TERMS OF REFERENCES OF ALL ACTIONS (ANNEX 4)

TERMS OF REFERENCE: ESPON ACTION 1.1.1.

THE ROLE, SPECIFIC SITUATION AND POTENTIALS OF URBAN AREAS AS NODES IN A POLYCENTRIC DEVELOPMENT (2002-04)

(o) Political challenges for the ESPON projects

The Second Report on Economic and Social Cohesion, published in January 2001, presented for the first time a third territorial dimension of the cohesion (beside the economic and social cohesion), which calls for a better co-ordination of territorially relevant decisions. Stressing the persistence of territorial disparities within the Union, the report stated the need for a cohesion policy not limited to the less developed areas as well as the need to promote a more balanced and more sustainable development of the European territory.

The Second Cohesion Report represents in that respect a follow up of the European Spatial Development Perspective (ESDP), adopted at ministerial level in May 1999, calling for a better balance and polycentric development of the European territory.

The projects launched under the ESPON programme shall follow an integrated approach and, seen together, cover a wide range of issues, such as:

- Identifying the **decisive factors relevant for a more polycentric European territory**; accessibility of a wide range of services in the context of enlargement; integration of wider transnational spaces; promotion of dynamic urban growth centres; linking peripheral and disadvantaged areas with those centres; etc.
- Developing **territorial indicators and typologies** capable of identifying and measuring development trends as well as monitoring the political aim of a better balanced and polycentric EU territory
- Developing **tools supporting diagnoses of principal structural difficulties as well as potentialities**, such as disparities within cities and regenerating deprived urban areas; structural adjustment and diversification of rural areas; strategic alliances between neighbouring cities at transnational, national and regional scale; new partnerships between rural and urban areas; potential support from infrastructure networks in the field of transport, telecommunication, energy; etc.
- Investigating **territorial impacts of sectoral and structural policies** in order to enhance synergy and well-co-ordinated decisions relevant for territorial development within policy fields such as Structural Funds, agriculture, transport, environment, research and development; developing methods for measuring the territorial impact of sectoral and structural policies; etc.
- Developing **integrated tools in support of a balanced and polycentric territorial development**; approaches to enhance the potential of cities as drivers of regional development, new tools for integrated urban-rural development and planning, etc.

With the results of all the ESPON projects, the Commission and the Member States expect in particular to have at their disposal: **a diagnosis of the principal territorial trends** at EU scale as well as the difficulties and potentialities within the European territory as a whole; **a cartographic picture of the major territorial disparities** and of their respective intensity; a number of **territorial indicators and typologies assisting a setting of European priorities** for a balanced and polycentric enlarged European territory; some **integrated tools and appropriate instruments** (databases, indicators, methodologies for territorial impact analysis and systematic spatial analyses) to improve the spatial co-ordination of sector policies.

In this respect, the ESPON projects will serve as a strong scientific basis for the propositions of the Commission in the Third Report on Cohesion, at the end of 2003, in view of the reform of post-2007 Structural Funds.

(i) Relation to the ESPON 2006 Programme

The priorities describing the work-programme of the ESPON 2006 Programme are structured in four strands:

1. **Thematic projects** on the major spatial developments on the background of typologies of regions, and the situation of cities.
2. **Policy impact projects** on the spatial impact of Community sector policies and Member States' spatial development policy on types of regions with a focus on the institutional inter-linkages between the governmental levels and instrumental dimension of policies
3. **Co-ordinating and territorial cross-thematic projects** represent a key component of the programme. These projects evaluate the results of the other projects towards integrated results such as indicator systems and data, typologies of territories, spatial development scenarios. The cross section projects help to thematically co-ordinate the whole programme and add value to the results and to fill gaps, which are unavoidable when different themes are dealt with in different projects.
4. **Scientific briefing and networking** in order to explore the synergies between the national and EU source for research and research capacities.

This project belongs to the first strand and therefore holds a key position for the elaboration of the whole programme by the preparation of the common ground for the investigation of the basic spatial structure in Europe. Therefore a strong co-ordination with all other ongoing projects is needed, in particular with other projects within the same strand and with the coordinating and cross-thematic projects under priority three and the Co-ordination Unit.

ii) Thematic scope and context

Cities are the starting point of reference for all measures. Nevertheless, this measure allows to dive deeper into the specific needs and potentials of cities in the context of territorial development. This link is most obvious for the role of cities as regional centres (in a polycentric tissue), but is equally relevant for the role of cities in fulfilling complementary functions at national, transnational and even EU scale. The ESDP highlighted the relation between territorial and polycentric development in that respect. As well, the ESDP highlighted the special role, which could be undertaken by Euro-corridors, global integration zones, gateway cities, urban clusters and individual urban poles in support of a better territorial balance within the Union. This project should be directed towards this field of activity.

The ESDP policy aims under the guideline "Polycentric Spatial Development and a New Urban-Rural Relationship" are, together with the relevant policy options, central to this research project. The project addresses all questions related to the ESDP except the specific aspects of relationships between urban and rural areas, which will be analysed under action 1.1.2. In addition, Ministers for Urban Affairs agreed at their meeting in November 2000 in Lille a multi-annual co-operation programme, which could act as a reference point for further specification and avoidance of double work. Moreover, the Study Programme on European Spatial Planning 1997-99 (SPESP) also provides valuable access points to questions related to polycentrism and the development of territories. Finally, the European Commission started in "The Second Report on Cohesion" the discussion on the notion "territorial cohesion", which include a pursuit of a polycentric and better balanced European territory. This project is foreseen to deliver an operational input to the further European debate on territorial cohesion.

iii) General objectives

The general objectives of the project are the following:

a) to refer to the three fundamental objectives with in the ESDP with regard to balanced and sustainable spatial development: the economic and social cohesion, the conservation of natural resources and cultural heritage and more balanced competitiveness of the European territory;

b) to contribute to the identification of the existing spatial structure of the EU territory, in particular the degree and diversity of physical and functional polycentrism at different geographical scales, and to gain concrete and applicable information on the EU wide effects of spatially relevant development trends and their underlying determinates. Therefore, the project should be sustained by empirical, statistical and/or data analysis;

c) to define concepts and to find appropriate territorial indicators, typologies and instruments as well as new methodologies to consider territorial information linked to polycentrism, to detect territories (preferably below NUTS 2) most negatively and positively affected by the identified trends with special reference to regions in terms of accessibility, polycentric development, environment, urban areas, territorial impact assessment; particular attention will be paid to areas exposed to extreme geographical positions and natural handicaps such as mountain areas, islands , ultra-peripheral regions; reflections should as well be included on relevant issues from the perspective of Europe and its territorial structure in a global or world-wide context;

d) to develop possible orientations for policy responses, taking the diversity of the European territory into account, and considering institutional, instrumental and procedural aspects;

e) to consider the provisions made and to provide input for the achievement of the horizontal projects under priority 3, such as tools for diagnosis and observation to be able to contribute to the forthcoming long term scenarios, as well as evaluation and assessment procedures.

In the efforts to meet these objectives the project shall make best use of existing research and relevant studies.

iv) Primary research issues envisaged:

- Identification, gathering of existing and proposition of new territorial indicators and data and map-making methods to measure and display the state, trends and impacts of the developments referred to above for polycentrism and urban areas. Compilation of national studies with European focus;
- A joint definition of urban-ness and urban typologies linked to polycentrism, and elaboration on the role played by urban areas in the territorial structure and development;
- The functioning of the European spatial system of urban nodes, in different (transnational) parts of the European territory, and in relation to other major spatial elements, such as the TENs, in order to better identify the European spatial structure;
- The (increasing) co-operation and networking between cities in trans-border networks and on transnational scale (as urban clusters and thematic networks) in support of polycentrism and better territorial balance;
- The reinforcement of cities and regions (as the ESDP states) as result of an integrated approach considering policies for the development of "gateway cities", multi-modal infrastructure for the European corridors, equal access to telecommunication facilities and intercontinental accessibility, natural and cultural assets, which could strengthen the role of regions and their cities, in particular at the external borders of the EU (connections with measure 1.2. need to be carefully considered).
- Geographical concentration of important economic activities as a concern, particular at European scale, hampering a better territorial balance; social cohesion and increasing disparities and segregation as a EU-wide concern about cities and their potential to increase economic dynamics; environmental concerns and the development of urban qualities as an asset in a sustainable development.
- A further operationalisation and territorial diversification of the policy aims and options adopted in the ESDP, including an adaptation to the territorial diversities within Europe.

(v) Expected results and timetable

The research undertaken during the interim reports is supposed mainly to work on the data available at the national statistical offices, Eurostat and other national and European institutions, and normally be based on existing administrative units. From 2003 until August 2004, the research should complement the missing territorial/regional data and complement tools and territorial indicators if possible beyond the NUTS classification and the NUTS 3 level.

One of the main objectives of the ESPON 2006 Programme is to focus on research with policy relevance and to contribute to the development of relevant policies. Therefore, the deliverables of the research project should be highly operational and coordinated in time, as far as possible, to fit into the relevant political agenda. The following timetable and specification of output is reflecting this objective:

September 2002 (first interim report):

a) Consensus on indicators and data needed, after a precise analysis of the availability and comparability of data at Community level, to develop new database, including territorial indicators and the facilities needed for map-making. For the analysis, the results of the study programme and the results of other ESPON projects in course, in particular under priority 3.1, should be taken into account. This task should also define the appropriate geographical level and technology required for data collection, taking into account the availability of relevant data.

(b) A first detailed and comprehensive list of main requests for statistical and geographical data to be collected from Eurostat, the EEA and National Statistical Institutes and National Mapping Agencies before mid 2002.

February 2003 (second interim report):

(c) Preliminary results on the basis of available territorial indicators, including European maps showing, as far as possible, the existing spatial structure of urban nodes, the degree of polycentrism as well as problems and dynamics in different parts of the European territory.

(d) A first overview on concepts and methodology and possible final results.

(e) Establishment of a new database, so far based on indicators available and with the ability to produce European maps related to polycentrism.

(f) A second revised and extended request for further indicators to be collected (mainly) at Eurostat and the EEA.

August 2003 (third interim report):

(g) Interim results on the basis of the extended number of available territorial indicators, including European maps showing, as far as possible, the existing spatial structure of urban nodes, the degree of polycentrism as well as problems and dynamics in different parts of the European territory, including a profile of the economic base, accessibility to transport and knowledge, potential complementarities with neighbouring metropolitan regions, capitals and regional cities, potential increase of attractiveness through urban qualities, natural and cultural assets.

(h) Detection of territorial typologies combining regions into revealing risks and potentials for the identified types, such as a hierarchy and a typology of “development poles” and other types of urban areas and regions;

(i) Development of appropriate tools for the processing of the new data base, indicators and map-making

(j) Applicable systems for the monitoring of new trends of territorial developments in the context of the European territory, including candidate countries and neighbouring countries;

(k) Provisional policy conclusions and results.

August 2004 (final report):

(l) An executive summary of the main results of the research undertaken and recommendations for policy development.

(m) Comprehensive presentation of territorial development trends of the enlarged European Union, including a description and SWOT analysis of the important urban nodes of the European urban polycentric system within the enlarged European Union (27 countries);

(n) Presentation of access points and concrete ideas for policy responses to the territorial trends facing urban areas at different scale and in different parts of the Union that could improve territorial cohesion;

(o) Presentation of the developed territorial indicators, concepts and typologies linked to polycentrism, including maps;
(p) Presentation of the database and the mapping facilities developed, covering as far as possible an enlarged EU and neighbouring countries
(q) Listing of further data requirements and ideas of territorial indicators, concept and typologies as well as on further developments linked to the database and mapping facilities.

vi) Rationale and Structure

The following text has the role of shaping the mind of thinking in developing a proposal for undertaking the ESPON action 1.1.1. The text is not meant to be exhaustive, but to serve the purpose of guiding the tenderer.

1. Approaches to the definition and methodology

1.1. The ESDP approach

The recent discussions on the primary concept of the ESDP, the polycentric spatial development, have shown sometimes a considerable confusion by non-distinguishing the relevance of the concept at the different spatial levels. However, the ESDP itself shows a quite clear approach setting apart

- a European wide application by promoting "several larger zones of global economic integration in the EU"
- a macro-regional application by promoting "a polycentric and more balanced system of metropolitan regions, city clusters and city networks" as well as an
- intra-regional application by promoting "integrated spatial development strategies for city clusters in all Member States, within the framework of transnational and cross-border co-operation, including corresponding rural areas and their small cities and towns" (Policy Option 79)

A clear distinction of the different spatial levels seems to be necessary, all the more with regard to the basic functional idea behind the objective of polycentric development. Polycentrism is to be considered not only a vision for the adequate fabric of city distribution in the physical space, but also the geographic appearance of a functional network between and by cities and groups of them, in terms of division of labour/functions, co-ordination of developing amenities, joint investment in infrastructures and institutional structures of shared function/common interest, promotion of joint ventures, joint marketing at the respective higher functional level(s) on all of the levels mentioned above (i.e. of a certain polycentric metropolitan cluster at the European level, of a certain polycentric metropolitan region at the transnational level, of a certain urban region at the transnational and the European level)

Starting from assessing the current state of the issues mentioned above and eventually identifying typical models, an analysis should find out the potential for future developments in the cities and areas towards polycentric metropolitan regions, city clusters and city networks.

1.2. Important definitions in the European context

Among the terminology being used one finds global economic integration zones, urban development poles, “motor” regions, metropolitan regions, gateway cities, urban functional regions, hubs, euro-corridors, barrier-effects, agglomeration effects.

Including a clarification of the concept of polycentrism, the project should provide a description of the present situation and future trends of polycentrism in the EU 15 and the candidate countries. It is essential to start from previous work and findings of studies on polycentrism (see existing access points). The study has to address the contribution of polycentrism to European spatial development (spatial planning objectives laid down in the ESDP) as well as Community and national policies (e.g. fiscal policy) influencing polycentrism. Especially the linkage between polycentrism and sustainable development should be made clear.

Still, polycentrism is an ambiguous concept; on the one hand a scientific on the other hand heavily burdened with political ideas. The impact of this conceptual ambiguousness is that we often speak about polycentrism as if it has become real and as if we are familiar with the reality of polycentrism. *Urban systems in Europe vary strongly due to the variety of the preconditions of polycentrism*, e.g. the specialisation, hierarchical ordering and functioning urban systems vary as

well. Therefore, polycentrism should be examined on the background of studies of the variety of national urban systems aiming at the preparation of a European-wide typology of polycentrism.

1.3. Polycentrism at different territorial scales

The *varying expressions of polycentrism at all the territorial scales* represents another important focus ranging from the extended urban area to local, regional and European networks and in a second end to analyse the strategies that support a polycentric functioning of the European spatial system. Accordingly, it would be more operational to focus on a few preferential expressions that act in favour of the emergence of a polycentric integration. The three new following forms of networking are seen as the most relevant and efficient processes underpinning polycentric spatial development within Europe: a) specialised thematic urban networks, b) strategic co-operation between clusters of cities across administrative borders, and c) transnational urban networks. Some case studies could be carried out.

The work under the following points should be conducted at three territorial scales: global economic integration zones, urban development poles and urban functional areas[1]. These three scales are to be identified and characterised (regarding type, function and geographical limits).

1.4. Polycentrism in an urban and rural context

Developing a *typology for the description of urban and rural regions*. The aim is to identify, on the one hand, functionally significant urban regions, and on the other rural areas in each country. Using statistical criteria, this would be accomplished by grading the significance of regions at the national level and by studying their functional specialisation. That which is not defined as urban would be categorised as rural. The method to be used has been tested in Finland in the context of the Urban Network Study 1998 and 2001. The project would seek to deliver information on the structure of the urban network in each country, and the roles of cities/regions in each national system. After the roles of urban and rural regions are defined in the national context, a comparative typology is attempted for the European level in respect to regions' various roles at the national level. By using this method, the problems of scale in typology (especially the number of inhabitants in cities, etc) are easier to tackle.

1.6. Polycentrism in Europe - monocentrism in (some) regions?

Today we are witnessing a tendency of relative strengthen of metropolises in relation to lower ranks of the city hierarchy. This trend is an issue of concern and manifests itself in data for production, population and wealth. These trends lead to opportunities and threats of regions in particular in intermediate and peripheral areas of Europe. On the one hand large cities outside the Manchester-Milan dorsal of Europe grow fast and thus make a polycentric development in a European large scale more likely. The relative perspectives of middle-sized and small cities are diverse depending on the location, threads occur to long-established balances on a more local scale. Therefore the research on the divisions of labour between metropolises and smaller cities as well as between metropolises in Europe is emerging.

Further main tasks have to be considered:

- empirical foundations to position the European metropolises within the global urban system
- analysis to internally differentiate the European urban system
- identification of specific growth potentials of metropolises situated outside the European core area (especially in the EU Accession Countries with regard to their integration) to achieve a balanced, polycentric spatial development in Europe
- presentation of the perspectives of European metropolises and regions and of the chances to implement them on all levels of action

Experiences of this project proposal could already be made in the framework of the "Study Programme on European Spatial Planning" within the theme of "Urban Systems" of the strand "Regions and Urban-rural Partnerships".

2. Indicators and data

The concrete measurement of the concepts addressed above requires the definition of appropriate indicators and the collect the relevant data in order to evaluate the role of urban

[1] see SPESP

areas in the construction of polycentric networks. This work will take into account the conclusions of the final report «Study Programme on European Spatial Planning », Bonn 2001, i.e. what concern the structures of urban areas based on functional criteria (European Functional Urban Areas-EFUAs).

The focus will lay on the quantitative analysis of concepts. Therefore the selection indicator and data, which are accessible and meaningful at the same time builds the reference for the further work.

Apart from data on the basic structure of population, land use and economic activity for indicators are emerging such as on:

- division of labour/functions
- co-ordination of amenities
- joint investment in infrastructures and institutional structures of shared function/common interest
- promotion of joint ventures
- joint marketing at the respective higher functional level(s)

The project should cover existing qualitative and quantitative indicators, propose new ones and collect the data within the 15 Member States as well as for the 12 candidate countries and neighbouring countries (at least Norway and Switzerland) refer to the above mentioned territorial scales.

The following criteria and their corresponding indicators must be taken into account:

- SPESP: 7 groups of criteria: geographical position, economic strength, social integration, spatial integration, land-use pressure, natural assets, cultural assets
- 4 indicators of competitivity (see Second report on economic and social cohesion) : economic structure, accessibility, innovation capacity, qualification
- CPMR: demography, competitiveness, economic attractiveness, connectivity, territorial integration

The collection of data for the basic indicators should usually take place on the NUTS III level[2] and has to be aggregated and disaggregated within the project to obtain data for the three territorial scales (global economic integration zones, urban development poles and urban functional areas).

3. Quantitative and qualitative analysis

On the basis of the indicators mentioned above, the project should set up a repertory (for the three territorial scales by area, country) and describe the existing and potential urban development poles. The following step comprises to create a hierarchy (competitiveness, SWOT-analysis, territorial diagnosis, see OECD work) and a typology of uran development poles.

The study should in particular take into account:

- the division of labour between the different areas (three territorial scales);
- the demographic trends (depopulation versus concentration of population) resulting from natural increase and/or migration.

Apart from the points addressed under the specific research questions the following points should be deepened.

3.1. Migration

Metropolises are driving forces for the spatial development in Europe. Their significance for spatial development as well as the out-migration problem in some regions (depopulation areas) and polarisation in these areas show the need for research within the measure "Cities, polycentric development and urban rural relations". Apart from the joint elaboration of databases, perspectives and guidelines for action and with regard to the concept of zones of global economic integration, cooperation within the ESPON offers the chance to learn from countries which have managed to use the potential of metropolises via spatial planning measures and thus to reduce out-migration.

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[2] Where harmonised (Eurostat) data sources don't provide the data for the indicators at the appropriate geographical level, the consultant will have to examine national and possibly regional data sources to try to complete the data sets. The collection of these data should be done in co-ordination with data collection provided by the contractant/s of ESPON works under priority 4.

3.2. Transport and communication

Several links with other main ESPON projects and Community objectives should be developed. Particular attention should be paid to concerns related to a setting up of a relevant supply of transport and communication infrastructures (priorities 1.2.1 and 1.2.2), of better governance (priority 1.1.2), and of more equity and social cohesion. The project should also deal with the priority mentioned under point 1.1.3., i.e. with the effects of the enlargement on the European polycentric spatial structure.

