are dealing with policies*- answered the questions (strengths, weaknesses etc.) very closely orientated at the specific EU- policies they are examining.
The ESPON 3.1- SWOT, as it was intended and introduced, focuses on the structure of the European territory rather than territorially relevant politics. Of course the investigation of the politics might be more apparent to those projects under priority 2 dealing with the policy impact analysis. However, as addressed in the questionnaire we have to focus on the thematic field of territorial trends. Therefore, every project also the priority 2 projects should focus on the territorial trends in their research field for the completion of the SWOT which means e.g. the R&D SWOT makes reference to the territorial structure of R&D activities or the CAP SWOT should make reference to the territorial structure of agricultural activities and related issues. We assume that this reference does not make an extra effort for priority 2 projects as the identification of territorial structure and trends in their specific sector is part of their tasks. However, the 3.1. project is open to discuss the question whether a SWOT on politics should be done as a additional input to the ToR but that should be done with all projects together.

The second table shows the so far identified strengths in the single fields of research. It is visible, that at the moment some projects are able to define them very clear, brief and sometimes with a short explanation, while others seem to hesitate to come to a concrete statement.

Table no 11: ESPON SWOT - identified strengths in the single fields of research

Project	Strengths
1.1.1	• Polycentrism has strong and broad support. • Polycentric development is interpreted as a lifeline for the still relatively balanced network of small and medium-sized cities. • The strong nodes beyond the Pentagon are likely to be identified as pillars for European polycentrism for strengthening several larger zones of global economic integration. • The Pentagon itself is not monocentric but genuinely polycentric.
1.1.2	• Increasing understanding that the conventional view of rural areas as equivalent to agriculture is no longer reflective of the reality of either rural regions or the rural component of rural-urban relationships.
1.2.1	
1.2.2	• Reduced costs of network access and service improvements due to liberalisation of telecommunications markets and new technologies. • Improved supply of telecommunications networks and services at the European scale. • Positive territorial implications of digital mobile telephony networks: almost universal service coverage across the whole European territory; improved supply of telecommunications services in peripheral regions and rural areas, which tend to be under-provided by advanced networks which rely on wires and cables. • Similar impacts in central, eastern Europe, where wireless networks helped to overcome the legacy of inadequate fixed wire networks. • Internet provided very strong stimulus to the up-take of advanced telecommunications services and helped to overcome resistance to the up-take of such services. • Adoption process aided by competition between ISPs, driving down the real cost of Internet access. • Within the context of regional information society strategies, market-led developments have been complimented at the regional level by the promotion of both the supply and demand for telecommunications services. • Stimulation of the information society at regional level successfully 'mainstreamed' within the current round of Structural Funds.
2.1.1	• Through the TEN and the telecommunication policies most European regions will improve their accessibility and economic performance in absolute terms. (aim 7). • TEN measures and telecommunication policies may support a polycentric and balanced spatial development. • Telecommunication policies may help improving the access and use of telecommunication facilities, overcoming physical distance and peripherality (aim 27). • The TPG is building a methodology for territorial impact assessment, that can be used as a tool for evaluating transport and telecommunication infrastructure projects (aim 29). • Regional disparities might not decrease, despite the investment and use of ICTs, because of the very high disparities in the capacity to exploit these technologies among different regions. • The impact of ICTs may be a highly uneven territorial process.
2.1.2	• Pockets of strong R&D performance in most EU member states and some new accession states. • Many peripheral regions feature as knowledge producing regions. • Increasing proportion of partners in Framework Programmes located in non-core areas. • Increasing importance being attached to R&D actions in Cohesion policies
2.1.3	• Increased agricultural output and productivity. • Encouraged farm and regional specialisation (and hence efficiency/competitiveness). • Stabilized markets and reduced risks to farmers and consumers. • Multifunctionality (European model of agriculture) if the CAP & RDP are specified accordingly. • Maintained farming in Less Favored Areas.
2.2.3	• Structural Funds programmes are promoting the development of competitive cities, supporting the strengthening and diversification of the economic base, improving the accessibility of urban areas and promoting social integration and welfare actions. Structural Fund programmes are also supporting environmental improvements, including efforts to strengthen urban eco-systems, and promoting and protecting cultural heritage accessibility of urban areas and promoting social integration and welfare actions. • Structural Fund programmes are also supporting environmental improvements, including efforts to strengthen urban eco-systems, and promoting and protecting cultural heritage

With reference to the weaknesses the picture looks more balanced. It appears to be easier to name specific weaknesses rather than strengths. Nearly all project statements reach the same explicit standard.

Table no 12: ESPON SWOT – identified weaknesses

Project	Weaknesses
1.1.1	• Overwhelming power and concentration of activities of few major urban regions in Europe. • Balancing between monocentrism and polycentrism varies at different scales. • Some countries (e.g. Finland, Estonia) have only minor population potential and low accessibility compared to others in central Europe. • Transnational and cross border co-operation is often characterized by a one-way relationship (development gaps between European urban regions). • No universal European definition of Functional urban areas.
1.1.2	• The economic system of rural areas, based to a large extent on its fabric of smaller and larger urban centers, is still hardly targeted by rural development policy. • Policies aimed at urban areas do not view cities and metropolitan areas as part of complex regional systems which include rural areas.
1.2.1	
1.2.2	• Significant territorial dimension to the deployment of new fixed wire technologies: rural areas more poorly served than metropolitan areas, especially with broadband services (DSL, cable modems). • General weakness of market-driven telecommunications networks from a territorial perspective: discrimination between metropolitan and rural areas in investment priorities because of critical masses, sophisticated consumers (in both business and domestic markets). • Rural and peripheral areas handicapped by being more expensive to serve, particularly for wire based networks.
2.1.1	• Socio-economic and technical macro trends, such as ageing of the population, shifting labour force participation and increases in labour productivity may have a much stronger impact on regional socio-economic development than different transport infrastructure scenarios. • Relatively large improvements in accessibility will translate into only relatively small increases in regional economic activity. • The greatest opportunity offered by the telecommunication policies is to realize the “information society for all”, which is one of the policy aim of the EU.
2.1.2	• Existing disparities in regional R&D performance. • Concentration of activity in a limited number of regions. • R&D performance in some regions dependent upon Government expenditure. • Focus of R&D activity often on metropolitan areas.
2.1.3	• Market imbalances, i.e. structural surpluses, resulting from the principal commodity regimes. • Associated budgetary pressures creating burdens on taxpayers, consumers and third countries. • Export subsidies undercutting and destabilising domestic production in developing countries. • Failure to support farm incomes (aim of ensuring a fair standard of living for farmers). • Concentrated support on larger farms and encourages farm amalgamation. • Discouragement for mixed farming. • Encouragement of intensification and associated damage to environment and landscape, but perhaps this would have happened as a result of technological change even in the absence of the CAP. • Perceived negative consequences for human health and animal welfare. • Bureaucratic and administrative burdens. • General lack of territorial character and focus.
2.2.3	• Continuing decline of urban areas dependent upon vulnerable economic sectors, owing to the continuing globalisation of trade. • Reduction in a skilled and available labour force owing to an ageing population profile and migration to more prosperous economies. • Changing patterns of business location decisions may reduce levels of inward investment to environmentally weak areas, whilst low levels of business start- ups will fail to invigorate the local economic base.

	• Potential cumulative gains made by stronger economic areas. • Economic growth may lead to urban sprawl unless it is controlled. • Economic growth may lead to increasing social and economic disparities if the benefits of this growth are not equally distributed. • The introduction of the Euro and the accession of new member states may weaken the position of already vulnerable urban economies as less competitive economic sectors are adversely affected by the reduction in barriers to trade.

As with the strengths, it seems that the description of opportunities is more difficult. Some projects got very detailed and explicit, others answer more defensive and reluctant.

Table no 13: ESPON SWOT – identified opportunities

Project	Opportunities
1.1.1	• To foster centers of competitiveness and development throughout the European area (Solidarity and European integration). • To invite public services to play a key role in boosting a number of major centers of development in Europe (European Competitiveness). • To ensure more coherent and efficient public service action (Cooperation). • No uniformity but differentiation in territorial circumstances and policy goals
1.1.2	• The urban-rural relationships can add a significant policy dimension to understanding the key territorial development issues and formulating effective policies to address them.
1.2.1	
1.2.2	• At the regional level, deployment of broadband networks offer significant opportunities for peripheral and less-favored regions to enhance integration with the core regions of Europe. • New wireless based technologies enabling rural areas to reduce the service-supply gap they suffer from.
2.1.1	• Implementation of the TEN will lead to a slightly less polarized distribution of accessibility and GDP among European regions. This slight cohesion effect of the TEN will, however, not be able to reverse the general trend towards economic polarization. • Although the effects of EU TEN policies may be modest in a relative sense, they can still be substantial and significant with respect to some relevant aspects or regions concerned. • There may be a risk of increasing polarization, due to the concentration of ICTs investments in central areas, attracting more mobile capital, instead of lowering disparities.
2.1.2	• Increasing focus on innovation and R&D promotion in policy debates. • Increasing importance attached to Regional Innovation Strategies. • Modern telecommunication technologies enabling the flow of knowledge throughout the European territory. • Increasing mobility of the workforce. • Increasing proportion of research institutions with commercial linkages. • Increased proportion of business activities based upon knowledge-based activities, with lower transport costs and reduced reliance on access to primary materials. • Increasing demand for higher skills and qualifications by business.
2.1.3	• The proposed shift from sectoral to territorial policies (ie. from Pillar 1 to Pillar 2 of the CAP) holds out the hope of eventually pursuing a more balanced and sustainable territorial development. • Further promotion of opportunities for farm households to earn off-farm incomes (pluriactivity) is likely to be a more effective and sustainable way of increasing the incomes of lower income farm households than continuing high levels of market price support or direct payments. • Modification of the details of implementation of the CAP could support economic and social cohesion by targeting support more effectively on lower-income farm households. • Prudent management of Europe's natural and cultural heritage requires agriculture to play an important role, both in maintaining valued landscapes and habitats through a mixture of agri-environmental schemes and cross-compliance regulations, as already recognized in Agenda 2000 and the MTR proposals, and through maintaining regional and local farming cultures in ways which have thus far received little attention.
2.2.3	• Increasing importance of the knowledge economy, focusing on products which have low transport costs reduce the effects of weak accessibility. This offers important opportunities for some urban

	areas, at the same time other urban areas can benefit from changing production patterns that reinforce the attractiveness of locations where production costs are relatively low. • Changing leisure patterns are increasing the number and value of tourism visits (importance of cultural heritage). • The introduction of the Euro and the accession of new member states are both anticipated to provide a fillip to economic growth. Those economies that have a strong export orientation may prove the strongest beneficiaries. • Environmental concerns have increased in profile over time. The policy environment is supportive of desires to promote compact cities and limit urban sprawl.

Also for the threats the picture is more balanced, the majority of the projects were able to give precise and significant statements, reaching nearly a common standard.

Table no 14: ESPON SWOT – identified threats

Project	Threats
1.1.1	• Polycentrism will remain an uncommunicative catchword. • If only capital regions are considered as "gateway cities" (e.g. in the accession countries) national structures will become increasingly monocentric. • When specialization (the explicit functional role of cities) is emphasized it certainly does not support an economic diversification strategy. • The weight of the urban system of the EU 15 is outweighing those of accession countries
1.1.2	• The current high concentration of immigrants in large metropolitan areas in Europe could set in motion the next phase of counter-urbanisation. This could change the core-periphery concept from a regional to a local phenomenon, indicating a deepened social polarisation characteristic to third world countries.
1.2.1	
1.2.2	• Rural areas persistently lagging behind metropolitan and urban areas in the level, quality and cost of telecommunications services. • Risk that rural areas are not only placed low-down on a roll-out queue, but may fall-off the queue altogether. • Emergence of 'islands' of broadband deployment with sufficient demand, if it fails to be adopted on an appreciable scale. • Possibly emergence of a new urban-rural divide, in which only lower level, non-communications intensive activities can be undertaken from rural areas.
2.1.1	• The slight cohesion effect of the TEN are only visible if cohesion indicators measuring relative differences between TEN scenarios are applied. If absolute differences are considered, the results are ambiguous or may even indicate divergence in accessibility and economic development. • There may be relative losses of some regions, which can lead to absolute losses in the increasing economic competition between regions in the long run.
2.1.2	• Continuing pressures for agglomeration and co-location of businesses (developing clusters). • Globalisation and competitive processes. • Development of isolated R&D capacity and infrastructure with no regional commercial linkages. • Centralisation tendencies owing to increasing costs of R&D. • Widening gaps in the accessibility of knowledge infrastructure due to EU-enlargement. • New technologies improving communications and supporting concentration of effort in a limited number of institutions. • Strong regions developing a reinforcing growth momentum.
2.1.3	• Radical liberalization of agricultural policy, encompassing the elimination of price support, quotas and other supply measures etc.; result: territorial specialization, with intensive agribusiness, and leisure areas on the other side. This may support competitiveness but run counter to the ESDP aims of balanced territorial development and economic and social cohesion. • Risk of unbalanced territorial development through pluriactivity unless policies are successfully deployed to address variations in the labour market opportunities between rural areas. The logic of capitalist accumulation and the colonisation of rural space by mobile capital is still likely to produce uneven development. • EU enlargement will greatly increase the numbers of farmers in the EU, leading to new surpluses

	and budgetary crises unless the CAP is reformed quickly. Strong pressures from our trading partners through the WTO negotiations. Another danger is that the new member states may oppose reform. • Partial renationalization of the CAP.
2.2.3	• Continuing decline of urban areas dependent upon vulnerable economic sectors, owing to the continuing globalisation of trade. • Reduction in a skilled and available labour force owing to an ageing population profile and migration to more prosperous economies. • Changing patterns of business location decisions may reduce levels of inward investment to environmentally weak areas, whilst low levels of business start- ups will fail to invigorate the local economic base. • Potential cumulative gains made by stronger economic areas. • Economic growth may lead to urban sprawl unless it is controlled. • Economic growth may lead to increasing social and economic disparities if the benefits of this growth are not equally distributed. • The introduction of the Euro and the accession of new member states may weaken the position of already vulnerable urban economies as less competitive economic sectors are adversely affected by the reduction in barriers to trade.

The identification of the main driving forces was also an exercise to be positively assessed. Altogether five projects managed to name those at this stage and were able to give a brief identification, some even with a short explanation of their choice.

Table no 15: ESPON SWOT – identification of the main driving forces

Project	Driving forces
1.1.1	1. "New regional development logic" including: interplay between various levels and recognition of role of cities in regional development. 2. Increasing specialisation and functional urban networking; interplay between competition and co-operation. 3. Development of transport networks. 4. Development of knowledge intensive functions and services.
1.1.2	
1.2.1	
1.2.2	1. Liberalisation, competition. 2. Deployment of new technologies. 3. National regulatory and support policies.
2.1.1	1. Technological change. Continuing innovation in transport and communications will lead to further reductions in transport cost and travel time and this will stimulate continued growth in travel and transport distances and the volume of goods shipped and person-km travelled and more greenhouse gas emissions, air pollution, traffic noise and other negative environmental impacts. 2. Globalisation. Increasing world-wide trade relations, exposure of regional economies to international/global competition, free exchange of capital, partial or total disappearance of physical, institutional, economic or cultural barriers, -> trend towards increasing spatial interaction, increased competition and growing polarisation between regions and cities. 3. European integration. The huge market potential of the accession countries is likely to trigger a new intensification of transport and travel between western and eastern Europe and a possible shift of economic activity to eastern Europe to take advantage of the still lower wages in the accession countries, which again is likely to lead to additional flows of goods and persons. 4. Differences in ICTs accessibility, and, mostly, in use; presence of national and local enabling factors.

2.1.2	Forces increasing participation rates in the Framework Programmes, influencing the proportion of Structural Funds directed towards R&D actions within regions and the type of activities promoted: 1. Changing patterns in the location of R&D intensive activities (commercial companies, research institutes) 2. New communication technologies, reducing distance constraints. 3. Increasing linkages between R&D institutions and firms
2.1.3	The driving forces dominating this thematic sector are: 1. Consumer concerns (not only environment, but also food safety, animal welfare); (possible indicators – environmental payments; specific regulations and designations.) 2. WTO talks; (possible indicator – producer subsidy equivalents (PSEs) as a measure of trade distortion.) 3. Budgetary costs (as well as the high prices paid by consumers); (indicators – CAP expenditure; and total transfers (CSEs) .) and Technological change (possible indicator – value added.). The regional consequences of these driving forces will therefore be modified by: Varying farm size and enterprise mix; Regional location in relation to labour market opportunities and urban markets; Regulation, and especially differentiated disbursement of CAP subsidies; Agronomic opportunities and soil, climatic and topographic constraints; Local cultures and traditions.
2.2.3	Very detailed explanation (several pages) divided into categories: 1. Economic drivers (Globalisation of trade, structural economic change, growth of the 'knowledge economy', inward investment trends, business location decisions). 2. Leisure and tourism drivers (increased leisure time, tourism). 3. Education and skills drivers. 4. Science and technology drivers (Information and Technology Communication Technologies, greater application of scienece and technology).Demographic drivers (ageing workforce, migration, sectoral trends, accession states and other border areas).

Concerning typologies it seems, that although most projects answered, not all of them have elaborated an own and specific typology so far, more or less the usage of existing typologies seems to dominate the field.

Table no 16: ESPON SWOT – identified typologies

Project	Typologies
1.1.1	1. Identification of all those FUAs that have more than 20 000 inhabitants in Europe. 2. Typology of FUAs is based on an analysis of the certain features and functions of FUAs, e.g. population, industrial or transport functions. 3. Different categories are utilised in typology G = global, E = European, N = national, R = regional, L = local. 4. Typology based on the above mentioned driving forces is applied (4 different driving forces, 3 different levels as strong, average and weak)
1.1.2	
1.2.1	
1.2.2	The three driving forces – see above – can each be dichotomized according to whether they are above or below the European (EU27) average. Combining these driving forces into a 2 x 2 x 2 matrix gives 8 possible classes, into which Europe's regions can then be classified: 1. High competition, high broadband availability, high universal service commitment 2. High competition, high broadband, low universal service 3. High competition, low broadband, high universal service 4. High competition, low broadband, low universal service 5. Low competition, high broadband, high universal service 6. Low competition, high broadband, low universal service 7. Low competition, low broadband, high universal service 8. Low competition, low broadband, low universal service

2.1.1	The main results of ESPON 2.1.1 will be forecasts of regional socio-economic development under the assumption of different European transport and telecommunications policy scenarios. By comparing these results with those of a do-nothing or business-as-usual scenario, the effects of the policies of interest can be isolated and regions can be classified with respect to their likelihood of being positively or negatively affected by European transport and telecommunications policies. - absolute/relative change compared to a base year, - absolute/relative change compared to the EU average, - absolute/relative difference compared to a do-nothing or business-as-usual scenario, Depending on the difference chosen, a region can be classified as a winner or a loser with respect to a certain policy. This has to be considered carefully, as in a certain policy scenario a peripheral region may gain in accessibility and GDP per capita in absolute and relative terms compared to its situation in the base year, but it may lose in relative terms as other more central regions gain more. It may even grow faster in relative terms than central regions but be still a loser as in absolute terms the central region gains more.
2.1.2	Typology will be developed at the NUTS 2 (NUTS 3 rarely available). Case study analysis work whether the NUTS 2 is appropriate. The foreseen typologies are: • R&D rich regions and R&D poor regions. Developed on the basis of the R&D contextual indicators identified in SIR. It will form the basis for the policy assessment to be made. Beyond a typology is based upon: • Knowledge producing regions – those with strong R&D performance and, potentially, a strong participation in the Framework Programmes. • Knowledge using regions – those with strong innovation characteristics, a high proportion of graduates in the labour force, potentially a net inflow of graduate labour and, potentially, strong performance in the Framework Programme (with lower involvement of Lead Partner organisations) • Knowledge poor regions – those that neither produce nor use knowledge on the above criteria. The role of Structural Fund programmes will also be considered within the analysis, identifying in which types of regions R&D actions appear strongest. This may lead to classifications such as 'aspiring' being added to the above typology.
2.1.3	At this stage, four territorial typologies are being considered by the project team: 1. Rural area typology. 2. Less-favoured areas (LFA) vs. non-LFAs. 3. Territorial typology based on predominant farm type in the region. 4. Territorial typology based on average size of holdings in a region.
2.2.3	1. Declining urban industrial areas. 2. Strengthening urban industrial areas. 3. Urban industrial areas in transformation to a service economy. 4. Urban areas exhibiting strong socio-economic disparities. 5. Urban areas exhibiting a balanced distribution of wealth and opportunity.

Reference to sustainability

All TPGs were asked to draw an intuitive picture of the characteristic of the three dimensions of sustainability. This procedure was chosen to overcome the well known difficulties in defining the different theoretical approaches towards sustainability as well as thresholds.

Of course this method can be critised as being too simplistic, because it provokes the danger of just covering the obvious differences that exist with the definition of sustainability. But on the other hand this easy to handle procedure is able to produce a multi thematic picture of sustainability. It implies certain aspects of the Delphi-method, because it is addressed to all TPGs, with all those institutions of excellence working in the ESPON programme, therefore a broad picture by experts is produced, which is later on reflected back to them. And because of the number of researchers participating in each TPG, it can be expected, that for the different approaches towards sustainability some common ground will be agreed upon.

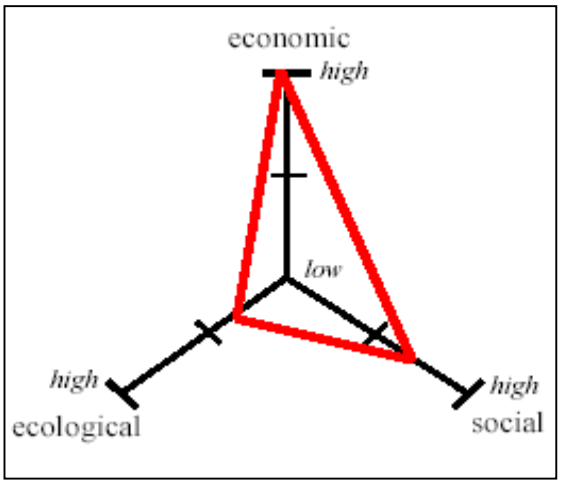
Once again, the TPG´s were asked:

Refer to sustainability and its economic, social and ecological dimension: Please give an intuitive assessment to what degree the spatial patterns in your sector comply with the three dimensions of sustainability.

So far only four of the projects dared to draw this picture.

Project 1.1.1:

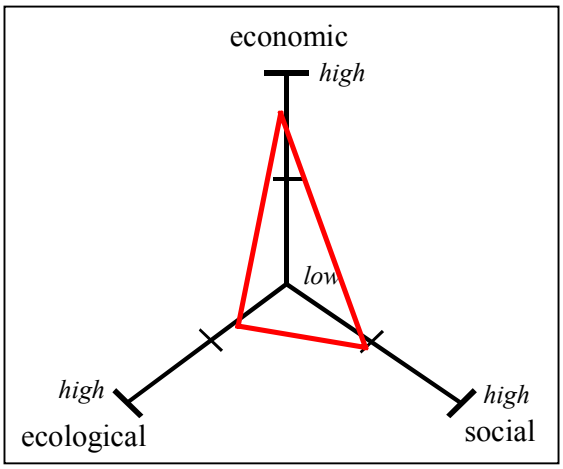
THE ROLE, SPECIFIC SITUATION AND POTENTIALS OF URBAN AREAS AS NODES IN A POLYCENTRIC DEVELOPMENT



For the project working on polycentrism, the magic triangle is characterized by a clear dominance of the economic sector. The social perspective scores well above the middle and ecology is half way to low.

Project 2.1.1:

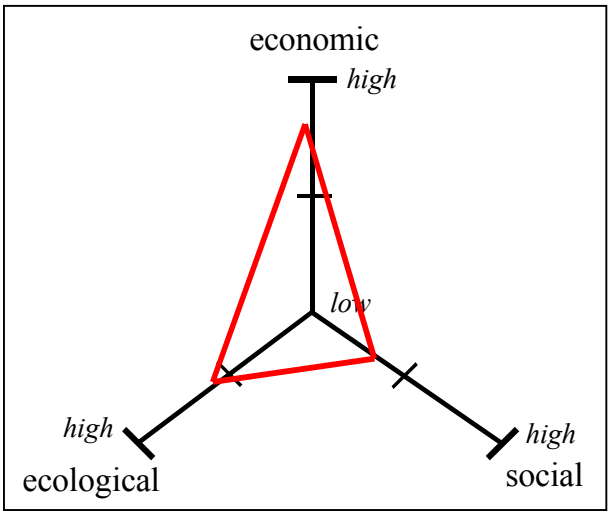
TERRITORIAL IMPACT OF EU TRANSPORT AND TEN POLICIES



The picture of the policy of TEN project looks similar to the one which 1.1.1 has presented, also the economy is dominating the other two sectors. The social dimension is situated at the middle of the scale. The ecologic dimension is scoring beyond the middle of the scale in the magic triangle of sustainability.

Project 2.1.2:

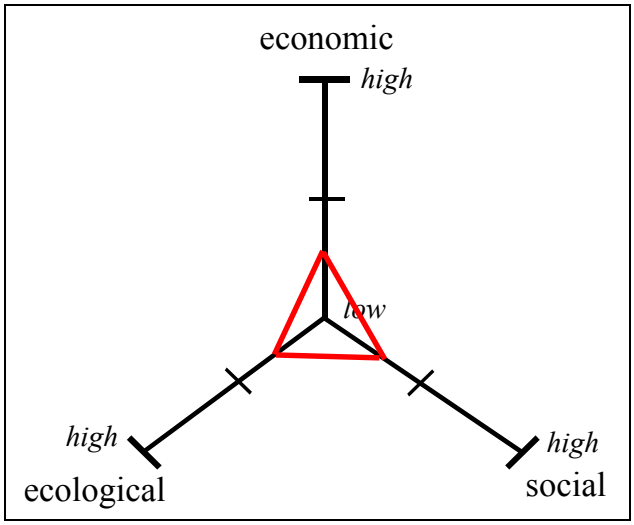
TERRITORIAL IMPACT OF EU RESEARCH AND DEVELOPMENT POLICY



In the R & D sector it seems that the dimensions ecology and economy are more balanced than in the other sectors, both score above the average and only the social dimension seems to be left some steps behind.

Project 2.1.3:

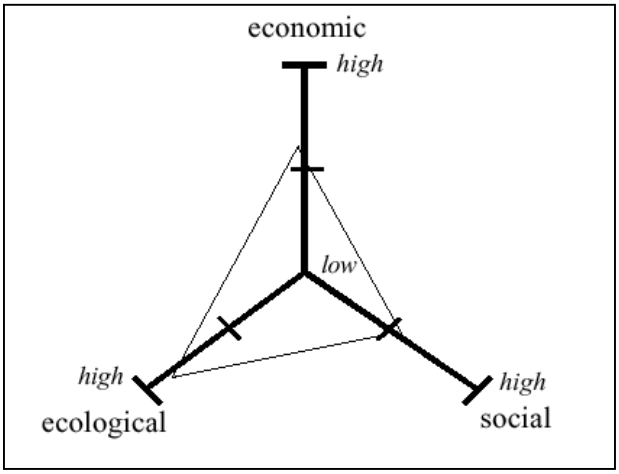
THE TERRITORIAL IMPACT OF CAP AND RURAL DEVELOPMENT POLICY



The TGP is drawing a rather disastrous picture for CAP and Rural Development Policy. Each dimension of sustainability – either economic, ecological or social - is scoring only low.

Project 2.2.3:

TERRITORIAL EFFECTS OF STRUCTURAL FUNDS IN URBAN AREAS



The 2.2.3 project is the only one that sees ecology ahead of the other two dimensions. They also added a table with positive and negative aspects of the three dimensions.