3.3. Polycentrism and "global integration zones"

Key question of the internal analysis is the existing obstacles and the investments needed to further develop global competitiveness, the engine of the European economy, through co-operation between neighbouring metropolitan regions and urban development poles and urban functional areas into a de facto "global integration zone". This is particular important outside the core area of Europe in order to support a future balanced territory. It should become clear where transnational cooperation and investments have an added value, and what (spatial-economic) obstacles should be removed. Within this framework particular attention should be paid to the specialisation of functions (e.g. referring to transport facilities such as the position of (networks of) sea harbours and airports) and to administrative issues of cooperation in global integration zones. The ESDP designates the ´pentagon´ London – Paris – Milan – Munich – Hamburg as the dominant and typical core-region of Europe and, at present, the only European zone of global importance. The ESDP sets the political target of developing several global integration zones within Europe in the long term.

The EU enlargement may be considered facilitating an extension of this core region towards Central Europe. National, TEN and TINA activities are favouring the improvement of East-West orientated transport connections between the peripheral centres and the current European core region. However, in order to move towards several globally important zones within Europe, strengthen the urban centres of Central Europe and to promote the development of core-region(s) for Central Europe, the development of links (and corresponding nodes capacities) North-South-oriented will be indispensable.

3.4. Polycentrism, peripherality, disintegration and structurally weak regions

As a counterpart of the previous topic it should be investigated what happens to the territory outside the present global integrations zone, the core region defined above. Which role does polycentrism play in those regions, what kind of special features are visible and which tendency for the future development are expected? Do minimum requirements exist for a polycentric development? which physical and functional preconditions are required to obtain a polycentric development?

Furthermore, the idea of polycentrism seems also to be closely connected with the idea of endogenous regional policy. Therefore, the examination of polycentrism should not be restricted to the urban system approach. Polycentrism should also include promising developments within a regional context profiting on the growing awareness and empirical evidence of regional functional and physical frame-conditions fostering endogenous development, e.g. regional entrepreneurship, institutional thickness and degree of regional "peripherality".

3.5. Impact of communication and transport technologies on the urban hierarchy

The transport and communications technologies execute an impact the on urban development, and the relations in the international urban hierarchy. An impact of cities on the their surroundings urban and rural areas is probable. Proposal to study the hypothesis how higher order cities are extending their spheres of influence to embrace complex polycentric urban regions and to study how these impacts differ as between EU countries and regions.

3.6. Combating spatial fragmentation

There is a wide and challenging discussion whether there is a European way of urban development and how to define it. However, some essentials can be found in every definition of European urbanism: European cities are compact in size and relatively homogeneous in terms of social dimensions. Especially by comparing European and US-American cities it became clear and obvious that fragmentation is not the appropriate concept to describe the urban reality in Europe. Social cohesion and a relatively equal (balanced) "urban landscape" are special values,

which are judged as positive by the public opinion and by the politicians. Social cohesion should be maintained in the future. In the context of polycentrism it is important to include a social dimension in order to support attractive urban development poles and urban functional areas. But to ensure this it is necessary to know more about the mechanism behind cohesion and segregation linked to urban areas.

The main contribution of the proposed project is the answering a simple question: How can we measure cohesion and segregation and what can policy do to avoid social, ethnical or demographic fragmentation in European cities? To answer this question the project should include the problem of social cohesion and residential segregation in a twofold way.

(i) Development of a concept and a model of measurement of social (ethnical and demographic) cohesion and segregation in different European cities; How can we measure cohesion and segregation and which data are available to cover an European dimension;

(ii) Analysing cohesion and segregation, the mechanism behind and the role of policy. What is responsible for cohesion and segregation and what can the policy do to avoid segregation – if this is a political goal – and to strengthen social cohesion.

The research should cover the variety of political strategies and empirical realities in Europe. The research should be imbedded into a network of urban sociologists, architects and social geographers. Competent partners would be necessary to reproduce the European dimension.

3.7. Strategic enhancement of the polycentric tissue

The analysis of strategies that support a polycentric functioning of the European spatial system is another important issue. Accordingly, it is necessary to focus on a few preferential expressions that act in favour of the emergence of a polycentric integration. The three new following forms of networking are seen as the most relevant and efficient processes underpinning polycentric spatial development within Europe: *i)* specialised (thematic) urban networks, *ii)* cooperation between neighbouring cities across administrative borders, and *iii)* transnational urban networks.

In principle, an enhanced development of several global integration zones, a large number of urban development poles and many urban functional areas, well distributed on the enlarged European territory, would improve polycentrism and the balance on the European territory, and contribute positively to territorial cohesion. However, the project will through research have to answer the questions, if, then how and where?

4. Orientations for policy recommendations

Urban areas represent engines of territorial integration and development in Europe, which generate specific potential in the polycentric approach on the different scales. This is part of the fundamental approach and the political objectives of the ESDP. How far does the polycentric spatial structure provide the ground for a balanced and sustainable development?

In contributing to the development of policy strategies reference should be made to all policy options in the ESDP dealing with polycentrism. Recommendations have to address all relevant Community and national policies in order to promote the potential of the regions, especially in peripheral and low-density areas, and to tackle the problem of concentration in the some urban areas. Reference should be made to financial aspects, comprising questions of financial resources partitioning, the fiscal system and subsidies. The role of territorial governance as well as the European Strategy for Sustainable Development has to be integrated into propositions.

Contributions on how the recommendations for polycentric development are to be applied to Structural Funds policy and other policies with territorial impact (e.g. competition, transport, telecommunication, research) should also be made, bearing in mind co-ordination and coherence among them.

Polycentrism refers to differentiated mechanisms and specific intervention strategies according to the territorial scale taken into account. A multi-dimensional approach provides a more comprehensive view of the nature of such a functioning.

This also includes formulating concrete recommendations for spatial planners on how a integrated polycentric urban model of European space could be elaborated and supported by EU policies. In addition, reference should be made to the question how far polycentrism represents a useful aim for Structural Funds policies.

In view of deriving policy recommendations the study should focus not only on policies with impacts on polycentrism, but also on the influence of territorial governance and institutional aspects, revealing the mechanism of power partitioning, decision making and co-operation processes. In this context, networking seems to be of great importance, in particular between "neighbours" across borders.

vii) Existing access points

The access points listed below can serve the purpose of providing the tenderer usefull information for preparing a proposal. It is by no means meant to be exhaustive, but only as information that can be helpful in tracing additional useful background information.

- The SPESP already addressed the questions linked to spatial development and planning. Indicators on demography, economy, transport, housing and living conditions, social cohesion and political resources[3] ,etc. are listed in relation to their availability through Eurostat and in each Member State, which provide a good base for further research and indicator work.
- The Urban Audit already compiled indicators and data on cities across the EU. The Commission's/Eurostat's Initiative on Environmental European Spatial Data Infrastructure (E-ESDI, now INSPIRE) can also contribute considerably.
- Interreg IIC and IIB projects are also dealing with this issue, which can provide some practical experience on the transnational scale.
- OECD: territorial indicators and analysis
- Conference of Peripheral Maritime Regions of Europe (CPMR): Study on the construction of a polycentric and balanced development model for the European Territory. Second interim report. November 2001.
- DATAR – ingérop: Elaboration of a long term polycentric vision of the European space. December 2001.

In addition, an ESPON Data Navigator creating an overview, a handbook, giving information on principal data sources, contact points etc, is under elaboration. The Data Navigator is expected to cover, in principle, all countries in an enlarged European Union as well as neighbouring countries. The Data Navigator is scheduled to be finalised by August 2002

[3] SPESP 2000 CD report of the working group on social integration p. 57ff.

TERMS OF REFERENCE:
ESPON ACTION 1.1.2.

URBAN-RURAL RELATIONS IN EUROPE
(2002-04)

(o) Political challenges for the ESPON projects

The Second Report on Economic and Social Cohesion, published in January 2001, presented for the first time a third territorial dimension of the cohesion (beside the economic and social cohesion), which calls for a better co-ordination of territorially relevant decisions. Stressing the persistence of territorial disparities within the Union, the report stated the need for a cohesion policy not limited to the less developed areas as well as the need to promote a more balanced and more sustainable development of the European territory.

The Second Cohesion Report represents in that respect a follow up of the European Spatial Development Perspective (ESDP), adopted at ministerial level in May 1999, calling for a better balance and polycentric development of the European territory.

The projects launched under the ESPON programme shall follow an integrated approach and, seen together, cover a wide range of issues, such as:

- Identifying the **decisive factors relevant for a more polycentric European territory**; accessibility of a wide range of services in the context of enlargement; integration of wider transnational spaces; promotion of dynamic urban growth centres; linking peripheral and disadvantaged areas with those centres; etc.
- Developing **territorial indicators and typologies** capable of identifying and measuring development trends as well as monitoring the political aim of a better balanced and polycentric EU territory
- Developing **tools supporting diagnoses of principal structural difficulties as well as potentialities**, such as disparities within cities and regenerating deprived urban areas; structural adjustment and diversification of rural areas; strategic alliances between neighbouring cities at transnational, national and regional scale; new partnerships between rural and urban areas; potential support from infrastructure networks in the field of transport, telecommunication, energy; etc.
- Investigating **territorial impacts of sectoral and structural policies** in order to enhance synergy and well-co-ordinated decisions relevant for territorial development within policy fields such as Structural Funds, agriculture, transport, environment, research and development; developing methods for measuring the territorial impact of sectoral and structural policies; etc.
- Developing **integrated tools in support of a balanced and polycentric territorial development**; approaches to enhance the potential of cities as drivers of regional development, new tools for integrated urban-rural development and planning, etc.

With the results of all the ESPON projects, the Commission and the Member States expect in particular to have at their disposal: **a diagnosis of the principal territorial trends** at EU scale as well as the difficulties and potentialities within the European territory as a whole; **a cartographic picture of the major territorial disparities** and of their respective intensity; a number of **territorial indicators and typologies assisting a setting of European priorities** for a balanced and polycentric enlarged European territory; some **integrated tools and appropriate instruments** (databases, indicators, methodologies for territorial impact analysis and systematic spatial analyses) to improve the spatial co-ordination of sector policies.

In this respect, the ESPON projects will serve as a strong scientific basis for the propositions of the Commission in the Third Report on Cohesion, at the end of 2003, in view of the reform of post-2007 Structural Funds.

(i) Relation to the ESPON 2006 Programme

The priorities describing the work-programme of the ESPON 2006 Programme are structured in four strands:

1. **Thematic projects** on the major spatial developments on the background of typologies of regions, and the situation of cities.
2. **Policy impact projects** on the spatial impact of Community sector policies and Member States' spatial development policy on types of regions with a focus on the institutional inter-linkages between the governmental levels and instrumental dimension of policies
3. **Co-ordinating and territorial cross-thematic projects** represent a key component of the programme. These projects evaluate the results of the other projects towards integrated results such as indicator systems and data, typologies of territories, spatial development scenarios. The cross section projects help to thematically co-ordinate the whole programme and add value to the results and to fill gaps, which are unavoidable when different themes are dealt with in different projects.
4. **Scientific briefing and networking** in order to explore the synergies between the national and EU source for research and research capacities.

This project belongs to the first strand and therefore holds a key position for the elaboration of the whole programme by the preparation of the common ground for the investigation of the basic spatial structure in Europe. Therefore a strong co-ordination with all other ongoing projects is needed, in particular with other projects within the same strand and with the coordinating and cross-thematic projects under priority three and the Co-ordination Unit.

ii) Thematic scope and context

The future of numerous rural areas is increasingly functionally interlinked with urban development. This is obvious in the densely populated areas (such as peri-urban zones) undergoing considerable urbanisation pressure. It is also relevant for more sparsely populated rural areas, which are under less visible urban influence. What is the future perspective for urban-rural relationships and the system of mutual exchange, where cities provide services, cultural activities, infrastructures and the major access to the labour market, while rural areas, still producing agricultural products, provide leisure potential and green spaces (amenities)? Will the viability of the rural areas depend increasingly on their proximity and their degree of exchange with urban areas? How can co-operation and partnerships support a sustainable development of rural areas?

The project shall further explore relations between urban and rural areas in terms of exchange processes, institutional links and interdependencies. These relations are of special interest on the background of the diverse structure of the EU territory and the neighbouring countries. They have developed substantially during the last decades, however differently within Europe in accordance to the diversity of spatial contexts.

The development potential and opportunities as well as difficulties for urban-rural relationships in the light of a sustainable development of regions provide an important point of reference for this project. The stronger functional integration between many neighbouring rural and urban areas seems to make a strong divide of rural and urban development issues a concept of the past. Instead, a more integrated approach might provide new opportunities for synergies through urban-rural partnerships, where the diversity of relationships to large extent defines potential partnerships.

The potential relations differ for rural territories in decline, some of them far from major towns and cities, and rural territories close to larger cities, in some cases an integrated part of an urban region. The potential for building new partnerships in support of polycentrism (dominantly at regional scale), and the opportunities for a sustainable urban-rural development within regions and larger territories constitutes a point of reference for inputs to policy development from this project.

The project is closely linked to ESPON action 1.1.1 dealing with other aspects of polycentric and balanced territorial development, particularly concerning methodology and data as well as providing inputs in support of polycentrism through strategic co-operation between neighbouring rural and urban territories. A strong co-operation and exchange of data and results must assure coherence and avoid double work.

Furthermore the work under action 2.1.3., territorial impact of the EU Agricultural Policy, has to be taken into account.
The ESDP policy aims under the guideline "Polycentric Spatial Development and a New Urban-Rural Relationship" are, together with the relevant policy options, central to this project. The project addresses all questions related to the ESDP related to the specific aspects of relationships between urban and rural areas.
Particular relevant for the project is the Study Programme on European Spatial Planning 1997-99 (SPESP). The results of this programme provide particular valuable access points to urban-rural relationships, being a specific theme in the SPESP programme. In addition, Ministers for Urban Affairs agreed at their meeting in November 2000 in Lille a multi-annual co-operation programme, which could act as a reference point for further specification and avoidance of double work.
Finally, the European Commission started in "The Second Report on Cohesion" the discussion on the notion "territorial cohesion", which include a pursuit of a polycentric and better balanced European territory at all geographical scales. This project is foreseen to deliver an operational input to the further European debate on territorial cohesion.

iii) General objectives

The general objectives of the project are the following:
a) To refer to the three fundamental objectives with in the ESDP with regard to balanced and sustainable spatial development: the economic and social cohesion, the conservation of natural resources and cultural heritage and more balanced competitiveness of the European territory;
b) To contribute to the identification of the existing spatial structure of the EU territory, in particular the degree and diversity of physical and functional polycentrism at different geographical scales, and to gain concrete and applicable information on the EU wide effects of spatially relevant development trends and their underlying determinates. Therefore, the project should be sustained by empirical, statistical and/or data analysis;
c) To define concepts and to find appropriate territorial indicators, typologies and instruments as well as new methodologies to consider territorial information linked to polycentrism, to detect territories (preferably below NUTS 2) most negatively and positively affected by the identified trends with special reference to regions in terms of accessibility, polycentric development, environment, urban areas, territorial impact assessment; particular attention will be paid to areas exposed to extreme geographical positions and natural handicaps such as mountain areas, islands, ultra-peripheral regions; reflections should as well be included on relevant issues from the perspective of Europe and its territorial structure in a global or world-wide context;
d) To develop possible orientations for policy responses, taking the diversity of the European territory into account, and considering institutional, instrumental and procedural aspects;
e) To consider the provisions made and to provide input for the achievement of the horizontal projects under priority 3, such as tools for diagnosis and observation to be able to contribute to the forthcoming long term scenarios, as well as evaluation and assessment procedures.
In the efforts to meet these objectives the project shall make best use of existing research and relevant studies.

iv) Primary research issues envisaged

- Identification, gathering of existing and proposition of new territorial indicators and data and map-making methods to measure and display the state, trends and impacts of the developments referred to above for relationships between urban and rural areas. Compilation of national studies with European focus;
- Classification of European cities and their role in relation to surrounding rural areas in order to create a sufficient and comprehensive typology, which would allow properly defining urban-rural relationships[4] and concepts for the definition and measurement of urban and rural areas and their relations;

[4] Ibidem, Annex 3.

- Classification of European rural territories in order to obtain a sufficient typology based on the diversity of endogenous potential and problems in different parts of Europe, including territories with a peripheral location as well as islands and mountain areas;
- Development of a comprehensive typology of urban-rural relationships covering the EU territory as well as Candidate countries and neighbouring countries;
- Development of indicators for the definition of homogenous and functional areas and their relations (such as a European Functional Urban Area)[5], which require information on labour markets, retail, services, culture, housing and the resulting flows of people, goods, energy, information and finances. (Information on flows such as commuters should be available at NUTS 5 level).
- Geographical concentration of economic activities at regional scale as a concern, particular at regional scale, hampering territorial balance; social cohesion and increasing disparities and segregation as a EU wide concern also relevant to urban-rural relationships;
- The role of small and medium sized cities as development poles in rural territories in different (transnational) parts of the European territory, and the potential for reinforcement of regions by urban-rural partnerships in support of polycentrism and better territorial balance;
- Investigation of the phenomena of metropolisation and urban sprawl in relation to the urban – rural relation as another important issue under this measure. In this framework, the investigation of the concept "r-ur-ban" areas, where the characteristics of the urban and rural landscape are merged, should be considered.
- The potential, as part of a sustainable development, to increase joint economic dynamics in urban and surrounding rural areas, partly by exploring environmental qualities, natural and cultural assets, partly by exploring new location possibilities made available by the information technology;
- A further operationalisation and territorial diversification of the policy aims and options adopted in the ESDP, including an adaptation to the urban-rural diversities within the European territory.

(v) Expected results and timetable

The research undertaken during the interim reports is supposed mainly to work on the data available at the national statistical offices, Eurostat and other national and European institutions, and normally be based on existing administrative units. From 2003 until August 2004, the research should complement the missing territorial/regional data and complement tools and territorial indicators if possible beyond the NUTS classification and the NUTS 3 level.

One of the main objectives of the ESPON 2006 Programme is to focus on research with policy relevance and to contribute to the development of relevant policies. Therefore, the deliverables of the research project should be highly operational and coordinated in time, as far as possible, to fit into the relevant political agenda. The following timetable and specification of output is reflecting this objective:

September 2002 (first interim report):

a) Consensus on indicators and data needed, after a precise analysis of the availability and comparability of data at Community level, to develop new database, including territorial indicators and the facilities needed for map-making. (For the analysis, the results of the study programme and the results of other ESPON projects in course, in particular under priority 3.1, should be taken into account). This task should also define the appropriate geographical level and technology required for data collection, taking into account the availability of relevant data;

(b) A first detailed and comprehensive list of main requests for statistical and geographical data to be collected from Eurostat, the EEA and National Statistical Institutes and National Mapping Agencies before mid 2002;

(c) A first overview on concepts, methodology and intended results, including the potential use of case studies.

[5] SPESP 2000 CD report on the typology of cities and urban-rural relationships, (point 3.3.)

February 2003 (second interim report):
(d) Preliminary results on the basis of available territorial indicators, including European maps showing, as far as possible, the existing spatial structure of urban-rural relations, the degree of polycentrism at national/regional level as well as problems and dynamics related to urban and rural areas in different parts of the European territory;
(e) A detailed overview on concepts and methodology and possible final results.
(f) Establishment of a new database, so far based on indicators available and with the ability to produce European maps related to urban-rural relationships;
(g) A second revised and extended request for further indicators to be collected (mainly) at Eurostat and the EEA.
August 2003 (third interim report):
(h) Results achieved on the basis of the extended number of available territorial indicators, including European maps showing, as far as possible, the existing spatial structure of urban-rural diversities, the degree of polycentrism at national/regional level as well as problems and dynamics related to urban-rural relationships in different parts of the European territory; a profile of the functional and physical characteristics in the interface between urban and rural areas, the common economic base, accessibility to transport and knowledge, potential complementarities with larger cities close by as well as potential for increasing attractiveness through rural qualities, natural and cultural assets;
(i) Detection of territorial typologies of urban-rural relationships revealing risks and potentials for the identified types;
(j) Development of appropriate tools for the processing of the new data base, indicators and map-making, covering an enlarged EU (27 Member States);
(k) Applicable systems for the monitoring of new trends of territorial developments in the context of the European territory, including candidate countries and neighbouring countries;
(m) Conclusions and concrete ideas for policy responses on the territorial trends regarding urban-rural relationship at different scale and in different parts of the Union that could improve territorial cohesion.
August 2004 (final report):
(n) An executive summary of the main results of the research undertaken and final recommendations for policy development;
(o) Comprehensive presentation of territorial development trends facing urban-rural relationships as part of a polycentric and balanced development of the enlarged European Union;
(p) Presentation of access points and concrete ideas for policy responses to the territorial trends facing urban-rural relationships in different parts of the Union that could improve territorial cohesion, including the possibilities for promoting urban-rural partnerships;
(q) Presentation of the developed territorial indicators, concepts and typologies linked to urban-rural relationships, including maps;
(s) Presentation of the final database and the mapping facilities developed, covering as far as possible an enlarged EU and neighbouring countries;
(t) Listing of further data requirements and ideas of territorial indicators, concept and typologies as well as on further developments linked to the database and mapping facilities.

vi) Rationale and Structure
The following text has the role of shaping the mind of thinking in developing a proposal for undertaking the ESPON action 1.1.2.. The text is not meant to be exhaustive, but to serve the purpose of guiding the tenderer.
1. Approaches to the definition and methodology
As mentioned above rural and urban development is more and more interlinked and determined by various trends and factors. A major role in influencing urban-rural relationship plays the diversification and revitalisation of regions.
Cohesion policy effects the diversification of the rural economy, in addition to the policy of rural development financed under the CAP, which is centred on the adaptation of agriculture to the new economic realities as well as to the strengthening of the competitiveness of rural regions.