	Positive	**Negative**
Economic	- More balanced economic structure across EU - Improvements to competitiveness of EU by increasing overall levels of productivity - Improved levels of income and wealth creation	
Environmental	- Reclamation of derelict land - improvement of environmental quality	- may encourage greater transport movements (freight, business and longer commuting journeys) - Economic growth can encourage urban sprawl and congestion
Social	- Improved levels of social inclusion - Increased skills leading to higher incomes - Reduction in under and unemployment leading to higher incoming levels	- Disparities may increase - Unemployment may increase as a result of productivity increases

Altogether these pictures draw an interesting, cross- thematic picture of the situation of sustainable development in Europe. The first impression so far, leads to the conclusion, that for the majority of themes, economy is well ahead of the other two dimensions. The last two pictures come as a surprise: ecology ahead of

the other two dimensions is rare too see and an overall low score for all dimensions is something that one would not expect either.
The projects should keep in mind that this intuitive picture should show the status-quo in their thematic field, not a possible and desirable future, nor a (normative, trend or negative) future scenario.

4.4 Conclusions / Further process / Outlook

As already mentioned in the beginning, we provided a first tentative overview over the incoming SWOTs. Therefore elaborated statements about the quality of the received answers will be provided not within this report, but in the near future.
Right now some more formal remarks can be made at this state of progress:

- In order to achieve integrated results it is utmost importance that all projects make use of the questionnaire provided. Although project 3.1 is examining the complete reports of all TPGs, the drafters of 3.1. rely on the systematic answering of the questions in order to be able to produce the integrated results required for the ESPON as a whole. In addition due to the very short periods of time between the delivery of the TPGs reports and the preparation of the own interim report, 3.1 is not able to give a proper and quick feedback, if the form is not used.
- There is also a formal requirement that asks for the usage of the questionnaires. Only this very structured form, allows to extract comparable answers. To structure the whole report according to the SWOT analysis means, that 3.1 has to extract the main statements for each question, this might lead to dangerous misinterpretations.
- It is also obligatory that the TPGs stick to the questions as close as possible. This is very relevant for the level of detail of the answers. We all are aware that there is a conflict between the poles: scientific precision on the one hand and over simplification of complex interrelations on the other, a brief but not too excessive form of answers is much appreciated in order to receive applicable result which can be communicated.
- Project 3.1 asks all TPGs, to give a complete feedback every time. That means, even if some questions have already been answered, and a revision is not foreseen, please repeat the inputs in the form of the SWOT questionnaire. It should be clearly noted if an answer can not be given. This procedure reduces the danger of ignoring new or modified inputs.

Project 3.1 is asking all TPGs to take notice of all the different SWOT results, especially the answers provided by the other TPGs in order to get to more comparable and comprehensive results in future.
As already stated, all inputs can be revised in the next report, which takes into account that the TPGs of course have not yet completed their specific research work in their fields. Conclusions might be subject to change while the process proceeds.
Also fresh inputs can be handed over at any time, although the deadlines of the latest contribution is set by the ESPON time schedule, earlier additions are of course appreciated. This is helpful especially for the missing or incomplete parts of the SWOTs delivered .
Project 3.1 will give a first detailed examination of the single SWOTs latest for the ESPON TIR. So for the TIR elaborated inputs from the majority of the TPGs would be very helpful.

4.5 Next steps

The next steps to be taken by 3.1 will include an in depth analysis of the SWOT inputs of the TPGs. The aim is too bring out a cross thematic view, that shows the interdependencies between the different themes, and the spatial effects.
So the ambitious aim is to answer questions such as:

"Are the effects of the theme A positive for the all over polycentric development in Europe?"

"Are the effects of the theme A positive for the sustainable development of Europe?"

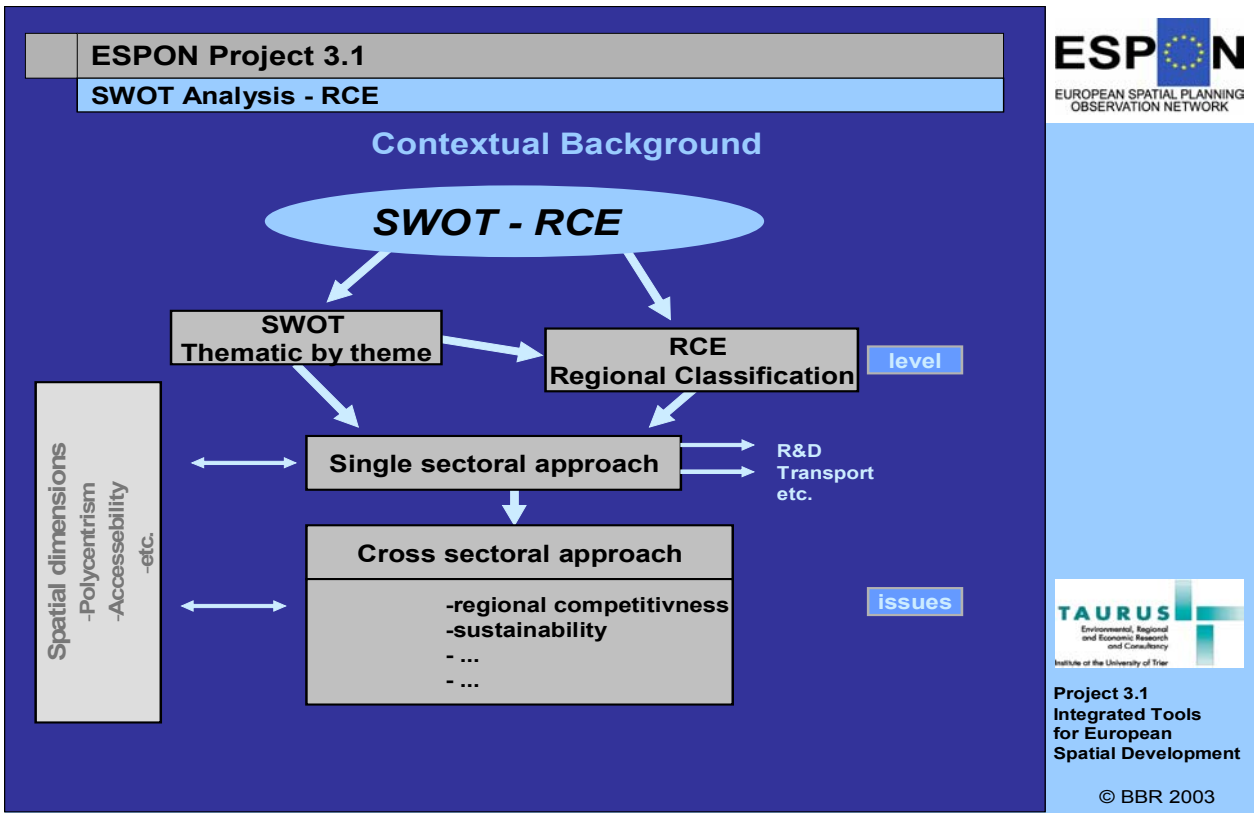
"Are the strengths of the B sector weakening the strengths of sector D?"

"Are there some key driving forces, that may propel more than one sector in Europe?"

..

Nevertheless the format of the result of this evaluation should be brief, easy to handle, comprehensive and also an extra value to all ESPON TPGs.
The following sketch is trying to highlight what the process is all about and how the different aspects come in:

Figure no 10: SWOT-Analysis - RCE



It is visible, that 3.1 is trying to transform the multitude of incoming single sectoral approaches into a cross sectoral approach. Also the different important spatial policies should be cross checked.

- **ESPON 3.1 wants to thank all the TPGs for their SWOT input so far.**
- **ESPON 3.1 is trying to give a first glance of the expected process within the meeting on Crete and is hoping for a vital and creative discussion.**
- **ESPON 3.1 will give a concrete and brief feedback to each project about their SWOT after the meeting in Crete.**

5 Territorial Impact Analysis

5.1 Picking up at FIR

In the FIR (concerning the issue TIA) first of all the meaning of the term TIA in the ESPON context had to be clarified, due to the fact that the planning tool TIA up to then had been used only at the project level. After discussing the main differences the recommendation was, when applying the impact approach at the level of programmes and policies, the acronym should be considered standing for Territorial Impact *Analysis* (in order to avoid the misunderstanding of pleading for the introduction of a new formal procedure). As a first step in order to make the methodological approaches of the different policy impact projects comparable a draft set of minimum requirements was developed against which the FIRs of the policy impact projects have been analysed. A summarising final table (presented at the corresponding working group at the ESPON Seminar of Mondorf) compared the projects concerned by seven major features due to TIA. The conclusion out of that exercise has been:

"It is obvious that the descriptions of the approaches under measure 2 show a considerable variety of features which seems to be caused more or less already by the different nature of the subject matter. Even this first review is confirming at the same time that it seems hardly imaginable to cover the whole range of sectoral EU policy issues by one assessment methodology. The conditions for such a "general model" are lacking at least due to two reasons:

- the very different character of the spatial dimension and implications of the policy areas concerned (in particular the different assignment to spatial goals) and
- the rather different theoretical state of the art in the different areas of applied research and planning.

Therefore, for the time being efforts should go rather towards achieving more transparency of description of the individual approach along minimum standards of methodological information and using a common non-confusing terminology."

5.2 Results SIR

Consequently the next step has been the ´Guidance for Policy Impact Projects concerning TIA minimum requirements´ which was sent to the LPs of the measure 2 projects requesting to follow these "TIA-terms of references" by describing the methodological approach of their impact studies.

5.2.1 Guidance for Policy Impact Projects concerning 'TIA minimum requirements'

Preface
This advice goes along with the objective of the ESPON Project 3.1 of offering technical and analytical support and co-ordination concerning concepts and methodologies used by the ongoing projects. In particular it aims in particular at summarising and evaluating intermediate and final results of the projects under priority 1 and 2 from a technical and scientific point of view, in order to support integrated results of the ESPON 2006 Programme.

The task description of the project ´3.1 Integrated tools for the European spatial development´ (in the ESPON programme) goes far beyond that when demanding "territorial impact *assessment* in terms of defining a concept which can be used for the measurement of Community and national sectoral policies and of major infrastructure projects."

Based on a very first check (see Table 11 "Review of major features due to TIA designated by the First Interim Reports of Measure 2- projects" in the FIR of 3.1)[19], it has been stated very clearly also during the Mondorf-Seminar that this must not be interpreted as one single methodology for all kinds of impacting measures in all the policy areas concerned and at different levels. However, in order to pursue the objective mentioned in the first para it is necessary to shape the outcomes of the (Priority 2) Impact studies along a common perception. The guidance is considered to be the tool for that.

Technical advice:
The table below is considered to be part of the 3.1 Second Interim Report. We tried to fill it as far as possible by using the First Interim Reports of Measure 2-projects (incl. *notes*). You are requested to complete or to amend it, take it as a draft.

Furthermore we would like to ask you to follow these "TIA-terms of references" by describing methodological approach of your impact studies. The description should be as brief as possible (the text should not exceed 20 lines per question). As the case may be, please explain why an answer cannot be given (yet) and give an outlook for completion.

Preliminary requirement
Any kind of territorial impact assessment is facing the basic methodological dilemma that the effects of the selected impacting kind of measure (instrument) – the examination usually has to deal with a few or even one single – cannot or can only roughly be separated from the effects of other kind of measures influencing the complex spatial structures.
There seems to be no sound way to get out of this problem under the conditions of the ESPON Impact studies. However, to give some idea of the significance / weight of this

[19] First Interim Report of the TPG 3.1, Table 11, p. 137, available at www.espon.lu

problem, there should be given at least some qualitative appraisal of the weight of the measure(s dealt with) in comparison to an assumed totality of policy interventions with spatial impacts (national/regional subsidising, other policy areas etc.).

Scoping

(1) What is causing the impacts?

definition of the policy intervention(s) concerned: registered input dimension

e.g. EIB grants for rail network element development

R&D support grant

direct income payment for farmers

ERDF expenditures co-financing government aids or public investments

➨ *Min: designation of policy intervention(s) actually recorded (assignable to EU budget lines)*

(2) What is changed by the intervention(s)?

subject(s) effected, basis: hypothesis concerning cause-effect-relations (with, of course, varying empirical proof),

e.g. economic growth caused by improved accessibility,
increased innovation capacity by new R&D jobs,
lower unemployment by subsidising farms,
increasing GDP per capita by ERDF expenditures

➨ *Min: designation of hypothesis concerning cause-effect-relations,*

(3) Which territorial level of observation?

geographic reference: territories concerned (intervention/effect) territorial level(s) of observation, covering all, or selection (by what criteria),

e.g. NUTS 5, 4, 3, 2 regions
types of regions

➨ *Min: at least NUTS 2 regions*

(4) What has happened, what may happen in future?

temporal reference (trends, scenarios) of gathered causes and effects

e.g. the reference to changes, trends and developments actually happened in the recent years is of crucial importance for the political perception of the results

➨ *Min: reference to past <u>and</u> future periods*

Analysing

(5) What output is registered, measured, appraised?

topic of calculation:

e.g. relationship development investment amount – accessibility changes,
R&D expenditures – employment growth,
indirect payments – changes of average farm income,
ERDF expenditures – increasing GDP per capita

➨ *Min: designation of the topic of calculation*

(6) What is the topic described, by which indicators?

type of indicators selected

e.g. statistical variables
survey data
qualitative appraisals

➨ *Min: qualitative appraisals*

(7) Which goals are referred to?

criteria for examination:
derived from objectives, goals, concepts in official documents

e.g. territorial cohesion – balanced territorial development
sustainable development
balanced development
polycentric development
connectedness and accessibility
clearance of overloaded corridors
overcoming socio-economic disparities
improving or hampering natural and cultural assets

➨ *Min: designation of the goals facing (if so: derived from ...)*

(8) How is the analysis performed?

technique of analysis

e.g. correlation analysis
simulation model
case studies to test hypotheses
classifying regions

➨ *Min: designation of the technique of analysis*

Concluding

(9) What is the concept applied of "territorial"?

used definition of ´territorial´

e.g. convergence – divergence of regions
reference to cohesion, competitiveness
according to which spatial model?
effected type(s) of regions
territorial features

➨ *Min: designation of (assumed) meaning of ´territorial´ (if so: derived from ...)*

(10) What do the results look like?

general format of outcome: statements (figures, significant results)

e.g. covering the whole territory (all regions)
typology of regions
mapped results
(based on quantitative and/or qualitative categories)

➨ *Min: one outcome for each region (whole territory), mapped results*

Table no 17: Table: Review of major features due to TIA designated by the First Interim Report of Priority 2-projects

	2.1.1 Transport & TEN policies	**2.1.2 R&D policy**	**2.1.3 CAP & Rural policy**	**2.2.3 SF in urban areas**	***Minimum requirements***
SCOPING					
(1) Policy interventions concerned ➢ *What is causing impacts?*	EU transport and TEN policies *What kind of measures exactly? (see guidance)*	R&D grants of EU and on national level, other R&D oriented policies - EU RTD Funds (eg FP4 and FP5; Article 10, article 2) - RTD expenditures (% of regional GDP)	- market price support - direct income payments associated with agri-environmental schemes, - rural development schemes - all other types of CAP-related payments to farmers.	Structural Funds *What kind of measures exactly? (see guidance)*	*Designation of policy intervention(s) actually recorded (assignable to EU budget lines)*
(2) Subject(s) effected ➢ *What is changed by the intervention(s)?*	Economic/social performance correlated to accessibility of regions	Regional capacity to produce and absorb knowledge (innovation capacity)	Farm structures Unintended side effects with significant territorial dimension	Urban areas	*Designation of hypothesis concerning cause-effect relations*
(3) geographic reference ➢ *Which territorial level of observation*	Assignment to NUTS 3	NUTS 0, selected NUTS 2/3	NUTS 3 Selected rural areas	NUTS 3 Selected urban areas	*At least Nuts 2 regions*
(4) Temporal reference ➢ *What has*	Modelling future options Lacking reference to	Producing knowledge about functioning of system No reference	Analysis of present system Marginal reference to	*Lacking designation of reference to actual programme*	*Reference to past and future periods*

	2.1.1 Transport & TEN policies	2.1.2 R&D policy	2.1.3 CAP & Rural policy	2.2.3 SF in urban areas	*Minimum requirements*
happened, what may happen in future? ➢	actually implemented policies	to future options	proposals for changes within CAP	*implementation* *No reference to future options*	
ANALYSING					
(5) Topic of calculation ➢ What output is registered, measured, appraised?	Regional convergence vs. divergence of employment and income growth Relocation of productive and residential activities	Relationship between framework conditions and innovation capacity Relationship between R&D input and regional performance (results and impacts)	Farm structure Agricultural structure Spatial components (territorial incidence) of CAP and RDP	Pan-European typology of urban areas where policy interventions are occuring (macro scale) Critical factors influencing the territorial effects of SF in urban areas (meso level)	*Designation of the topic of calculation*
(6) Type of indicators selected ➢ *What is the topic described, by which indicators?*	Cohesion indicators showing disparities concerning economy, population and labour market	Inputs Outputs Framework conditions (geography, ec. performance, ec. structure, institutional split)	Inputs/preconditions Processes Outcomes (socio-economic, environmental impacts)	Indicators classifying the territorial dimension of urban areas	*Qualitative appraisals*
(7) Criteria for examination ➢ *Which goals are referred to?*	Polycentric connectedness and overloaded corridors	No goals referred to	Cohesion objectives	Polycentric development	*Designation of goals facing (if so: derived from...)*
(8) Technique of analysis ➢ *How is the analysis performed?*	Simulation model Classifying regions	Hypotheses tested by case studies	Hypotheses tested by case studies	Hypotheses tested by case studies Classifying regions	*Designation of the technique of analysis*
CONCLUDING					
(9) Definition of		- spatial pattern of direct			*Designation of*

	2.1.1 Transport & TEN policies	2.1.2 R&D policy	2.1.3 CAP & Rural policy	2.2.3 SF in urban areas	*Minimum requirements*
'territorial' ➢ What is the concept applied of 'territorial'?		R&D policy - spatially orientated (indirect) policies with a focus on R&D - spatial pattern of R&D activity - spatial clusters of private and/or public R&D activity - spatial patterns of the results of R&D - spatial patterns of the interrelationships, "flows" - relation to spatial patterns and typologies - Impact on spatial development instead of "pure" economic development			*(assumed) meaning of 'territorial' (if so: derived from...)*
(10) Format of outcome ➢ *What do the results look like?*	Typology of (all) regions	Single types of regions	Single types of regions	Typology of (all) regions Single types of urban areas	*One outcome for each region (whole territory), mapped results*

5.2.2 Reviewing the projects´ profiles concerning TIA

The task within the SIR is to review the methodological explanations of the available SIRs of the policy impact projects according this more developed set of minimum requirements.

The TPG 2.1.1Territorial Impacts of EU Transport and TEN Policies

The SIR does mention the 3.1 Guidance Paper concerning TIA minimum requirements indeed only referring directly to the last item concerning typologies (10). Apart from this exception the explanations follow and extend the outline of the FIR on the methodological issue. Thus, the toolbox encompasses three models based on a Causality analysis.

The SASI model explains locational structures and locational change in Europe in combined time-series/cross-section regressions, with accessibility indicators being a subset of a range of explanatory variables. The SASI model differs from other approaches to model the impacts of transport on regional development by modelling not only production but also population, which makes it possible to model regional unemployment. However, the model generates distributive, not generative effects of transport cost reductions, and it does not produce regional welfare assessments fitting into the framework of cost-benefit analysis.

In the STIMA model the impact of ICTs policies on regional development is analysed, measured by per capita regional income level and per capita regional income growth, and on regional disparities, measured by the differences in income levels among regions, before and after the policies' execution. These methodologies do not require a specific territorial disaggregation level of the data, so they can be tested at more aggregated territorial levels of analysis. The main aim of this methodology is to describe the relationship which exists between ICTs endowment and regional development, and to provide a typology of territorial impacts.

The focus of the CGEurope model is on evaluating the welfare change of regional households as measured by the household's utility by comparing cases "with" and "without", leaving everything else unchanged. Hence the approach does not allow

for long-term predictions of locational change. It studies welfare gains and losses given the spatial distribution of factors of production.

These models will produce forecasts of regional socio-economic development (NUTS III) under the assumption of different European transport and telecommunications policy scenarios.

Concerning the assessment of the forecasting results the SIR refers to the “main concepts“ “polycentrality“ measured in the three dimensions size, morphology and connectivity, “Polycentric connectivity and overloaded corridors“[20], “Cohesion measurement“ and “Efficiency versus Equity“. As a central means for assessment (and referring to the request by the ´Guidance paper´) a number of typologies is proposed:

- a typology of urban regions
- a typology of rural regions
- a typology of central v. peripheral regions
- a typology of coastal regions
- a typology of mountainous regions
- a typology of border regions
- a typology of Interreg IIIA regions
- a typology of Interreg IIIB regions
- a typology of Objective 1 regions
- a typology of regions threatened by natural hazards

It is comparably significant that the SIR also shows several hypotheses about the territorial impact of EU TEN Policies. In the specific context it is not necessary to deal here with it. However, focusing on the issue of TIA methodology it may be proved as an effective benchmark when aiming at certain kinds of results.

In summary, it is noticeable that the methodology offered, is based on already established highly sophisticated and aggregated models, producing considerably complex results. However, there seems a main dimension lacking probably to be considered crucial regarding policy relevance. Some of the hypotheses mentioned above refer, of course, to the transport policy level, although on a rather high level

[20] however, the SIR states that no results to this topic can be offered

of aggregation resp. abstraction appropriate to the European scale. It seems rather difficult to recognise how transport network and service investments projects at national and regional scale (to which most of the EU Transport and TEN policy decisions refer) should correspond to it. It has to be taken into account that – different from CAP/RP and R&D policy as well as from Structural Funds programmes – political decisions in the Transport & TEN policy area 'reach down' to the level of single linkages, nodes or even projects (bridges, tunnels). In this respect, improvement of accessibility without reference to the responsible political actors and topical measures seems to be a too abstract 'approach' to the policy level or in other words rather far from the perspective of policy requirements.

Assuming, that the methodological basis of the analysis is already highly determined and that the next step is without question the application and implementation of these tools no fundamental change of this diagnosis is to expect for the next interim report.

The TPG 2.1.2 The Territorial Impact of EU Research and Development Policy

In the chapter "Presentation of methods for TIA" the SIR refers directly to the 3.1 Guidance paper concerning TIA minimum requirements. As causing impacts are considered the actions undertaken through the R&D Framework Programmes and those actions aimed at improving R&D capacity undertaken through the Structural Funds.

The input indicators, based on activity undertaken through these two elements, are set against a range of context indicators. These context indicators relate to R&D capacity, educational qualifications and broader regional performance indicators.

This may relate to the number of researchers involved in R&D, the scale of the research infrastructure available, the number of partnership arrangements established and so forth. The intent would be that these outputs contribute to a strengthening of the regional R&D base. The principle effects that the study is drawing upon is the coincidence of inputs with regional context, coupled with movements over time where this is identifiable.

The territorial level of observation is in principle NUTS 2, although in some instances NUTS 1 data is all that is available. Where this is the case national assessments will explore whether further disaggregation is feasible.

The temporal scale for the study is primarily backwards looking, building an assessment of what the territorial effects of EU R&D policy have been to date. In this respect examination will primarily go for the period 1994-2006. The study will then take a forward view of what territorial effects might be anticipated if current policies are rolled forward, based upon identified regional trends.

Since the scale of EU R&D expenditure is marginal in comparison to the regional effects of national policies, it is unlikely to secure significant visible territorial effects, such as increases in the number of personnel employed in R&D activities. The outputs measured will be in terms of firms involved in the Framework Programmes and associated values. The main variables measured will be input variables, as the study is not an evaluation of the achievements of EU R&D policy. Qualitative assessments of the territorial effects of R&D policy within the national case studies will be made and quantitative effects identified where available.

The indicators selected are representing context and input. Sample analysis and qualitative appraisal will be used to assess the territorial reach of EU R&D policies. Survey analysis was considered but experience of previous research in this area (notably that undertaken for the CPMR) suggests that return rates are very low.

The criteria for examination include the following political goals and orientations:

- balanced territorial development (supporting concentration of activities or a
- decentralisation at macro, meso and or micro level)
- promotion of polycentric development patterns
- promoting the competitiveness of the European Research Area

The analysis will be performed through aggregate statistical analysis coupled with a qualitative assessment of the reach of EU R&D policy activities as promoted within case study regions.

The territorial concept applied is one of 'islands of R&D' and polycentric development patterns. The territory is assumed to be the region (NUTS 2), although urban centres will also be considered as a potential territorial dimension. This will be explored in the context of the national case studies. The territorial dimension will also be explored in the context of the typology of regions, particularly exploration of concepts such as knowledge-producers and knowledge-users. Regions may of course be neither.

The general format of outcome will be in the form of a typology of regions and mapped results. In addition there will be a strong evidence-based narrative exploring the territorial dimension of EU R&D policy, at the EU and regional scales.

In summary, it is noticeable that the information to be expected by this study is more about the territorial (regional) incidence of the EU R&D policy area (input side) rather than about their territorial impacts (caused by their outputs).

The TPG 2.1.3 The Territorial Impact of CAP and Rural development Policy

The SIR does not refer to the 3.1 Guidance Paper concerning TIA minimum requirements. It may be useful in this context to draw the attention to the general diagnosis of the SIR that the historical (and current) structure of the CAP/RDP and its instruments are largely non-territorial in nature. The major regional CAP designations – the Less Favoured Areas – have arguably been drawn at a too broad level to be regarded as territorially targeted, and the amounts of extra funding attracted by LFA status are not large compared to the major expenditures and effects of the direct payments and other market-wide support measures.

Many other rural development measures within CAP – with some exceptions – are similarly non-territorial in character. Thus nearly the whole of the CAP is operated separately from cohesion policy, with which it fits only 'accidentally'. At territorial (sub- national) level, this is even more true.

In the chapter “Presentation of methods for TIA“ two types of hypotheses concerning the cause-effect relations are distinguished:

- the one with an obvious relation: that is the regional distribution of income (and thus regional economic) effects only based on the agricultural and rural development subsidies (independent of the related specific agricultural, environmental and/or rural development measures), they have not to be proved in general, although the question of the amount remains open for analysis
- the other which, depending on the different support measures, might have a general or specific regional effect but need to be proved.

Whereas the above type of cause-effect relationship definitively exists, testing the second type of hypothesis requires different methods.

Hypothetical cause–effect-relations have to be proved by using a mix of different quantitative and qualitative methods including, for example:

1. Statistical methods.
2. Proving and backing by literature (findings of previous relevant research studies).
3. Empirical modelling of the effects of CAP interventions of farm behaviour and farm structures, based on standard economic theoretical approaches.
4. Different types of ‘traditional’ context related case-studies used on the one hand to prove cause cause-effect-chains in more detail which might already be statistically tested or not and, on the other hand to detect new relevant hypothesises to be proved later on.

Whatever method is used, it is acknowledged that significant effects are not caused by CAP/RDP measures alone. Each cause-effect relation has carefully to be validated by cross-checking searching for rival explanatory variables etc. using different case-study methods.

Taking into account the extreme time-pressure to deliver first results for the next Cohesion Report, priority will be given to quantitative methods to find significant statistical correlation’s between the input in terms of CAP/RDP measures and expected regional impacts. This means that only the ‘entrance’ and the ‘exit’ of the cause-effect-chain is compared assuming that the intermediate cause-effect

relations are valid although empirical proving only can be done within the case-studies scheduled for the second year.

The analysis of the territorial impacts of policies requires also a grid of the regions analysed in the form of one or more territorial typologies. Such typologies will provide not only a structured basis on which to analyse regional results but also a meaningful basis for interpretation and further investigation of territorial differences. In particular, the typologies will provide an important criterion for the selection of both area and commodity case studies, to be carried later on.

At this stage, four territorial typologies are being considered:

- A rural area typology (OECD rural typology)
- A typology based on LFA status
- A territorial typology based on predominant farm type in the region
- A territorial typology based on average size of holdings in a region

It is comparably significant that the SIR also shows several hypotheses about the territorial impact of the policy area concerned. In principle, similar to 2.1.1 (TEN and Transport Policy), 2.1.3 (CAP/RD) considers the impact analysis launching from the “Objectives against which the territorial hypothesis will be tested” (see Table 3.1, p. 48 in the SIR). However, very little of the CAP/RDP is specified in a way related to settlement patterns. Thus, it cannot be expected that these policies will assist in polycentric development, except insofar as it provides support for economic activities much more geographically dispersed than those located mainly in the core area of the EU.

In summary, it is noticeable that the approach is a purely ex-post perspective and the information to be expected is more about the territorial (regional) incidence of the CAP/RDP policy area (input side) rather than about its territorial impacts (caused by their outputs). Also it strikes that there are no goals referred to.

The TPG 2.1.4 Territorial Trends of Energy Services and Networks and Territorial Impact of EU Energy Policy Funds (First Interim Report!)

The FIR (the project has been started later) does not refer to the 3.1 Guidance Paper concerning TIA minimum requirements. Some methodological aspects of interest in the TIA context are discussed. Under the heading “Defining a regional typology”.

Pertinent regional typologies, particularly those relevant to Structural Fund eligibility,
will be a reference of the analysis. The proposed regional typology should also enable the identification of (i) economically dynamic and energy efficient regions, (ii) regions where energy is a bottleneck impeding development, (iii) regions with a strong potential for alternative energies, or (iv) regions that are more influenced (either positively or negatively) by energy trends. This typology will also take stock of territorial dynamics, particularly with regard to the question of polycentric dimension of territorial development. To this effect, this regional typology will result from crossing at least three dimensions, i.e. spatial organisation, economic dynamics and energy.

The indicators should – taking into account the current situation and evolution of regions – concern the spatial organisation, the regional economy and the energy dimension.

NUTS 2 will be the reference of this typology. It should combine data processing methods with qualitative considerations, namely to consider energy interdependence among different regions. The resulting typologies will be key tools for the assessment of energy territorial impact, in the sense that they will put in evidence the spatial relations between the different dimensions of underlying spatial data. The mapping of urban structures, economic dynamics and energy indicators will help clarify the impacts of energy on regional development.

Energy is easily transportable and – both at world wide as at European level or national level - the norm is a non spatial coincidence between energy production and energy consumption. So, referring to Europe, it will be difficult to establish, nowadays, a cause-effect relationship between energy and territorial development.

Data on European countries seems not to show any significant relation between development level, energy prices or energy intensity. It seems that energy supply reacts to energy demand and that the impact of energy could not be clarified through the mere analysis of regional statistical relations between energy and economic structure and economic development.

Assessing territorial impact of energy means to answer three different questions:

a) what are the European spaces that win or loose in consequence of structural transformations in energy sector induced by Community policies (European scale)?
b) how energy impacts on spatial organisation of people and activities at an urban, regional and national level (regional/national scale)?
c) what are the opportunities open to remote areas resulting from the trends identified in community energy policies.

The answer to these questions points to a methodology that combines the following
steps:

a) Comprehensive and global analysis of the territorial impact

As a hypothesis to be tested a relationship among the following five “blocks” is assumed:

- energy supply
- quality and type of service
- environment
- economy
- household
- energy policy on household’s well-being

b) Energy and spatial organisation

Given the unclear feedback relation between energy and development, energy impacts on territory can be clarified only by well suited case studies concerning controlled situations. Five case studies from the European Space will be selected

for an in-depth analysis of impacts resulting from change occurred at three levels, i.e. (i) changed market organisation, (ii) interconnection of the Trans -European Networks, and (iii) reduction of energy prices.

c) Opportunities to remote areas

Market liberalisation, introduction of new forms of energy and the emphasis on the development of renewable energies impact differently on remote rural areas. There is a risk for these regions becoming even less attractive in what concerns energy. But, in the opposite sense, they have clear possibilities for the development of alternative energies. To clarify the prospects of these regions, it is proposed to select 6 remote regions, including insular regions, and to conduct for each of them a SWOT analysis, supported on interviews to key players in the energy and regional development field, relating to energy trends in Europe.

In summary, it is noticeable that the FIR states very clearly that it will be difficult to establish a cause-effect relationship between energy and territorial development. Behind that, the responsible easy transportability and non-coincidence of production and consumption are more crucial than the relative big scale (NUTS 2) of analysis and the missing reference to spatial concepts and goals.

The TPG 2.2.1 Territorial Effects of Structural Funds (First Interim Report!)
The FIR (the project has been started later) replies precisely to the 3.1 Guidance Paper concerning TIA minimum requirements.

Concerning causing impacts not only EU-funding and matching national co-funding is taken up but also attention will be paid to national policies and the influence of Structural Funds policy on national and regional organisation and policy formulation.

The question of what has been changed by the intervention is reported of being part of the final outcome of the project, as well as the questions of the reference to past and future and the question of the output registered. The baseline for this discussion is the spending of Structural Fund money mapped at the regional level. First hypotheses will be presented in the SIR.

The intention is to collect data at the lowest geographical level possible. For the overall European analysis it is anticipated that this will predominantly take place at NUTS III level, in certain cases it may turn out that NUTS II must be accepted.
For the analysis of hotspots and cold spots, however, more detailed data will be needed.

The basic approach consists of mapping Structural Funds spending at the regional level and comparing this to various maps on spatial development also at the regional level. Based on this, an initial typology of regions shall be developed. In a second step the causality between Structural Fund spending and spatial development shall be investigated by means of a number of case studies.

The concept of territory applied is considered as a cross-sectoral approach to space.

The results anticipated are:

- A typology of key facts regarding regional development and Structural Funds investments
- A typology of the national and European policy influences on territorial cohesion
- An overview of the territorial effects of the Structural Funds in the future territory of the EU
- Policy recommendations as a basis for the future of the Structural Funds, including thematic recommendations and recommendations on institutional settings and instruments.

In summary, since in this case only the First Interim Report is available, it seems to soon for more specific information. This is to make up in particular concerning the issues ´hypothesis on cause-effect-relations´ and ´interventions/effects registered´.

The TPG 2.2.3 Territorial Effects of the Structural Funds in Urban Areas

In the chapter “Presentation of the methods for TIA” the SIR refers directly to the 3.1 Guidance paper concerning TIA minimum requirements. The policy interventions concerned are those supported through the ERDF and ESF and which are undertaken through Objective 1, Objective 2 and to a lesser extent the Urban Community Initiative. A table shows about 30 different interventions.

The hypothesis is that the SF will have a positive impact on the objectives of actions undertaken. A priori this will include urban areas, businesses in urban areas and populations in urban areas. The types of effects anticipated will include:

- Economic growth promoted
- Socio-economic disparities reduced
- Environmental quality improved
- Capacity to manage increased
- Levels of skills and qualifications increased
- Use of public transport increased

The territorial unit of observation is the urban area. Statistically this is most simply described as NUTS 3 but analysis will also be undertaken for urban neighbourhoods which are more likely to conform to NUTS 5 where appropriate for a sample of urban areas. The statistical analysis will be undertaken at three levels, NUTS 3 for the EU27 +2, in so far as this is possible and appropriate, with some analysis at NUTS 2. At the urban levelfor a meso-sample of urban areas (the Urban Audit towns and cities) and at the sub- urban scale (NUTS 5) for the micro sample of urban areas.

The analysis of Structural Fund interventions will span 1994-1999 and 2000-2006 for selected urban areas. Identification of broad categories of intervention for same periods across EU.

The information will be collected and analysed about:

- the nature of interventions in urban areas
- differentiation of interventions according to typology of urban areas
- role of SF in declining urban areas
- role of governance in promoting the effective use of SF in

declining industrial urban areas.

Statistical indicators will be reported as input indicators (EU15) and context indicators (social, economic, environmental, network) from EU27+2 and meso and micro samples, qualitative variables based upon survey results from interviews in micro sample of urban areas.

It will be very difficult to make any judgement as to causal link between input indicators and context indicators, owing both to the limited evidence that will be available and the scale of the interventions.

Inter alia, the criteria for examination are:

- Improving economic performance of urban areas (social and economic
- cohesion) and particularly tackling industrial decline and restructuring
- Overcoming socio-economic disparities
- Securing sustainable patterns of growth and development

As a secondary aspect it will be explored how SF have been used in urban areas to promote urban growth centres (balanced territorial development) as part of the above three factors.

The technique of analysis is principally that of sample analysis based upon 25 identified urban areas. The territorial concept is that of declining industrial urban areas. These urban areas are located within NUTS 2 regions but may be larger or smaller than NUTS 3.

The format of the outcome will be:

- Typology of all regions
- Typology that can be applied to all urban areas (with population greater than 50,000)
- Typology of sample of urban areas
- Single type of urban areas
- Mapped results based upon qualitative and quantitative categories.

In summary, it is noticeable that the study is starting from the assumption of "positive impacts on the objectives of actions undertaken". The information to be expected by this study is about the incidence of the SF interventions (input side) in declining industrial urban areas in relation to context indicators. The analysis is based on a sample of 25 areas.

Table no 18: Review of the SIRs of Priority 2-projects concerning major features due to TIA

TIA Minimum requirements	**2.1.1 Transport &TEN**	**2.1.2 R&D**	**2.1.3 CAP & RD**	**2.2.1 SF *(FIR!)***	**2.2.3 SF urban areas**	**2.1.4 Energy *(FIR!)***
Reference to causing policy interventions	no reference to interventions (highly aggregated)	financial actions (RTD Frame, ERDF, ESF)	financial actions (EAGGF)	EU-funding incl. national co-financing	ERDF, ESF, CI Urban (30 interventions)	Energy supply & energy relations (in 5 ´blocks´)
Hypothesis on cause-effect-relations	several existing complex models	speculations only	- ´direct´ regional income - income multiplier	> SIR	Positive impacts on urban areas	- 5 types of energy territorial impacts
Regional scale (min. NUTS 2)	NUTS 3	NUTS 2 (NUTS 1 for some)	NUTS 2/3 (estimations)	NUTS 3	NUTS 3/5 for observation NUTS 2/3/5 for analysis	NUTS 2
Reference to past & future interventions	no reference to past hypothesis about future impacts	primarily backwards	only ex-post analysis	> SIR	1994-1999 2000-2006	review “way forward”
Interventions/ effects registered	accessibility regional welfare	input and context variables	subsidies farm income	> SIR	structure of interventions	energy-production, consumption, service in 5 ´domains´
Quantitative/	quantitative	mainly	mainly	mainly	mainly	mainly

TIA Minimum requirements	**2.1.1 Transport &TEN**	**2.1.2 R&D**	**2.1.3 CAP & RD**	**2.2.1 SF *(FIR!)***	**2.2.3 SF urban areas**	**2.1.4 Energy *(FIR!)***
qualitative appraisal		quantitative	quantitative	quantitative	quantitative	quantitative
Concepts/goals referred to	cohesion efficiency v. equity	balanced development polycentric development competitiveness	cohesion environmental protection	territorial cohesion, balanced development, spatial integration, endowment	missing	missing
Technique of analysis	simulation models classification of regions case studies	aggregate statistical analysis case studies	aggregate statistical analysis case studies	comparing maps of regional distribution case studies	aggregate statistical analysis of 25 urban areas case studies	aggregate statistical analysis case studies
Applied understanding of ´territorial´	regional disparities	´Islands of R&D´ (regions)	regional disparities	cross-sectoral approach to space	declining industrial urban areas	regional disparities
Territorial reference of outcome	several typologies of regions	typology of regions	typologies of regions	typologies of regions	typologies of regions	typologies of regions

5.2.3 Outlook to further results

The work steps to come towards TIR obviously are to apply / implement the methodologies declared here in SIR. Thus, hardly new inputs to the question of TIA methodology are to be expected. Not at least, this can be considered confirmed by comparing the state of insight given here with that of the analyses of TIA-related methodological approaches in the FIR.

5.2.4 Conclusion – recommendation

The benchmark for any concluding and recommending considerations are the ToR of the project 3.1.1. It reads as follows:

> "6. Co-ordinated approach on the territorial impact assessment of sectoral policies under priority 2
>
> Projects under priority 2 develop methods for the territorial analysis and assessment of sectoral policies at the EU level.
> - The methodology should take account of the spatial concepts developed under priority 1 and prepare for priority 3.
> - The methodology should also allow indicating different levels of policy in order to identify the relevant actors allowing for a better territorially co-ordinated policy.
> - The cross-thematic project supervises the technical and scientific co-ordination between these projects in the process of the development of an appropriate assessment methodology.
> - As a result of these efforts a general common and co-ordinated approach for assessment of the territorial impacts of each sector should be developed by the cross-thematic project, which can be applied to other sectoral policies and to other levels."

The key words to be considered here are:

- take account of the spatial concepts
- identify the relevant actors
- a general common and co-ordinated approach for assessment

The spatial concepts to which the Territorial Impact Analyses of Programmes (and Territorial Impact Assessment of projects as well, see FIR) have to refer to (e.g. territorial cohesion, polycentrism,), are in work at the same time within this project (see chapter 3). Making them operational – inter alia by TIAs – is an indispensable. The requirements are:

- being measurable or at least comprehensible
- being related to different spatial scales / levels
- offering links to certain policy actors / measures

Concerning the question to which degree “a general common and co-ordinated approach for assessment” is achievable already the FIR stated:

> “It is obvious that the descriptions of the approaches under measure 2 ... show a considerable variety of features which seems to be caused more or less already by the different nature of the subject matter. ...
> ... even this first review is confirming ... that it seems hardly imaginable to cover the whole range of sectoral EU policy issues by one assessment methodology. The conditions for such a “general model” are lacking at least due to two reasons:
> - the very different character of the spatial dimension and implications of the policy areas concerned (in particular the different assignment to spatial goals) and
> - the rather different theoretical state of the art in the different areas of applied research and planning.
>
> Therefore, for the time being efforts should go rather towards achieving more transparency of description of the individual approach along minimum standards of methodological information and using a common non-confusing terminology, in order to launch a more effective methodological communication between the different areas of policy analysis and assessment.”

Source: 1st Interim Report TPG 3.1,
http://www.espon.lu/online/documentation/projects/cross_thematic/510/1_ir_3.1.pdf

Concerning the diagnosis, this is, what is still true. Concerning the requests for further steps, the SIR shows that progress has been achieved. Nevertheless the doubts are to be announced here again whether “a general common and co-ordinated approach for assessment” can go much beyond the following ´minimum requirements´[21] for EU policy programmes:

- designation of (impact causing) policy intervention(s)
  actually recorded (assignable to EU budget lines)
- designation of hypothesis concerning cause-effect relations
- territorial incidence of results at least for NUTS 2 regions (preferred lower)
- reference to past and future periods
- designation of the topic of calculation
- qualitative appraisals at least (quantitative preferred)
- designation of spatial concepts / goals referring to
- designation of the technique(s) of analysis
- designation of (assumed) meaning of ‘territorial’
- coverage of the whole territory relevant
  (one outcome for each region, ‘mapable results’)

[21] mentioned already in the (amended) table “Review of major features due to TIA designated by the First Interim Report of Priority 2-projects” (see 5.2.1)

On the basis of this ‘common approach’ which probably can’t go much further in (common) detail, specific conclusions for the individual policy areas may be developed. The chance of such an option depends widely on the progress in achieving the requirements on the side of detailing the concepts to be to referred to (see above).

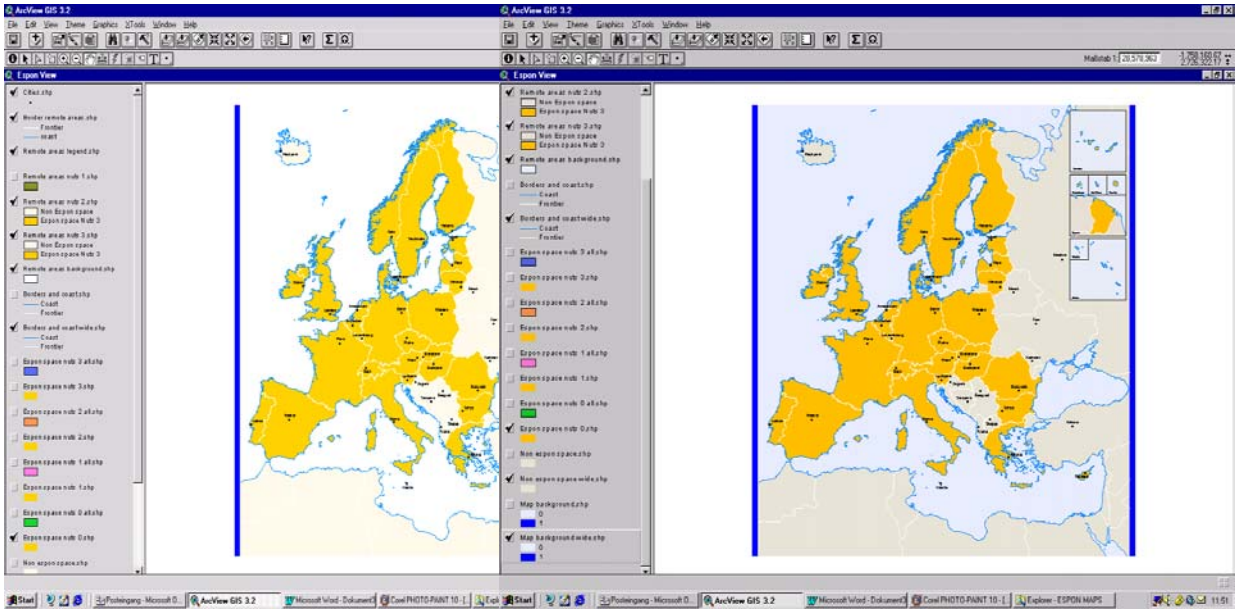
6 ESPON Data base and GIS

6.1 ESPON Data base and GIS - Elaboration in Progress

6.1.1 Data Base, regions and maps

At the end of January 2003, the ESPON data base starts with the first delivery of general socio-economic data and indicators based on the Eurostat data provided at the Mondorf Seminar.

At the same time, the ESPON map kit in form of an ArcView3.2 project provides the basis for a common map design agreed at the Mondorf seminar including coverage of all regional levels for the ESPON countries.



Thus, the ESPON TPG's obtain a unique tool to produce regionally based thematic maps. Intensive technical help and support by the TPG 3.1 accompanies the diffusion of the idea of a common map design among the projects. The cartographic representation in the Second Interim Reports of the TPG's of the first round indicates the starting point of the ESPON map with respect to an increased use in the future.

In addition to the geographical data of the ESPON regions (NUTS 1 to NUTS 3) each TPG obtains a data set with vector data of the municipalities of the ESPON countries. By now, all regional and sub-regional territorial levels could be mapped and used for analytical purposes.

Table no 19: Name and number of NUTS units and comparable regional units in the ESPON countries

Country	LEVEL 1		LEVEL 2		LEVEL 3		LEVEL 4		LEVEL 5	
Belgium	Régions	**3**	Provinces	**11**	Arrondissements	**43**	-		Communes	**589**
Denmark	Denmark	**1**	Denmark	**1**	Amter	**15**	-		Kommuner	**276**
Germany	Länder	**16**	Regierungsbezirke	**40**	Kreise	**441**	-		Gemeinden (31.12.2000)	**13912**
Greece	Groups of development regions	**4**	Development regions	**13**	Nomoi	**51**	Eparchies	**150**	Demoi/Koinotites	**5921**
Spain	Agrupación de comunidades autónomas	**7**	Comunidades autónomas	**18**	Provincias	**52**	-		Municipios	**8077**
France	Z.E.A.T + DOM (1)	**9**	Régions + DOM (4)	**26**	Départements + DOM	**100**	-		Communes	**36664**
Ireland	Ireland	**1**	Regions	**2**	Regional Authority Regions	**8**	Counties/County Boroughs	**34**	DEDs/Wards	**3445**
Italy	Gruppi di regioni	**11**	Regioni	**20**	Provincie	**103**	-		Comuni	**8100**
Luxemburg	Luxemburg	**1**	Luxemburg	**1**	Luxemburg	**1**	Cantons	**12**	Communes	**118**
The Netherlands	Landsdelen	**4**	Provincies	**12**	COROP regio's	**40**	-		Gemeenten	**672**
Austria	Gruppen von Bundesländern	**3**	Bundesländer	**9**	Gruppen von Politischen Bezirken	**35**	-		Gemeinden	**2351**
Portugal	Continente	**3**	Comissões de coordenação regional - Regiões autónomas	**7**	Grupos de Concelhos	**30**	Concelhos - Municípios	**305**	Freguesias	**4208**
Finland	Manner-Suomi/Åland	**2**	Suuralueet	**6**	Maakunnat	**20**	Seutukunnat	**85**	Kunnat	**455**
Sweden	Sweden	**1**	Riksområden	**8**	Län	**21**	-		Kommuner	**286**
United Kingdom		**12**		**37**		**133**		**443**	Wards	**11095**
England	Government Office Regions	**9**	Counties (some grouped); Inner and Outer London	**30**	Upper tier authorities or groups of lower tier authorities (unitary authorities or districts)	**93**	Lower tier authori-- ties (districts) or individual unitary authorities	**354**	Wards	**8619**
Wales	Wales	**1**	Groups of unitary authorities	**2**	Groups of unitary authorities	**12**	Individual unitary authorities	**22**	Wards	**908**

Scotland	Scotland	**1**		Groups of unitary authorities or LECs	**4**		Groups of unitary authorities or LECs (or parts thereof)	**23**		Individual unitary authorities or LECs (or parts thereof)	**41**		Wards (or parts thereof)	**1002**	
Northern Ireland	Northern Ireland	**1**		Northern Ireland	**1**		Groups of districts	**5**		Districts	**26**		Wards	**566**	
Bulgaria	Bulgaria	**1**		Rajon za Planirane	**6**		Oblasti	**28**		Obshtini	**255**		Naseleni Mesta	**5338**	
Cyprus	Κυπρος / Kibris	**1**		Κυπρος / Kibris	**1**		Κυπρος / Kibris	**1**		Eparchia	**9**		Demoi + Koinottia	**412**	
Czech Republic	Ceska Republika	**1**		Groups Of Kraje	**8**		Kraje	**14**		Okresy	**77**		Obce In 2000	**6251**	
Estonia	Eesti	**1**		Eesti	**1**		Groups Of Maakond	**5**		Maakond	**15**		Vald + Alev + Linn	**254**	
Hungary	Magyarorszag	**1**		Tervezesi - Statisztikai Regio	**7**		Megyek + Budapest	**20**		Statisztikai Kisterseg	**150**		Telepules	**3135**	
Lithuania	Lietuva	**1**		Lietuva	**1**		Apskritis	**10**		Savivaldybes	**56**		Seniunija	**446**	
Latvia	Latvija	**1**		Latvija	**1**		Regions	**5**		Rajoni + Pilsetas	**33**		Pagast + Pilsetas	**560**	
Malta	Malta	**1**		Malta			Islands	**2**		Districts	**5**		Localities	**67**	
Poland	Polska	**1**		Wojewodztwa	**16**		Podregiony	**44**		Powiaty	**373**		Gminy + Miasta	**2486**	
Romania	Romania	**1**		Regions	**8**		Judet + Bucuresti	**42**					Communes+ Municipiu +Orajse In 1998	**2948**	
Slovenia	Slovenija	**1**		Slovenija	**1**		Statisticne Regije	**12**		Upravne Enote - Local Government Units	**58**		Obcinah Since 1-Jan 1999	**192**	
Slovakia	Slovenska Republika	**1**		Zoskupenia Krajov	**4**		Kraje	**8**		Okresy	**79**		Obce A Mesta In 1999	**2920**	
Norway	Norge	**1**		Landsdeler	**7**		Fylker	**19**		Økonomiske Regioner	**90**		Kommuner	**435**	
Switzerland	Schweiz / Suisse / Svizzera	**1**		Grossregionen / Grandes Régions / Grandi Regioni	**7**		Kantone / Cantons / Cantoni	**26**		Bezirke / Districts / Distretti	**184**		Gemeinden / Communes / Comuni	**2929**	
EUR15		**78**			**211**			**1093**						**96169**	
EUR25		**88**			**251**			**1214**						**112892**	
EUR27		**90**			**265**			**1284**						**121178**	
ESPON		**92**			**279**			**1329**						**124542**	

Source: Eurostat and own accounts

Concerning GIS, technical progress does not end and so won't ESPON GIS. The fundamental ESPON map kit has been designed and distributed on the base of ESRI ArcView 3.2. To enable all TPGs who might be interested in a transfer to the newer ESRI ArcGIS 8.2 software, project 3.1 will equip each TPG interested with the appropriate means for successful migration.

It is worth to point out, that this is not a change in the overall ESPON map world, but as it is in the GIS world in general, just another alternative independent approach.

The project 3.1 and other TPG's being engaged in the building of the ESPON- and TPG-related data bases and familiar with the regional statistical shortcoming of the European levels once again face statistical reality.

Different accession phases, territorial changes within the Member States and long-term transition periods for the Member States related to the harmonisation of definitions and data sets fill the Regio data base, which is maintained by Eurostat with much commitment, with regional and temporal missing values. With their help accession periods can be reconstructed and this will continue in the future. For many data the last accession date is the most historic time horizon. All this also fits into the former transition and now accession countries of South-East Europe.

The results of the Labour Force Survey, at the very moment the most complete statistical source of Eurostat, are mostly accessible on NUTS 2 for a selected range of thematic information.

Furthermore, although accession negotiation with Cyprus and Malta started already in 1998 respectively 1999, both countries are not yet included in the statistical coverage.

The inclusion of Switzerland and Norway into the observed space is another challenge for regional statistics-.

Version 1 of the ESPON data base provided mid-March 2003 tries to fill the first data gaps of the most fundamental statistical data. As the results of the Second Interim Reports show, this is also the case within all TPGs, especially of this first round.

The 3.1 project responsible for the co-ordination of data requests to Eurostat and EU institutions offers assistance for data acquisition of fundamental socio-economic data in the accession and neighbouring countries. This has been underlined in the TPG leader meeting in Brussels on 26 February 2003 combined with a call for related data requests until mid-March 2003.

The limited concrete response to this – in some respect used to put 3.1 in charge with the overall data acquisition – required to bind the data request of the spring 2003 SIR's and in this case especially of the FIR's to use synergies to an overall data request formulation which covers not only short- but medium-term requests. In order not to lose sight of the time table, a spontaneous delivery of short-term available data will be of more use than a general all-inclusive delivery of the data by the asked institutions.

In the time between the first data input and the first version, the ESPON data base will receive its shape and software base.

Being common and easy to handle, the ACCESS data base format turns out to be the most sufficient tool to provide regional statistical data and indicators of ESPON. When using this format, data of any TPG can be easily integrated. The extraction of information and combination of results of other TPGs in queries or reporting as well as the export into other data formats can be done in appropriate ways.

Overview on ESPON data demand to Eurostat and EU institutions

Eurostat

Special query of the Labour Force Survey

The regional coverage of the data of the Labour Force Survey within and beyond REGIO in publications of "European social statistics –Labour force survey results"is almost limited to NUTS 2.

Special processing is necessary for the NUTS 3 level for data of REGIO and for regional tables of Theme 3 publications only available on NUTS 2 for the years1991 to 2001, if possible 2002.