The revitalisation of the rural areas and population maintenance pass through the development of new activities, in particular in the service sector. The diversification of numerous rural areas is in progress under the effect of the development of SMEs, tourism, services, accessibility etc. However it progresses with difficulty in the areas most disadvantaged where the entrepreneurial capacity and the attractiveness with respect to external investments are weak.
Urban-rural relationships take place on several spatial dimensions: regional, super-regional, inter-regional and transnational. The project should be based on these territorial dimensions, the typology mentioned below and the territorial scales referred to under ESPON action 1.1.1, global economic integration zones, urban development poles and urban functional areas.
As a first step a typology of the rural areas according to the major types of structural problems to which they are confronted should be elaborated. An interesting five categories territorial typology has been developed by the SPESP, which could be taken into account. According to another simpler indicative typology, three types of rural areas could be defined:

- Remote rural areas with considerable economic difficulties: low population density, depopulation, insufficiency of public and private services, insufficiency of infrastructures, unfavourable sector structure, bad accessibility, missing infrastructures, etc. These difficulties can be accentuated by natural disabilities (peripheral situation, mountains, climate, etc.) They are located far from population centres and require primarily integrated rural development actions.
- Intermediate rural areas threatened by the change or the decline of agriculture (areas still very dependent on agriculture, productive arable too slightly land,) or achieving a functional diversification. Larger towns and cities are mostly distant, while medium-sized and small towns are reasonably close. They require agricultural adjustment and reinforcement of their links and relationship with towns.
- Rural areas undergoing the pressure caused by the metropolisation and adjoining urban expansion (inhabitants commuting to work in urban areas in nearby towns, existing local markets for the production of rural entrepreneurs, etc..). These rural areas require, inter alia, reinforcement actions towards the relationships between the urban and rural areas aiming at improving quality of life and sustainable development.

To compare rural and urban areas throughout Europe, they have to be defined and delimited in a homogenous way. Too often comparisons between cities in Europe (and regions as well) turn out to be inoperative, because different limits of urban areas are used. One possibility here is to develop a common definition using the concept of functionally independent or functional entangled areas.[6] Local commuting patterns could also act as a point of departure for delimiting Local Labour Market Areas (LLAs). Already in the SPESP study programme different possible solutions to this problem were discussed. This discussion needs enhancement in order to make an operationalisation possible, in close co-operation with ESPON project 1.1.1..
The conceptual work on urban-rural relations started by the OECD territorial indicators assessment and proposed during the SPESP study should be continued – aiming at the establishment of a conceptual framework revealing the impact of urban activities on rural development (u-r), the rural phenomena generated by rural activities (r-r) and urban phenomena generated by rural activities (r-u).
Through the focus on both internal and external relations the project has to take a dynamic position with regard to the selection of the appropriate regional dimension (see above). The project should therefore orientate towards a discussion of various typologies of measurement of territorial interdependencies and address its economic, social, cultural, as well as functional and physical dimensions.

2. Indicators and data

In that context it will be necessary to define the most relevant indicators to appreciate the intensity of the structural difficulties in the 3 types of areas as identified above (stress the urban-

[6] An OECD working group currently is working on systemising the concept functional areas for the OECD countries

rural relations, in particular in the 3rd type of area of typology) while working on variables such as:

- urbanisation rates and settlement densities
- land pressure
- spatial distribution of the cities and of their size
- employment structure by sectors an type of activities
- intensity of the trade between cities and rural areas,
- density of the professional networks associating urban and rural companies
- accessibility (distance and time of travel between rural areas and urban areas)
- access to the infrastructures and to the services (health, education, etc.)
- degree of valorisation of rural natural spaces and agricultural products by towns

The aim is to define a "degree of influence" of cities on the countryside (and vice-versa) and to apply these indicators by mapping, including the intensity of difficulties of the rural areas within the European territory.

In order to allow a more dynamic view of territorial relationships and changes, alternative regional frameworks should be analysed using statistical time series. As far as possible, these should be based on data for low geographical units (preferably below NUTS III) as a starting point for analyses covering all 15 current Member States and accession countries (12).

When one refers to the Commission's orientations, it appears that the question of urban-rural partnership corresponds to a level of analysis quite suitable for considering the challenges to be faced when aiming at territorial cohesion; this question allows to apprehend and report on both the multiplicity of European territories and the variety of spatial dynamics that standard European and national statistics, so far, do not consider.

In this perspective, the work must in the first place enable the definition of indicators, which differentiate processes of territorial developments and classification at different scales, including urban agglomerations and surrounding peripheral semi-urban areas as well as medium-sized cities and rural towns in rural territories stimulating their perspective role in regional expansion. Beyond a strictly urban and regional approach, territorial analysis of urban-rural relationships must also concern the international scale in order to fully understand how complementarities in urban dynamics can influence urban-rural relations in support of a polycentric Europe.

Spatial typologies developed in existing research projects and studies offer a valuable base for the investigation of urban-rural relations in different spatial contexts, such as the zone of high economic and social density, peripheral areas, countries in transformation, etc. Progress within the project shall be co-ordinated with ESPON project 3.1.

3. Quantitative and qualitative analysis

3.1. Diagnosis of potentials and difficulties

The territorial indicators developed build the basis for the analysis of strengths and weaknesses, opportunities and threads in urban-rural relationships and the effects on rural areas. How are rural areas influenced by these relationships? Concerning urban areas the study should refer to the work under ESPON project 1.1.1., while the diagnosis related to rural areas has to be carried out within this project.

Besides comparative work across EU Member States and candidate countries, the study should provide the base for addressing territorial dynamics. This is important for urban areas as for rural areas for which changes in exchange and inter-connection to other territories seem to be of outstanding relevance for future partnerships and common strategies. Whereas the concept of urban networking (and clustering of neighbouring cities) is widely accepted and implemented, the need for urban and rural areas to engage in partnerships is a dimension to enhance in territorial development.

Experience from local and small-scaled regional activities, like in particular the Community Initiatives LEADER and INTERREG, addresses networking and co-operation as a main priority and an emerging issue for changes of regional development. A thorough analysis integrating trends for territorial relations, for rural/urban areas, for dynamic/lagging regions, small-scaled/large-sized (functional) geographical units should provide results with regard to the main

driving forces and prerequisites for strategies on urban-rural partnerships as a factor in a polycentric and balanced territorial development.

3.2. Sustainable development and impact of sector policies

The diversity of exchange processes between rural and urban areas and the diversification of the urban-rural spatial pattern should be analysed including: a) intensity and quality of trade relations between towns and countryside; professional networking between urban and rural firms; access to labour market for rural citizens; b) role of small and medium-sized towns for accelerating the agricultural restructuring and the diversification of rural economies; valorisation of agricultural production niches by the towns; valorisation of rural natural and cultural amenities by the towns; c) role of providing services (health, education, culture, leasure,etc..) and access to services for revitalising rural areas; d) the potential of location of new enterprises in rural towns exploring (tele)communication networks.

In this context, the questions of **urban sprawl** and the sudden increase of mobility also generate the need for new tools, which enable to measure moving urban limits. Preliminary work have supported the idea that the division between centre and periphery must be replaced by an approach with a gradation of finer structures offering the production of new typologies giving a better account of the multiplicity of situations.[7] Possibilities of quantification of flows (people, goods) between rural and urban areas and impact of those flows on the evolution of the areas should be explored.

The **transport** and **communications technologies** execute an impact on urban development, and the relations in the international urban hierarchy. An impact of larger cities on their surrounding urban and rural areas is probable. Based on the indicators elaborated, the project should examine this impact on urban-rural relationships. The hypothesis of higher order cities extending their spheres of influence to urban-rural relations should be addressed exploring diversities of impacts between EU countries and regions. This part of the study has to be linked with ESPON projects under measure 2.1, the territorial effects of sector policies.

The **impact** of the various rural development measures on the cohesion should be evaluated (including the quality of life in a rural environment, population maintenance, etc.), paying special attention on the Community value added of these measures. It will be primarily the measures of rural development under Objective 1 and 2 (rural objective, ex objective 5b). The findings should be integrated with results achieved in ESPON project 2.1.3. and 2.2.1. Once again the key question is, whether the present rural development measures strengthen complementarities in urban-rural relations and the basis for urban-rural partnerships or the opposite.

A more integrated and balanced EU cohesion policy should also pay attention to the "green quality", especially in increasingly urbanised areas (notably the current "global integration zone" and metropolitan regions). This aspect should be taken into account in elaborating policy inputs to potential partnerships between urban and rural territories, in particular in order to ensure "**green areas**" between the important urban areas/networks and euro corridors in Europe, as well as for indicators, prognoses and models of administrative co-operation (co-ordination with projects under measure 1.3).

3.3. Historical and institutional aspects of urban–rural relations, governance

Besides conceptual clarification, the project should include the examination of the inherited variety of historical interdependencies between cities and their hinterland and the variety of political and administrative systems. The analysis of the various shapes of the urban-rural relationships (and potential partnerships) can not be restricted to the sphere of territorial analysis. The institutional structures and dynamics that encourage or undermine potential partnerships have to be considered as well. The qualitative elements of the analysis and the territorial indicators have to be complemented with the indicators on institutional factors.

Institutional, governance and fiscal aspects are to be appreciated: the level of spatial integration, the degree of co-operation and of partnership between urban and rural areas (in particular involving small and medium towns), integrated planning in large urban-rural functional areas,

[7] In this sphere, the previous phase of SPESP offers important access points

fiscal system, administrative barriers/borders. Moreover the effects of sector policies, such as the CAP (co-ordination with actions under measure 2.1), should be comprised.
The territorial governance appears rather different depending on Member States: a methodology on Europe wide comparative studies still needs to be developed. That also relates to the better knowledge of the tools of territorial planning involved in the urban-rural partnership, and on various forms of "cooperation between municipalities" (presently most advanced in clustering of towns and cities) as well as urban policies carried out at European level.

4. Orientations for policy recommendations

It must be recognised that currently the measures known as rural development cover primarily support for the farmers (individuals). Only some measures of Article 33 of the Regulation on rural development concern the rural socio-economic development in the broad sense.
In targeting inputs to policy development the project should consider the following:
The problem of concentration of funds: Should measures remain concentrated primarily on the farmers (5% of the working population on average in the U.E 15, more than 20% of the working population in the applicant countries)? Which arguments for distributing the funding by other keys, such as on the total rural population or in relation to the environmental efforts, would support a more integrated urban-rural development?
How to better articulate the 2nd pillar of the CAP (rural development) and territories? Is it necessary to introduce stronger territorial components for the 2nd pillar to become a real rural development policy?
Is it necessary to establish a more clear separation between a cohesion policy aiming at the diversification of the rural economy (financed exclusively by the Structural Funds) and an agricultural development policy (financed by the CAP) focussing on the adaptation/adjustment of agriculture and the strengthening of competitiveness?
Above all, conclusions and recommendations should follow an integrated approach concerning policy measures. They should include agricultural, sector and structural policies taking into account horizontal EU objectives such as sustainable development and governance. The project should elaborate concrete and applicable recommendations on urban rural relations and partnerships for future cohesion policy and a more balanced polycentric development.
Recommendations should in particular include proposals for improvement of the current programming period of Structural Funds, proposals for future policy instruments in the framework of Structural Funds and Agriculture policy (rural development strand) and proposals for co-ordination with other Community policies and with national policies.
Conclusions on **potentials and difficulties** of urban-rural relations should be drawn taken into consideration the diversities within the European territory, and concrete recommendations should be formulated on how relationships could be strengthened and deepened for the profit of both areas, and how the exchange processes and the **institutional structure** could be organised in order to support partnership building.
The project has to refer to the fundamental objectives and the relevant policy options mentioned in the ESDP. A differentiation of ESDP policy aims related to the diversities within the European territory should be proposed. This also includes formulating concrete recommendations on how urban-rural partnerships could play a stronger role in integrated strategies for a better balanced and polycentric European territory, and how such partnerships could be supported by EU policies.

vii) Existing access points

The access points listed below can serve the purpose of providing the tenderer useful information for preparing a proposal. It is by no means meant to be exhaustive, but only as information that can be helpful in tracing additional useful background information.

- The results of the study programme (SPESP) with regards to urban-rural relationships and partnerships;
- The OECD working group on territorial questions, also investigating functional areas in an international comparative perspective;
- Leader (rural areas) and Interreg (transnational co-operation) could provide cases studies in order to better understand the urban-rural relationship from a European perspective;

- Some Interreg IIC and IIIB projects also dealing with this issue could provide some experience at transnational scale;
- Objective 1 and 2 (former 5b) programmes under Structural Funds;
- The (new) Commission's/Eurostat's Initiative on Environmental European Spatial Data Infrastructure (E-ESDI) can also considerably contribute.

In addition, an ESPON Data Navigator creating an overview, a handbook, giving information on principal data sources, contact points etc, is under elaboration. The Data Navigator is expected to cover, in principle, all countries in an enlarged European Union as well as neighbouring countries. The Data Navigator is scheduled to be finalised by August 2002.

TERMS OF REFERENCE:
ESPON ACTION 1.1.3

ENLARGEMENT OF THE EUROPEAN UNION AND THE WIDER EUROPEAN PERSPECTIVE AS REGARDS ITS POLYCENTRIC SPATIAL STRUCTURE
(2002-06)

(o) Political challenges for the ESPON projects

The Second Report on Economic and Social Cohesion, published in January 2001, presented for the first time a third territorial dimension of the cohesion (beside the economic and social cohesion), which calls for a better co-ordination of territorially relevant decisions. Stressing the persistence of territorial disparities within the Union, the report stated the need for a cohesion policy not limited to the less developed areas as well as the need to promote a more balanced and more sustainable development of the European territory.

The Second Cohesion Report represents in that respect a follow up of the European Spatial Development Perspective (ESDP), adopted at ministerial level in May 1999, calling for a better balance and polycentric development of the European territory.

The projects launched under the ESPON programme shall follow an integrated approach and, seen together, cover a wide range of issues, such as:

- Identifying the **decisive factors relevant for a more polycentric European territory**; accessibility of a wide range of services in the context of enlargement; integration of wider transnational spaces; promotion of dynamic urban growth centres; linking peripheral and disadvantaged areas with those centres; etc.
- Developing **territorial indicators and typologies** capable of identifying and measuring development trends as well as monitoring the political aim of a better balanced and polycentric EU territory
- Developing **tools supporting diagnoses of principal structural difficulties as well as potentialities**, such as disparities within cities and regenerating deprived urban areas; structural adjustment and diversification of rural areas; strategic alliances between neighbouring cities at transnational, national and regional scale; new partnerships between rural and urban areas; potential support from infrastructure networks in the field of transport, telecommunication, energy; etc.
- Investigating **territorial impacts of sectoral and structural policies** in order to enhance synergy and well-co-ordinated decisions relevant for territorial development within policy fields such as Structural Funds, agriculture, transport, environment, research and development; developing methods for measuring the territorial impact of sectoral and structural policies; etc.
- Developing **integrated tools in support of a balanced and polycentric territorial development**; approaches to enhance the potential of cities as drivers of regional development, new tools for integrated urban-rural development and planning, etc.

With the results of all the ESPON projects, the Commission and the Member States expect in particular to have at their disposal: **a diagnosis of the principal territorial trends** at EU scale as well as the difficulties and potentialities within the European territory as a whole; **a cartographic picture of the major territorial disparities** and of their respective intensity; a number of **territorial indicators and typologies assisting a setting of European priorities** for a balanced and polycentric enlarged European territory; some **integrated tools and appropriate instruments** (databases, indicators, methodologies for territorial impact analysis and systematic spatial analyses) to improve the spatial co-ordination of sector policies.

In this respect, the ESPON projects will serve as a strong scientific basis for the propositions of the Commission in the Third Report on Cohesion, at the end of 2003, in view of the reform of post-2007 Structural Funds.

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The priorities describing the work-programme of the ESPON 2006 Programme are structured in four strands:

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This project belongs to the first strand and therefore holds a key position for the elaboration of the whole programme by the preparation of the common ground for the investigation of the basic spatial structure in Europe. Therefore a strong co-ordination with all other ongoing projects is needed, in particular with other projects within the same strand and with the coordinating and cross-thematic projects under priority three and the Co-ordination Unit.

ii) Thematic scope and context

The project will be focused mainly in the evaluation of the future implications of enlargement on EU territorial development from both the perspectives of the Member States and their regions as well as from the perspectives of candidate countries and their regions. Particular attention will be paid to border regions in the EU and candidate countries[8]. The provision of the elements necessary for extending the ESDP to candidate countries is also required.

An additional task will be an account of trends affecting countries bordering the enlarged EU, where they could have direct effects on EU territorial development. This exercise should include contributions from EFTA and Mediterranean countries.

Starting from the knowledge on integration effects and the transformation of economies and societies after the socialist phase, the specific territorial features of development ought to be illustrated. The research questions under this measure refer to other particular actions and concentrates on the effects of enlargement from both the Member States and the candidate countries perspectives. Indeed, an interesting questions are, how the present spatial tissue and structures in the candidate countries comply with the policy objectives of a polycentric and balanced European territory and how the development influenced by the transformation task in itself can support this objective?

The reinforcement of cities and regions along internal and external borders, as the ESDP states, has to be considered in this context: policies for the development of "gateway cities ", strategic cooperation in urban clusters, multi-modal infrastructure for the European corridors, equal access to telecommunications, facilities and intercontinental accessibility could strengthen the role off the regions and their cities at the external borders.

Special attention should be given to future external borders. The projects under this action should set of from and update the study carried out for Europe 2000+ on the effects of enlargement on the Community territory. Elements for the elaboration of scenarios (at a later stage under priority 3 of the ESPON programme) looking at the territorial structure of Europe after the achievement of the enlargement of the EU should be elaborated in this context and be of particular importance.

[8] Roughly 62 % of the population in the Accession Countries lives in border regions, compared with only around 15 % within the EU-fifteen. Cross-border collaboration among the Accession Countries is, therefore, one of the great challenges to the European spatial development policy.

iii) General objectives

The general objectives of the project are the following:

a) to refer to the three fundamental objectives with in the ESDP with regard to balanced and sustainable spatial development: the economic and social cohesion, the conservation of natural resources and cultural heritage and more balanced competitiveness of the European territory;

b) to contribute to the identification of the existing spatial structure of the enlarged EU territory, in particular the degree and diversity of physical and functional polycentrism at different geographical scales, and to gain concrete and applicable information on the EU wide effects of spatially relevant development trends and their underlying determinates. Therefore, the project should be sustained by empirical, statistical and/or data analysis;

c) to contribute to the definition of concepts and appropriate territorial indicators, typologies and instruments as well as new methodologies to consider territorial information linked to polycentrism, to detect territories (preferably below NUTS 2) most negatively and positively affected by the identified trends with special reference to regions in terms of accessibility, polycentric development, environment, urban areas, territorial impact assessment; particular attention will be paid to areas exposed to extreme geographical positions and natural handicaps such as mountain areas, islands , ultra-peripheral regions; reflections should as well be included on relevant issues from the perspective of Europe and its territorial structure in a global or world-wide context;

d) to develop possible guidelines for policy responses, taking the diversity of the wider European territory into account, and considering institutional, instrumental and procedural aspects;

e) to consider the provisions made and to provide input for the achievement of the horizontal projects under priority 3, such as tools for diagnosis and observation to be able to contribute to the forthcoming long term scenarios, as well as evaluation and assessment procedures.

In the efforts to meet these objectives the project shall make best use of existing research and relevant studies.

iv) Primary research issues envisaged

A specific task of project 1.1.3 is to benefit the most of developments in other ongoing ESPON projects, in particular project 1.1.1. and 1.1.2. Concerning the provision of relevant territorial data for candidate countries other ESPON projects may have already produced useful information as they are focusing on EU 27. The ESPON Data Navigator provides an inventory of existing data and access points in candidate countries.