Tables concerned according results of the Labour Force Survey 2001:

- Main characteristics of population and households by region
- Main characteristics of employment by region, for the population aged 15 to 64 years
- Main characteristics of unemployment by region
- Main characteristics of inactivity by region

Furthermore, regional processing of not yet regionally available data is necessary for NUTS 3 and NUTS 2 in the following fields (mainly for TPG: 2.2.3 , 2.1.1, 1.1.2):

- Composition of private households
- Employment by age group and nationality
- Population, aged 25 to 59, by age group and educational attainment level
- Employment by age group and educational attainment level
- Employment by hours usual worked
- Unemployment by age group and educational attainment level
- Employment by professional status
- Employers and self-employed

- Employees
- Family workers
- Non-responses
- All in employment

- Employment by economic activity
- Agriculture (A-B)
- Industry (C-F)
- Mining and quarrying (C)
- Manufacturing (D)
- Electricity/gas/water supply (E)
- Construction (F)
- Services (G-Q)
- Wholesale and retail/repairs (G)
- Hotels and restaurants (H)
- Transports/communications (I)
- Financial intermediation (J)
- Real estate/business activity (K)
- Public administration (L)
- Other services (M-Q)
- Non-responses

- All in employmentEmployment by occupation
- Legislators and managers (1)
- Professionals (2)
- Technicians (3)
- Clerks (4)
- Services and sales workers (5)
- Agriculture/fishery workers (6)
- Craft/related trades workers (7)
- Plant and machine operators (8)
- Elementary operators (9)
- Armed forces (0)
- Non-responses
- All in employment

mainly for TPG 2.1.2

- Update and supplementation of data related to R&D (employment, employment in high technology sectors, expenditures) and patents was mainly done for TPG 2.1.2.

Regional Data on Labour Costs (Regional data of Theme 3 LACOST)
Regional Data on Earnings (SES Structure od Earnings Statistics)

GISCO

Mainly for TPG 2.2.1, 2.1.3:

- Cover of EU Structural Funds eligible areas 1994-2000
- Cover of EU Structural Funds eligible areas 2000-2006

Mainly for TPG 2.1.3:

- Inventory of sites designated under Community/national legislation (DAEUINPT/DAEUINPTV2)
- Less favoured areas (LDEC1MV2/LDEC3MV2)
- LEADER LAG areas (LDEC1MV1)

Mainly for TPG 1.3.1:

- Land use Lucas Eurostat
- Soil erosion risk EUSIS/EEA JRC (ESB)/EEA
- Soil types EUSIS JRC (ESB)

European Enviroment Agency (EEA)

Mainly for TPG 2.2.3:
- Unused areas including contaminated and derelict land areas at NUTS III for the EU 27+2
- Number of days per year ozone O3 at NUTS III* for the EU 27+2
- Total carbon dioxide CO2 emissions at NUTS III* for the EU 27+2
- Total carbon monoxide CO emissions at NUTS III* for the EU 27+2
- Total methane CH4 emissions at NUTS III* for the EU 27+2
- Total nitrogen dioxide NO2 emissions at NUTS III* for the EU 27+2
- Annual amount of solid waste (domestic and commercial) collected within the designated boundary at NUTS III* for the EU 27+2
- Annual amount of solid waste (domestic and commercial) that is recycled at NUTS III* for the EU 27+2

Mainly for TPG 1.3.1:
- Accidental tanker oil spills to the marine environment
- Nuclear waste production
- Progress in the management of contaminated sites
- Soil polluting activities from localised sources
- Tourism intensity
- Tourism arrivals
- Total waste generation
- Intensification of agriculture
- Input of hazardous substances (cadmium, mercury, lead, zinc, lindane and PCB7) into the North-East Atlantic, 1990 and 1998
- Land take TERM 2002 08 EU+AC
- Fragmentation of land and forests TERM 2002 06 EU+AC

Joint Research Centre

Mainly TPG 1.3.1:
- European level forest fire risk maps
- European level rainfall-runoff maps

6.1.2 The ESPON core indicators

The TPG Lead Partner meeting in Brussels on 26 February was place and hour of birth of the ESPON core indicators list. Since then discussed, called into question or discussed in relation to the indicators included, the actual sense, to ask the TPGs what in their opinion might be the most important indicators in their fields, was a bit in danger to get lost.

The list of core indicators of ESPON is at the moment an overview on the most relevant and realistic indicators which can be realised in short term for further use within and outside ESPON. Related to the ESPON network the indicators are the minimum stock of exchangeable within the network and the list is a tool to

- help each TPG to reflect the most relevant of its mass of data and indicators and maybe to concentrate on the most appropriate

- give guidance to other TPGs on the relevance of indicators they would like to use but are not quite sure whether to use them
- provide indicators for multivariate or cross-sectional analyses with the “right” indicators to be considered in special thematic fields.

In the future the list of indicators might target to a post-Programme ESPON data base (thanks to TPG 2.1.3). If so, all the efforts related to the creation of these indicators (and these are many) will indicate minimal requirements for regional statistics to be satisfied within the European statistical system in future.

Table no 20: List of ESPON Core indicators

Indicator	Potential Source of Indicator	TPG responsible	Spatial scope		Regional level			Temporal scope			
Commuter	International institutes, National Statistical Institutes, Estimations	**1.1.1**	EU27+2								
Location of TOP 1500 European Companies	Bussiness information companies, International institutes, National Statistical Institutes, Estimations	**1.1.1**	EU27+2	as possible +pan +med	NUTS 3	NUTS 2	NUTS 5	2000			
Turnover of TOP 500 European Companies	Bussiness information companies, International institutes, National Statistical Institutes, Estimations	**1.1.1**	EU27+2	as possible +pan +med	NUTS 3	NUTS 2	NUTS 5	2000			
Employment of TOP 500 European Companies	Bussiness information companies, International institutes, National Statistical Institutes, Estimations	**1.1.1**	EU27+2	as possible +pan +med	NUTS 3	NUTS 2	NUTS 5	2000			
Gross value added in service sector	EU COM, REGIO, National Statistical Institutes, Estimations	**1.1.1**	EU27+2	as possible +pan +med	NUTS 3	NUTS 2	NUTS 5	2000			
University students	EU COM, REGIO, National Statistical Institutes, Estimations	**1.1.1**	EU27+2			NUTS 2		2000			
Pupils by school level	EU COM, REGIO, National Statistical Institutes, Estimations	**1.1.1**	EU27+2			NUTS 2		2000			
Households	Special query REGIO, National Statistical Institutes, Estimations	**1.1.2**	EU27+2		NUTS 3			2000			
Income per capita	SES ?, International institutes, National Statistical Institutes, Estimations	**1.1.2**	EU27+2			NUTS 2		2000			
balance of newly founded and bankrupt firms	Bussiness information companies, International institutes, National Statistical Institutes, Estimations	**1.1.2**	EU27+2		NUTS 3	NUTS 2	NUTS 5	2000			
Household oriented infrastructure	National Statistical Institutes, Estimations	**1.1.2**	EU27+2			NUTS 2		2000			

Cross-border activities in border regions	EU COM, national partner involved, Interreg secretariats, others	**1.1.3**	EU27+2			NUTS2					
Indicator	**Potential Source of Indicator**	**TPG responsible**	**Spatial scope**		**Regional level**			**Temporal scope**			
Natural population growth	REGIO, National Statistical Institutes, Estimations	**1.1.4**	EU27+2	as possible +pan +med	NUTS3	NUTS2	NUTS5	2000	1996-1999 p.a	1995	1990 as possible
Net-migration rate	International institutes, National Statistical Institutes, Estimations	**1.1.4**	EU27+2	as possible +pan +med	NUTS3	NUTS2	NUTS5	2000	1996-1999 p.a	1995	1990 as possible
Ageing / Dependencies	International institutes, National Statistical Institutes, Estimations	**1.1.4**	EU27+2	as possible +pan +med	NUTS3	NUTS2	NUTS5	2000	1996-1999 p.a	1995	1990 as possible
Reproduction potential	International institutes, National Statistical Institutes, Estimations	**1.1.4**	EU27+2	as possible +pan +med	NUTS3	NUTS2	NUTS5	2000	1996-1999 p.a	1995	1990 as possible
Population in "functional"/"strategic" age	International institutes, National Statistical Institutes, Estimations	**1.1.4**	EU27+2	as possible +pan +med	NUTS3	NUTS2	NUTS5	2000	1996-1999 p.a	1995	1990 as possible
Total fertility rate	International institutes, National Statistical Institutes, Estimations	**1.1.4**	EU27+2	as possible +pan +med	NUTS3	NUTS2	NUTS5	2000	1996-1999 p.a	1995	1990 as possible
Passenger on airports	GISCO, others	**1.2.1**	EU27+2	as possible +pan +med	NUTS3	NUTS2		2000			
Transport network by mode	GISCO, others	**1.2.1**	EU27+2	as possible +pan	NUTS3	NUTS2					

				+med							
Transport node my mode	GISCO, others	**1.2.1**	EU27+2	as possible +pan +med	NUTS 3	NUTS 2					
Indicator	**Potential Source of Indicator**	**TPG responsible**	**Spatial scope**		**Regional level**			**Temporal scope**			
Travel time by spatial level and transport mode	GISCO, others, model calculations	**1.2.1**	EU27+2	as possible +pan +med	NUTS 3	NUTS 2					
Daytime accessibility by transport mode	GISCO, others, model calculations	**1.2.1**	EU27+2	as possible +pan +med	NUTS 3	NUTS 2					
Travel costs by transport node	GISCO, others, model calculations	**1.2.1**	EU27+2	as possible +pan +med	NUTS 3	NUTS 2					
Network distance to linear distance ratio	GISCO, others, model calculations	**1.2.1**	EU27+2	as possible +pan +med	NUTS 3	NUTS 2					
Proportion of main lines connected to digital exchange	others, GISCO	**1.2.2**	EU27+2								
ADSL lines as a proportion of total main lines	others, GISCO	**1.2.2**	EU27+2								
Cable modem lines as a proportion of total lines installed	others, GISCO	**1.2.2**	EU27+2								
Proportion of exchanges with co-located equipment (local loop	others, GISCO	**1.2.2**	EU27+2								

unbundling)											
Availability of Internet service with (a) local rate charges (b) undeterred access	others, GISCO	**1.2.2**	EU27+2								
Number of PIAPs per 1000 inhabitants	others, GISCO	**1.2.2**	EU27+2								
Indicator	**Potential Source of Indicator**	**TPG responsible**	**Spatial scope**		**Regional level**			**Temporal scope**			
Cellular subscribers per 100 inhabitants	others, GISCO	**1.2.2**	EU27+2								
ADSL subscribers per 10,000 inhabitants	others, GISCO	**1.2.2**	EU27+2								
Proportion of households with Internet access	others, GISCO	**1.2.2**	EU27+2								
Proportion of households with broadband Internet access	others, GISCO	**1.2.2**	EU27+2								
Proportion of firms with access to the Internet	others, GISCO	**1.2.2**	EU27+2								
ICT Tele-communication	International institutes, National Statistical Institutes, Estimations	**1.2.3**	EU27+2			NUTS2					
Intensification of agriculture	EU institutions, International institutes, National Statistical Institutes, Estimations	**1.3.1**	EU27+2			NUTS2		2000	1996-1999 p.a	1995	1990 as possible
Area exposed to acidification and eutrophication	EU institutions, International institutes, National Statistical Institutes, Estimations	**1.3.1**	EU27+2			NUTS2		2000	1996-1999 p.a	1995	1990 as possible
Flood areas	EU COM, REGIO, NEWCRONOS; National Statistical Institutes, Estimations	**1.3.1**	EU27+2			NUTS2		2000	1996-1999 p.a	1995	1990 as possibl

											e
Soil and land use hazards (erosion, seal areas etc.)	EU COM, REGIO, NEWCRONOS; National Statistical Institutes, Estimations	**1.3.1**	EU27+2			NUTS 2		2000	1996-1999 p.a	1995	1990 as possible
Richness of species identified of European importance	International institutes, National institutions, National Statistical Institutes, Estimations	**1.3.2**	EU27+2			NUTS 2					
Extent and richness of semi-natural habitat type	International institutes, National institutions, National Statistical Institutes, Estimations	**1.3.2**	EU27+2			NUTS 2					
Indicator	**Potential Source of Indicator**	**TPG responsible**	**Spatial scope**		**Regional level**			**Temporal scope**			
Protected natural areas	International institutes, National institutions, National Statistical Institutes, Estimations	**1.3.2**	EU27+2			NUTS 2					
Tourist stays	REGIO, National Statistical Institutes, Estimations	**1.3.3**	EU27+2			NUTS 2					
Tourist capacity	REGIO, National Statistical Institutes, Estimations	**1.3.3**	EU27+2			NUTS 2					
Tourist related employment	NEWCRONOS; REGIO, National Statistical Institutes, Estimations	**1.3.3**	EU27+2			NUTS 2					
Cultural heritage	International institutes, National institutions, National Statistical Institutes, Estimations	**1.3.3**	EU27+2								
Poverty rate	International institutes, National Statistical Institutes, Estimations	**2.1.1**	EU27+2		NUTS 3						
Market accessibility potential (population, GDP) by transport mode	GISCO, others, model calculations	**2.1.1**	EU27+2	as possible +pan +med	NUTS 3	NUTS 2					
Centre oriented accessibility by spatial level and transport mode	GISCO, others, model calculations	**2.1.1**	EU27+2	as possible +pan +med	NUTS 3	NUTS 2					

Transport safety	REGIO, National Statistical Institutes, Estimations	**2.1.1**	EU27+2			NUTS2					
R & D personnel	REGIO, National Statistical Institutes, Estimations	**2.1.2**	EU27+2			NUTS2					
R & D Expenditure	REGIO, National Statistical Institutes, Estimations	**2.1.2**	EU27+2			NUTS2					
Patents	REGIO, National Statistical Institutes, Estimations	**2.1.2**	EU27+2			NUTS2					
Agricultural land use	EU COM, REGIO, NEWCRONOS; National Statistical Institutes, Estimations	**2.1.3**	EU27+2			NUTS2					
Agricultural farms by age holder	EU COM, REGIO, NEWCRONOS; National Statistical Institutes, Estimations	**2.1.3**	EU27+2			NUTS2					
Indicator	**Potential Source of Indicator**	**TPG responsible**	**Spatial scope**		**Regional level**			**Temporal scope**			
Agricultural production	EU COM, REGIO, NEWCRONOS; National Statistical Institutes, Estimations	**2.1.3**	EU27+2			NUTS2					
GDP in agriculture and agri-food sector	EU COM, REGIO, NEWCRONOS; National Statistical Institutes, Estimations	**2.1.3**	EU27+2			NUTS2					
Fertiliser inputs	EU COM, REGIO, NEWCRONOS; National Statistical Institutes, Estimations	**2.1.3**	EU27+2			NUTS2					
Electricity production by power of source	EU institutions, NEWCRONOS, REGIO, International institutes, National Statistical Institutes, Estimations	**2.1.4**	EU27+2			NUTS2		2000	1996-1999 p.a	1995	1990 as possible
Final energy consumption by energy type and consumption sector	EU institutions, NEWCRONOS, REGIO, International institutes, National Statistical Institutes, Estimations	**2.1.4**	EU27+2			NUTS2		2000	1996-1999 p.a	1995	1990 as possible
Energy prices for industry (net and tax included)	EU institutions,NEWCRONOS, REGIO, International institutes, National Statistical Institutes, Estimations	**2.1.4**	EU27+2			NUTS2		2000	1996-1999 p.a	1995	1990 as possible

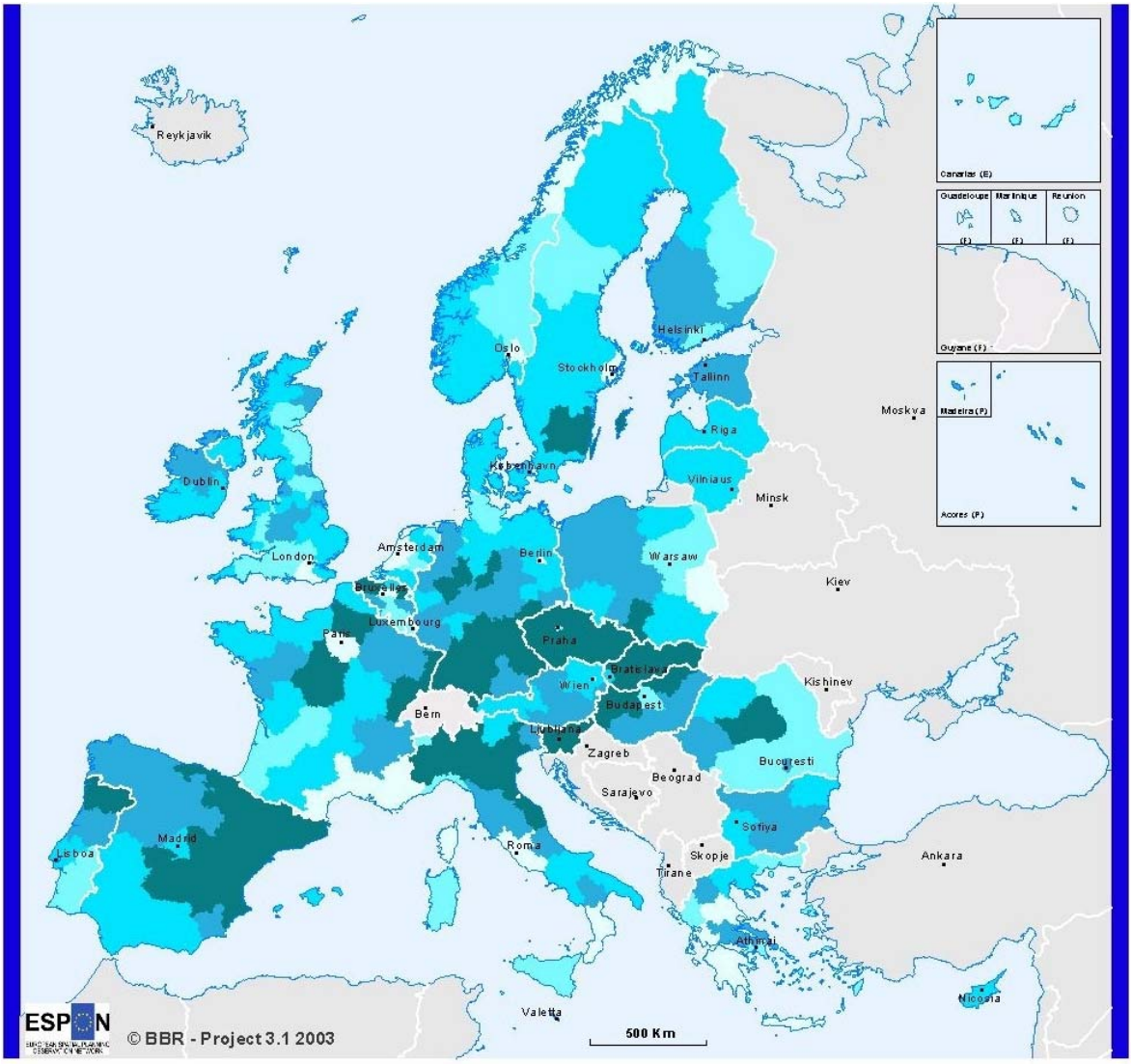
Structural funds in Euro by funds involved	EU institutions, National Administration and Statistical Institutes, Estimations	**2.2.1**	EU15		NUTS 3	NUTS 2		according funding periods			
Structural funds in % regional GDP	EU institutions, National Administration and Statistical Institutes, Estimations	**2.2.1**	EU15		NUTS 3	NUTS 2		according funding periods			
Pre accession aid in Euro by programme involved	EU institutions, National Administration and Statistical Institutes, Estimations	**2.2.2**	ACC12		NUTS 3	NUTS 2		according funding periods			
Pre accession aid in % of regional GDP	EU institutions, National Administration and Statistical Institutes, Estimations	**2.2.2**	ACC12		NUTS 3	NUTS 2		according funding periods			
Crime rate	International institutes, National Statistical Institutes, Estimations	**2.2.3**	EU27+ 2		NUTS 3						
Total population	REGIO, National Statistical Institutes, Estimations	**3.1**	EU27+ 2	as possible +pan +med	NUTS 3	NUTS 2	NUTS 5	200 0 P	1996-1999 p.a	1995	1990 P
Indicator	**Potential Source of Indicator**	**TPG responsible**	**Spatial scope**		**Regional level**			**Temporal scope**			
Area	REGIO, National Statistical Institutes, Estimations	**3.1**	EU27+ 2	as possible +pan +med	NUTS 3	NUTS 2	NUTS 5	200 0 P	1996-1999 p.a	1995	1990 P
Population density	REGIO, National Statistical Institutes, Estimations	**3.1**	EU27+ 2	as possible +pan +med	NUTS 3	NUTS 2	NUTS 5	200 0 P	1996-1999 p.a	1995	1990 P
Population by age	REGIO, National Statistical Institutes, Estimations	**3.1**	EU27+ 2	as possible +pan +med		NUTS 2		200 0	1996-1999 p.a	1995	1990 as possible
Population by sex	REGIO, National Statistical Institutes, Estimations	**3.1**	EU27+ 2	as possible +pan +med	NUTS 3			200 0	1996-1999 p.a	1995	1990

Educational level of population	Special query REGIO, National Statistical Institutes, Estimations	**3.1**	EU27+2		NUTS 3						
Labour Force	REGIO, National Statistical Institutes, Estimations	**3.1**	EU27+2	as possible +pan +med		NUTS 2		2000	1996-1999 p.a	1995	1990 as possible
Labour Force by age	REGIO, National Statistical Institutes, Estimations	**3.1**	EU27+2	as possible +pan +med		NUTS 2		2000	1996-1999 p.a	1995	1990 as possible
Activity rates	REGIO, National Statistical Institutes, Estimations	**3.1**	EU27+2		NUTS 3	NUTS 2		2000	1996-1999 p.a	1995	1990 as possible
Unemployment rates	REGIO, National Statistical Institutes, Estimations	**3.1**	EU27+2	as possible +pan +med	NUTS 3	NUTS 2		2000	1996-1999 p.a	1995	1990 as possible

Indicator	**Potential Source of Indicator**	**TPG responsible**	**Spatial scope**		**Regional level**			**Temporal scope**			
Total employment	REGIO, National Statistical Institutes, Estimations	**3.1**	EU27+2	as possible +pan +med	NUTS 3	NUTS 2		2000	1996-1999 p.a	1995	1990 as possible
Employment by sector of activity (NACE)	Special query REGIO, National Statistical Institutes, Estimations	**3.1**	EU27+2			NUTS 2		2000	1996-1999 p.a	1995	1990 as possible
Employment by qualification and profession	Special query REGIO, National Statistical Institutes, Estimations	**3.1**	EU27+2			NUTS 2		2000	1996-1999 p.a	1995	1990 as possible
Human Capital	Human capital index; Rolf Derenbach, EU COM	**3.1**	EU27+2			NUTS 2		2000	1996-1999 p.a		

GDP total	REGIO, National Statistical Institutes, Estimations	**3.1**	EU27+2	as possible +pan +med	NUTS 3	NUTS 2			1996-1999 p.a	1995	
GDP per capita	REGIO, National Statistical Institutes, Estimations	**3.1**	EU27+2		NUTS 3	NUTS 2			1996-1999 p.a	1995	
Purchasing power indices	Gesellschaft für Konsumforschung (GfK)	**3.1**	EU27+2		NUTS 3	NUTS 2			1996-1999 p.a		
Productivity	REGIO, National Statistical Institutes, Estimations	**3.1**	EU27+2		NUTS 3	NUTS 2			1996-1999 p.a		
Productivity per hours worked	REGIO, NEWCRONOS, LACOSTS, National Statistical Institutes, Estimations	**3.1**	EU27+2			NUTS 2			1996-1999 p.a		
Labour costs	NEWCRONOS, LACOSTS, National Statistical Institutes, Estimations	**3.1**	EU27+2			NUTS 2			1996-1999 p.a		
Remarks: L: Yes, but on regional level less than NUTS 3, P: also on regional level more than NUTS 3											

Map no 8: Employed Persons in the secondary

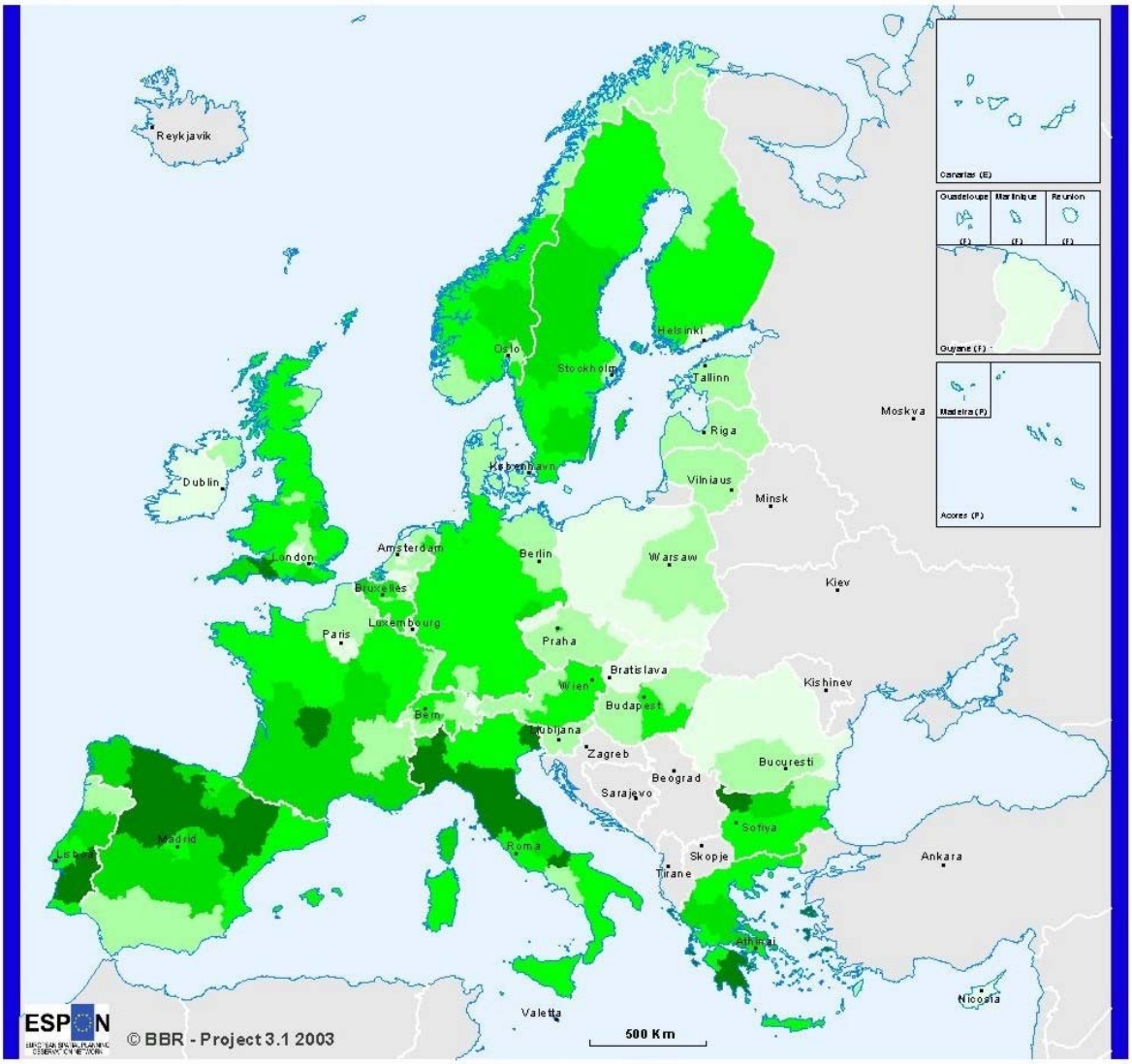


Share of employed persons in secondary sector in % 2001

- to below 20
- 20 to below 25
- 25 to below 30
- 30 to below 35
- 35 and more

Geographical Base: Eurostat GISCO
Regional Level: NUTS 2
Source of Data: Eurostat REGIO