In the ***first phase 2002-2003*** the main effort lies in the analysis of the enlargement effects on a short and medium term perspective on EU territorial development, including

- a diagnose of the spatial tissue and structure in candidate countries in relation to polycentrism and territorial balance and the policy orientations for cities, accessibility and natural and cultural heritage adopted in the ESDP;
- a diagnose of spatial discontinuities and barriers as well as potentials for development to be further explored, including a preliminary assessment of future external and internal border regions;
- an identification of the particular territorial effects of the ongoing transformation process as well as problems and potentials for a stepwise spatial integration of candidate countries in a wider European polycentric and balanced spatial tissue;
- a first indication of potential policy recommendations;
- contribution to and close coordination with other ongoing ESPON projects, in particular concerning territorial indicators and mapping;
- collection of (additional) data in the accession countries for the second phase of the study.

In the ***second phase 2004-2006*** the emphasis lies in the completion and deepening of the studies of the first phase and to extend the study of the potential for transnational and interregional cooperation on European spatial development beyond the future limits of the EU. The main elements envisaged in this phase of the project are:

- Further deepening of the knowledge on the spatial tissue of candidate countries, in particular the socio-economic functionality of different cities, regions and larger territories (including a compilation of relevant national studies with European focus);
- Further efforts to the identification, gathering of existing and proposition of new territorial indicators and data and map-making methods (in cooperation with other ongoing ESPON projects) capable of measuring and display the state, trends and impacts of the developments referred to above;
- Further identification of spatial discontinuities and barriers at European scale, including as well social/cultural barriers to residential migration or cross-border commuting and fundamental economic indicators such as differences in wealth and/or unemployment;
- A comparative analysis of integration processes between transnational and cross-border regions. The analysis shall include cross border regions becoming "inside" an enlarged EU as well as ongoing and potential cooperation between EU regions and future neighbouring regions in order to follow the process of European integration at meso- and micro level.[9] Which approaches are followed towards a better transnational and cross-border integration, taking also into consideration as well sea borders between two countries?
- A further operationalisation and territorial diversification of the policy aims and options adopted in the ESDP in the candidate countries, including an adaptation to the territorial diversities within Europe. All major issues dealt with the ESDP are also relevant for the candidate countries, but both the degree of relevance and the consequences may be lower in some cases and higher in other cases, when compared with the current member states.
- An assessment of the impact of enlargement on the present 15 EU Member States.
- Policy recommendation for the integration of candidate countries in a polycentric and balanced spatial tissue and structure.

Some of the questions to be addressed are: Where are the opportunities and threads for achieving spatially balanced developments on the background of enlargement? Where are the access points for a better spatial integration of candidate countries and future neighbours? How will a stepwise enlargement influence the spatial structure and what policy recommendations should be the result?

An important part of the analysis is the comparative analysis of integration processes between transnational and cross-border regions. Cross border regions inside the EU but also between EU and accessing countries can be considered as places of particular importance in order to follow the process of European integration on a meso- and micro level. Which are the approaches towards a better transnational and cross-border integration, taking also into consideration the sea between two countries as a border?

The specification of trends affecting countries bordering the enlarged EU, where they could have direct effects on EU territorial development is as well an important issue. Where are the opportunities and threads for achieving spatially balanced developments on the background of enlargement? How will the spatial structure look like after the stepwise enlargement in and around the future EU? Where are the access points for a better spatial integration of candidate countries and future neighbours?

v) Expected results and timetable

The research undertaken for the interim reports is supposed mainly to work on data available at the national statistical offices, Eurostat and other national and European institutions, and normally be based on existing administrative units. From August 2003 until end of the project, the research should complement the missing territorial/regional data and complement tools and territorial indicators if possible beyond the NUTS classification and the NUTS 3 level.

One of the main objectives of the ESPON 2006 Programme is to focus on research with policy relevance and to contribute to the development of relevant policies. Therefore, the deliverables of

[9] Actually, most studies about cross border regions are specific studies on particular areas without comparative dimension.

the research project should be highly operational and coordinated in time, as far as possible, to fit into the relevant political agenda. The following timetable and specification of output reflects this objective:

April 2003 (first interim report):

a) Consensus on indicators and data needed, after a precise analysis of the availability and comparability of data at Community level, to develop new database, including territorial indicators and the facilities needed for map-making. For the analysis, the results of the study programme and the results of other ESPON projects in course, in particular under priority 3.1, should be taken into account. This task should also define the appropriate geographical level and technology required for data collection, taking into account the availability of relevant data.

(b) A first detailed and comprehensive list of statistical and geographical data to be collected from Eurostat, the EEA and National Statistical Institutes and National Mapping Agencies before March 2003

(c) A first overview on concepts and methodology to be applied;

(d) Preliminary results on the basis of available territorial indicators, including European maps giving, as far as possible, a first diagnose of the existing European spatial tissue and the spatial structure in candidate countries, including urban nodes, the degree of polycentrism as well as spatial discontinuities and barriers in the new parts of an enlarged European territory.

(e) A first indication on policy recommendations and possible final results;

(f) Establishment of a new database, so far based on indicators available and with the ability to produce European maps showing, as far as possible, the existing spatial structure of urban nodes in the candidate countries and the degree of polycentrism, identification of urban poles likely to play a major role as a catalyst for development (close coordination with project 1.1.1) and/or to contribute to a new urban-rural relationship, as the ESDP states (particular attention to be paid in this context to rural regions located at the Eastern periphery of an enlarged EU and old industrial regions).;

(g) A second revised and extended request for further indicators to be collected.

September 2003 (second interim report):

(h) Preliminary analysis of the regional and spatial effects of enlargement on GDP, sectoral structure, trade, investment, unemployment and population density and migration flows on the regions in the candidate countries and in EU regions, in particular, least favoured regions and border regions. Identification of the particular effects of the stepwise integration of the candidate countries on territorial development.

(i) Updated analysis of the spatial and regional effects of enlargement as mentioned in d) and identification of the general discontinuities and barriers at European scale using fundamental indicators such as differences in wealth or unemployment, barriers to residential migration or cross-border commuting

(j) Analysis of the situation of cities and regions (in particular, rural regions located at the Eastern periphery of an enlarged EU and old industrial regions) in the candidate countries (as the ESDP states) as result of an integrated approach considering policies for the development of "gateway cities", multi-modal infrastructure for the European corridors, equal access to telecommunication facilities and intercontinental accessibility, natural and cultural assets, which could strengthen the role of regions and their cities, in particular at the external borders of the EU (connections with measures 1.1.1 and 1.1.2. need to be carefully considered). Detection of territorial typologies combining regions into revealing risks and potentials for the identified types

(k) Proposals for increasing co-operation and networking between cities in trans-border networks and on transnational scale contributing to a polycentric spatial development of the whole European territory and a new urban-rural relationship.

(l) List for a collection of (additional) data in the accession countries for the second phase of the study.

(m) Provisional policy conclusions and results.

September 2004 (third interim report):

(n) Development of an appropriate processing of the new data base, indicators and map-making and a system for monitoring of trends of territorial developments in the candidate countries in the context of the enlarged European territory, including neighbouring countries as well;

(o) Provisional final results on the basis of the extended number of available territorial indicators, including European maps showing, as far as possible, the existing spatial structure of urban nodes, the degree of polycentrism as well as problems and dynamics in different parts of the European territory, including a profile of the economic base, accessibility to transport and knowledge, potential complementarities with neighbouring metropolitan regions, capitals and regional cities, potential increase of attractiveness through urban qualities, natural and cultural assets

(p) A provisional final diagnose of the spatial tissue and structure in candidate countries, including

- Relation to polycentrism and territorial balance and the policy orientations for cities, accessibility and natural and cultural heritage adopted in the ESDP;
- Detection and use of territorial typologies combining regions into revealing risks and potentials for the identified types, such as a hierarchy and a typology of "development poles" and other types of networks of urban areas and regions as well as rural-urban partnerships;
- Relation to spatial discontinuities and barriers as well as potentials for development to be further explored, including an assessment of future external and internal border regions
- Identification of the particular territorial effects of the ongoing transformation process as well as problems and potentials for a stepwise spatial integration of candidate countries in a wider European polycentric and balanced spatial tissue;

(q) Provisional policy conclusions and results;

December 2005 (final report):

(r) Further deepening of the knowledge on the spatial tissue of candidate countries,

- in particular the socio-economic functionality of different cities, regions and larger territories (including a compilation of relevant national studies with European focus);
- further identification of spatial discontinuities and barriers at European scale, including as well social/cultural barriers to residential migration or cross-border commuting and fundamental economic indicators such as differences in wealth and/or unemployment;
- An assessment of the impact of enlargement for the spatial integration the present 15 EU Member States as well as the overall structure of the enlarged EU;
- A comparative analysis of integration processes between transnational and cross-border regions focusing on new internal and external as well as sea borders;

(s) Further efforts to the identification, gathering of existing and proposition of new territorial indicators and data and map-making methods (in cooperation with other ongoing ESPON projects) capable of measuring and display the state, trends and impacts of the developments referred to above; Listing of further data requirements as well as ideas of research and territorial indicators, concept and typologies as well as on further developments linked to the database and mapping facilities;

(t) Further elaboration on policy recommendation for the integration of candidate countries in a polycentric and balanced spatial tissue and structure. Proposals for a further operationalisation and territorial diversification of the policy aims and options adopted in the ESDP in the candidate countries, including an adaptation to the territorial diversities within Europe. Presentation of access points and concrete recommendation for policy responses to the territorial trends facing an enlarged EU territory, including at transnational and cross-border scale and in different parts of the Union, that could improve territorial cohesion; Presentation of the developed territorial indicators, concepts and typologies linked to polycentrism, including maps; Presentation of the database and the mapping facilities developed, covering as far as possible an enlarged EU and neighbouring countries;

(u) An executive summary of the main results of the research undertaken and recommendations for policy development, Presentation of the final results on the research items undertaken;

vi) Rationale and structure

The following text has the role of shaping the mind of thinking in developing a proposal for undertaking the project. The text is not meant to be exhaustive, but to serve the purpose of guiding the tenderer.

1. Approaches to the definition of concepts and methodology

The following text has the role of shaping the mind of thinking in developing a proposal for undertaking the ESPON project 1.1.3. The text is not meant to be exhaustive, but to serve the purpose of guiding the tenderer. As the project is suppose to built in particular on developments within the ongoing projects 1.1.1 and 1.1.2 an extract on the terms of reference for these two project are annexed. Further information on other projects can be found by consulting the ESPON web site www.espon.lu (updated version available primo October).

1.1. The spatial effects of the transformation task

The transformation of the candidate countries into members of the European Union is underway. A number of decisions have impacts on the spatial tissue and the integration of these countries in existing spatial structure of the EU. Will these decisions support a polycentric spatial tissue? And how could a territorial development towards these objectives be supported? To what extend can the options for action in the ESDP document be relevant? How could transnational and cross-border cooperation contribute? How to measure und describe spatial effects of the enlargement in the EU Members States and the accession countries, and at a later stage also for future neighbours?

At this respect, the study must take into account the dynamic process resulting from the economic reforms themselves as well as those resulting from the changed degree of accessibility. The contractor should paid special attention to the situation of the old industrial regions and rural regions.

The majority of the most disadvantaged regions are the rural regions located at the Eastern periphery of an enlarged EU. These tend to have relatively poor infrastructure, little investment and unfavourable economic structure characterised by a predominance of agriculture and low educational attainment of the labour force. Structural reforms in agriculture are likely to lead to large-scale job losses in future years.

The old industrial regions have been most adversely affected by economic transition. These have been severely affected by privatisation, enterprise restructuring and enclosures, the reorientation of trade from secure markets and the loss of subsidies. The decline of heavy industries has played a significant role in widening disparities in the candidate countries. These regions have failed to create new job opportunities and to attract new business or foreign investment. Most of these regions have high rates of unemployment and difficulties of re-integrating workers into the labour market.

1.2. Polycentrism beyond the future borders of the EU

The spatial tissue of the present EU displays territories of different degree of polycentrism. With the enlargement new areas with their own spatial characteristics will be added and should be integrated favouring polycentrism and balance. At the same time, former external borders become internal and new external borders appear, which brings about new challenges and potentials for transnational and cross-border cooperation. In the global context an enlarged EU will experience new gateways to the east, which will have to be developed into strong entry points to the EU and be well connected to markets further to the east. Therefore, the concept of spatial discontinuities and barriers should include specific barriers for the transformation process and a support of a polycentric development should include a global perspective on relations to the future neighbours of the enlarged EU.

An example referring to the concepts of global integration zones under project 1.1.1.: The challenge is to complement the current EU economic core area (the only dominant “global integration zone”) and to support a spatial economic development in Europe by stimulating the development of several globally important integration zones (and a more polycentric EU) including preferably metropolitan regions of candidate countries. Therefore a close co-ordination is required with action 1.1.1. The main added value of this study respect to action 1.1.1 should rely on a precise identification and description of existing and potential urban poles likely to play a

major role as a catalyst for development in the candidate countries ("development poles") as well as on a focus on the whole European territory (including neighboring countries).
The development and organisation of energy and transport networks are particularly significant in this context[10]. Spatial attention will have to be paid to the composition of the total infrastructure available within a given urban-rural region and to the identification of major quantitative and qualitative bottlenecks.
The conceptualisation of the specific barriers of transformation and the current integration process for a polycentric development should be address with a view on the future relation with the future neighbours of the EU.
Just as an example referring to the concepts of global integration zones under action 1.1.1 this would mean: The question of the positioning of the current EU economic core area (the "global integration zone") in a more eastward spatial economic development in Europe and the development of a more polycentric EU with more integration zones.
From this broad question, several questions arise:

- aimed at an EU wide specialisation of functions: what will be the predominant spatial-economic dynamics in the EU in the long term and what are the strong and weak points of the various developing (global) integration zones? What should be their focus in view of a sustainable, balanced and efficient spatial allocation of resources?
- aimed at strengthening the physical and geographic interrelationships between the various integration zones (such as Trans-European Networks)

Both could be carried out as scenario studies at the EU level, maybe from the perspective of the current EU economic core area.
For the second part of the programme the projection of the results under project 1.1.1. and formulation of conclusions for the wider European sphere should be achieved.

1.3. Spatial discontinuities

The discontinuities become obvious reviewing the chapter of the ESDP concerning the enlargement of the EU: "Generally, the three spatial policy guidelines of the ESDP (development of a balanced and polycentric urban system and new urban-rural relations as one of which) should also apply to the enlargement area. When applying the principals of the ESDP account should be taken of the fact that a large part of the enlargement area has to deal with the following situations:

- a continued transitional situation in the political and administrative system, also affecting handling of spatial issues;
- a rapid economic process of catching up with considerable potential for inherent geographical polarisation;
- a technical infrastructure that is developing only very slowly and unevenly (telecommunication and air transport top the list, road way ahead of rail);
- environmental damages in some cases on an incompatible scale;
- a public sector with very limited financial resources[11].

Rural regions in the enlargement area are affected especially by transformation policies. They show sharp economic disparities and have few urban centres. To a certain extent, the mix of sharp declines in production and employment levels, poor infrastructure and poor transport accessibility could lead to a massive wave of out-migration from rural regions and, as a consequence, to the collapse of their spatial structure".
Most of the items above refer directly to the issue of polycentric development. Together they represent what the heading of the ESDP chapter on enlargement highlights: "... An additional challenge for European spatial development". This means actually a comparably higher need –

[10] At this respect, the potential offered by the land bridge between the candidate countries and the eastern European countries should be also considered (as the Russian Federation and those bordering the Black Sea) and the Middle and Far East, especially through the development of new trading corridors. The eastern fringe of Europe could then become a focus for trade and co-operation between Europe and Asia.
[11] In this respect, the impact of accession in public finances and the budgetary equilibrium of the accession countries is an interesting topic to explore.

and at the same time – larger space of manoeuvring for polycentric spatial development, than within the current EU territory.

Furthermore the phenomenon of spatial integration becomes most obvious along the borders but is slowly diminishing and moving inland as the study on spatial integration of the SPESP found out. That approach could be applied for the investigation of income levels.

This research proposal suggests empirical analyses of two ordinarily somewhat separate but related research areas, namely regional convergence and studies on income distribution, both with household survey and/or income distribution statistics data. Both are typically available in EU-countries, but they have not been used extensively in convergence and regional income distribution analyses. Most convergence studies use supply side measures (GDP or regional value added per capita). Here, one concentrates on the per capita (or equivalent unit) incomes of the household sector. It is possible to apply several income concepts (factor, gross, disposable income) and find out the role of public sector for regional income disparities. On the other hand, with these data it is possible to study income distribution within regions, of which we know little in most countries. This type of study is also of interest in evaluating regional policies in EU-countries from households' view-point. The key constraint in analysis is that the number of regions cannot be large as sample data is used. In Finnish applications one regional division corresponds to NUTS2-level areas, and household surveys from the period 1966-96 were used. Similar studies are proposed to be carried out through ESPON program throughout EU-countries.

1.4. Spatial barriers

The stepwise integration of the EU ranging from the Euro-zone to the EU, candidate countries, Tacis countries, the Euromed co-operation lead to different degrees of integration which mean different degrees of integration in terms of the free movement of financial assets, goods and services and the labour force which lead to impacts not just along the borders but also inland. The spatial dimension of the creation and abolishment those barriers are interesting for the investigation of the spatial dimension of increasing integration.

2. Indicators and data

The concrete measurement of the concepts addressed above requires the definition of appropriate indicators and the collection the relevant data. The focus will lay on the quantitative analysis of concepts. Therefore the selection of indicators and data, which at the same time are accessible and meaningful builds the reference for further work.

Apart from data on the basic structure of population, land use and economic activity indicators are emerging such as on:

- division of labour/functions
- co-ordination of amenities
- joint investment in infrastructures and institutional structures of shared function/common interest
- promotion of joint ventures
- joint marketing at the respective higher functional level(s)

The project should cover existing qualitative and quantitative indicators, propose new ones and collect the data within the 15 Member States as well as for the 12 candidate countries and neighbouring countries (at least Norway and Switzerland).

The collection of data for the basic indicators should usually take place on the NUTS III level[12] and has to be aggregated and disaggregated within the project to obtain data for the following territorial scales: global economic integration zones, urban development poles and urban functional areas.

Comparability of data is a further important aspect that needs to be considered. Given the potentially wide range of data sources that will be used, which may even differ between regions or member states, for the same indicator, considerable attention will have to be paid to the

[12] Where harmonised (Eurostat) data sources don't provide the data for the indicators at the appropriate geographical level, the consultant will have to examine national and possibly regional data sources to try to complete the data sets. The collection of these data should be done in co-ordination with data collection provided by the contractors of ESPON projects under priority 4.

comparability of these data. Where comparability is judged insufficient, adjustments will have to made. Adjustments or estimates should be clearly indicated and documented, allowing the reader to follow the logic applied in the adjustments.

3. Quantitative and qualitative analysis

Apart from the points addressed under the specific research questions the following points should be deepened.

The spatial implications of the enlargement of the European Union on the regions of the existing member states as well as of the countries joining the Union will have to be assessed in detail, taking into account also the neighboring countries. Following these assessments, possible implications on the current ESDP policy options will have to be reflected.

3.1. The spatial impact of the enlargement in the EU and the regions of the accession countries

The assessment of the effects of the enlargement on the territorial balance and the regional development should follow a 2-step process:

3.1.1. Assessment of the effects of enlargement on trade flows, FDI flows and migration flows

A first assessment of these effects is provided in the study "the impact of EU enlargement on cohesion"[13] (trade volume and structure; volume, allocation and role of FDI; migration flows; regional and social impact of trade and migration flows). The successful contractor should have a closer look at the regional impact as well as the social impact, in particular for border regions in all EU and candidate countries and least favoured regions.

Typologies of regions could be developed following this assessment.

As regards migration flows, particular attention should be paid to out-migration from rural regions in the candidate countries.

3.1.2. Assessment of the effects of enlargement on regional development and translation of trade, FDI and migration flows effects on macro-economic variables

The contractor should evaluate the effects seen from a territorial and regional dimension and consider the following variables (non-exhaustive list):

- **Demographic indicators**: population density, evolution of the population, new urban poles at different scales
- **Regional economic strength**: Gross Domestic Product (GDP) per inhabitant in Purchasing Power Parity (PPP), evolution of GDP per inhabitant, creation of enterprises, GDP per person employed, inflation, changes in the economic sectors.
- **Labour market**: unemployment rate (long term, young, women…), evolution of unemployment rate, employment rate, poverty rate, wage levels.
- **Environment**: CO2 emissions, noise pollution, congestion.

Particular attention should be paid to expected changes in the regional economic sectors. As far as candidate countries are concerned, it is necessary not only to concentrate attention on the tertiary sector as proposed in the ESDP, but also to consider the special importance of industry and, in some candidate countries regions, of agriculture.

3.2. The spatial impact of enlargement neighbouring countries of the future

At a later stage, the analysis of the spatial impact of the enlargement process in the neighbouring countries, in particular eastern European countries and Mediterranean countries but also Norway and Switzerland, should be deepened. The development and organisation of energy and transport networks are particularly significant in this context

As mentioned under point 1. the potential offered by the land bridge between the eastern European countries (as the Russian Federation and those bordering the Black Sea) and the Middle and Far East should be considered, especially through the development of new trading corridors. The eastern fringe of Europe could then become a focus for trade and co-operation between Europe and Asia.

3.3. Perspectives of polycentrism after enlargement

[13] http://europa.eu.int/comm/regional_policy/sources/docgener/studies/pdf/enlarge.pdf

Elements for the elaboration of scenarios (under priority 3) looking at the spatial structure and the degree of polycentrism of the enlarged Union should be elaborated in this context and will be of particular importance.

4. Orientations for policy recommendations

The project should address ESDP policy options particularly relevant in the context of enlargement and future neighbours. Where are particular discontinuities and barriers emerging? How far are these discontinuities policy relevant? Which kind of measures in the frame of Structural policies is most appropriate to reduce those obstacles which are perceived as negative for the development of the polycentric spatial tissue?

This also includes formulating concrete recommendations for spatial planners on how an integrated polycentric urban model of European space could be elaborated and supported by EU policies. In addition, reference should be made to the question of how far polycentrism represents an useful aim for Structural Funds policies.

The contractor is expected to make relevant proposals for a further operationalisation and territorial diversification of the policy aims and options adopted in the ESDP in the candidate countries, including an adaptation to the territorial diversities within Europe.

vii) Existing access points

The access points listed below can serve the purpose of providing the tenderer useful information for preparing a proposal. It is by no means meant to be exhaustive, but only as information that can be helpful in tracing additional useful background information.

The report of the European Commission on the spatial perspectives for the enlargement of the EU[14] already compiled a data set at the national level. These will also need to be made available at the regional level NUTS 2 and NUTS 3 in order to be able to investigate territorial effects in an enlarged Union.

Interreg IIC and IIB projects are also dealing with this issue, which can provide some practical experience on the transnational scale.

In particular, the contractor is encouraged to take into account the existing regional development strategies for individual areas of Europe, such as the Vision and Strategies around the Baltic Sea (**Vasab 2010** [15] – eleven cooperating countries) and the Strategy for Integrated Spatial Development in Central, Adriatic and Danubian Europe (**Vision Planet**[16] – twelve cooperating countries at present).

In addition, the preparatory study of the second report on economic and social cohesion "The impact of EU enlargement on cohesion" could provide useful information to the contractor. The contractor is encouraged to fulfil the identified gaps and to deepen the analysis of the effects of enlargement and existing disparities.

The contractor should also take into account the "Guiding Principles for Sustainable Spatial Development of the European Continent" as adopted by the European Conference of Ministers responsible for Regional Planning (in Hanover, 7-8 September 2000), a policy reference document for numerous spatial development measures and initiatives made on the European continent, and in particular for transnational and international co-operation and the spatial development activities of the European Conference of Ministers responsible for Regional Planning within the Council of Europe.

In addition, co-ordination will be desirable with the preparatory study of the third report on economic and social cohesion which will deal with the "needs of regions in current member states

[14] European Commission 2000. Spatial perspectives for the enlargement of the EU. Luxembourg, 49ff.

[15] Vision and Strategies around the Baltic Sea 2010 – Towards a Framework for Spatial Development in the Baltic Sea Region, Third Conference of Ministers responsible for spatial development of the Baltic Sea States, Tallinn, December, 1994. From Concept to Action, Fourth Conference of Ministers responsible for Spatial Development of the Baltic Sea States, Stockholm, October 1996.

[16] Strategies for integrated Spatial Development of the Central European, Adriatic and Danubian Area adopted at the 4th Seminar of the Project Panel, Vienna, January 2000.

and the candidate countries in areas that are eligible for structural funds". The study will throw light on the level of endowment that is available in the regions of the candidate countries and will draw conclusions on the needs of the regions in policy terms (in three broad areas of intervention: infrastructure, human resources and productive investment).

Finally, an ESPON Data Navigator creating an overview, a handbook, giving information on principal data sources, contact points etc, is under elaboration. The Data Navigator is expected to cover, in principle, all countries in an enlarged European Union as well as neighbouring countries. The Data Navigator is scheduled to be finalised by August 2002.

TERMS OF REFERENCE
ESPON ACTION 1.1.4
THE SPATIAL EFFECTS OF DEMOGRAPHIC TRENDS AND MIGRATION

(2004-06)

(Preliminary, incomplete, finalisation when project will be tendered, for the timing see annex 3)

i) Thematic scope and context

The Cohesion Report stresses the effects of the demographic changes expected in many spheres of the society. Demographic trends include natural population trends (births, death, age structure), migration on large scale and regional/local migration. The latter is of particular interest as peer groups tend to differently migrate. Another observation is that the attitude and migration of cohorts is changing over time. That relates, in particular, to the third age. Those demographic trends together with migration and increasing mobility cause sever effects on the territorial development and the division of labour between regions. Trends could be distorted by the enlargement of the EU where additional movements are expected.

ii) Primary research questions

- Identification, gathering of existing and proposition of new indicators and data and map-making methods to measure and to display the state, trends and impacts of the developments referred to above; Compilation of national studies on demographic trends with European focus;
- Definition and measurement of EU wide determinants of natural population and migration trends;
- Identification of spatial patterns with reference to the typologies of cities and regions, addressed by the whole measure; Investigation of the endowment of regions which attract certain migrating groups. Spatial effects in certain types of regions, such rural regions and tourist regions which take advantage but are also at risk towards those trends. Trends at the EU scale and necessary and possible policy responses need to be investigated. This measure clearly needs to associate with the neighbouring countries of the EU;
- Investigation of the consequences of demographic trends in particular for the long term spatial scenarios;

iii) Existing access points

The reports on spatial integration[17] and social integration[18] of the SPESP programme already listed indicators in relation to migration and determinants of migration. If economic strength represents a pull factor for migration various indicators are listed in the report of the working group on that issue which are already available.[19]

- Project proposal to investigate the determinant causes of migration trends affecting the EU territory, for example, to identify the demographic, social, economic, etc characteristics of migration cohorts; the country of origin, mid and final destinations; etc.

  This initial evaluation should be undertaken in collaboration with both, neighbouring countries of the EU and, particularly, enlargement countries. The study should evaluate the effects that enlargement would have on existing migration trends (if increases on population movements do happen as result of completion of enlargement process).

  The final aim would be to assess the positive and negative short and long-terms effects of migration for different regions and for countries in the EU (i.e. changes

[17] SPESP 2000 CD report of working group on spatial integration, p. 51ff
[18] SPESP 2000 CD report of the working group on social integration p. 57ff.
[19] SPESP 2000 CD report of working group on economic strength.

on the labour market structure, pressure on provision of housing, health and other public services, etc) investigate their responses towards achieving social and spatial integration.

Interesting topics

" European regions and replacement migration"

Europe is characterized by several well-known demographics trends. The decline of fertility, the aging of European societies and the growing demand for new labour force are important trends on the one side and pull factors of migration on large scale on the other side. European is and will be attractive for migrants from other parts of the world and Europe will need migration to slow down the aging process and to keep the labour market working. But the crucial question is how many migrants should arrive Europe where they should settle down and which common policies are necessary to control migration and to integrate migrants.

The proposed project can be titled with "European region and replacement migration". With this title the content of the project is addressed. On the state level the amount of replacement migration is well known. The UNDP (United Nation Population Division) calculated replacement migration under different scenarios. What is missing is a regionalisation on a subnational level. But this would be necessary because the differences within the European countries concerning demographic trends are important. Regions with a growing population are adjacent to peripheries with a declining population.

The research should concentrate on four issues:

- To understand and to describe to the demographic trends gathering and analysing existing demographic indicators would be the first step included a discussion of the indicators their comparability, definition and data sources are unavoidable;
- In a second step the project should focus on establishing a multiregional data set which is necessary for further calculation. This data set has to include age structure, the migration flows, the fertility pattern and the spatial differentiated life expectancy;
- In a third step the prognosis of the population development should be submitted and the calculation of the replacement migration which is a reflection of the demographic regime and different basic assumptions.
- The last step a proposed project of that kind has to think about migration regulation. To do this it would be useful to compare different strategies in European countries to extract an appropriate and acceptable way.

It is not necessary to emphasise that this project can only be realised with strong and well reputed partners like the Max-Planck Institut in Rostock or the Netherlands Institute for Demographic Institute (NIDI). Nevertheless the research question is tackling one the main and most important question of Europe's future.

Description and typology of processes of depopulation in European peripheries

Low birth rates, ageing and migration – both internal and cross-border – are of great importance for the future development in all parts of Europe. Today, the birth rates are at a very low level – so low that a population decrease should be the result without immigration.

Taking data on natural population growth and gross migration as a starting point, the study will seek to identify different types of processes that lead to depopulation in peripheral areas. This will be done by looking at administrative entities, their net migration and possible repulsive and attractive factors. This would lead to identify different scales in population movements, from rural areas to local centres, and from less favoured regions to national or continental core areas. But it would also be interesting looking at the issue from a life cycle perspective; one would seek to identify which are the critical stages in a life cycle, when opportunities offered in a peripheral or less-favoured area appear insufficient so as to produce migratory movements. In Northern peripheries, one might find that educationally or culturally induced population movements will have replaced previous migration triggered by search for employment. In other cases, industrial restructuring will still be important. The ageing population of Europe, with "grey spending power", will probably have an increasing impact on demographic patterns. This would elucidate possible links between economic prosperity, life cycles and migration, and could thus form a basis for policies seeking to resist depopulating trend European peripheries.

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TERMS OF REFERENCE
ESPON ACTION 1.2.1.

TRANSPORT SERVICES AND NETWORKS:
TERRITORIAL TRENDS AND BASIC SUPPLY OF INFRASTRUCTURE FOR TERRITORIAL COHESION
(2002-04)

(o) Political challenges for the ESPON projects

The Second Report on Economic and Social Cohesion, published in January 2001, presented for the first time a third territorial dimension of the cohesion (beside the economic and social cohesion), which calls for a better co-ordination of territorially relevant decisions. Stressing the persistence of territorial disparities within the Union, the report stated the need for a cohesion policy not limited to the less developed areas as well as the need to promote a more balanced and more sustainable development of the European territory.

The Second Cohesion Report represents in that respect a follow up of the European Spatial Development Perspective (ESDP), adopted at ministerial level in May 1999, calling for a better balance and polycentric development of the European territory.

The projects launched under the ESPON programme shall follow an integrated approach and, seen together, cover a wide range of issues, such as:

- Identifying the **decisive factors relevant for a more polycentric European territory**; accessibility of a wide range of services in the context of enlargement; integration of wider transnational spaces; promotion of dynamic urban growth centres; linking peripheral and disadvantaged areas with those centres; etc.
- Developing **territorial indicators and typologies** capable of identifying and measuring development trends as well as monitoring the political aim of a better balanced and polycentric EU territory
- Developing **tools supporting diagnoses of principal structural difficulties as well as potentialities**, such as disparities within cities and regenerating deprived urban areas; structural adjustment and diversification of rural areas; strategic alliances between neighbouring cities at transnational, national and regional scale; new partnerships between rural and urban areas; potential support from infrastructure networks in the field of transport, telecommunication, energy; etc.
- Investigating **territorial impacts of sectoral and structural policies** in order to enhance synergy and well-co-ordinated decisions relevant for territorial development within policy fields such as Structural Funds, agriculture, transport, environment, research and development; developing methods for measuring the territorial impact of sectoral and structural policies; etc.
- Developing **integrated tools in support of a balanced and polycentric territorial development**; approaches to enhance the potential of cities as drivers of regional development, new tools for integrated urban-rural development and planning, etc.

With the results of all the ESPON projects, the Commission and the Member States expect in particular to have at their disposal: **a diagnosis of the principal territorial trends** at EU scale as well as the difficulties and potentialities within the European territory as a whole; **a cartographic picture of the major territorial disparities** and of their respective intensity; a number of **territorial indicators and typologies assisting a setting of European priorities** for a balanced and polycentric enlarged European territory; some **integrated tools and appropriate instruments** (databases, indicators, methodologies for territorial impact analysis and systematic spatial analyses) to improve the spatial co-ordination of sector policies.

In this respect, the ESPON projects will serve as a strong scientific basis for the propositions of the Commission in the Third Report on Cohesion, at the end of 2003, in view of the reform of post-2007 Structural Funds.

(i) Relation to the ESPON 2006 programme

The priorities describing the work-programme of the ESPON 2006 Programme are structured in four strands:

1. **Thematic projects** on the major spatial developments on the background of typologies of regions, and the situation of cities.
2. **Policy impact projects** on the spatial impact of Community sector policies and Member States' spatial development policy on types of regions with a focus on the institutional inter-linkages between the governmental levels and instrumental dimension of policies
3. **Co-ordinating and territorial cross-thematic projects** represent a key component of the programme. These projects evaluate the results of the other projects towards integrated results such as indicator systems and data, typologies of territories, spatial development scenarios. The cross section projects help to thematically co-ordinate the whole programme and add value to the results and to fill gaps, which are unavoidable when different themes are dealt with in different projects.
4. **Scientific briefing and networking** in order to explore the synergies between the national and EU source for research and research capacities.

This project belongs to the first strand and therefore holds a key position for the elaboration of the whole programme by the preparation of the common ground for the investigation of the basic net of spatial structure in Europe. Therefore a strong co-ordination with all other ongoing projects is needed, in particular with the other project in the same strand and with the coordinating and cross-thematic under priority three and the Co-ordination Unit.

ii) Thematic scope and context

A dynamic territorial development depends on an optimal combination of available services. The possibility of making use of the resources available in a city or a larger territory depends as well as of the ability to communicate and exchange services with other locations. The range of services, which interlink areas, cities and the European continent to the world market, comprises services related to transport, energy to telecommunications. For an area or a city the provision of these services has a major impact on the attractiveness for new investments and constitutes an important location parameter.

Communication and exchange between cities and territories takes place via infrastructure networks where resources, goods, humans and information are exchanged. Access to those networks is increasingly becoming a crucial factor for territorial development. The ESDP highlighted the close relation between the aim of a balanced territory and polycentric development and the policy orientations decided developing the infrastructure networks. The ESDP also highlighted in this respect the special role, which could be undertaken by Euro-corridors, global integration zones, gateway cities and urban pdes, well distributed on the European territory, as nodes in the infrastructure networks.

The functioning of networks very much depends on access points. A co-ordinated access is of particular importance where the access is related to very large investments. Most prominent in that respect are ports and airports, which need to be efficiently linked to land transport modes in line with an organisational network approach. Furthermore, communication and exchange between networks takes place in multi model nodes. Multi-modal points are becoming increasingly important for sustainable transport in order to be able to use the least environmentally unsustainable transport mode possible.

The major ESDP concept of "parity of access to infrastructure and knowledge", understood as a guideline promoting a better territorial equity or balance, needs to be more clearly defined and further investigated. The diversity within the European territory and the potential within different parts of the territory (e.g. for low density areas, ultra peripheral regions, costal zones, inlands, mountain areas, transnational co-operation areas) are important issues in that respect

The importance of infrastructure networks for economic development is substantive, being it the expansion of local companies, multinational corporations or international direct investments. The spatial structure of the territory is an important aspect as well. Therefore, further investigation is needed in the different types and the geographical location of foreign direct investments. Such an

investigation will as well provide an improved knowledge on the internal strategic decisions of multinational corporations, for example on the location of headquarters, administration, production facilities, greenfield investments and acquisitions, which sometimes have a decisive influence on the regional job mix. It should make the location parameters of the future more clear, including the relative importance of accessibility to infrastructure networks.
The European integration process is followed by a growing number of acquisitions and mergers, leading to restructuring of companies and regional economies. How these decisions could influence territorial development and the European political visions of better balance and polycentrism should also be discussed. Critical will be the observation of the territorial effects of the European integration process at a European and transnational scale with particular reference to the candidate countries.
The diverse territory of Europe as well as the present spatial structure (with consideration of the polycentric development) indicates the problem of minimum supply of (public and private) infrastructure capable of providing the basic services required in all regions and to maintain the "service of general interest". This supply is necessary in order to prevent the final decline of and migration from remote and other areas with specific weaknesses, often exposed to extreme geographical conditions. However, a basic supply of services represents only the first and minimum step towards the provision of higher degrees of infrastructure.
The Communication from the Commission "Service of general interest in Europe" (COM 2000/580) investigates the effects of market liberalisation in the telecommunication, transport and energy sector. The projects cited clearly indicate regionally and locally deviating effects. The interactions between different infrastructure networks, and the objectives of economic efficiency, consumer protection and economic, social and territorial cohesion should be taken into particular account.
With regard to the growing importance of some EU Member States as transit countries in an enlarged European Union, the identification of principles and the elaboration of political recommendations based on a polycentric development model gains in importance. In general, this project shall provide input for the territorial impact analysis of TENs policy under ESPON action 2.2.1.. The conceptual work done within this project on the measurement of impacts should be taken into account.

iii) General objectives

a) To refer to the three fundamental objectives with in the ESDP with regard to balanced and sustainable spatial development: the economic and social cohesion, the conservation of natural resources and cultural heritage and more balanced competitiveness of the European territory;
b) To contribute to the identification of the existing spatial structure of the EU territory, in particular the degree and diversity of physical and functional polycentrism at different geographical scales, and to gain concrete and applicable information on the EU wide effects of spatially relevant development trends and their underlying determinates. Therefore, the project should be sustained by empirical, statistical and/or data analysis;
c) To define concepts and to find appropriate territorial indicators, typologies and instruments as well as new methodologies to consider territorial information linked to polycentrism, to detect territories (preferably below NUTS 2) most negatively and positively affected by the identified trends with special reference to regions in terms of accessibility, polycentric development, environment, urban areas, territorial impact assessment; particular attention will be paid to areas exposed to extreme geographical positions and natural handicaps such as mountain areas, islands , ultra-peripheral regions; reflections should as well be included on relevant issues from the perspective of Europe and its territorial structure in a global or world-wide context;
d) To develop possible orientations for policy responses, taking the diversity of the European territory into account, and considering institutional, instrumental and procedural aspects;
e) To consider the provisions made and to provide input for the achievement of the horizontal projects under priority 3, such as tools for diagnosis and observation and long term scenarios, as well as evaluation and assessment procedures.

In the efforts to meet these objectives the project shall make best use of existing research and relevant studies.

iv) Primary research issues envisaged

The research questions cover issues related to the basic supply of transport infrastructure and services within the EU territory as well as territorial trends of transport infrastructure network and services.

Transport infrastructure comprises the transport modes road, rail, air, waterways. Energy and communication infrastructure is being dealt with in the project under 1.2.2.. The concepts on effects of networks and the question inter-modality should be address in close co-operation.

- Identification, gathering of existing and proposition of territorial indicators and data and map-making methods to measure and display (1) the basic supply of transport infrastructures and services as well as (2) the trends and impacts of the development of transport infrastructure network and services. Compilation of national studies with European focus should be undertaken;
- The most important features of the present infrastructure networks with regard to territorial issues, i.e. the location and capacity of primary and secondary networks, the spatial patterns of access points, the flows between the access points identified (usually in an hierarchical order) and the number of users (types of users), which have access in real terms (different quality) to the networks;
- Specific typologies and territorial patterns in the transport infrastructure networks and services, referring to in particular the typologies used the ongoing ESPON project 1.1.1 on polycentrism and to typologies of regions in other ESPON projects;
- The most relevant transport services of general interests, referring to migration and regional development potential, which influence the development of territories and regions lagging behind as well as territories and regions with a peripheral location or specific features (structurally weak areas, islands and mountain areas);
- The role of services of general interest as vectors for territorial cohesion: constitution of trans-European networks of services of general interest (in particular, in rural areas).
- The different kinds of complementarity and exchange processes (level of multi-modality) that exist between different kinds of infrastructure in different parts of Europe in support of sustainable transport.
- The importance of access to transport networks and services as a location parameter for investments and the economic development of cities and regions
- The correlation between transport infrastructure trends and a polycentric development model, including identification of an operational benchmarking system that could be applicable with regard to the data and indicators available;
- A further operationalisation and territorial diversification of the policy aims and options adopted in the ESDP, including an adaptation to the territorial diversities within an enlarged EU.

v) Expected results and timetable

The research undertaken during the interim reports is supposed mainly to work on the data available at the national statistical offices, Eurostat and other national and European institutions, and normally be based on existing administrative units. From 2003 until August 2004, the research should complement the missing territorial/regional data and complement tools and territorial indicators if possible beyond the NUTS classification and the NUTS 3 level.