Map no 9: Elderly inhabitants

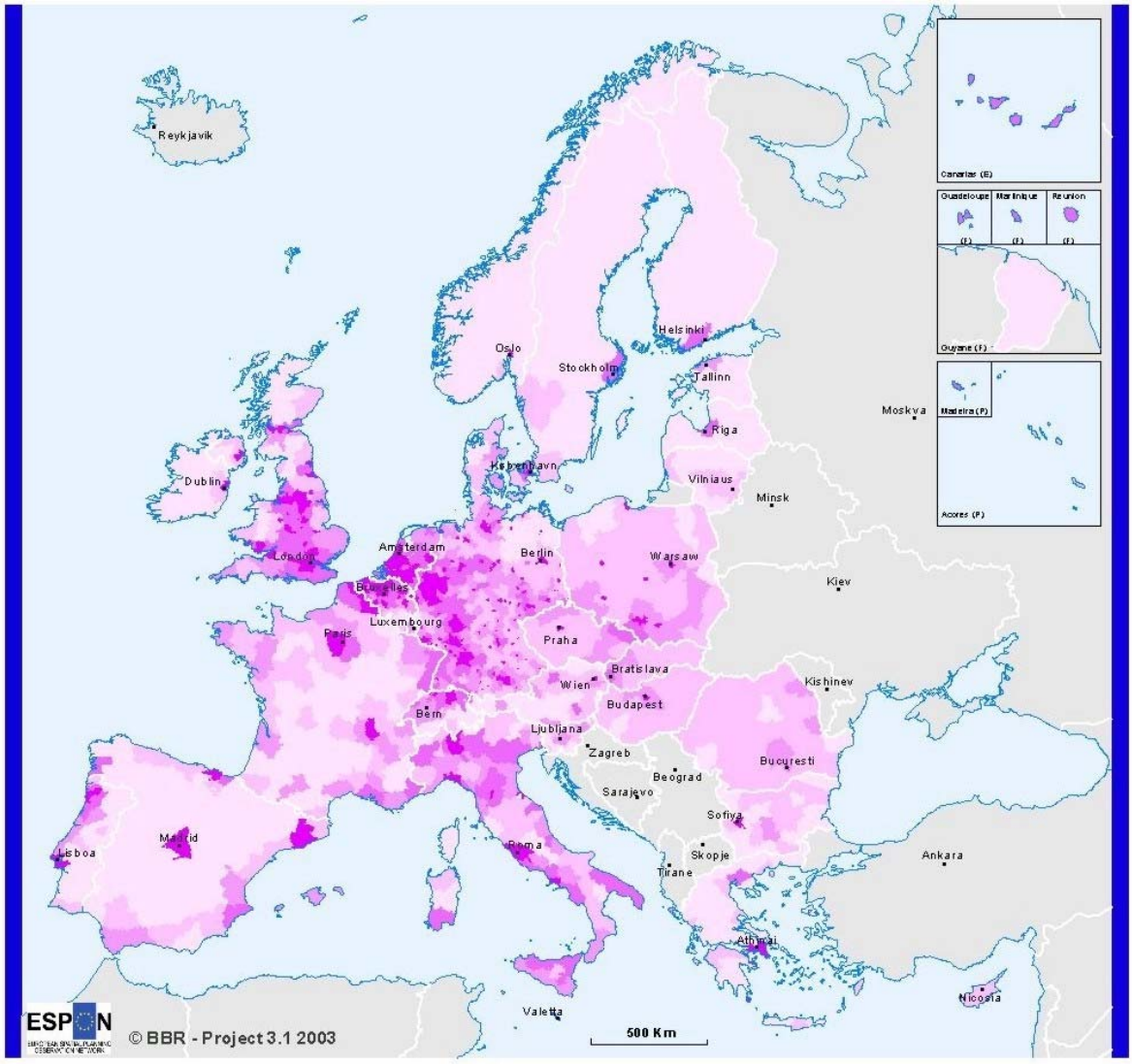


Share of persons aged over 65 in the population in % 2000

- to below 13
- 13 to below 15
- 15 to below 18
- 18 to below 20
- 20 and more

Geographical Base: Eurostat GISCO
Regional Level: NUTS 2
Source of Data: Eurostat REGIO
CH, NO: national statistical institutions

Map no 10: Population Density

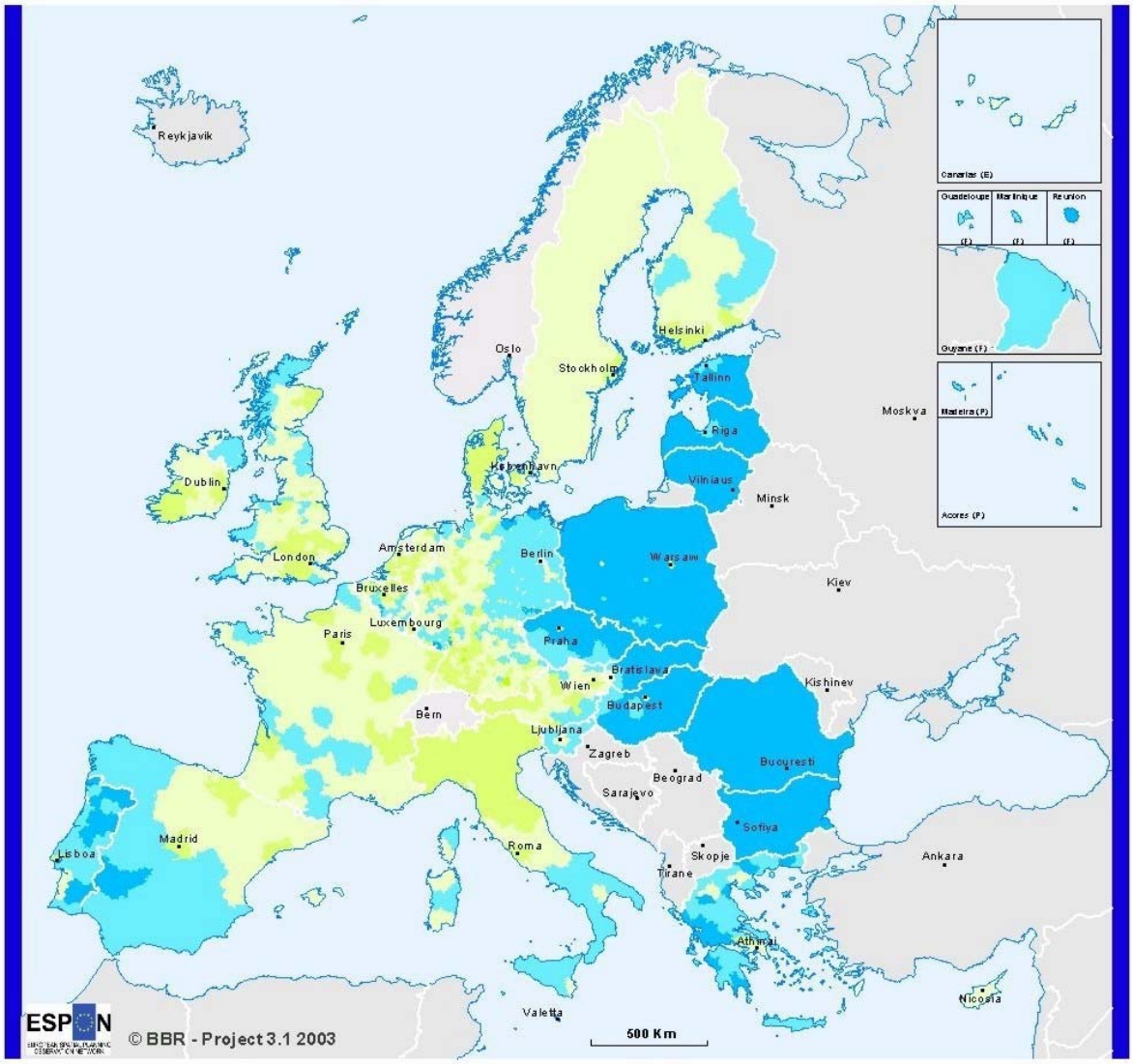


Inhabitant per km ² 1999

- to below 60
- 60 to below 120
- 120 to below 200
- 200 to below 400
- 400 and more

Geographical Base: Eurostat GISCO
Regional Level: NUTS 3
Source of Data: Eurostat REGIO
CH, NO, MT, CY: national statistical institutions

Map no 11: Regional Unemployment Rate

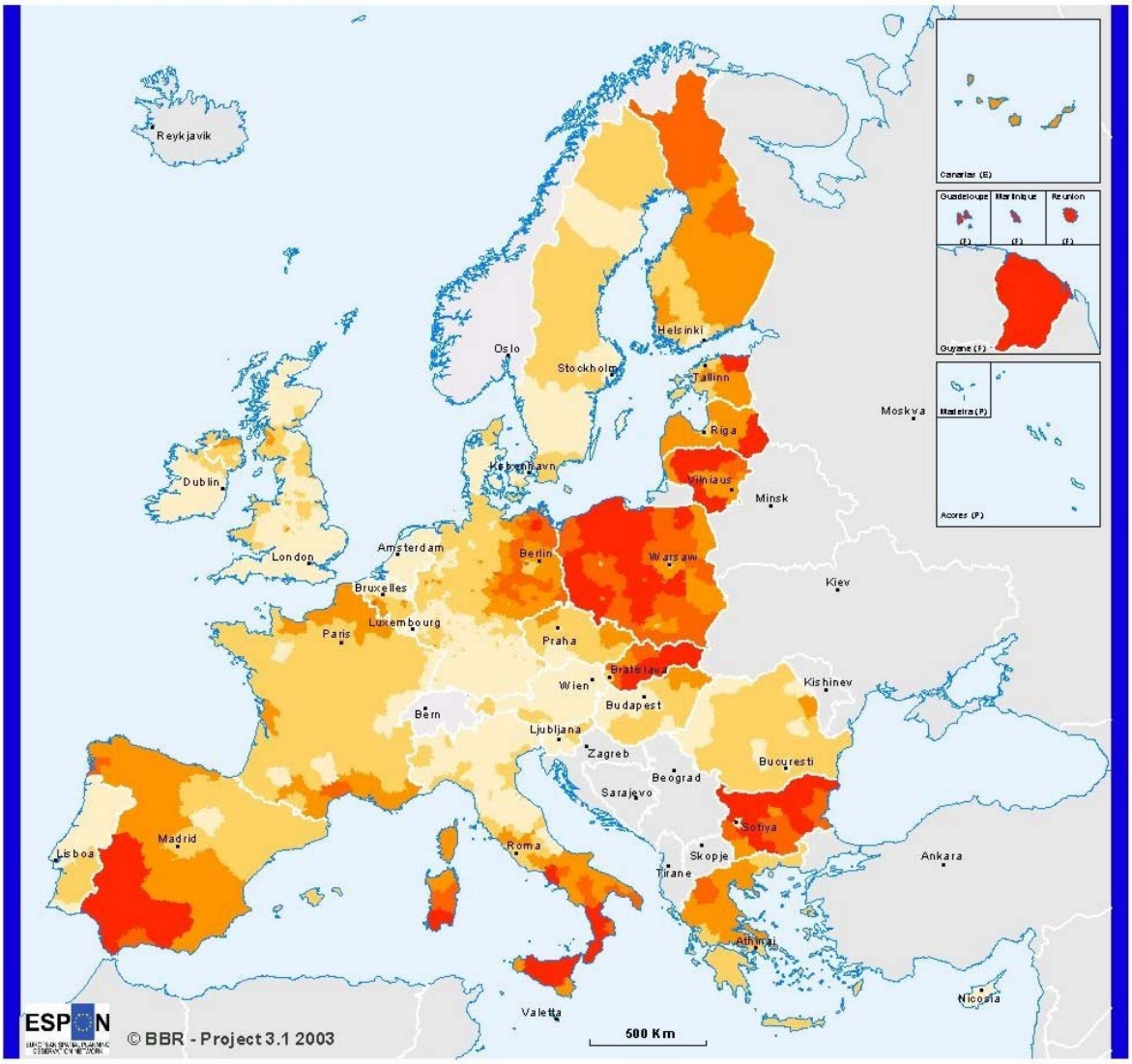


Purchasing Power Parities per inhabitant in % of the EU average 2000

- to below 50
- 50 to below 75
- 75 to below 100
- 100 to below 200
- 200 and more

Geographical Base: Eurostat GISCO
Regional Level: NUTS 3
Source of Data: Eurostat-REGIO

Map no 12: BIP in Purchasing Power Standards

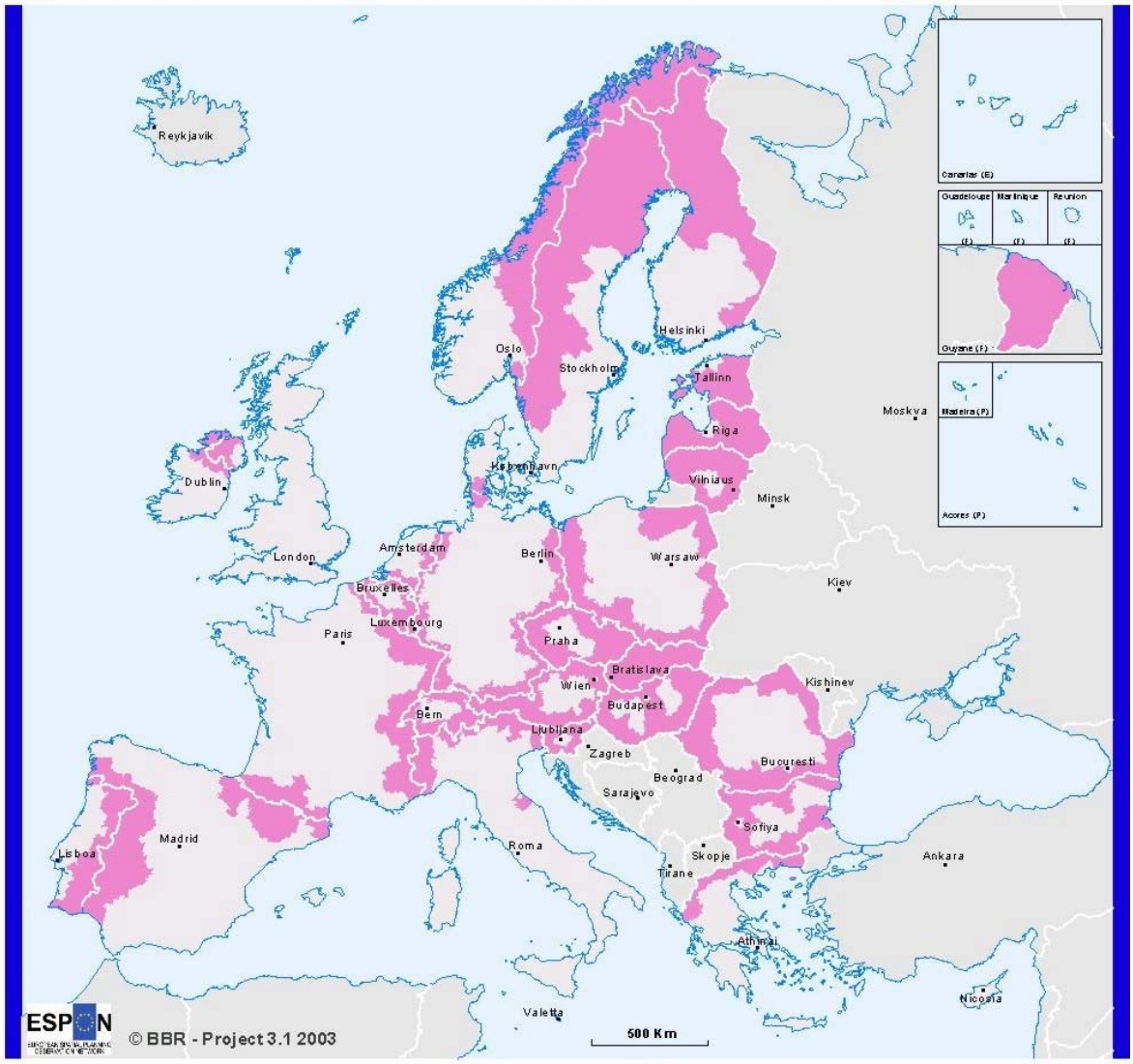


Unemployment Rate 2001 in %

- to below 5
- 5 to below 10
- 10 to below 15
- 15 to below 20
- 20 and more

Geographical Base: Eurostat GISCO
Regional Level: NUTS 3
Source of Data: Eurostat-REGIO
GR, PT: NUTS 2
DE: DEB Data 2000
MT: NUTS 2 and Data 2000

Map no 13: Border Regions



Geographical Base: Eurostat GISCO
Regional Level: NUTS 3

Political relevance of indicators

A great part of the knowledge related to spatial structures, phenomena and developments is based on the regional presentation and analysis again basing on data and indicators, which should in fact be an objective characterisation of the living conditions in space, provided that these are harmonised and comparable.

Beside the fact of indicators being political in the use by itself, the crucial point is appropriate use and relevance of specific indicators in a special policy field.

Related to the spatial development in Europe the ESDP outlines spatial development aims and policy options to take into consideration in territorial relevant processes.

To establish a linkage between spatial indicators, their relation and representation to specific spatial as well as regional policy each, indicators of the ESPON data base shall have a direct reference to the policy options of the ESDP. This will be done in the documentation within the meta data files related to each indicator. Indicators can be grouped and analysed according the this supporting analysis in the relevant thematic option.

6.2 Spatial Analysis Tools

The principle of the realisation of a library of spatial analysis tools was discussed and approved during the 1st ESPON general seminary in Mondorf, but it was not very clear on how to proceed and it was asked to the TPG ESPON 3.1 to prepare concrete proposals. This library of spatial analysis tools should fulfil two different objectives :

1) **Insuring the actualisation of ESPON results in the future.** The development of a library of spatial analysis tools in the framework of ESPON is firstly based on the very old principle : " *If you give a fish to somebody, he will eat one time. If you teach him how to catch fish, he will eat for the rest of his life*" which can be translated in present case as "*If you produce a table with an indicator on territorial cohesion, you can use it one time for political decision. If you store the tool used for the construction of this indicator, you can use it as many time as you want on other territories, other time period, other scales of analysis".*
2) **Bridging the gap between scientists and policymakers.** The most interesting tools from a scientific point of view are not necessarily the most

operational from a political point of view. If we want to bridge the gap between scientists and policymakers, it is necessary to propose simple and efficient presentation of new scientific spatial analysis tools to policymakers. Those presentations should be based on empirical examples of application where it is possible to demonstrate the political relevance of the tools.

As an example of what could be this ESPON library of spatial Analysis Tools, the TPG ESPON 3.1 has realised a prototype on **Multiscalar Territorial Analysis** which is briefly summarised below. The complete version of this prototype (50 pages and 14 maps) can be download on the website of the French ECP : **http://www.orate.prd.fr/mta.php/**

6.2.1 First challenge: adding value to ESPON results

In the division of work of the TPG ESPON 3.1., the French team members (UMS RIATE & associated CNRS teams of the Hypercarte Project) are in charge of developing Tools and Models for Spatial Analysis on the one hand (ESPON 3.1 / Work Package 11), and producing an innovative tool for interactive map production called “Hyper-Atlas” on the other hand (ESPON 3.1/ Work Package 9). Both tasks are strongly interrelated, as the aim of the “Hyper Atlas” is to encourage non-specialist users to produce maps integrating territorial and spatial approaches. Using this tool, policy actors and decision makers will gain a more accurate knowledge of territorial realities as they are reflected by social and economic statistics.

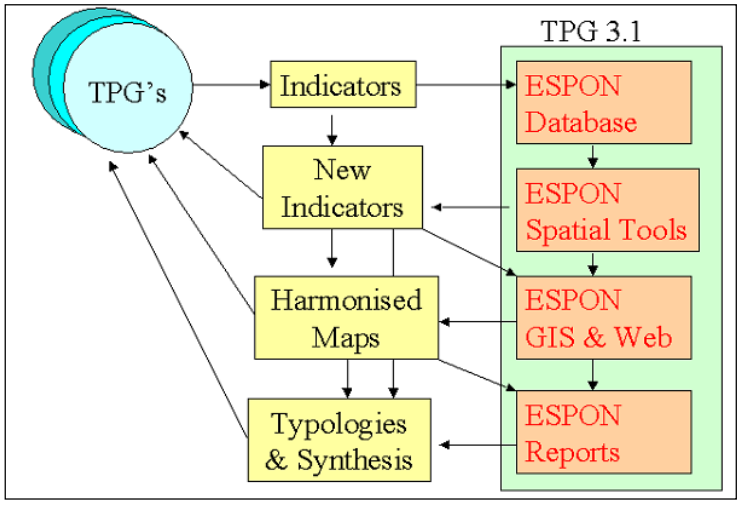
In its comments on the First Interim Report of ESPON Project 3.1 (31/01/2003), the Coordination Unit concedes that an operational version of the Hyper-Atlas shall not be expected before the autumn 2003 (p.5). It insists on the fact that “*concrete actions*” are requested in a very short term. So, ESPON 3.1 should strive to produce “*a first overview of preliminary results that may be interesting for the drafting of the Third Cohesion Report*”. The report also emphasizes that the mission of ESPON 3.1 is not only to store the indices produced by other TPGs but also to produce “added value” and address the crucial question: “*What kind of indicators could be added, such as indicators derived from models?*”

The work realised for the SIR provide some preliminary answers to those questions of the Coordination Unit and demonstrate how efficient Spatial Analysis Models and Tools are for the production of added value to ESPON indices. Following suggestions of the ESPON Coordination Unit, the French CNRS teams have decided to "*avoid too complex and/or complicated tools which are hardly usable for policy development*". Thus we first focus on spatial analysis tools which provided "*basic but very useful functions*". For this reason, the current prime priority is the spatial analysis package called "**Multiscalar Territorial Analysis**", which was elaborated during the SPESP (Working Group I.4, Spatial Integration) and seems to offer the best guarantee of scientific quality and political efficiency.

- **Quantitative added value:** From a single ratio of two absolute values (e.g. total population and gross product), at least six derived indicators and related maps may be produced, highlighting six complementary points of view.
- **Qualitative added value:** The six derived indicators give a real framework and a powerful tool for decision making.

In our opinion, the Multiscalar Territorial Analysis package (and other packages developed in the future) should be considered as a common ESPON tool, not only for ESPON 3.1 but also for all members of TPGs which would like to use it.

Figure no 11: Integrated spatial analysis tools for the ESPON network



Source: Claude Grasland & Liliane Lizzi, UMS 2414 RIATE, 2003

6.2.2 Second Challenge : Bridging the gap between scientists and policymakers

Before to adopt a new set of tools as common package of the ESPON Program , it is necessary to evaluate it **scientifically and politically** on a concrete example. In the case of Multiscalar Spatial Analysis, the GDP/inh in 1999[22] is chosen for this experiment because it is certainly the most used index in Europe for political decision and Spatial Planning.

The authors of the report[23] were aware of the fact that GDP is an important indicator for political decision, because of its actual use in the definition of Objective 1. Thus, it should be very clear that **the aim of this report is not to introduce any proposal of criteria for the future reform of the various Objectives of the cohesion policy**. The focus of the study is a test of methodology. Although it happens to be applied to GDP/inh, it could be applied to any index more relevant from scientific or political point of view. The aim of such a report is to **enlarge the possible choices of criteria** in the debate concerning the definition of the future objectives, but certainly not to decide of the best indicator.

As it is explained in the following section (6.3), the Hyper-Atlas will precisely provide a common website solution for all ESPON members which would like to apply the methods of Multiscalar Territorial Analysis on other indexes of the ESPON database.

[22] It is necessary to examine GDP/inh both in international currency (E*uros*) and in purchase parity standards (*pps*) because the signification of both indexes is not exactly the same from a political point of view: International currency (Euros) are more relevant for an *economic approach* of European heterogeneity (e.g. location or relocation of international firms) ; Purchase parity standards (pps) are more relevant for *a social approach* of European heterogeneity (e.g. migration of people looking for better housing or living conditions).

[23] See the application at http://www.orate.prd.fr/mta.php/

6.2.3 Sample of results

- **Analysis of deviations (see Map. 14)**

The deviation of a region to the European reference area is classically used in the report of the European Commission where the value of the indices are transformed into a global index 100 = EU15 or EU27. *The deviation of a region to its national reference area* is very important to combine with the previous one. Indeed, many contradictions can appear between the two levels, with important political consequences. *The deviation of a region to the local reference area* is based on the local differential between one region and the neighbouring ones according to various criteria of proximity (contiguity, time-distance).

- **Synthesis of deviations (see Map. 15)**

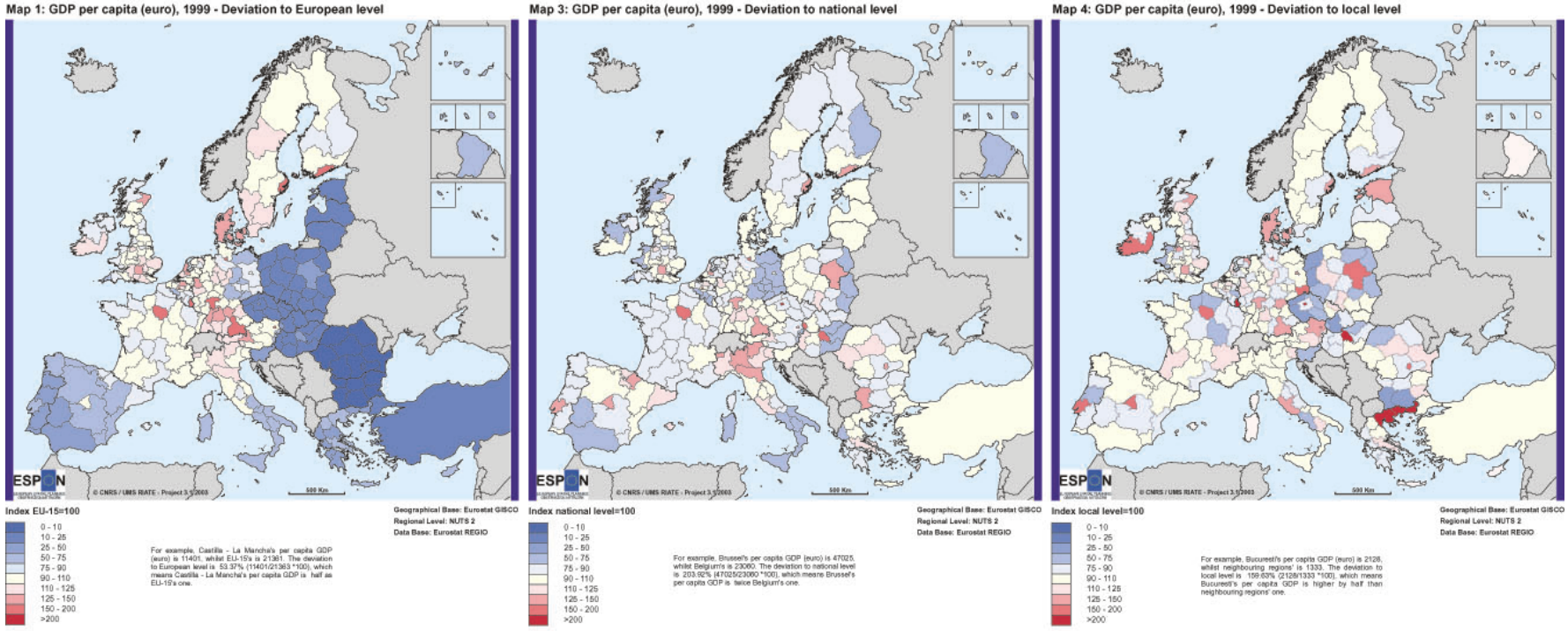
In order to produce well-informed and efficient policy options, the various multiscalar deviations described above (European, National, Local) must be examined in combination. Separate analyses, as they are frequently presented in current European policy documents, lead to a partial and incomplete territorial vision.

- **Analysis of discontinuities (see Map. 16)**

Maps of discontinuities describe the contrasts between contiguous territorial entities. They can be defined in absolute and relative terms, according to the assumptions of the observer or the problem to be analysed. The analysis of discontinuities is more than a complement to the multiscalar evaluation of regional situations. Indices which describe the *limits between regions* would provide a valuable scientific input to the politically crucial issue of border effects, especially in the framework of the INTERREG Programme. Indeed, substantial differences between contiguous regions create distortions which are generally considered detrimental from the cohesion point of view (“territorial gaps”). But those discontinuities can also reveal opportunities of cooperation and exchange in a framework of local partnership for development.

Map no 14: Anaylsis of Deviation

ANALYSIS OF DEVIATION

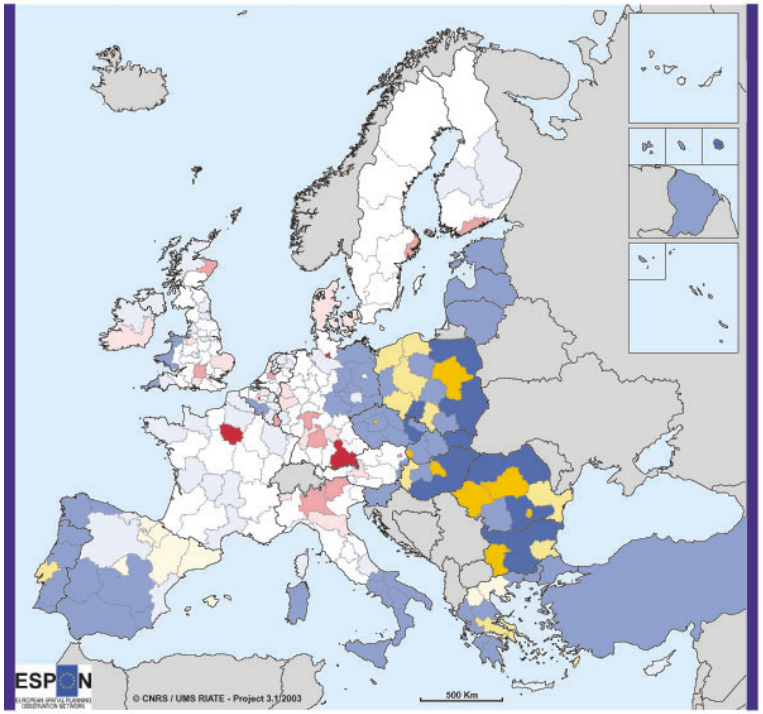


EXTRACT OF *MULTISCALAR TERRITORIAL ANALYSIS*, 3rd version - Word Package n°9 & 11, available on www.orate.prd.fr

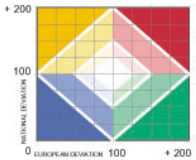
Map no 15: Synthesis of Deviation

SYNTHESIS OF DEVIATION

Map 6: GDP per capita (euro), 1999 - Position to European and national levels



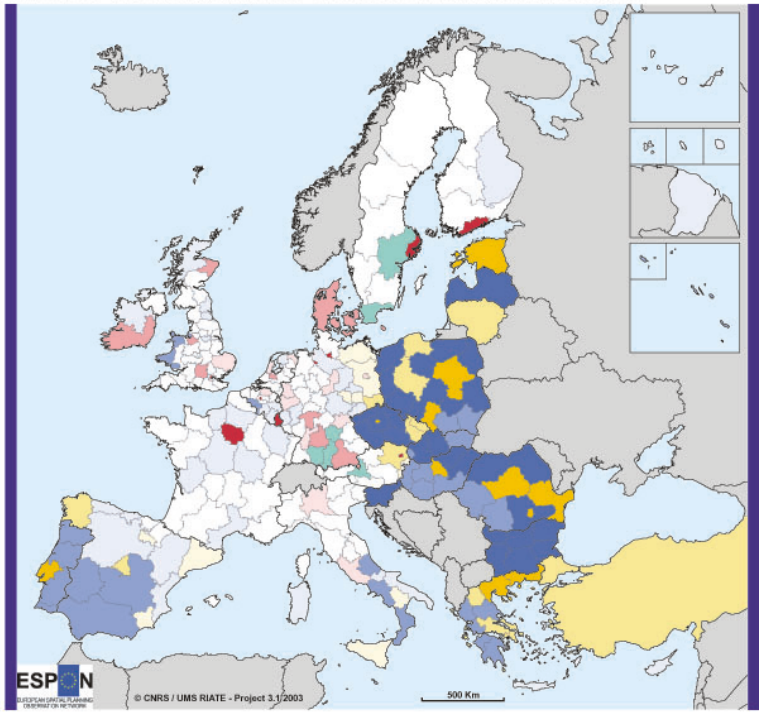
Combination of European and national deviations



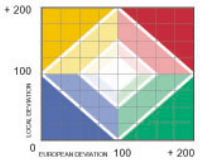
For example, Lombardia's per capita GDP (25522 euros) is higher than EU-15's one (21361) and higher than Italy's one (19229). The deviation to European and national levels are higher than 100. Lombardia is colored in red.

Geographical Base: Eurostat GISCO
Regional Level: NUTS 2
Data Base: Eurostat REGIO

Map 8: GDP per capita (euro), 1999 - Position to European and local levels



Combination of European and local deviations

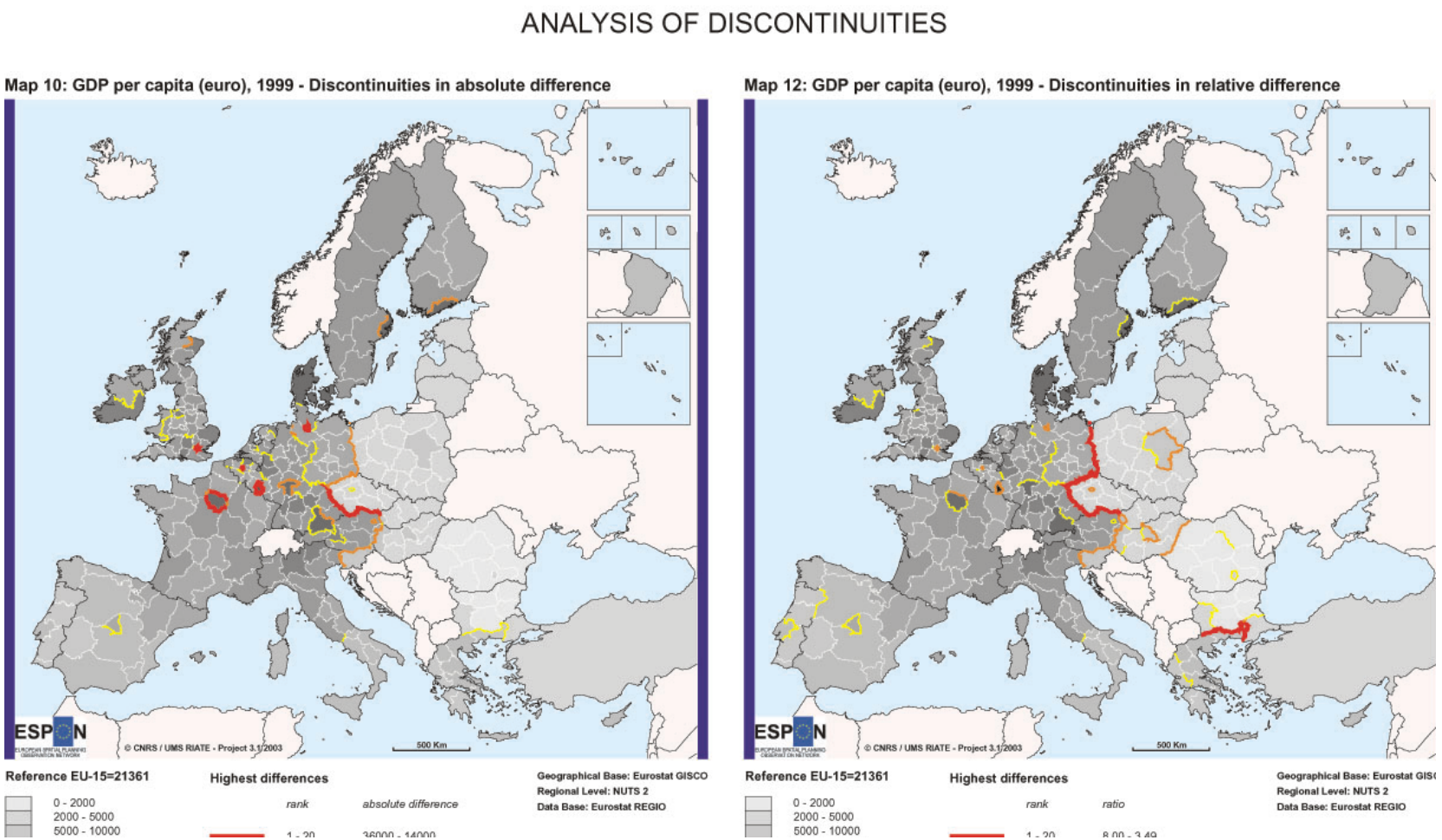


For example, Salzburg's per capita GDP (27781 euros) is higher than EU-15's one (21361) but lower than neighbouring's one (28241). The deviation to European level is higher than 100, contrary to the deviation to local level. Salzburg is colored in light green.

Geographical Base: Eurostat GISCO
Regional Level: NUTS 2
Data Base: Eurostat REGIO

EXTRACT OF *MULTISCALAR TERRITORIAL ANALYSIS*, 3rd version - Word Package n°9 & 11, available on www.orate.prd.fr

Map no 16: Analysis of Discontinuities



Multiscalar Territorial Analysis (MTA) gives the opportunity to derive several indicators from an initial variable of the ESPON database. Some of those indexes derived from spatial analysis should again be included and stored in the ESPON database.

If we call '**Vxxxx'** a single interesting variable from the ESPON database, available at NUTS 2 level in the European Union and accessing countries, the following indicators will be added in a systematic way to the ESPON database.

- **Vxxxx_ DevUE15** : Deviation of a region to mean value of Vxxxx in the current limits of the European Union
- **Vxxxx_DevUE25** : Deviation of a region to mean value of Vxxxx in an enlarged European Union
- **Vxxxx_DevNAT** : Deviation of a region to mean value of Vxxxx in the state where this region is located.
- **Vxxxx_DevLOC** : Deviation of a region to the mean value of Vxxxx in the neighbouring regions

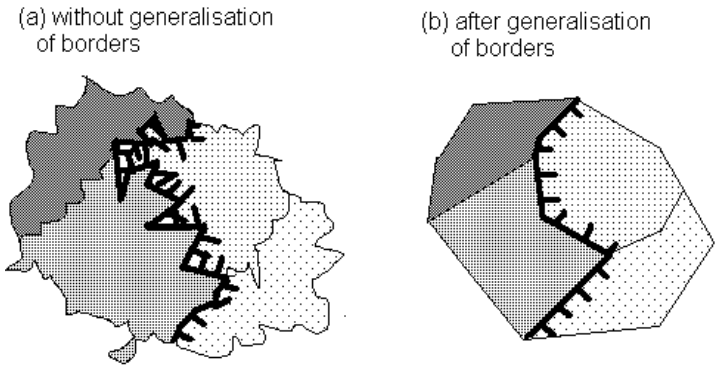
Creation of a database about contiguous regions at NUTS 2 level

Another application from the MTA spatial analysis tool is the computation of measure of absolute and relative differences between contiguous regions. This means measuring the attributes which describe the limits of two neighbouring regions and which can be the basis for maps of territorial discontinuities. A database where the differences between contiguous regions are stored will be established for the most common indexes.

This database will be structured in a specific way, taking into account the various nature of the geographical objects which will be stored. This will include:

- **GIS files describing the geometry of regional boundaries at NUTS2 level**. Concerning this point, it is necessary to observe that the current regional boundaries are not sufficiently generalised for an efficient cartography of regional discontinuities. It should be necessary to prepare a new generalised map of regions at Nuts 2 and Nuts 3 level if we want to produce good maps of discontinuities, especially if we introduce the direction of gradient between neighbouring regions (see figure no. 11).

Figure no 12: Cartography of oriented discontinuities



C. Grasland (2003)

It is interesting to draw maps of discontinuities where the gradient of change is indicated by an oriented line. But this cartographic solution is possible only after an important generalisation of the regional borders. It is not possible to draw this kind of maps in the frame of the NUTS 2 or NUTS 3 regions from the GISCO files.

- **A table on the general properties of regional boundaries**: their approximated length (km), their political meaning (external border of EU25, limit between EU15 and Accessing Countries, international boundary inside EU15, intranational limit, …), the presence/absence of a common language, the potential social interaction (product of the populations of the two regions in contact), etc. Those reference indexes will be very useful when analysing discontinuities measured on specific criteria. For example, if we decide to compute differences according to a typology of boundaries (do the international boundaries produce higher differences than intranational ones?) or if we decide to produce weighted means of differences between contiguous regions (weighted by length of boundaries, or by potential social interaction)

Several tables describing the specific differences between regions for a specific group of indicators. For example, the differences related to GDP/inh will be stored in a single table containing 4 measures according to the choice of absolute/relative and euro/pps criteria. But the differences related to age structure are much more complex and it is not interesting to analyse the differences in a too analytical way (differences for % of 0-9 year, 10-19 year, etc.). It is much more interesting to propose some global indexes of differences of age structure, with the opportunity to examine in more detail the content of the global index.

6.3 The ESPON Hyper-atlas

The ESPON Hyperatlas is a specific web application developed for ESPON 3.1 by a network of French research called Hypercarte. It is important to keep in mind that Hypercarte is a research structure financed by French public funds (CNRS, INRIA) and that ESPON can benefit from this public research for the realisation of the Hyperatlas which is a specific application of Hypercarte on a particular problem.

6.3.1 General framework of the Hypercarte project

The recent technological advances in the fields of the Web and Parallel Computing offer new perspectives for both spatial analysis and cartography. It is now possible using specialised software to build static as well as dynamic maps, on the fly and according to a specific problem. The aim of spatial analysis is to develop some methods in order to analyse locations or interactions between some locations.

In this context, the Hypercarte project aims at proposing a methodology as well as an interactive cartographic tool for the analysis and the visualisation of socio-economical data related to a given space of study, taking into account a territorial mesh corresponding to a set of political and administrative divisions (county, department, region, state), a reference territory (EU15, EU27…), the scope (smoothing ray), and showing the gradients or the discontinuities between territorial units.

Hypercarte is a research network founded in 1996 which has already achieved numerous publications and maps, and which owns a national and international scientific recognition. The underlying and founder hypothesis of Hypercarte is that any spatialisation of a social phenomenon can lead to a possibly infinite set of maps, depending on the intrinsic nature of the phenomenon, on the hypotheses of the map designer, and on the goals, needs, expectations, beliefs, practice of the end-users. Data required for the map production are from different kinds. They include spatial data (for the localisation), geometrical data (to determine the frontiers), and socio-economical data (indicators such as the population, the GDP, etc.). Files containing these data have a big size since they contain the data corresponding to the smallest territorial units used in the finest mesh. For instance, for the EU15, a file containing one indicator (population at Nuts 5 with co-ordinates) has a size of 800 Mo.

Two different kinds of processing can be applied to these data. One has to distinguish between processing performed on a territorial mesh, and processing which do *not* consider any underlying territorial mesh

- In the first case (MTA), for a given mesh, which can be obtained by aggregating some territorial units, the goal is to draw a map that shows the value of an indicator (for instance, GDP), the value of a ratio (for instance, the ratio GDP/population), or to show any other combination of indicators.
- In the second case (MSA), getting free of any underlying mesh, the goal is to show the distributions of social phenomena in a continuous space, without considering any territorial units

Moreover, the tools and the methodology are to be designed for the different actors involved in the territorial analysis (researchers in Geography, in Social and in Human Sciences, but also the decision makers, politics, or the general public…). So, it is important that the cartographic environment is able to adapt itself to these different users profiles. Adaptability in such an environment has to rely on the definition and the management of, on the one hand, the preferences and the needs of the different groups of users concerning both the content and the presentation of information and, on the other hand, on the material configuration of the users.

Though this multidisciplinary research project, we propose to bring some new solutions to the problems encountered in the fields of the interactive cartography on the Web and of the multiscalar territorial analysis. We distinguish here between two important and recent problems in computer science linked to these fields:

1. The problems linked to the data processing (specially, computation) which require both the design and the implementation of a Web infrastructure dedicated to the processing (computation), pre-processing, and intermediate storage of geographical data. This infrastructure must be able to handle a high flow of map queries, with the constraint of *not* storing the set of all the possible maps (which is practically impossible). Considering on the one hand, the size of the data files containing the territorial units upon which processing and computations are to be performed and, on the other one, the amount of both CPU and memory required to accomplish this processing, we decide to use parallel machines and more particularly, PC clusters, as associations of standard and powerful processors connected by a fast network. As an example, let us mention that in order to

calculate the density of the European population using a Gaussian interaction function, upon territorial units corresponding to councils, ten hours of CPU (on a 1.2GH and 1 Go AMD) are needed. Here, we are more particularly interested in the execution of the query (the computation to be achieved). Both static (performed on the client) and dynamic (performed after a request of processing made to the server) queries have to be first processed by the server. Caching mechanisms are used to accelerate some parts of the query processing. Our study consists in determining strategies which allow a faster processing of the query on the server. This has a direct impact on the response time of the users queries. In this project, we propose to study and implement a data storage method which allows to spare some memory space, to improve the search, and to provide, in case of successful query, some correct and up to date information. In this context, the scientific bolts of lock stand in the characterisation of the queries, in the choice of a good model of parallel programming, in the management of the caches, and in an algorithm for determining the right dimension of the caches. The technological bolts of lock stand in the use of PC clusters as a parallel server of query (with an efficient share of load), as well as in the hierarchical management of the caches, both on the client side and on the server side (both on a frontal and on the PC cluster).

2. The problems linked to the access to some virtually infinite information and to the heterogeneity of the potential end-users of the tool, which require to develop on the client side, a cartographic environment which is able to deliver to users maps which are the more adapted to their needs, with the permanent preoccupation of limiting ambiguities or interpretation errors. For this, profiles of users have to be established, either statically or dynamically, and managed in order to provide comments, in line help, and above all, results which match with users preferences and needs. In this context, the scientific bolts of lock stand in the modelling of the different groups of users, in the implicit acquisition and evolution of their profiles, in the automatic detection and representation of the users behaviour in the environment, and finally in the exploitation of these profiles for the cartographic interface, so that it integrates in the generated maps, the preferences and needs of the users as well as the characteristics of the client's material configuration. The technological bolts of lock stand in the definition and the exploitation of user models which are compatible with the profile description standard CC/PP and of graphical components compatible with the SVG norm, but

also in the identification and exploitation of rules used to interpret the users behavior, in order to supply the cartographic environment with a dynamic adaptability.

6.3.2 First results of the ESPON Hyperatlas.

After having defined the objectives of the Multiscalar Territorial Analysis, the research teams in geography and social sciences (UMR 8504 Géographie-cités, Paris) asked the research teams in computer science to start developing a prototype of MTA and to evaluate various technical solutions for the computation of results (ID-IMAG, Grenoble) and the presentation of user interface (LSR, IMAG, Grenoble).

The implementation of this prototype on the ESPON database is actually realised by UMS 2414 RIATE & UMR Géographie-cités in cooperation with Nordregio. In this process, great care has been taken to comply with different kinds of demands, from policy actors, researchers and other audiences.

Apart from the choice of variables, two main options condition the map which is produced. These are the choice of reference area(s) to which the values are compared (the “index 100 values”), and of spatial units which are to be analysed (“scale of analysis”). These parameters have complex implications with regards to the semiology of the map, i.e. the way in which it visually communicates results.

- **Reference Areas**

Multiple types of reference areas can be envisaged:

- Unique reference areas (e.g. EU 15, EU 25, Europe of 30),
- multiple reference areas (e.g. Country to which the region belongs),
- neighbourhood reference areas (e.g. contiguous regions, regions within 100 km radius, regions at less than 2 hours drive).

A political perspective on the territory to be analysed corresponds to each of these choices. National and continental reference areas produce important, but partial and often contradictory, representations of each region’s position. Neighbourhood reference areas on the other hand reflect regional structures, such as the primacy of a metropolitan region or the contrasted situations along a national border. While the global European representation of these localised situations can be difficult to interpret, this approach is useful from a prospective policy perspective, as it gives a key to potential tensions and flows. Other reference areas can also be used, such as INTERREG II C or III B areas. In some cases, one may not wish to

compare values to a given territorial context (e.g. EU average, National average), but to refer to predefined threshold (e.g. 75% of the EU average). Both of these approaches are catered for in Hyperatlas, as one can either specify a reference area or a reference value. Combining these different representations, one can compensate for the partial perspective of each of these maps taken individually. The main advantage of the Hyperatlas is to raise a consciousness about these choices, and to allow the observer to switch easily between different approaches.

- **Scales of Analysis**

The type of statistical units used largely determines the final message of a map. The implicit hypothesis is that the entities which are displayed are internally coherent in some respect, as their internal structure is hidden from the observer. This, however, does not imply that maps should be established at the most refined scale available. Indeed, each scale corresponds to a given type of phenomena and policy interventions, and therefore has a specific significance when describing social phenomena. Furthermore, many indicators are relevant at some scales only (e.g. GDP). The Hyperatlas limits choices in order to comply with these constraints.

While considering statistical entities belonging to a single NUTS level can be important politically, other territorial approaches may wish to observe entities of similar scale. It is therefore possible to carry out analyses and display using a combination of NUTS 3 and NUTS 2 areas. The set of statistical units composing this combined level of analysis will be a pre-defined option in Hyperatlas combination.

By successively displaying representations of the same indicators at different scales, one can observe the interplay of different types of local, national and continental phenomena, and envisage possible links between policies at the corresponding administrative levels.

An operational version of the first package (MTA) of the ESPON Hyperatlas will be presented in Paris the 11 June 2003.

6.3.3 Further results of the ESPON Hyperatlas.

According to the feed-back from the members of the ESPON network during the summer 2003, the final version of the first package (MTA) of the ESPON

Hyperatlas will be improved and connected with the ESPON database before the end of 2003.
During the same time, the development of the second package (MSA) will be engaged and experiments will be made on wide data sets (Nuts 5 units, CLC, …). But the final version of the Multiscalar Spatial Analysis package will probably not be achieved before the end of TPG ESPON 3.1. because it is much more complex than Multiscalar Territorial Analysis.

6.4 Interactive Web-Tools

The diffusion of ESPON data (geographical – spatial and attribute – aspatial) through the internet in an interactive way has been elaborated to satisfy the communication within ESPON 2006 (TPGs, MC, ECP, MU,…) and also the possibility of the promotion of the ESPON results to the public (the determination of the "public" is a question which need to clarify soon).
In order to achieve the different Internet GIS requirements the architecture of the ESPON Web GIS was designed in different levels of capabilities.

6.4.1 WEB GIS architecture

1st Level (GIS environment - Public Level). Simple cartographic presentations with limited views capabilities and attribute displays (Figure 1). This level is appropriate for a variety of browsers with less client side processing capabilities. Plug-ins aren't allowed. View (pan and zoom, snapshots – Figure 2), query (spatial and attribute data – Figure 3), buffering (Figure 4) are the main available functions.
This level of the ESPON WEB GIS is suited for general retrieval of the spatial data with no limited access.

2nd Level (GIS environment – ESPON environment, Researchers, Institutions). Advanced functionality with extensive user interaction and analysis. This level is appropriate for client machines which are powerful enough to handle local processing. This environment requires a one time Web download (Java Runtime Environment, JRE) by the user's computer. The functionality here includes extensive user interaction and analysis capabilities on the selection of a specific layer of geographical data and on the symbolizing of the different geographical layers by selecting specific attribute data and by using cartographic tools (one

symbol, unique symbols, graduated symbols with many possibilities to alter the categories of a specific attribute, Figure 5 and Figure 6).
This lever of the ESPON WEB GIS is suited for researchers, policy makers, etc., who want to examine the spatial variability of all the available data concerning the different categories of the ESPON DATA BASE.

3rd Level (Statistical analysis - Public Level). Simple retrieval of the data and of the indicators (selection of data category and subcategory for one or all countries for a specific time period and for one administrative unit, Figure 7) and monovariate statistical analysis (e.g. mean, coefficient of variation, graphs – Figure 8).

4th Level (Statistical analysis – Restrict access – Use of password for the access). Retrieval of the data and of the indicators, monovariate statistical analysis and printing/save capabilities of the selected data.

6.4.2 Description of the used software – Capabilities of the development software

For the WEB GIS the ArcIMS software is used, which allows the delivery of a wide range of GIS maps, data and applications through Internet. In order to meet the different user requirements two different viewers (HTML and JAVA) has been used to present the same information but with different capabilities of geographical data analysis.
The first viewer (HTML) has the following tools available:

Pan and Zoom
- Previous extend
- Zoom to full extent
- Zoom to active layer of geographical information
- Zoom out
- Zoom in
- Pan one direction
- Pan

Query
- Identify
- Find
- Search
- Graphic selection

- Measure
- Set units
- Clear all selection
- Query builder

Buffer - Buffer (within a distance around a point, a line or a polygon feature)

The second viewer (JAVA) has the following additional tools which give powerful possibilities for the spatial analysis.

Layer - Add layers
- Geographical layer properties (changing the symbols and the labels for the selected attribute)

Save - Copy a map to a file (image format)
- Save a project

For the storage and the retrieval of the statistical data we developed a data base using the relational DBMS Microsoft SQL Server. User friendly menus were developed (use of the scripting language JSP) for the selection (Figure 7) of different information (data or indicator) and to perform interactively basic statistical analysis and graphical representation of the selected data.

The software ArcSDE has been used to link the geographical data and the statistical data base in order to gain all of the benefits of using a relational DBMS and to model complex features and behavior required by GIS.