One of the main objectives of the ESPON 2006 Programme is to focus on research with policy relevance and to contribute to the development of relevant policies. Therefore, the deliverables of the research project should be highly operational and coordinated in time, as far as possible, to fit into the relevant political agenda. The following timetable and specification of output is reflecting this objective:

September 2002 (first interim report):

a) Consensus on indicators and data needed, after a precise analysis of the availability and comparability of data at Community level, to develop new database, including territorial indicators and the facilities needed for map-making. For the analysis, the results of the study programme and the results of other ESPON projects in course, in particular under priority 3.1, should be taken into account. This task should also define the appropriate geographical level and technology required for data collection, taking into account the availability of relevant data.

b) A first detailed and comprehensive list of main requests for statistical and geographical data to be collected mainly from Eurostat, the EEA and National Statistical Institutes and National Mapping Agencies in autumn 2002.

c) A preliminary overview on concepts and methodology and hypothesis for further investigation.

February 2003 (second interim report):

d) Preliminary results on the basis of available territorial indicators, including European maps showing the existing spatial structure of transport infrastructure networks and services, as far as possible related to the degree of polycentrism, areas facing problems of lagging behind and the accessibility to different parts and types of territories within Europe.

e) A first overview on concepts and methodology and possible final results.

f) Establishment of a new database, so far based on indicators available and with the ability to produce European maps related to the basic supply as well as the trends and impacts of the development of transport infrastructure network and services

g) A second revised and extended request for further indicators to be collected (mainly) from Eurostat and the EEA, by summer 2003 (the latest).

August 2003 (third interim report):

g) A working report on the main results of the research undertaken including databases, indicators, map-making and a analysis/diagnosis of the transport sector in Europe, as well as the existing territorial imbalances and regional disparities in transport infrastructure based on the research questions above, including an extended number of available territorial indicators and European maps showing, as far as possible, interrelationships between the supply, trends and impacts of transport infrastructure networks and services and territorial features, such as the degree of polycentrism, accessibility to typologies of regions and territories, areas lagging behind (and eventually facing migration), multi-modality provisions and missing links for improving a sustainable European transport, and the territorial integration of candidate countries in an enlarged EU.

(h) Preliminary results on the significance of transport infrastructure networks and services as location parameter for mobile investments

(i) Development of appropriate tools for the processing of the new data base, indicators and map-making

(j) Applicable systems for the monitoring and benchmarking of new trends of territorial developments in the context of the European territory, including candidate countries and neighbouring countries;

k) Detection of typologies of regions revealing risks and potentials for the identified types of regions;

l) Policy recommendations, which provide the basis for the future focus of Community interventions post 2006, to improve parity of access to infrastructure (in particular, an integrated approach for improved transport links and promotion of efficient and sustainable use of the infrastructure), including institutional settings and instruments. Particular attention should be paid to peripheral and ultra-peripheral regions.

August 2004 (final report):

m) An executive summary of the main results of the research undertaken and recommendations for policy development.

o) Comprehensive presentation of supply, trends and impacts of transport infrastructure networks and services in relation to a polycentric and balanced development of an enlarged European Union;

p) Presentation of access points and concrete ideas for policy responses to the territorial trends facing the development of the transport infrastructure and services, at different scales and in different parts of the Union, that could improve territorial cohesion;
q) Presentation of the developed territorial indicators, concepts and typologies linked to transport infrastructure and services, including maps;
r) Presentation of the database and the mapping facilities developed, covering as far as possible an enlarged EU and neighbouring countries
s) Listing of further data requirements and ideas of territorial indicators, concept and typologies as well as on further developments linked to the database and mapping facilities;

vi) Rationale and structure

The following text has the role of shaping the mind of thinking in developing a proposal for undertaking the ESPON action 1.2.1. The text is not meant to be exhaustive, but only to provide guidance for the tenderer.

1. Approaches to the definition and methodology

The description of the territorial effects of infrastructure for all typologies of regions prepared in the framework of the ESPON Programme, and the development of further typologies with consideration to infrastructure, provides an important focus in the methodological approach of the project. Beyond further approaches the following should be considered:

As for the rest of ESPON projects, the project should focus on the whole European territory, including candidate countries (EU-27).

1.1. Basic supply and accessibility

Accessibility considers how well a transport network connects an area or a region to the surroundings. More in general, accessibility should be considered as a part of the peripherality question[20].

Traditional measurements of accessibility are indicators such as "km of road network per land area" or "km of road network per unit population". Recent approaches[21] propose to define the "distance" between places in terms of their relative connection of each one to the communication networks instead of in terms of their geographical remoteness. A value is proposed for "connectivity" to the transport network by measuring the access time (or cost) from the location to the closest connection node or terminal of the network, the utility this closest node supplies to the average user and the gap between the ideal utility sought and the actual utility obtained in the node (due to delays, congestion, service discontinuities, externalities). Assessments should consider this approach as well as the index of accessibility developed for the second cohesion report in order to develop an index of accessibility fulfilling the gaps identified below.[22]

Apart from the EU-wide dimension, the intercontinental dimension of transport networks (and the role and position of main ports, hubs, gateways, etc) must be taken into consideration in the accessibility analysis[23]. All relevant transport modes (road, rail and air) should be also integrated into the analysis, including sea transportation and short sea shipping.

Even if geographical distance is a main factor when defining accessibility, it can not be limited or reduced to "physical accessibility". The use of information and communication technologies to

[20] see report for DG Regio "Towards a European Peripherality Index" Institut für Raumplaung Dortmund, 2000
[21] see the ICON study (1999) (www.mcrit.com/icon.
[22] The second cohesion report states (p. 30): "An index of accessibility has been developed, which measures for each region the time needed to reach other regions weighted by their economic importance. It should be emphasised that this index involves a good deal of estimation and that it represents the position at the present time rather than what it might be in the future, given the current development of infrastructure in peripheral regions (partly financed by SF) and, perhaps more importantly, given the implications for the concept of accessibility of the development of the information society". A typology of regions (3 groups) is presented in the 2RC according to this index.
[23] As the ESDP states, "the integration of the regions into the intercontinental networks has therefore up to now not been balanced from a spatial point of view".

overcome physical transport barriers should be integrated into the analysis. The assessment should take account of telecommunications and therefore closely coordinate activities with project 1.2.2..

The SPESP states concerning the development of new knowledge on the implications of the information society: "Further research is needed about different forms of accessibility indicators for different types of actors and users. A second area of research should explore new concepts of accessibility indicators that have not yet been made operational, such as indicators taking into account of telecommunications or indicators that are not scalar values but multi-valued distributions. Finally, a third area of research should develop advances of visualising geographical position and time-space maps".

The SPESP Programme already mentions that the GISCO geographic reference is available for the road and rail network at Eurostat. The air network and link travel times are still missing as well as the origin-destination flight time and frequency. Minimum is the NUTS 3 level but more detailed analysis requires NUTS 4 and 5 levels.

Finally, as a polycentric development model could be considered as a basis for better accessibility, a co-ordinated approach with ESPON project 1.1.1. is highly desirable.

1.2. Accessibility and connectivity

To study usefully and validly the combined impacts of transportation and telecommunications on the territorial cohesion, it is necessary to assess simultaneously the accessibility and the connectivity of territories. If the concept of accessibility allows dealing with material flows that are transported by physical networks, it does not allow dealing efficiently with information flows that goes through telecommunication networks and for which the necessary condition is the connectivity. As the flows of information, persons and goods are narrowly coupled, it is not possible to produce a valid territorial diagnosis, unless the two constitutive dimensions of the territorial cohesion related to transport infrastructure and supply, accessibility and connectivity, are studied together.

Cities and urban regions, which constitute the privileged nodes of the transportation and communication networks, play a central role in the analysis. It is from the study of connectivity and accessibility in these privileged locations that it will be possible to assess the forms of territorial cohesion produced by the transport and telecommunication networks, that be at superior territorial levels (euro-corridors, harbour-cities, etc.) or at lower levels (intra-urban spaces, sub-urban spaces, etc.)

1.3. Inter-modality and sustainability

Inter-modality is a characteristic of the transport system that allows the use of at least two different transport modes for a single trip. Inter-modality is also a "characteristic of a nodal point, which allows transfer between at least two different transport modes". The indicator work has still considerable gaps in the field of inter- and multi-modality.[24] The SPESP states that "further work should also develop linkages between accessibility data and data on the political, economic and cultural barriers hampering the development of a more decentralised and polycentric Europe, and in doing so also take ICT developments and changes in time distance into consideration". The project should develop an appropriate inter-modality and multi-modality index (NUTS III level) integrating at least the following variables: number of transfer and transhipment points, nodal points; link travel times; terminal utilisation and capacity; investments in EU 27.

The inter-modality index could be combined with the measurement of the efficient and sustainable use of the infrastructure (ESDP policy options 30 to 34).

Considerations on the territorial effects of "transversal" and "longitudinal" transport systems should address the fact, that radial or transversal systems can provide access and development opportunities without opening fully sensitive areas, such as the coastal zone to a massive "strip development" along the coast.

[24] SPESP 2000 CD report of working group on geographical position I.

1.4. Productivity and location parameters

The productivity of enterprises is, in particular, often heavily dependent on costs related to the transportation of inputs to and output from the production process. This dependency is supposed to increase as market places become more global. For the service sector this dependency seems to be lower in general. However, considering reduction of production costs and trading costs through optimising access to (new) transport infrastructures and services has become inevitable for modern business development. The growing importance of location decisions of enterprises is obvious, which make the supply of transportation networks and services an important location parameter.

2. Indicators and data, mapping

2.1. Indicators and data

Taking into account the existing transport indicators and the methodology of the territorial impact assessment developed (see non exhaustive list below) the collection of further statistical and geographical data and the integration of existing and new databases[25] might be required.

Data gathering should occur at the lowest territorial level possible (ideally, NUTS III level). It should cover the 15 Member States as well as the candidate countries.

On the basis of these data, the study should provide a first analysis /diagnosis of the transport sector in Europe as well as the existing territorial imbalances and regional disparities in transport infrastructure.

Key existing transport indicators (EUROSTAT) (Non exhaustive list):

- Quantities of freight and passengers moved and the vehicles and infrastructure used:
- Total transport of goods by road, railway, inland waterways and maritime (tonne-kilometres)
- National transport, t-km, as % of total transport of goods by road, railway, inland waterways
- Rail transport of passengers, millions passengers and passenger-km
- Passenger cars per 1 000 inhabitants
- Passenger car transport. Million passenger kilometres
- Total passengers air traffic by Member State (intra and extra-EU)
- Safety: number of deaths (road, rail, aviation, maritime), number of accidents involving personal injury
- Regional dimension of transport statistics (NUTS 2):
- Density: Road (kilometres by 100 km2), Rail (inhabitants by rail km), Cars (number of cars by 10 inhabitants)
- Road freight transport within and between the regions of the European Union

2.2. Mapping

The cartographic restitution of the structure of networks, the consequences and territorial impact of new infrastructures could be highlighted by dynamic mappings ('hyper-maps') and by privileging information restitution methods adapted to the various potential addressees (elected local officer, planners, general public).

The mapping should address different territorial typologies as well as current Interreg III B areas.

3. Quantitative and qualitative analysis

Apart from the points addressed under the specific research questions the following points is supposed to deepen the understanding of feasible approaches. A co-ordination will be inevitable to ESPON project 1.2.2..

3.1. Several spatial scales and simulation models

An approach addressing several spatial scales is indispensable to analyse the territorial differences in terms of connectivity and accessibility that appear at each scale being observed. A city may globally be credited with good accessibility and connectivity levels, even if some of its districts are characterised by inaccessibility and non-connectivity that reinforces the segregation and exclusion processes in social or spatial terms.

[25] Where harmonised (Eurostat) data sources don't provide the data for the indicators at the appropriate geographical level, the consultant will have to examine national and possibly regional data sources to try to complete the data sets. The collection of this data should be done in co-ordination with data collection provided by the Transnational project groups of ESPON under priority 4.

The "time-space" approach should lead to simulation or anticipation models allowing –in the cases of the transportation networks– to assess (1) the consequences of natural, technological or social risks; (2) the foreseeable consequences of Union enlargement in terms of internal restructuring of the networks and associated flows; (3) the forward evaluation of the implementation of the political orientations suggested by the ESDP.

3.2. Networking ruled by proximity and by strategic interest

Most networking is ruled of proximity and taking place in the "space of place": neighbours trade and visit each other. However, a networking ruled by specialisation and strategic interests of agents seems to be fostered by the globalisation of economy. These kinds of networking create relations between agents, regions or cities over longer distances taking place in "spaces of flows" rather than "spaces of places". Theories and empirical findings of clustering are in line with the first mentioned kind of networking. In the European context networking within regional settings are highly relevant for the efforts of fostering cross-border regions. However, networking between cities over longer distances is crucial for understanding of urban systems at the European level.

3.3. Location decisions of private companies and infrastructure

The study of transportation network infrastructures in relation to territorial development, in particular the relation between network nodes and location decisions for different kind of companies is highly interesting and relevant for policy development towards territorial cohesion. It will require the identification of sustainable indicators to identify actual and potential location parameters in relation to transport provisions, in other words to "nodal attractivity", and the relation with actual investment patterns, in order to test hypotheses about the relation between transportation infrastructure networks and service provision, and investment location decisions.

Furthermore, international direct investments form and influence local labour markets to a considerable degree. Strategic decisions in multinational corporations on the location of headquarters, R&D facilities and green-field production sites influence heavily on regional and urban job mix. Acquisitions and mergers leading to restructuring of companies can have crucial effects on regional economies.

The influence of international direct investment on regional and urban development should involve two types of approaches in relation to infrastructure:

- The type and mass of foreign direct investments located in cities and regions of Europe(EU27).
- The geography of investments of selected "cutting-edge" multinational companies, including the strategic reasoning behind.

3.4. Minimum requirements for transport infrastructure

With reference to accessibility, any minimum requirements for transport infrastructure should be detected and as far as possible be related to a typology of regions. The correlation between the kind of economic activity and the spatial development potential on the one hand, and the equipment by a certain degrees of infrastructure should be further investigated. A close co-ordination to ESPON action 1.2.2 on telecommunication should be undertaken.

4. Orientations for policy recommendations

The identification of principles and the elaboration by this project of recommendations for policy development gains importance with regard to the increasing role of some EU Member States as transit countries in an enlarging European Union.

4.1. Towards the ESDP

All relevant policy options of the ESDP should be addressed based on the findings of the project in order to derive recommendations that take the diversity of needs and potentials in different parts of the European territory and at different spatial scales into account.

4.2. Towards Structural Funds

Furthermore consequences of the findings for the orientation of structural policies should be drawn referring to the development potential of different types of regions, taking into account the existing basic supply transport infrastructure and services.

Substitutive effects between transport infrastructure and other infrastructure networks, in particular telecommunication networks, will be fully investigated in the forthcoming ESPON

project 3.1. However, approaches of close co-ordination with ESPON project 1.2.1. are requested in order to facilitate cross-coordination.

vii) Existing access points

The access points listed below can serve the purpose of providing the tenderer usefull information for preparing a proposal. It is by no means meant to be exhaustive, but only as information that can be helpful in tracing additional useful background information

- Eurostat can provide GISCO geographic references for road and rail network. The air network and link travel times are still missing as well as the origin-destination of flights, their time and frequency. Minimum data level required will be the NUTS 3 level, but more detailed analysis will require NUTS 4 and 5 levels. The indicator work has still considerable gaps in the field of inter- and multi-modality transport.[26]
- Experiences of working on this proposal were described in the framework of the "Study Programme on European Spatial Planning" within the theme of "Geographical Position" of the strand "Criteria for Spatial Differentiation" by creating accessibility models. The SPESP study on spatial integration[27] also provides interesting proposals for data work under this sub-measure such as volume of goods transported and number of persons in transport.
- The Commission's White Paper "European transport policy for 2010: time to decide" and background documents for the "Revision of the Trans-European Transport Networks "TEN-T" Guidelines" provide interesting access points for the investigation of the questions raised. The same is the case concerning the Commissions TINA programme dealing with transport infrastructures in candidate countries.
- The Communication from the Commission "Service of general interest in Europe" (COM 2000/580) already offers a good starting point in the definition of indicators and measures.
- Interreg IIC and IIB projects, also dealing with infrastructure, can provide some experience on transnational scale.

In addition, an ESPON Data Navigator creating an overview, a handbook, giving information on principal data sources, contact points etc, is under elaboration. The Data Navigator is expected to cover, in principle, all countries in an enlarged European Union as well as neighbouring countries. The Data Navigator is scheduled to be finalised by August 2002.

[26] SPESP 2000 CD report of working group on geographical position I.
[27] SPESP 2000 CD report of working group on spatial integration, p. 51ff.

TERMS OF REFERENCE ON ESPON ACTION 1.2.2.

TELECOMMUNICATION AND ENERGY SERVICES AND NETWORKS: TERRITORIAL TRENDS AND BASIC SUPPLY OF INFRASTRUCTURE FOR TERRITORIAL COHESION

(2002-04)

(o) Political challenges for the ESPON projects

The Second Report on Economic and Social Cohesion, published in January 2001, presented for the first time a third territorial dimension of the cohesion (beside the economic and social cohesion), which calls for a better co-ordination of territorially relevant decisions. Stressing the persistence of territorial disparities within the Union, the report stated the need for a cohesion policy not limited to the less developed areas as well as the need to promote a more balanced and more sustainable development of the European territory.

The Second Cohesion Report represents in that respect a follow up of the European Spatial Development Perspective (ESDP), adopted at ministerial level in May 1999, calling for a better balance and polycentric development of the European territory.

The projects launched under the ESPON programme shall follow an integrated approach and, seen together, cover a wide range of issues, such as:

- Identifying the **decisive factors relevant for a more polycentric European territory**; accessibility of a wide range of services in the context of enlargement; integration of wider transnational spaces; promotion of dynamic urban growth centres; linking peripheral and disadvantaged areas with those centres; etc.
- Developing **territorial indicators and typologies** capable of identifying and measuring development trends as well as monitoring the political aim of a better balanced and polycentric EU territory
- Developing **tools supporting diagnoses of principal structural difficulties as well as potentialities**, such as disparities within cities and regenerating deprived urban areas; structural adjustment and diversification of rural areas; strategic alliances between neighbouring cities at transnational, national and regional scale; new partnerships between rural and urban areas; potential support from infrastructure networks in the field of transport, telecommunication, energy; etc.
- Investigating **territorial impacts of sectoral and structural policies** in order to enhance synergy and well-co-ordinated decisions relevant for territorial development within policy fields such as Structural Funds, agriculture, transport, environment, research and development; developing methods for measuring the territorial impact of sectoral and structural policies; etc.
- Developing **integrated tools in support of a balanced and polycentric territorial development**; approaches to enhance the potential of cities as drivers of regional development, new tools for integrated urban-rural development and planning, etc.

With the results of all the ESPON projects, the Commission and the Member States expect in particular to have at their disposal: **a diagnosis of the principal territorial trends** at EU scale as well as the difficulties and potentialities within the European territory as a whole; **a cartographic picture of the major territorial disparities** and of their respective intensity; a number of **territorial indicators and typologies assisting a setting of European priorities** for a balanced and polycentric enlarged European territory; some **integrated tools and appropriate instruments** (databases, indicators, methodologies for territorial impact analysis and systematic spatial analyses) to improve the spatial co-ordination of sector policies.

In this respect, the ESPON projects will serve as a strong scientific basis for the propositions of the Commission in the Third Report on Cohesion, at the end of 2003, in view of the reform of post-2007 Structural Funds.

(i) Relation to the ESPON 2006 programme

The priorities describing the work-programme of the ESPON 2006 Programme are structured in four strands:

1. **Thematic projects** on the major spatial developments on the background of typologies of regions, and the situation of cities.
2. **Policy impact projects** on the spatial impact of Community sector policies and Member States' spatial development policy on types of regions with a focus on the institutional inter-linkages between the governmental levels and instrumental dimension of policies
3. **Co-ordinating and territorial cross-thematic projects** represent a key component of the programme. These projects evaluate the results of the other projects towards integrated results such as indicator systems and data, typologies of territories, spatial development scenarios. The cross section projects help to thematically co-ordinate the whole programme and add value to the results and to fill gaps, which are unavoidable when different themes are dealt with in different projects.
4. **Scientific briefing and networking** in order to explore the synergies between the national and EU source for research and research capacities.