Figure no 13: ESPON area with the legend of the different geographical layers

(e.g. administrative boundaries) which the user can activate

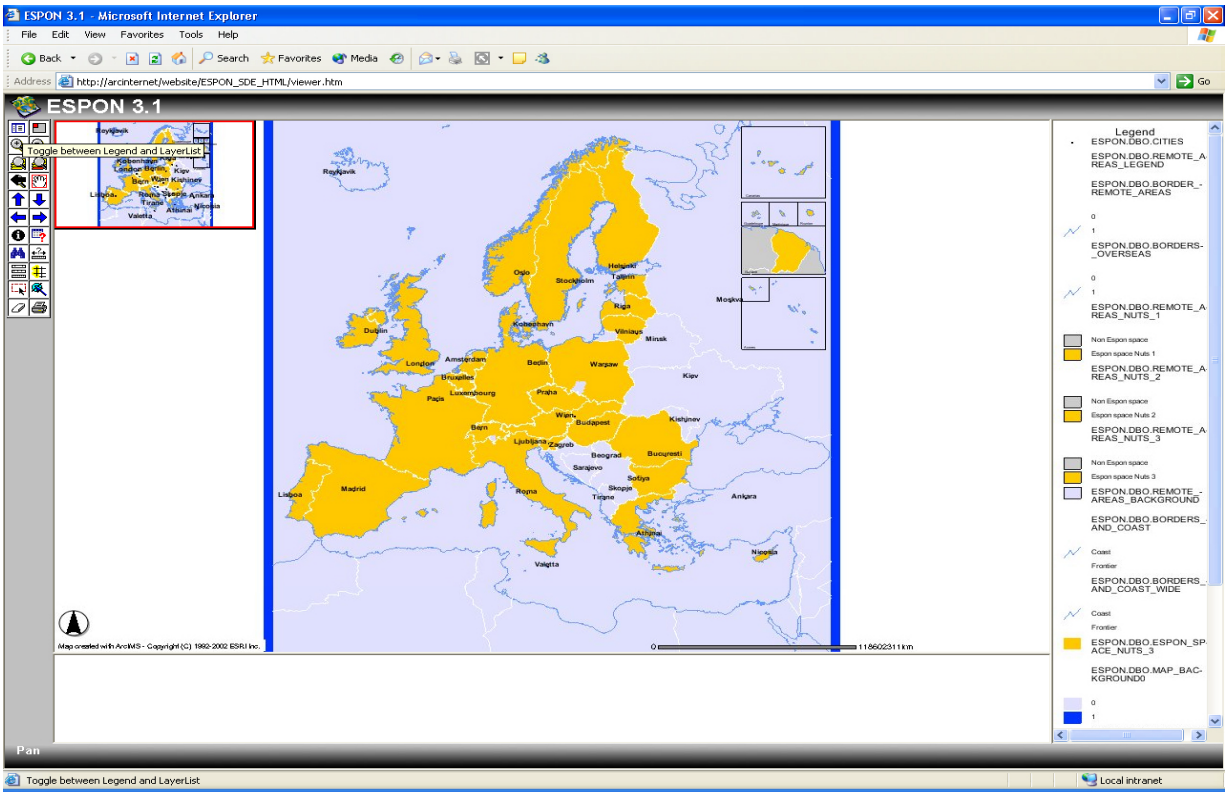


Figure no 14: Zooming capabilities

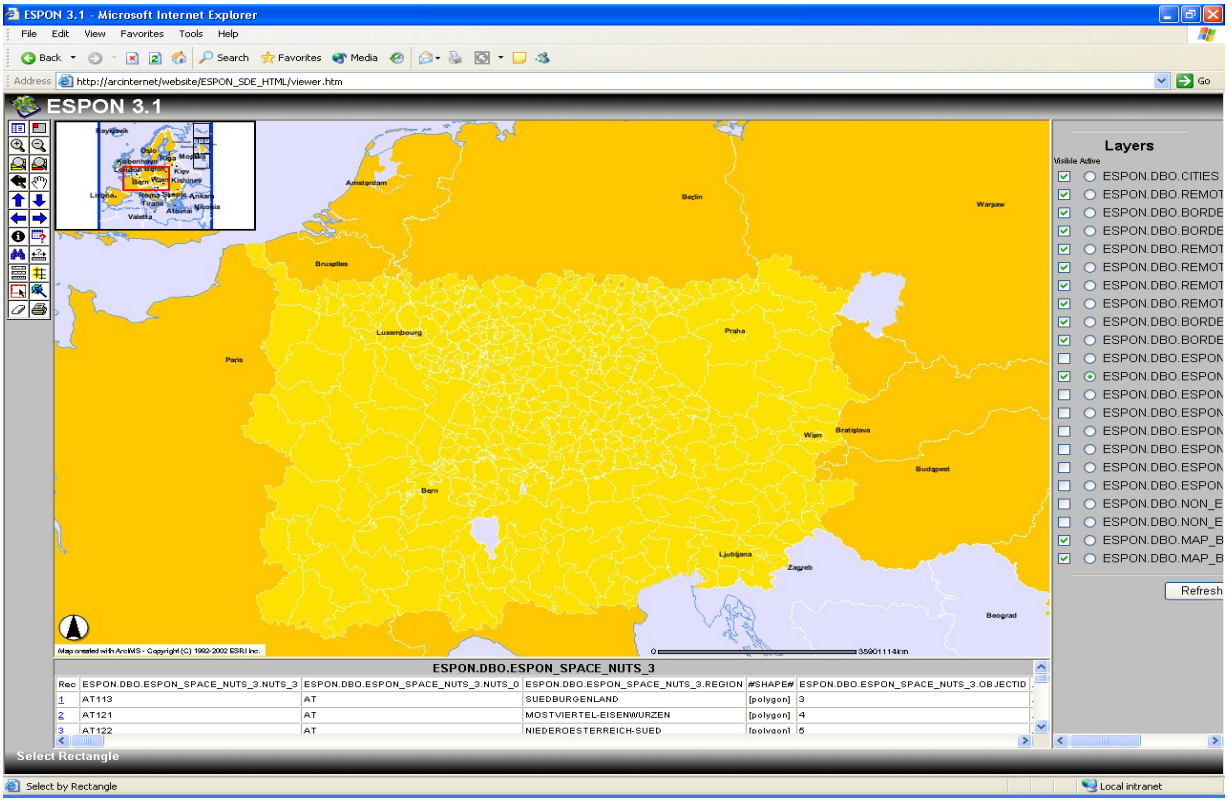


Figure no 15: The use of the "QUERY" menu for the selection of a specific feature

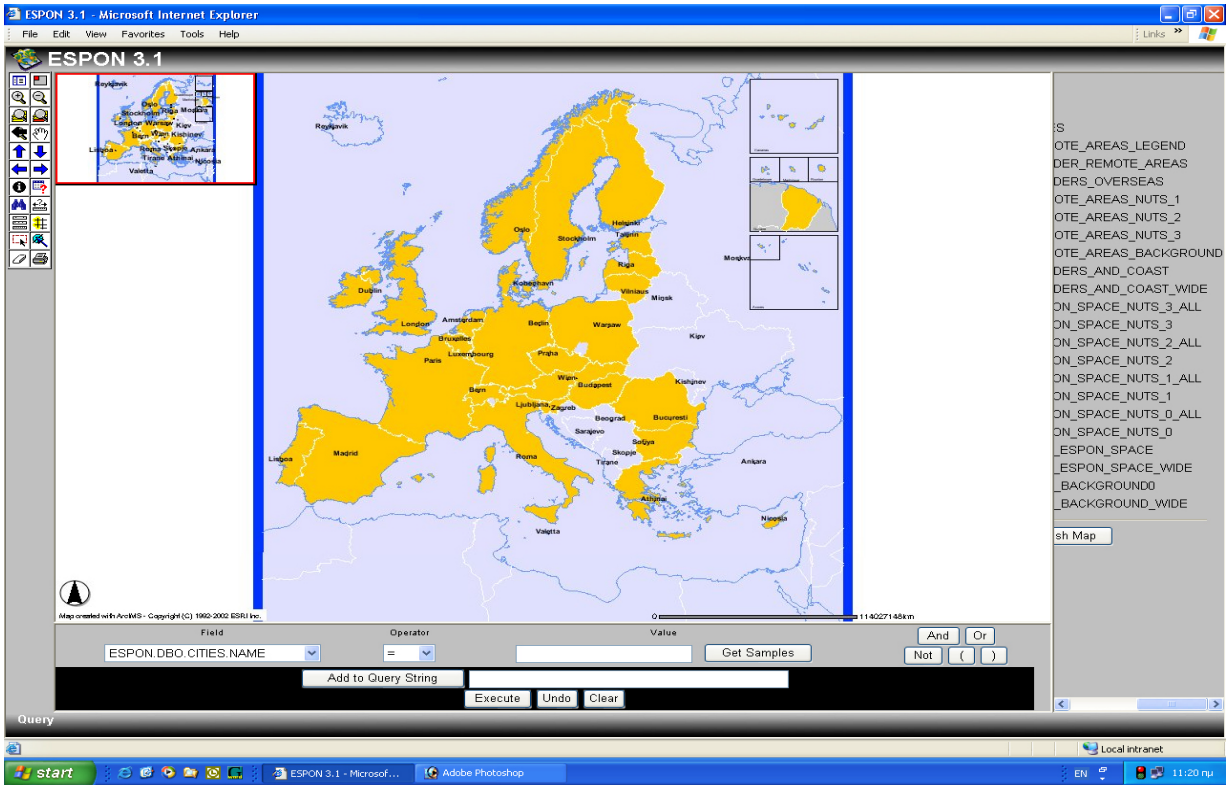


Figure no 16: the "Create Buffer" for the Cities layer,

within a specific distance around the selected features

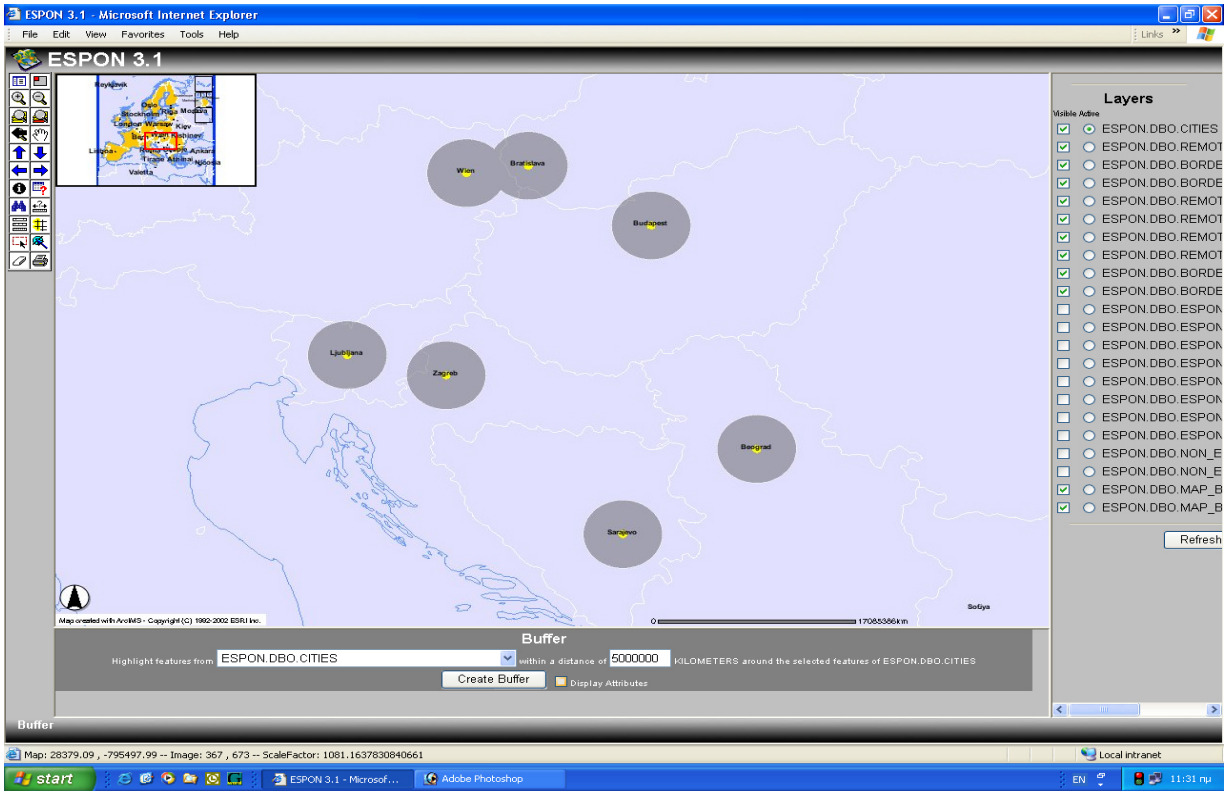


Figure no 17: The enhanced capabilities of the Java viewer

in using different cartographic tools (change of size, color, style of simple symbols, use of graduated symbols, etc.).

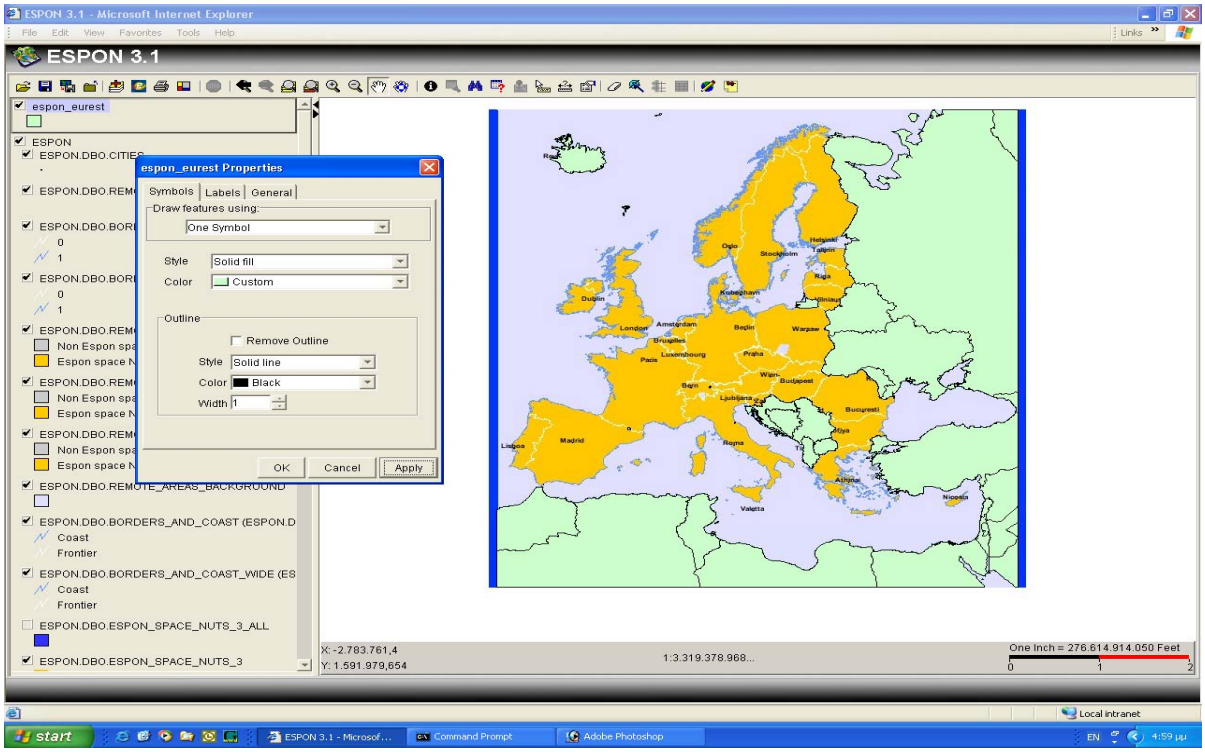


Figure no 18: The enhanced capabilities of the Java viewer

Changing the categories of the statistical data.

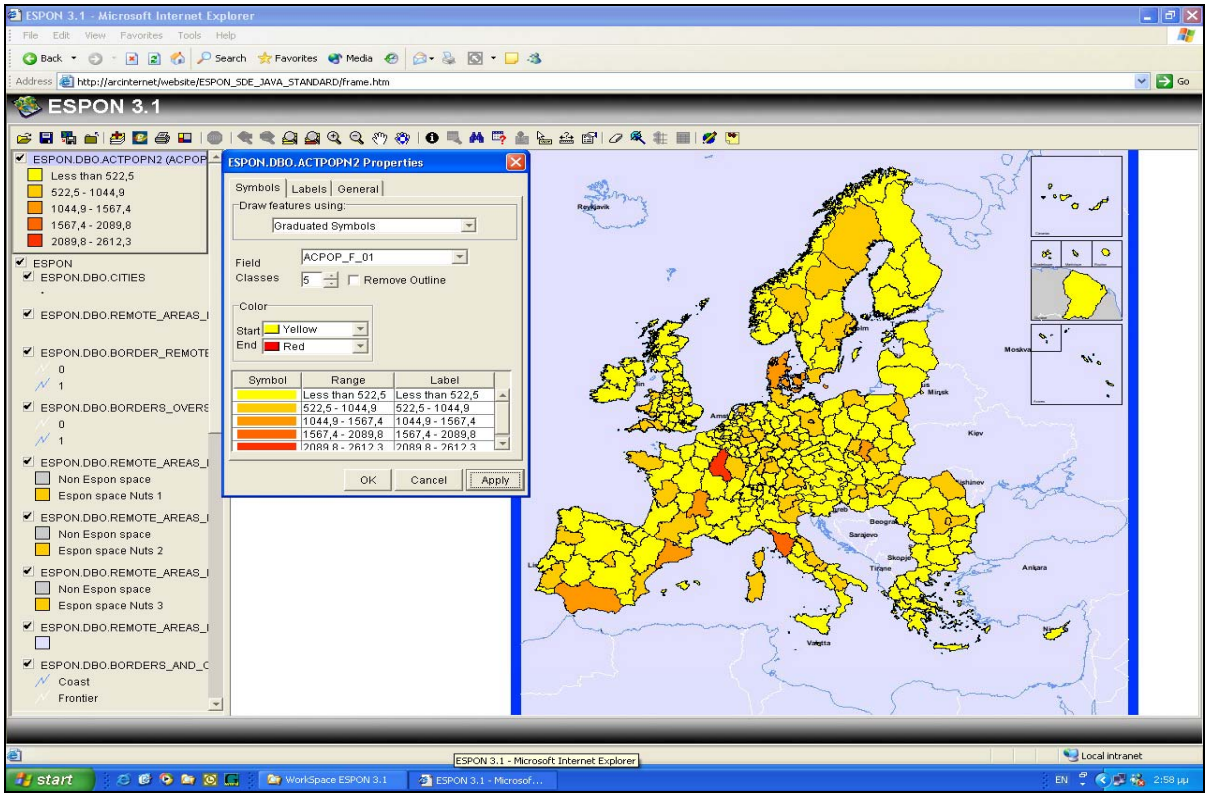


Figure no 19: Selection of statistical data

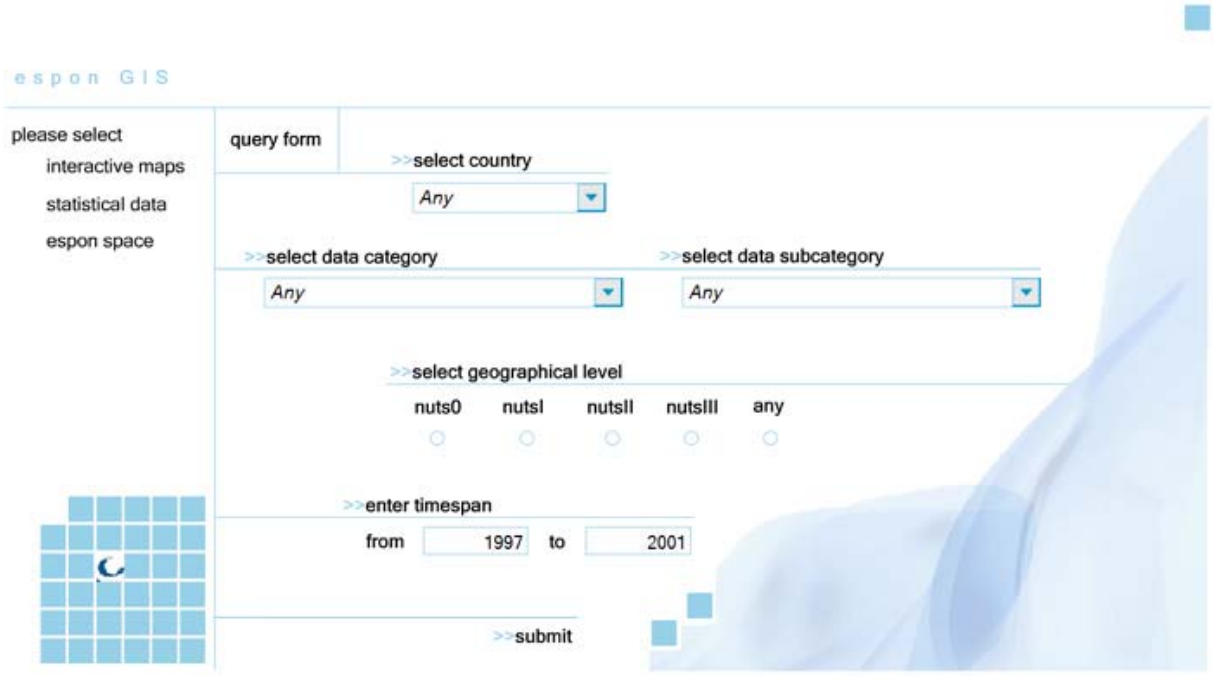
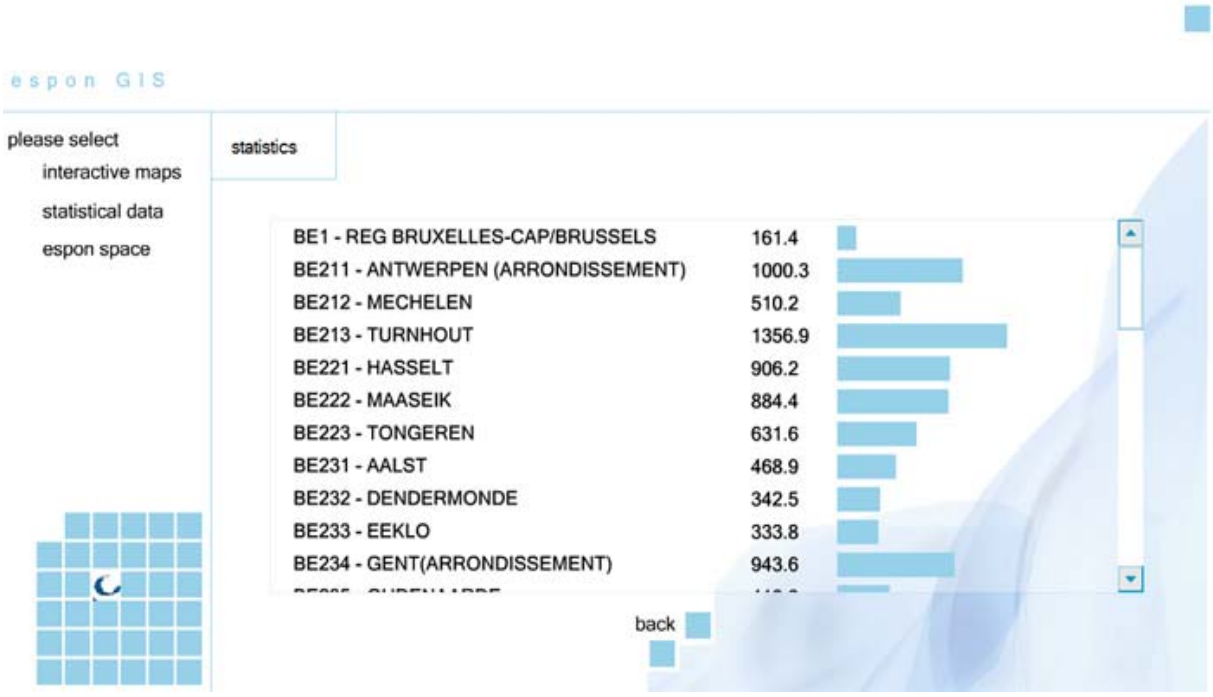


Figure no 20: Monovariate statistical analysis



7 First approaches on the topics 'Europe in the world' and 'INTERREG IIIB'

7.1 Europe in the world

The ESPON Programme 2006 focuses mainly on the European territory, but Europe is not a self contained system. It is important to have a look on external connections of the EU to get a complete picture of the status quo and possible future developments of the EU. This subchapter shows a possible approach.

7.1.1 An important topic for the ESPON programme

Most studies developed in the framework of the ESPON Programme are based on databases limited to the EU and the candidate and neighbouring countries (EU27+CH+N) and do not take into account the relations between European territories and the rest of the world. However, many aspects of the internal differentiation of Europe are related to existing and potential flows between Europe and the rest of the world. This is especially true for, e.g.:

- Gateway cities
- Polycentrism
- Spatial and social integration

The central goal of the short study realised in the framework of ESPON 3.1 is to build databases on selected flows (*air traffic, trade*[24]) between the European territory and the rest of the world in order to propose a methodology which may help to give answers to the following questions :

- What is the functional influence area of Europe in the world, i.e. which states/towns are more connected to Europe (according to flows) than to other centres of the world like North America and East –Asia?
- What are the internal differentiations of the European territory according to connections with the rest of the world, i.e. which parts of Europe (states, regions, towns) can be considered as major or minor "gates" to the rest of the world and what is the level of specialisation of those gates toward selected areas of the rest of the world?

[24] As a first approach, which has to be extended. It is obvious, that these two indicators cannot give a complete overview.

7.1.2 Expected results in September 2003

The teams in charge of the project have already achieved an important work for the realisation of harmonised databases on flows between all states or regions[25] of the world concerning two topics :

- **Air flows in 2000** (Source: Institut du Transport Aerien - ITA)
- **Commercial flows in 1996-2000** (Source: PC-TAS - International Trade Centre UNCTAD/WTO United Nations Statistics Division)

Given the limited resources of project 3.1 for this topic, further work will focus on the concepts and methodologies and produce exploratory analysis on two research streams :

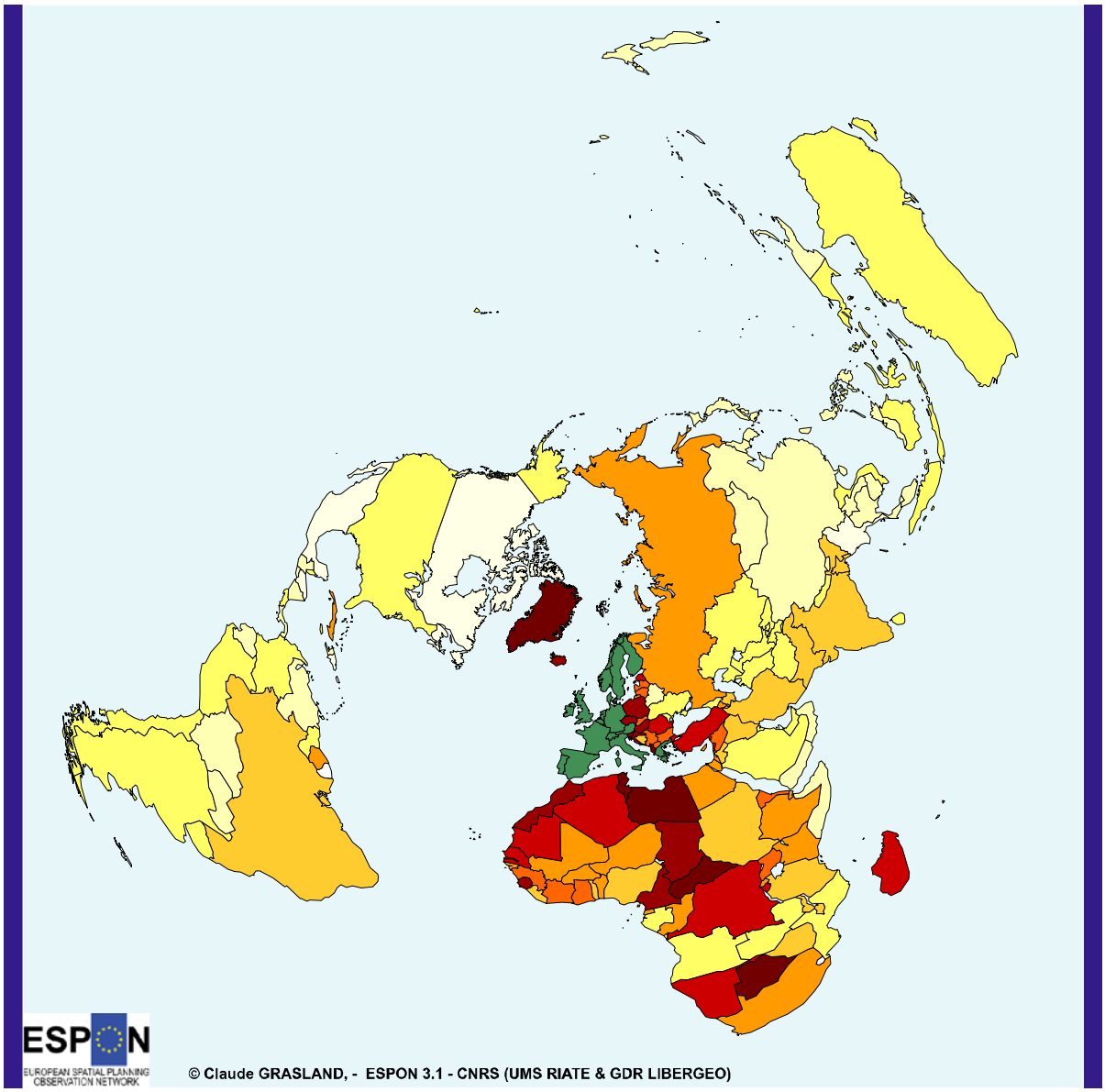
- **Research stream 1 : Differenciation of the world according to Europe** will examine what are the possible methods for a delimitation and a cartography of European Functional Influence Areas in the world according to various criteria. The objective is to define a typology of world states more or less integrated to Europe by their flows.