This project belongs to the first strand and therefore holds a key position for the elaboration of the whole programme by the preparation of the common ground for the investigation of the basic net of spatial structure in Europe. Therefore, a strong co-ordination is requested with the all other projects, in particular with the other project in the same strand and with the coordinating and cross-thematic under priority three and the Co-ordination Unit.

ii) Thematic scope and context

A dynamic territorial development depends on an optimal combination of available services. The possibility of making use of the resources available in a city or a larger territory depends as well as of the ability to communicate and exchange services with other locations. The range of services, which interlink areas, cities and the European continent to the world market, comprises services related to transport, energy to telecommunications. For an area or a city the provision of these services has a major impact on the attractiveness for new investments and constitutes an important location parameter.

Communication and exchange between cities and territories takes place via infrastructure networks where resources, goods, humans and information are exchanged. Access to those networks is increasingly becoming a crucial factor for territorial development. The ESDP highlighted the close relation between the aim of a balanced territory and polycentric development and the policy orientations decided developing the infrastructure networks. The ESDP also highlighted in this respect the special role, which could be undertaken by Euro-corridors, global integration zones, gateway cities and urban poles, well distributed on the European territory, as nodes in the infrastructure networks.

The functioning of networks very much depends on connectivity and access points. A co-ordinated access is of particular importance where the access is related to very large investments. For telecommunication the spatial distribution of networks as well as their capacity for data transmission is a key concern. For energy networks the availability of access and the capacities to different network are also important determinants for location decisions.

The major ESDP concept of "parity of access to infrastructure and knowledge", understood as a guideline promoting a better territorial equity or balance, needs to be more clearly defined and further investigated. The diversity within the European territory concerning provisions and use of telecommunication facilities as well as the options for supply of energy, and the potential within different parts of the territory (e.g. for low density areas, ultra peripheral regions, costal zones, inlands, mountain areas, transnational co-operation areas), are important issues in that respect

The importance of telecommunication infrastructure and energy networks for economic development is substantive, being it the expansion of local companies, multinational corporations or international direct investments. The spatial structure of the territory is an important aspect as well. Therefore, further investigation is needed in the different types and the geographical location of foreign direct investments. Such an investigation will as well provide an improved knowledge on the internal strategic decisions of multinational corporations, for example on the location of

headquarters, administration, production facilities, "greenfield" investments and acquisitions, which sometimes have a decisive influence on the regional job mix. It should make the location parameters of the future more clear, including the relative importance of accessibility to telecommunication infrastructure and energy networks.

The European integration process is followed by a growing number of acquisitions and mergers, leading to restructuring of companies and regional economies. How these decisions could influence territorial development and the European political visions of better balance and polycentrism should also be discussed. Critical will be the observation of the territorial effects of the European integration process at a European and transnational scale with particular reference to the candidate countries.

The diverse territory of Europe as well as the present spatial structure (with consideration of the polycentric development) indicates the problem of minimum supply of (public and private) infrastructure capable of providing the basic services required in all regions and to maintain the "service of general interest". This supply is necessary in order to prevent the final decline of and migration from remote and other areas with specific weaknesses, often exposed to extreme geographical conditions. However, a basic supply of services represents only the first and minimum step towards the provision of higher degrees of infrastructure.

The Communication from the Commission "Service of general interest in Europe" (COM 2000/580) investigates the effects of market liberalisation in the telecommunication, transport and energy sector. The projects cited clearly indicate regionally and locally deviating effects. The interactions between different infrastructure networks, and the objectives of economic efficiency, consumer protection and economic, social and territorial cohesion should be taken into particular account.

With regard to the growing importance of some EU Member States as transit countries in an enlarged European Union, the identification of principles and the elaboration of political recommendations based on a polycentric development model gains in importance. In general, this project shall provide input for the territorial impact analysis of TENs policy under ESPON action 2.2.1.. The conceptual work done within this project on the measurement of impacts should be taken into account.

iii) General objectives

a) to refer to the three fundamental objectives with in the ESDP with regard to balanced and sustainable spatial development: the economic and social cohesion, the conservation of natural resources and cultural heritage and more balanced competitiveness of the European territory;

b) to contribute to the identification of the existing spatial structure of the EU territory, in particular the degree and diversity of physical and functional polycentrism at different geographical scales, and to gain concrete and applicable information on the EU wide effects of spatially relevant development trends and their underlying determinates. Therefore, the project should be sustained by empirical, statistical and/or data analysis;

c) to define concepts and to find appropriate territorial indicators, typologies and instruments as well as new methodologies to consider territorial information linked to polycentrism, to detect territories (preferably below NUTS 2) most negatively and positively affected by the identified trends with special reference to regions in terms of accessibility, polycentric development, environment, urban areas, territorial impact assessment; particular attention will be paid to areas exposed to extreme geographical positions and natural handicaps such as mountain areas, islands , ultra-peripheral regions; reflections should as well be included on relevant issues from the perspective of Europe and its territorial structure in a global or world-wide context,

d) to develop possible orientations for policy responses, taking the diversity of the European territory into account, and considering institutional, instrumental and procedural aspects;

e) to consider the provisions made and to provide input for the achievement of the horizontal projects under priority 3, such as tools for diagnosis and observation and long term scenarios, as well as evaluation and assessment procedures.

In the efforts to meet these objectives the project shall make best use of existing research and relevant studies.

iv) Primary research issues envisaged

The research questions cover issues related to the basic supply of telecommunication services and the supply of different energy sources within the EU territory as well as territorial trends of telecommunication infrastructure and energy networks, including related services.

Telecommunication infrastructure comprises networks and installations for fixed telephones, mobile phones, Internet access, radio and television. Satellite facilities are considered providing an equal coverage for the entire European territory. Energy networks include networks and installations for oil, gas and electricity as well as renewable energy sources, in particular wind energy. The concepts on effects of networks and the question inter-modality should be address in close co-operation with project 1.2.1.

- Identification, gathering of existing and proposition of territorial indicators and data and map-making methods to measure and display (1) the basic supply of telecommunication infrastructures and energy networks, including related services, (2) the trends and impacts of the development of telecommunication infrastructures and energy networks, including related services. Compilation of national studies with European focus should be undertaken;
- The most important features of the present infrastructure networks and supply of services with regard to territorial issues, i.e. the connectivity and capacity of different telecommunication networks and services in different regions, the spatial patterns of access points and coverage of services, the use and demand for telecommunication services in different parts of Europe, the spatial pattern of supply and demand of different energy sources;
- Specific typologies and territorial patterns in the telecommunication infrastructures and energy networks, including related services (referring to the typologies used in particular by the ongoing ESPON project 1.1.1 on polycentrism and with regard to typologies of regions within other ESPON projects);
- The most relevant telecommunication services and energy supply of general interests, referring to migration and regional development potential, which influence the development of territories and regions lagging behind as well as territories and regions with peripheral location or specific features (structurally weak areas, islands and mountain areas);
- The territorial trends in telecommunication and energy supply, in particular in relation to sustainable flows of communication and sustainable energy provision within Europe.
- The importance of connectivity to telecommunication services and networks as well as energy supply as a location parameter for investments and the economic development of cities and regions
- The correlation between trends in (1) telecommunication networks and services, (2) energy supply, and a polycentric development model, including identification of an operational benchmarking system that could be applicable with regard to the data and indicators available;
- A further operationalisation and territorial diversification of the policy aims and options adopted in the ESDP, including an adaptation to the territorial diversities within an enlarged EU.

v) Expected results and timetable

The research undertaken during the interim reports is supposed mainly to work on the data available at the national statistical offices, Eurostat and other national and European institutions, and normally be based on existing administrative units. From 2003 until August 2004, the research should complement the missing territorial/regional data and complement tools and territorial indicators if possible beyond the NUTS classification and the NUTS 3 level.

One of the main objectives of the ESPON 2006 Programme is to focus on research with policy relevance and to contribute to the development of relevant policies. Therefore, the deliverables of the research project should be highly operational and coordinated in time, as far as possible, to fit into the relevant political agenda. The following timetable and specification of output is reflecting this objective:

September 2002 (first interim report):

a) Consensus on indicators and data needed, after a precise analysis of the availability and comparability of data at Community level, to develop new database, including territorial indicators and the facilities needed for map-making. For the analysis, the results of the study programme and the results of other ESPON projects in course, in particular under priority 3.1, should be taken into account. This task should also define the appropriate geographical level and technology required for data collection, taking into account the availability of relevant data.

b) A first detailed and comprehensive list of main requests for statistical and geographical data to be collected from Eurostat, the EEA and National Statistical Institutes and National Mapping Agencies in autumn 2002.

c) A preliminary overview on concepts and methodology and hypothesis for further investigation.

February 2003 (second interim report):

d) Preliminary results on the basis of available territorial indicators, including European maps showing the existing spatial structure of different telecommunication and energy infrastructure networks and services, as far as possible related to the degree of polycentrism, areas facing problems of lagging behind and the accessibility to different parts and types of territories within Europe.

e) A first overview on concepts and methodology and possible final results.

f) Establishment of a new database, so far based on indicators available and with the ability to produce European maps related to the basic supply as well as the trends and impacts of the development of telecommunication infrastructure network and energy supply

g) A second revised and extended request for further indicators to be collected (mainly) from Eurostat and the EEA, by summer 2003 (the latest).

August 2003 (third interim report):

h) A working report on the main results of the research undertaken including databases, indicators, map-making and a analysis/diagnosis of the transport sector in Europe, as well as the existing territorial imbalances and regional disparities in transport infrastructure based on the research questions above, , including an extended number of available territorial indicators and European maps showing, as far as possible, the supply, trends and impacts of telecommunication infrastructure networks and energy supply in relation to territorial features, such as the degree of polycentrism, connectivity within typologies of regions and territories, areas lagging behind (and eventually facing migration), missing links for improving a sustainable European energy provision, and territorial integration of candidate countries in an enlarged EU.

i) Preliminary results on the significance of telecommunication networks and energy supply as location parameter for mobile investments

j) Development of appropriate tools for the processing of the new data base, indicators and map-making

k) Applicable systems for the monitoring and benchmarking of new trends of territorial developments in the context of the European territory, including candidate countries and neighbouring countries;

l) Policy recommendations, which provide the basis for the future focus of Community interventions post 2006, to improve parity of access to infrastructure (in particular, an integrated approach for improved transport links and promotion of efficient and sustainable use of the infrastructure), including institutional settings and instruments. Particular attention should be paid to peripheral and ultra-peripheral regions.

August 2004 (final report):

m) An executive summary of the main results of the research undertaken and recommendations for policy development.

o) Comprehensive presentation of supply, trends and impacts of telecommunication and energy networks and services in relation to a polycentric and balanced development of an enlarged European Union (27 countries);

p) Presentation of access points and concrete ideas for policy responses to the territorial trends facing the development of the telecommunication and energy networks and services, at different geographical scales, and in different parts of the Union, that could improve territorial cohesion;

q) Presentation of the developed territorial indicators, concepts and typologies linked to telecommunication and energy networks and services, including maps;
r) Presentation of the database and the mapping facilities developed, covering as far as possible an enlarged EU and neighbouring countries
s) Listing of further data requirements and ideas of territorial indicators, concept and typologies as well as on further developments linked to the database and mapping facilities;

vi) Rationale and structure

The following text has the role of shaping the mind of thinking in developing a proposal for undertaking the ESPON action 1.2.2. The text is not meant to be exhaustive, but only to provide guidance for the tenderer.

1. Approaches to the definition and methodology

The description of the territorial effects of infrastructure for all typologies of regions prepared in the framework of the ESPON Programme, and the development of further typologies with consideration to infrastructure, provides an important focus in the methodological approach of the project. Beyond further approaches the following should be considered:

1.1. Basic supply and level of connectivity

Basic supply of services in the field of telecommunication as well as energy sources represents preconditions for economic development of cities and territories. The variety of services and their cost is considered an important framework condition for territorial development.

Connectivity reflects the possibilities for customers to connect to the services provided, being it private households, businesses or, in the energy sector, facilities for processing such as oil-refineries. The level of connectivity indicates the volume of services in a particular city, region or larger territory. More in general, connectivity should be considered as a part of the peripherality question[28].

Measurement of connectivity is apparently so far not developed into indicators.

A value is proposed for "connectivity" to the transport network by measuring the access time (or cost) from the location to the closest connection node or terminal of the network, the utility this closest node supplies to the average user and the gap between the ideal utility sought and the actual utility obtained in the node (due to delays, congestion, service discontinuities, externalities). A similar value might be developed for telecommunication and energy networks.

Assessments should consider this approach as well as the index of accessibility developed for the Second Cohesion Report in order to develop an index of connectivity/accessibility fulfilling the gaps identified below.[29]

The assessment should take account of transport networks and therefore closely coordinate activities with project 1.2.1.. The SPESP states concerning the development of new knowledge on the implications of the information society: "Further research is needed about different forms of accessibility indicators for different types of actors and users. A second area of research should explore new concepts of accessibility indicators that have not yet been made operational, such as indicators taking into account of telecommunications or indicators that are not scalar values but multi-valued distributions. Finally, a third area of research should develop advances of visualising geographical position and time-space maps".

Concerning the geographic reference to be used minimum is the NUTS 3 level, but more detailed analysis might require NUTS 4 and 5 levels.

[28] see report for DG Regio "Towards a European Peripherality Index" Institut für Raumplanung Dortmund, 2000

[29] The second cohesion report states (p. 30): "An index of accessibility has been developed, which measures for each region the time needed to reach other regions weighted by their economic importance. It should be emphasised that this index involves a good deal of estimation and that it represents the position at the present time rather than what it might be in the future, given the current development of infrastructure in peripheral regions (partly financed by SF) and, perhaps more importantly, given the implications for the concept of accessibility of the development of the information society". A typology of regions (3 groups) is presented in the 2RC according to this index.

1.2. Accessibility and connectivity

To study usefully and validly the combined impacts of transportation and telecommunications on the territorial cohesion, it is necessary to assess simultaneously the accessibility and the connectivity of territories. If the concept of accessibility allows dealing with material flows that are transported by physical networks, it does not allow dealing efficiently with information flows that goes through telecommunication networks and for which the necessary condition is the connectivity. As the flows of information, persons and goods are narrowly coupled, it is not possible to produce a valid territorial diagnosis, unless the two constitutive dimensions of the territorial cohesion related to transport infrastructure and supply, accessibility and connectivity, are studied together.

Cities and urban regions, which constitute the privileged nodes of the telecommunication and transportation networks (including energy), shall play a central role in the analysis. It is from the study of connectivity and accessibility in these privileged locations that it will be possible to assess the forms of territorial cohesion produced by the telecommunication and transport networks, that be at superior territorial levels (euro-corridors, harbour-cities, etc.) or at lower levels (intra-urban spaces, sub-urban spaces, etc.)

1.3. Sustainable territorial development and energy provision

Inter-modality is a characteristic of the transport system that allows the use of at least two different transport modes for a single trip. Within the telecommunication sector inter-modality seem to be of limited consequence for territorial trends. On the other hand, within the energy sector inter-modality is very important, in particular for energy production based on crude oil. From crude oil to petrol and heating oil and further on to the main consumers in industry and households a number of modes of transport are being used. This particular sector could be reflected in considerations on inter-modality.

The indicator work has still considerable gaps in the field of inter- and multi-modality.[30] The SPESP states that “further work should also develop linkages between accessibility data and data on the political, economic and cultural barriers hampering the development of a more decentralised and polycentric Europe, and in doing so also take ICT developments and changes in time distance into consideration”. The project should contribute to the development of an appropriate inter-modality and multi-modality index (NUTS III level) within ESPON project 1.2.1., integrating at least the following variables: number of transfer and transhipment points, nodal points; link travel times; terminal utilisation and capacity; investments in EU 27.

The inter-modality index could be combined with the measurement of the efficient and sustainable use of all physical infrastructure (ESDP policy options 30 to 34).

Telecommunication is a potential tool in developing sustainable spatial structures, in particular in urban regions and their rural parts. On the one hand, telecommunication networks and services offer new possibilities for location of enterprises away from “central place locations” in larger cities, which can impact congestion and commuting positively. On the other hand, new forms and the increasing acceptance of tele-working can imply less use of transport networks and facilities, which could benefit the environment and create more lively rural areas.

The potential of sustainable energy has started to be exploited in large scale in some Member States. The substitution of fossil fuels with renewable sources has to continue in order for the EU to meet objectives for emissions set at global level. Therefore, it is important to investigate the potentials in different regions and parts of Europe for renewable energy supply, in particular by using an indicator for wind efficiency at different locations. Concerning natural gas supply the expansion of physical networks represent new possibilities for substitution of more environmental damaging energy sources. This development has a clear territorial dimension, where knowledge about existing and potential parts of the European territory for natural gas provision should be visualised. As well, the possible substitution to natural gas by local enterprises and public service providers could improve the attractiveness of a city or a region for new investment.

[30] SPESP 2000 CD report of working group on geographical position I.

1.4. Productivity and location parameters

The productivity of enterprises is, in particular, often heavily dependent on costs related to the transportation of inputs to and output from the production process. This dependency is supposed to increase as market places become more global. For the service sector this dependency of transportation seems to be lower in general. However, the dependency of telecommunication services seems to be increasing rapidly, in particular in the industry and the service sector. For many enterprises advanced communication via the Internet is considered an indispensable precondition for modern business development.

As a consequence, connectivity to telecommunication services becomes a location parameter of growing importance. However the potential of European cities or regions to offer the requested connectivity to telecommunication facilities differs profoundly, which should be assessed in relation to the objective of a better balanced and polycentric European territory.

2. Indicators and data, mapping

2.1. Indicators and data

Taking into account the existing (limited) indicators for telecommunication networks and the methodology of the territorial impact assessment developed (see non exhaustive list below) the collection of further statistical and geographical data and the integration of existing and new databases [31] might doubtlessly be required. The same is the case for energy services and networks.

Data gathering should occur at the lowest territorial level possible (ideally, NUTS III level). It should cover the 15 Member States as well as the candidate countries.

On the basis of these data, the study should provide a first analysis /diagnosis of the telecommunication and energy sector in Europe as well as the existing territorial imbalances and regional disparities in the related infrastructure.

Key existing indicators (EUROSTAT) for telecommunication and energy services and networks are (non exhaustive list):

2.2. Mapping

The cartographic restitution of the structure of networks, the consequences and territorial impact of new infrastructures could be highlighted by dynamic mappings ('hyper-maps') and by privileging information restitution methods adapted to the various potential addressees (elected local officer, planners, general public).

The mapping should address different territorial typologies.

3. Quantitative and qualitative analysis

Apart from the points addressed under the specific research questions the following points is supposed to deepen the understanding of feasible approaches. A co-ordination will be inevitable to ESPON project 1.2.1..

3.1. Several spatial scales and simulation models

An approach addressing several spatial scales is indispensable to analyse the territorial differences in terms of connectivity and accessibility that appear at each scale being observed. A city may globally be credited with good accessibility and connectivity levels, even if some of its districts are characterised by inaccessibility and non-connectivity that reinforces the segregation and exclusion processes in social or spatial terms.

The "time-space" approach should lead to simulation or anticipation models allowing –in the cases of the transportation networks– to assess (1) the consequences of natural, technological or social risks; (2) the foreseeable consequences of Union enlargement in terms of internal restructuring of the networks and associated flows; (3) the forward evaluation of the implementation of the political orientations suggested by the ESDP.

[31] Where harmonised (Eurostat) data sources do not provide the data for the indicators at the appropriate geographical level, the consultant will have to examine national and possibly regional data sources to try to complete the data sets. The collection of this data should be done in co-ordination with data collection provided by the Transnational project groups of ESPON under priority 4.

3.2. Networking ruled by proximity and by strategic interest

Most networking is ruled of proximity and taking place in the "space of place": neighbours trade and visit each other. However, a networking ruled by specialisation and strategic interests of agents seems to be fostered by the globalisation of economy. These kinds of networking create relations between agents, regions or cities over longer distances taking place in "spaces of flows" rather than "spaces of places". Theories and empirical findings of clustering are in line with the first mentioned kind of networking. In the European context networking within regional settings are highly relevant for the efforts of fostering cross-border regions. However, networking between cities over longer distances is crucial for understanding of urban systems at the European level.