Example : The following – very simple – map presents the share of Western Europe (EU15+Norway+Switzerland) in the total trade flows (imports + exports) of the different states of the world. It is observable that very few states of the world have a share of trade with Western Europe lower than 20% and that the area, where the influence of Western Europe is greater than 50%, is very large. This basic map is only a preliminary result which will be improved by models of spatial interaction and network analysis. We will also try to combine various assumptions on the delineation of the Europe influence area (EU15, Western Europe, EU25, …), including iterative procedures.

[25] "Regions" of the world can be based on political criteria (EU15), trade agreement (NAFTA) or other criteria proposed by researchers or international agencies.

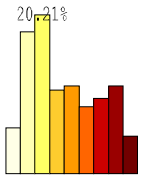
Map no 17: Differentiation of the World according to Europe[26] - Trade Flows with Western Europe (1996-2000)

FOREIGN TRADE WITH WESTERN EUROPE (1996-2000)



Share of Western Europe in the total trade flows in %

80 - max
70 - 80
60 - 70
50 - 60
40 - 50
30 - 40
20 - 30
10 - 20
0 - 10



Source : Trade Analysis System - ITC/UNSD

[26] N.B. This map is a very preliminary result which has to be verified and validated before any use out of the ESPON network.

- **Research stream 2 : Internal differenciation of Europe according to the flows with the rest of the world** will try to examine how the various parts of the European Union are connected with the rest of the world according to various criteria (intensity of flows, diversity of connexions, specificity of connexions, …).

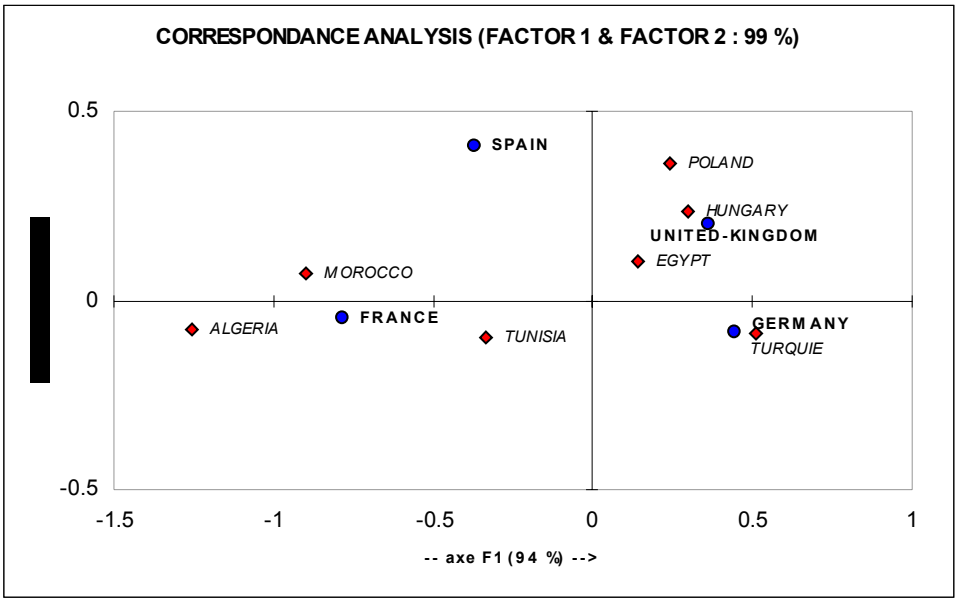
Example : In the very small example presented above (table n°1 and Figure n°1)) we can see how the methodology of correspondence analysis can produce a double territorial differentiation : (1) Differentiation inside the EU between member states which are more connected with Northern Africa (France, Spain) and member states which are more con nected with Eastern Europe (UK and Germany) or south-eastern Mediterranean. (2) Differentiation outside EU between neighbouring states which are more connected to the EU by France (Algeria, Morocco, Tunisia) and states which are more connected by GB (Poland, Hungary, Egypt) or by Germany (Turkey).[27]

Table no 21: Total air flows between a sample of states of EU15 and a sample of candidate or neighbouring countries

	Algeria	Egypt	Hungary	Morocco	Poland	Tunisia	Turkey	Total
Germany	24085	1672260	842765	392994	711893	2025499	7023120	12692616
Spain	102972	215770	118495	280089	119293	213556	193277	1243452
France	1448096	803393	257327	2121522	295217	2656246	1041034	8622835
U.K	48966	633047	401490	212085	494124	610441	2012169	4412322
Total	1665889	4188098	1692332	3247162	1620527	5611244	10447894	28473146

Source : ITA

Figure no 21: Correspondance Analysis on the total air flows between a sample of states of EU15 and a sample of candidate and neighbouring countries



[27] N.B. Please keep in mind that the example presented above is only a pedagogical example of the methodology and not an ESPON result.

7.1.3 Going further ?

Given the crucial importance of the topic *"Europe in the world"* there is a French proposal to the ESPON Monitoring Committee to allocate additional funds to this topic for an in-depth investigation of flows between Europe and the rest of the world. A great part of the funds has already been used for the acquisition and organisation of databases and it will be difficult to realise an in depth analysis without extra-funds allocated to ESPON 3.1 for this task.

We can also imagine that this topic could be introduced in the terms of reference of ESPON 3.2 as it is a major input for the realisation of political scenarios in a long term perspective. In this case, the preliminary study realised by ESPON 3.1 could be an helpful basis for the redaction of the future terms of reference of ESPON 3.2.

7.2 ESPON 3.1 approaching INTERREG IIIB: First ideas on possible foci and further work

The aim of this section it to outline possible foci for the ESPON 3.1 work regarding Interreg. Within ESPON 3.1 a debate has been started on what needs to be done in relation to Interreg IIIB and how can this be achieved.
Indeed, establishing links between ESPON and Interreg IIIB can involve a variety of different aspects. At this point we would like to distinguish between two main strands:

- **Networking and Integration of Activities and Results**
  A large number of Interreg IIIB projects are actually carrying out studies on topics similar to those researched within ESPON. This implies e.g. issues such as polycentric development, rural-urban partnership, which are of high importance also in the ESPON Programme, or ESDP audits.
  Thus an exchange of ideas and results as well as mutual stimulation of debates in various Interreg IIIB and ESPON projects might be considered a natural part of the pro-active dialogue strategy of ESPON 3.1. This could involve three different moments:
  1. Gathering and compiling information on the work carried out in various Interreg IIIB projects

2. Analysing and clustering the work carried out by Interreg IIIB projects and communicating it within the wider ESPON community

3. Informing Interreg IIIB participants at programme and project level about the work and achievements of ESPON

These three elements should establish a suitable platform for a stimulating dialogue between Interreg IIIB and ESPON. Such a focus will to a certain extend overlap with the work of Interact. As the exact scope of Interact, and in particular the role of the ESPON secretariat within the Interact context, is still under development, it has been decided to wait for clarification before continuing the debate along that line.

- **Research on Interreg in the Light of Cohesion and Future Structural Funds**

  At the same time as Interreg IIIB can be subject to networking with ESPON, Interreg may also be subject to ESPON research (although the focus might be on IIC as well as on IIIB). The debate of the future of the Structural Funds as well as on recent policy ideas such as polycentric development, territorial cohesion and global integration zones suggest that the effect of Interreg co-operation might be analysed regarding possible policy conclusions to be drawn from the experiences so far. Such research may cover three aspects:

  - Reference to the ESDP – Interreg as implementation instrument (e.g. for achieving more polycentric development)?
  - Interreg as instrument for EU integration – weakening EU internal borders
  - Interreg as instrument for creating trans-national regions – building of new borders

  Analysing Interreg co-operation along these three lines might provide first conclusions on contribution of Interreg to territorial cohesion and thus the potentials for this instrument within the framework of future Structural Funds.

Summing up the discussion, the main question is: To what degree ESPON 3.1 is supposed to (a) focus on networking and the facilitation of research or to (b) carry out own research? Given the situation of ESPON 3.1 not all activities discussed above can be carried out.

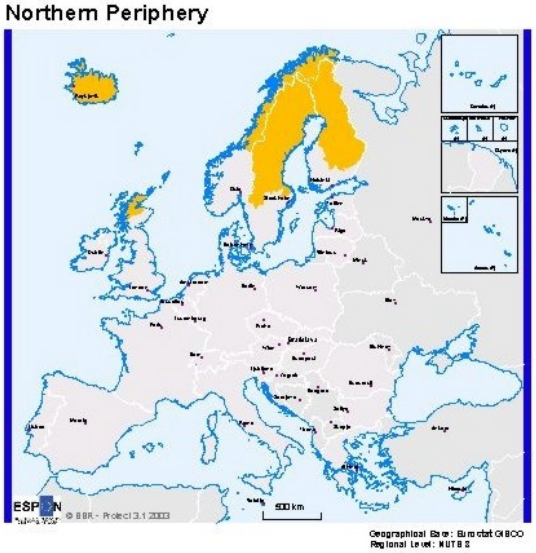
During the next couple of months a decision needs to be made regarding the focus of the ESPON 3.1 work on Interreg. Summing up the discussion so far two realistic approaches can be seen:

Firstly, providing a platform for dialogue and exchange of results between Interreg IIIB and ESPON seems to be necessary task for ESPON 3.1. Given the activities of Interact, it might be possible to draw widely on their work as regards the communication of Interreg results to the ESPON community. This would give us more capacity to focus on communicating ESPON activities to the Interreg community and so supporting the use of ESPON results.

Secondly, leaving a major part of “networking with Interreg” to Interact, gives ESPON 3.1 the opportunity to be active in the field of “assessing Interreg”. With regard to the debate on the future of Structural Funds, it seems to us that an assessment of Interreg as an instrument for creating trans-national regions is to be prioritised. Accordingly we would like to suggest to focus on this and leave the other two aspects for possible later research.

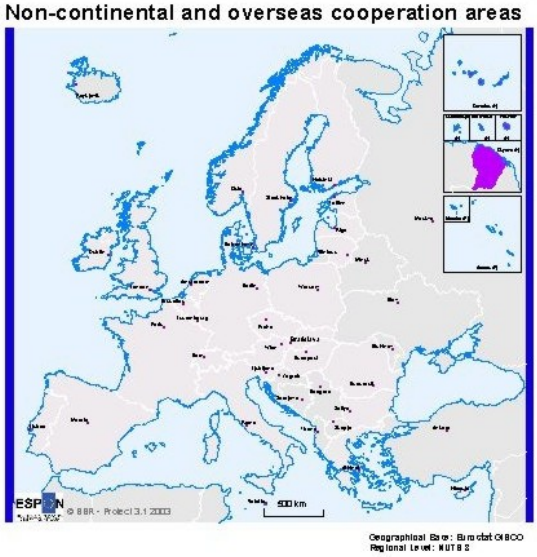
Map no 18: Interreg III B Co-operation Areas 1

Northern Periphery



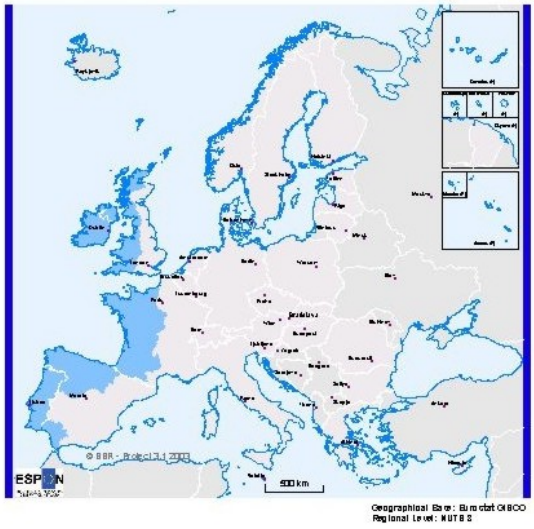
Geographical Base: Eurostat GISCO
Regional Level: NUTS 3

Non-continental and overseas cooperation areas



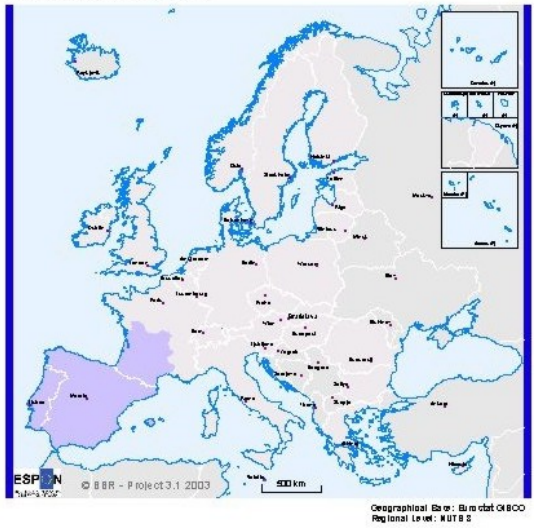
Geographical Base: Eurostat GISCO
Regional Level: NUTS 3

Atlantic area



Geographical Base: Eurostat GISCO
Regional Level: NUTS 3

South West Europe

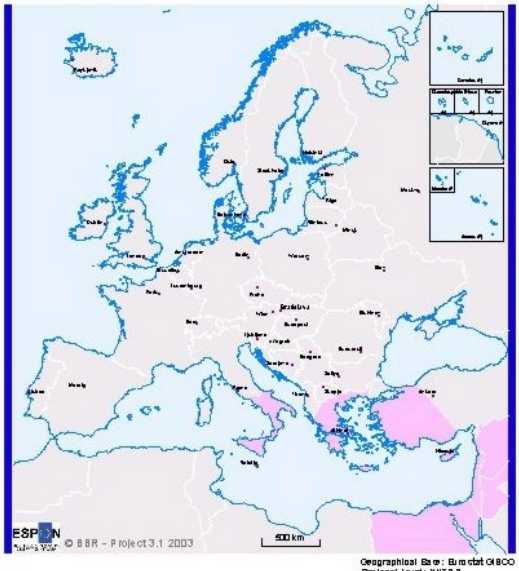


Geographical Base: Eurostat GISCO
Regional Level: NUTS 3

The Medocc Area (Western Mediterranean)

Geographical Base: Eurostat GISCO
Regional Level: NUTS 3

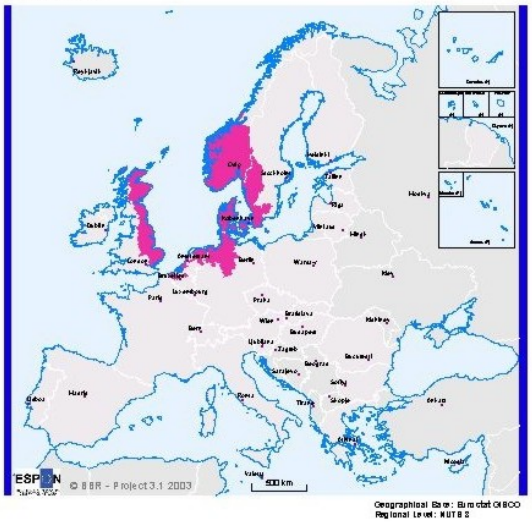
ARCHIMED



Geographical Base: Eurostat GISCO
Regional Level: NUTS 3

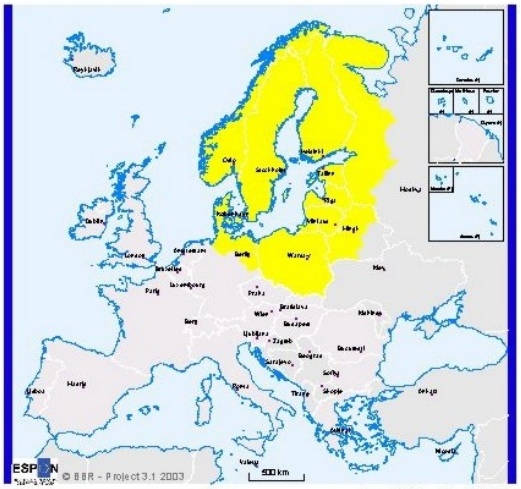
Map no 19: Interreg III B Co-operation Areas 2

North Sea



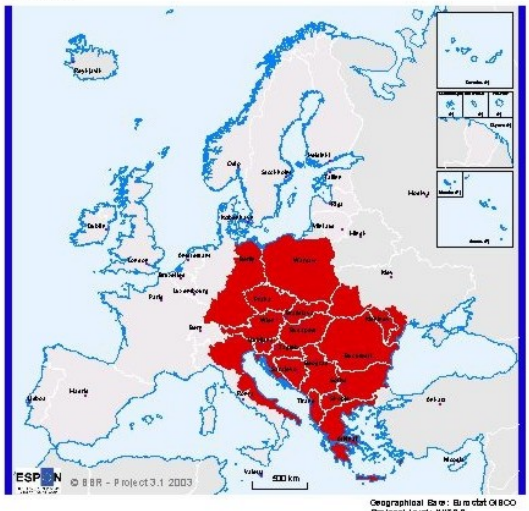
Geographical Base: Eurostat GISCO
Regional Level: NUTS 2

Baltic Sea



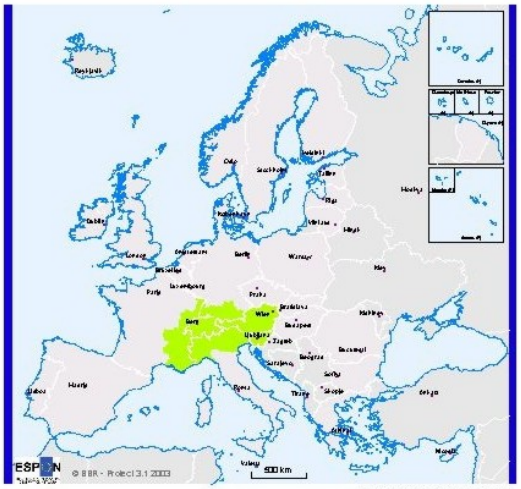
Geographical Base: Eurostat GISCO
Regional Level: NUTS 2

CADES



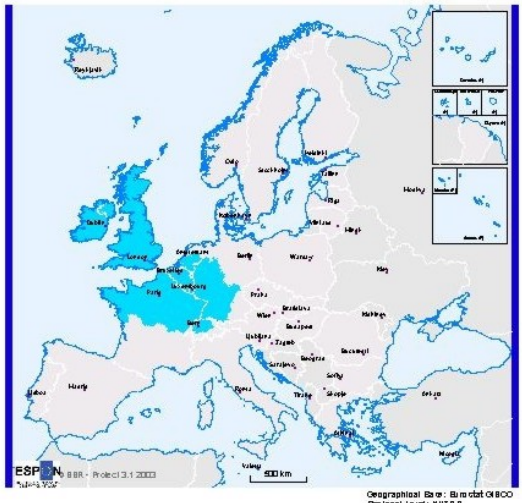
Geographical Base: Eurostat GISCO
Regional Level: NUTS 2

Alpine Space



Geographical Base: Eurostat GISCO
Regional Level: NUTS 2

North West Europe



Geographical Base: Eurostat GISCO
Regional Level: NUTS 2

7.2.1 Open questions and recommendations

Summing up the discussion, the main question is: To what degree ESPON 3.1 is supposed to (a) focus on networking and the facilitation of research or to (b) carry out own research? Given the situation of ESPON 3.1 not all activities discussed above can be carried out.

During the next couple of months a decision needs to be made regarding the focus of the ESPON 3.1 work on Interreg. So far two realistic approaches can be seen:

Firstly, providing a platform for dialogue and exchange of results between Interreg IIIB and ESPON seems to be necessary task for ESPON 3.1. Given the activities of Interact, it might be possible to draw widely on their work as regards the communication of Interreg results to the ESPON community. This would give ESPON 3.1 more capacity to focus on communicating ESPON activities to the Interreg community and so supporting the use of ESPON results.

Secondly, leaving a major part of “networking with Interreg” to Interact, gives ESPON 3.1 the opportunity to be active in the field of “assessing Interreg”. With regard to the debate on the future of Structural Funds, it seems to us that an assessment of Interreg as an instrument for creating trans-national regions is to be prioritised. Accordingly we would like to suggest to focus on this and leave the other two aspects for possible later research.

8 Outlook towards expected preliminary results in September 2003

8.1 Operationalisation of policy concepts – expected results

The requirements of the ToR regarding the 3.1 TIR are oriented toward the production of policy recommendations and include:

- identification of orientations on an implementation of territorial policies, from analytical tools to feasible policy measures;
- tentative recommendations to policy development towards the ESDP and the Structural Funds after 2006;
- first steps towards the preparation of methodologies for prospective scenarios.

Operationalisation of policy concepts contributes to those aspects of the TIR, notably bridging analytical tools and policy measures. Focus will be set on the typology tool. Typologies will be produced for each of the three sets of conditions for territorial cohesion (potential, position, integration) and for their combinations. They will as far as possible be co-ordinated with typologies produced by other TPGs regarding polycentrism and associated concepts such as accessibility.
Typologies will rely on a reasoned selection of indicators based on information produced by ESPON projects (TPGs reports, 3.1 specific contributions on concepts and SWOT analysis), complemented if needed by other readily available information, and on advanced spatial analysis tools for some aspects (particularly those that take into account relationships between territories).

The added value of this operationalisation will reside in:

- links between thematic approaches, as the concepts provide a basis for consistency as well as for policy relevance;
- syntheses between “technical” approaches such as core typologies, spatial analysis tools, SWOT, TIA…;
- structured contents, allowing for example to compare various typologies and to explore issues with policy implications such as links between potential and position of a territory, between polycentrism and spatial integration,…;
- production of images (schemas, maps) that help convey a synthesis of ESPON findings.

Special attention will be paid to the time dimension, in order to emphasise policy implications and to prepare the work on scenarios.

8.2 The ESPON European META – SWOT

Project 3.1 will give a first detailed examination of the single SWOTs latest for the ESPON TIR. So for the TIR elaborated inputs from the majority of the TPGs would be very helpful.

The next steps to be taken by 3.1 will include an in depth analysis of the SWOT inputs of the TPGs. The aim is too bring out a cross thematic view, that shows the interdependencies between the different themes, and the spatial effects.
So the ambitious aim is to answer questions such as:

"Are the effects of the theme A positive for the all over polycentric development in Europe?"

"Are the effects of the theme A positive for the sustainable development of Europe?"

"Are the strengths of the B sector weakening the strengths of sector D?"

"Are there some key driving forces, that may propel more than one sector in Europe?"

..

…

Nevertheless the format of the result of this evaluation should be brief, easy to handle, comprehensive and also an extra value to all ESPON TPGs.
The TPG 3.1 is trying to transform the multitude of incoming single sectoral approaches into a cross sectoral approach. Also the different important spatial policies should be cross checked.
ESPON 3.1 is trying to give a first glance of the expected process within the meeting on Crete and is hoping for a vital and creative discussion.

8.3 Territorial Impact Analysis – expected results

Outlook to further results

The work steps to come towards TIR obviously are to apply / implement the methodologies declared here in SIR. Thus, hardly new inputs to the question of TIA methodology are to be expected. Not at least, this can be considered

confirmed by comparing the state of insight given here with that of the analyses of TIA-related methodological approaches in the FIR.

Concerning the question to which degree “a general common and co-ordinated approach for assessment” is achievable already the FIR stated:

> “It is obvious that the descriptions of the approaches under measure 2 ... show a considerable variety of features which seems to be caused more or less already by the different nature of the subject matter. ...
> ... even this first review is confirming ... that it seems hardly imaginable to cover the whole range of sectoral EU policy issues by one assessment methodology. The conditions for such a “general model” are lacking at least due to two reasons:
> - the very different character of the spatial dimension and implications of the policy areas concerned (in particular the different assignment to spatial goals) and
> - the rather different theoretical state of the art in the different areas of applied research and planning.
>
> Therefore, for the time being efforts should go rather towards achieving more transparency of description of the individual approach along minimum standards of methodological information and using a common non-confusing terminology, in order to launch a more effective methodological communication between the different areas of policy analysis and assessment.” Source:

Concerning the diagnosis, this is, what is still true. Concerning the requests for further steps, the SIR shows that progress has been achieved. Nevertheless the doubts are to be announced here again whether “a general common and co-ordinated approach for assessment” can go much beyond the following ‘minimum requirements’[28] for EU policy programmes:

- designation of (impact causing) policy intervention(s)
  actually recorded (assignable to EU budget lines)
- designation of hypothesis concerning cause-effect relations
- territorial incidence of results at least for NUTS 2 regions (preferred lower)
- reference to past and future periods
- designation of the topic of calculation
- qualitative appraisals at least (quantitative preferred)
- designation of spatial concepts / goals referring to
- designation of the technique(s) of analysis
- designation of (assumed) meaning of ‘territorial’
- coverage of the whole territory relevant
  (one outcome for each region, ‘mapable results’)

[28] mentioned already in the (amended) table “Review of major features due to TIA designated by the First Interim Report of Priority 2-projects” (see 5.2.1)

On the basis of this 'common approach' which probably can´t go much further in (common) detail, specific conclusions for the individual policy areas may be developed. The chance of such an option depends widely on the progress in achieving the requirements on the side of detailing the concepts to be to referred to (see above).

8.4 ESPON data base, GIS and analysis tools

8.4.1 Data base, GIS and regionally based analysis

With the 3rd Interim Report in September the database will include and combine all relevant data and indicators sets of the TPG. The combined data base will include coherent regional coverage of all ESPON countries possible at this time.

Common mapping standards will allow coherent presentation via ESPON GIS within project 3.1 and the other TPGs as well.

The base will allow a first regional multivariate analysis of territorial trends and disparities of single TPG results and in combination of data and indicators of different TPG results

8.4.2 Further results of the ESPON Hyperatlas.

According to the feed-back from the members of the ESPON network during the summer 2003, the final version of the first package (MTA) of the ESPON Hyperatlas will be improved and connected with the ESPON database before the end of 2003[29].

During the same time, the development of the second package (MSA) will be engaged and experiments will be made on wide data sets (NUTS 5 units, CLC, etc).

8.4.3 Interactive Web-Tools

After having defined the possibilities of the broader Interested Public to have access in the ESPON GIS Portal the first version of the Interactive Web Tools will be ready in August and we will have two different functionalities. The first will be the **Cartographical Portal** the second the **Statistical Portal**. Both will be based on the latest version of the ESPON Database (version ver.3.0) and we will have two different levels of data analysis.

[29] An operational version of the first package (MTA) of the ESPON Hyperatlas will presented in Paris on 11 June 2003.

“Light” level with on-line map making facilities and simple statistical retrieval and one level with more sophisticated data analysis capabilities, specialized for professional users (mainly for ESPON projects and CU and EU Com.)

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