3.3. Location decisions of private companies and infrastructure

The study of telecommunication services and network infrastructures in relation to territorial development, in particular the relation between connectivity and location decisions for different kind of companies is highly interesting and relevant for policy development towards territorial cohesion. The same goes for energy supply and networks. It will require the identification of sustainable indicators to identify actual and potential location parameters in relation to telecommunication as well as energy provisions, in other words to "local attractivity", and the relation with actual investment patterns, in order to test hypotheses about the relation between telecommunication networks and service provision, and investment location decisions.

Furthermore, international direct investments form and influence local labour markets to a considerable degree. Strategic decisions in multinational corporations on the location of headquarters, R&D facilities and green-field production sites influence heavily on regional and urban job mix. Acquisitions and mergers leading to restructuring of companies can have crucial effects on regional economies.

The influence of international direct investment on regional and urban development should involve two types of approaches in relation to infrastructure:

- The type and mass of foreign direct investments located in cities and regions of Europe(EU27).
- The geography of investments of selected "cutting-edge" multinational companies, including the strategic reasoning behind.

The objective could be to study selected (sub)urban areas, such as Finnish Hervanta in Tampere, as "network cities" and on the other hand as local communities. These two characteristics are both considered as essential parts of studying the future development of such areas. To avoid the risk of flouting into the direction of so called "Dual City", the possibility of increasing discrepancy between these two characteristics should be minimized. The comparison of the development of similar network cities in other EU countries is one source of information. The other one is related to action research, a system to make co-operation between different experts easier in community planning. The challenge is focused on how to increase the citizens' access to useful information, on how to improve their life and on how to increase their feeling of participation in the decision-making process, everything developed inside a modern Information Technology System.

3.4. Basic supply for telecommunication and energy services

With reference to accessibility (energy) and connectivity (telecommunication), any minimum requirements for transport and communication infrastructure should be detected and as far as possible related to a typology of regions. The correlation between the kind of economic activity and the spatial development potential on the one hand, and the equipment by a certain degrees of infrastructure should be further investigated. A close co-ordination to ESPON action 1.2.1 on transport should be undertaken.

4. Orientations for policy recommendations

The identification of principles and the elaboration by this project of recommendations for policy development gains importance with regard to the increasing role of some EU Member States as transit countries in an enlarging European Union.

All relevant policy options of the ESDP should be addressed based on the findings of the project in order to derive recommendations that take the diversity of needs and potentials in different parts of the European territory and at different spatial scales into account.

Furthermore consequences of the findings for the orientation of structural policies should be drawn referring to the development potential of different types of regions, taking into account the existing basic supply telecommunication and energy services and networks.
Substitutive effects between in particular telecommunication networks and transport infrastructure and other infrastructure networks will be fully investigated in the forthcoming ESPON project 3.1. However, approaches of close co-ordination with ESPON project 1.2.1. are requested in order to facilitate cross-coordination.

vii) Existing access points

The access points listed below can serve the purpose of providing the tenderer usefull information for preparing a proposal. It is by no means meant to be exhaustive, but only as information that can be helpful in tracing additional useful background information

- Eurostat can provide European data concerning telecommunication and energy. Minimum data level required will be the NUTS 3 level, but more detailed analysis will require NUTS 4 and 5 levels. The indicator work has still considerable gaps in the field of inter- and multi-modality transport.[32]
- Experiences of working on this proposal were described in the framework of the "Study Programme on European Spatial Planning" within the theme of "Geographical Position" of the strand "Criteria for Spatial Differentiation" by creating accessibility models. The SPESP study on spatial integration[33] also provides interesting proposals for data work under this sub-measure. In addition, the SPESP report detected a shortage of important data at regional level concerning ISDN lines and fax accessibility and other communication network related information.[34] The spatial integration projects already mentioned to measure telephone and Internet traffic communications between districts but also the number of computer links to the Internet.[35]
- The Commission's White Paper "European transport policy for 2010: time to decide" and background documents for the "Revision of the Trans-European Transport Networks "TEN-T" Guidelines" provide interesting access points for the investigation of the questions raised, in particular on energy networks. The same is the case concerning the Commissions TINA programme dealing with transport infrastructures in candidate countries.
- The Communication from the Commission "Service of general interest in Europe" (COM 2000/580) already offers a good starting point in the definition of indicators and measures.
- Interreg IIC and IIB projects, also dealing with infrastructure, can provide some experience on transnational scale.

In addition, an ESPON Data Navigator creating an overview, a handbook, giving information on principal data sources, contact points etc, is under elaboration. The Data Navigator is expected to cover, in principle, all countries in an enlarged European Union as well as neighbouring countries. The Data Navigator is scheduled to be finalised by August 2002.

[32] SPESP 2000 CD report of working group on geographical position I.
[33] SPESP 2000 CD report of working group on spatial integration, p. 51ff.
[34] SPESP 2000 CD report of working group on economic strength, p. 114.
[35] SPESP 2000 CD report of working group on spatial integration p. 52

TERMS OF REFERENCE
ESPON ACTION 1.2.3.

IDENTIFICATION OF SPATIALLY RELEVANT ASPECTS OF THE INFORMATION SOCIETY
(2004-06)

(Preliminary, incomplete, finalisation when project will be tendered, for the timing see annex 3)

i) Thematic scope and context
The so called "information society" affects the economic and social life in various respects such as the education and training of the work force, and the location, structure and communication in and between companies. General research is already underway for many aspects of the information society.

ii) Primary research questions
Identification, gathering of existing and proposition of new indicators and data and map-making methods to measure and to display the state, trends and impacts of the developments referred to above. Compilation of national studies with European focus. The concept of 'information society' is just about to be defined at national level but not yet operationalised in terms of its regional and territorial dimension and concepts for its measurement;
The research available needs to be evaluated with regard to the territorial effects and developments at EU level, in particular: on the role of metropolitan areas and corridors, polycentrism, urban functions and transport and other patterns investigated particularly under measure 1.1.1.
The information society may have particular impacts on spatial scenarios, therefore, major long terms trends need to be identified and operationalised. Case projects in typical regions could contribute to develop a future picture on the spatial pattern of the information society.

iii) Existing access points
Data work is much related with the previous action in the respect that the use of information technology not only by companies but also by households needs to by identified. The availability of regional data is important in order to detect spatial patterns of development of the information society. The work to be developed under this action has to be co-ordinated, in particular, with those developed within the framework of measure 1.2.2 and priority 2.

Study to investigate the territorial aspects of an information society. Although much work has been done on mapping and measuring inter-regional disparities in information society participation, much less has been done on intra-regional disparities, particularly with respect to corridors, polycentric development, etc. The study will aim to clarify the potential critical impacts, leading to the development of indicators which could be tested in case studies of selected areas, using qualitative/quantitative data. The study should explore the experience of the USA on this area and draw good practice notes as well as recommendations which could be beneficial to the EU. [Under sub-measure 1.2.3]

Interesting research questions
Tangible and intangible capital and spatial development
In the industrial society investment raw-material based industries had great effects on both settlement and migration patterns. Focus was on tangible investments and labour was assumed to be homogenous and substitutable. One of the results was rigidity and locking-in mechanisms that hit these old industrial regions had during the past decades' structural transformation.
Today, the situation is different. Human capital and intangible investments are terms that are associated with development and renewal. There is interdependence between capital of different 'vintages' and the composition of the labour force that creates different feedback processes with respect to transformation and development both between and within different regions. This

means that intangible capital – including human capital – has increasingly been a location factor for firms with different characteristics. This has also implications for the European regional development where convergence and divergence are central ingredients.
A project like this has great relevance for measure 1.2: 'Parity of infrastructure and knowledge' as well as for measure 2.1: 'Territorial effects of sector policies'.
1.2.3 Information society models: lessons from experiments in European peripheries (maybe combined with project no 9)
There is no single European model of information society, but various approaches have been developed and tested in different countries and regions. A key problem concerns the potential of various information society strategies in alleviating the problem of geographical peripherality, which is often linked with economic peripherality. The proposed project aims at comparing information society strategies, which have been implemented in rural peripheries in different parts of Europe. A systematic template is formulated for the comparisons, which focus on measuring spatial and socio-economic effects of various strategies, and analysing their implications for urban-rural relationships and partnerships.

The effects of information society to the regional and community structure
The technological development is affecting the regional and community structure; the information technology among with other factors has totally changed the concept of workplace. The share of e-work (telework) is rising but on the other hand the average length of the daily commuting distance is longer than ever. The spatial structure of connections and interactions between housing, working and services is on the rapid move. The main aim of the project is to analyse the effects of the information technology to the regional and community structure and commuting distances at selected areas in Europe. The work will base on GIS analyses combined to statistical and empirical data. The result of the task is the outlook of the possible actions for more sustainable development. Another aim is to develop a set of indicators for the information society and analyse the indicator problem from the point of view of communication system.

Terms of reference on ESPON action 1.3.1.

THE SPATIAL EFFECTS AND MANAGEMENT OF NATURAL AND TECHNOLOGICAL HAZARDS IN GENERAL AND IN RELATION TO CLIMATE CHANGE

(2002-04)

(o) Political challenges for the ESPON projects

The Second Report on Economic and Social Cohesion, published in January 2001, presented for the first time a third territorial dimension of the cohesion (beside the economic and social cohesion), which calls for a better co-ordination of territorially relevant decisions. Stressing the persistence of territorial disparities within the Union, the report stated the need for a cohesion policy not limited to the less developed areas as well as the need to promote a more balanced and more sustainable development of the European territory.

The Second Cohesion Report represents in that respect a follow up of the European Spatial Development Perspective (ESDP), adopted at ministerial level in May 1999, calling for a better balance and polycentric development of the European territory.

The projects launched under the ESPON programme shall follow an integrated approach and, seen together, cover a wide range of issues, such as:

- Identifying the **decisive factors relevant for a more polycentric European territory**; accessibility of a wide range of services in the context of enlargement; integration of wider transnational spaces; promotion of dynamic urban growth centres; linking peripheral and disadvantaged areas with those centres; etc.
- Developing **territorial indicators and typologies** capable of identifying and measuring development trends as well as monitoring the political aim of a better balanced and polycentric EU territory
- Developing **tools supporting diagnoses of principal structural difficulties as well as potentialities**, such as disparities within cities and regenerating deprived urban areas; structural adjustment and diversification of rural areas; strategic alliances between neighbouring cities at transnational, national and regional scale; new partnerships between rural and urban areas; potential support from infrastructure networks in the field of transport, telecommunication, energy; etc.
- Investigating **territorial impacts of sectoral and structural policies** in order to enhance synergy and well-co-ordinated decisions relevant for territorial development within policy fields such as Structural Funds, agriculture, transport, environment, research and development; developing methods for measuring the territorial impact of sectoral and structural policies; etc.
- Developing **integrated tools in support of a balanced and polycentric territorial development**; approaches to enhance the potential of cities as drivers of regional development, new tools for integrated urban-rural development and planning, etc.

With the results of all the ESPON projects, the Commission and the Member States expect in particular to have at their disposal: **a diagnosis of the principal territorial trends** at EU scale as well as the difficulties and potentialities within the European territory as a whole; **a cartographic picture of the major territorial disparities** and of their respective intensity; a number of **territorial indicators and typologies assisting a setting of European priorities** for a balanced and polycentric enlarged European territory; some **integrated tools and appropriate instruments** (databases, indicators, methodologies for territorial impact analysis and systematic spatial analyses) to improve the spatial co-ordination of sector policies.

In this respect, the ESPON projects will serve as a strong scientific basis for the propositions of the Commission in the Third Report on Cohesion, at the end of 2003, in view of the reform of post-2007 Structural Funds.

(i) Relation to the ESPON 2006 programme

The priorities describing the work-programme of the ESPON 2006 Programme are structured in four strands:

Thematic projects on the major spatial developments on the background of typologies of regions, and the situation of cities.

Policy impact projects on the spatial impact of Community sector policies and Member States' spatial development policy on types of regions with a focus on the institutional inter-linkages between the governmental levels and instrumental dimension of policies

Co-ordinating and territorial cross-thematic projects represent a key component of the programme. These projects evaluate the results of the other projects towards integrated results such as indicator systems and data, typologies of territories, spatial development scenarios. The cross section projects help to thematically co-ordinate the whole programme and add value to the results and to fill gaps, which are unavoidable when different themes are dealt with in different projects.

Scientific briefing and networking in order to explore the synergies between the national and EU source for research and research capacities.

This project belongs to the first strand and therefore holds a key position for the elaboration of the whole programme by the preparation of the common ground for the investigation of the basic net of spatial structure in Europe. Therefore a strong co-ordination with all other ongoing projects is needed, in particular with the other project in the same strand and with the coordinating and cross-thematic under priority three and the Co-ordination Unit.

ii) Thematic scope and context

Natural hazards refer to the pressure on the natural and built environment through the consequences of largely unpredictable, singular or more often appearing events which go beyond the impact of incremental changes of the environment. Technological hazards refer to the pressure on the environment through the consequences of accidents which have a direct impact on the environment. The consequences on territorial development represent the core interest of this action. Special attention has to be paid to areas where valuable natural ecosystems, environmentally sensitive areas, cultural landscapes, monuments and historical sites are endangered by pollution, floods, droughts, erosion, fires, earthquakes, and landslides.

Although scientist does not entirely agree in the reasons for climate change, there seems to be an increasing consensus on the existence of climate change. It is also clear that climate change has to be seen in the light of several policies (mainly agriculture, transports, energy, environment, industry, forestry, RDT, development etc.), especially those directly responsible for green-house gas emissions at global level.

Environment should not only be studied from the point of view of climate change. Coastal regions and inland regions exposed to flooding are faced with particular problems in the wake of climate changes. This, for example, ought to be discussed in the context of increasing water-related problems such as changing land use including the increasing surface of metropolitan areas, erosion, and land conservation. Also the disturbance of ecological networks, identified in the Pan European Ecological Networks (1995 Council of Europe) are affected. So in effect, the issue can only be tackled from a comprehensive approach, i.e. a two way relation of changing hydrological regimes and spatial planning. Vice versa inland regions in the South of the EU are exposed to increasing and serious drought which is conceived as a further consequence of climate change, and which causes severe effects for the territories affected. Both aspects should be treated as one element of the territorial development at the EU scale. The perspective of research under this measure shall be guided by the objective to identify broad development perspectives rather than meso-level projects.

The more general interdependence between environment, regional development and territorial balance should be addressed throughout the project. Apart from the sheer environmental effects of climate change, there are considerable social and economic effects on the economy, which by experience influence tourist regions in particular. Special reference should be made to the management of natural and technological hazards regarding in particular the territorial dimension

of those phenomena. Coordination should take place with other relevant ongoing ESPON projects.

iii) General objectives

a) To refer to the three fundamental objectives with in the ESDP with regard to balanced and sustainable spatial development: the economic and social cohesion, the conservation of natural resources and cultural heritage and more balanced competitiveness of the European territory;
b) To contribute to the identification of the existing spatial structure of the EU territory, in particular the degree and diversity of physical and functional polycentrism at different geographical scales, and to gain concrete and applicable information on the EU wide effects of spatially relevant development trends and their underlying determinates. Therefore, the project should be sustained by empirical, statistical and/or data analysis;
c) To define concepts and to find appropriate territorial indicators, typologies and instruments as well as new methodologies to consider territorial information linked to polycentrism, to detect territories (preferably below NUTS 2) most negatively and positively affected by the identified trends with special reference to regions in terms of accessibility, polycentric development, environment, urban areas, territorial impact assessment; particular attention will be paid to areas exposed to extreme geographical positions and natural handicaps such as mountain areas, islands , ultra-peripheral regions; reflections should as well be included on relevant issues from the perspective of Europe and its territorial structure in a global or world-wide context;
d) To develop possible orientations for policy responses, taking the diversity of the European territory into account, and considering institutional, instrumental and procedural aspects;
e) To consider the provisions made and to provide input for the achievement of the horizontal projects under priority 3, such as tools for diagnosis and observation and long term scenarios, as well as evaluation and assessment procedures.
In the efforts to meet these objectives the project shall make best use of existing research and relevant studies.

iv) Primary research issues envisaged

- To list and present the different kinds of indicators related to natural and technological hazards available at Community and Member State levels, including the available geographical level, the technology required for data collection, and the degree of comparability of data;
- Based on the findings of the first step, to reach an agreement in order to make an inventory of precisely the different kinds of indicators which are needed and which deal with, at least, the following themes:
  - Natural hazards: earthquakes, volcanic activity, tidal waves, snow avalanches, slope instability, flooding, drought, forest fires, etc.;
  - Technological hazards: industrial hazards (see "Seveso Directive [36]"), nuclear hazards, mining, including hazards relating to pipelines, marine transport etc.

  For each of these themes, the list of indicators should conform to the DPSIR model.
  Synergies and co-ordination should be established with the European Environment Agency and DG Joint Research Centre of the European Commission, where activities are carried out in the field of natural hazards (floods, droughts, landslides, forest fires).
- To develop appropriate tools for the creation of a database encompassing these indicators and offering compatibility with a map-making facility, in order to provide a consistent, homogeneous, reliable, and up-datable database;
- To review and document the main components of natural risk reduction and spatial planning, and review existing literature and practice of spatial planning for risk reduction in the EU and internationally;

[36] Council Directive 96/82/EC of 9 December 1996 on the control of major-accident hazards involving dangerous substances (O.J .n° L 010 , 14 January 1997)

- To gather information on how national, regional and local authorities manage natural and/or technological hazards, to review good practice; including good practice of risk reduction through land-use planning, and an integrated approach of emergency risk management and land-use planning;
- To compile a first typology of regions revealing the kinds of risks involved, their degree (in terms of potential impact) and the ways in which the authorities manage these risks;
- To document a "spatial planning response" to natural hazard risk reduction and to propose guidelines for such a response, including their review and testing by stakeholders;
- To assess the broad trends of climate change and its relative contribution to the magnitude and frequency of natural hazards, as regards potential territorial impacts;
- To realise a second typology of regions revealing the kinds of risks as regards climate change specifically, its degree (in terms of potential impact) and the way the authorities manage these risks, including through spatial planning and adaptation strategies as well as awareness raising among the public and business;
- To set the link to the spatial typologies developed under the other projects in particular under 1.1.1. and 1.1.2..
- To create a synthetic index of vulnerability, at an adequate geographical level (NUTS III and, as far as possible, NUTS V), taking into account all the information related to natural and technological hazards and summarising numerically the comparative degree of risk for the geographical unit concerned;
- Based on the typology and the synthetic index, to establish a list of highly sensitive areas, at an adequate geographical level (NUTS III and, as far as possible, NUTS V) with accompanying cartographic material;
- To develop applicable systems for the monitoring of new trends of territorial development as regards natural and technological hazards;
- To detect the relation of vulnerable areas to spatial typologies in order to detect which type of regions are mostly affected, which types of activities in those regions are mostly affected, and which consequences might be expected for spatial development?
- To elaborate input to medium and long term scenarios concerning spatial effects of climate change on land use, land cover and resources;
- To highlight the main points where policy responses might be brought to bear in relation to the ESDP and the Structural Funds.

v) Expected results and timetable

The research undertaken during the interim reports is supposed mainly to work on the data available at the national statistical offices, Eurostat and other national and European institutions, and normally be based on existing administrative units. From 2003 until August 2004, the research should complement the missing territorial/regional data and complement tools and territorial indicators if possible beyond the NUTS classification and the NUTS 3 level.

One of the main objectives of the ESPON 2006 Programme is to focus on research with policy relevance and to contribute to the development of relevant policies. Therefore, the deliverables of the research project should be highly operational and coordinated in time, as far as possible, to fit into the relevant political agenda. The following timetable and specification of output is reflecting this objective:

February 2003 (first interim report):

a) Consensus on the data and indicators required, after a precise analysis of the availability and comparability of data at Community level, to develop new database, including territorial indicators and the facilities needed for map-making. For the analysis, the results of the study programme and the results of other ESPON projects in course, in particular under priority 3.1, should be taken into account. This task should also define the appropriate geographical level and technology required for data collection, taking into account the availability of relevant data.

b) A first detailed and comprehensive list of main requests for statistical and geographical data to be collected mainly from Eurostat, the EEA and National Statistical Institutes and National Mapping Agencies in autumn 2002.

c) A preliminary overview on concepts and methodology and hypothesis for further investigation.

August 2003 (second interim report):

d) Preliminary results on the basis of available territorial indicators, including European maps showing the existing spatial structure and the vulnerability of areas, as far as possible related to the degree of polycentrism:

- Synthetic index of vulnerability available at an adequate geographical level;
- Compilation of good practice for the management of natural and technological hazards by the authorities and risk reduction[37];
- Two typologies of regions: the first one dealing with natural and technological hazards in general, the second dealing with natural hazards and effects specifically as regards climate change;
- A list and a map of highly sensitive areas in relation to spatial typologies developed in the other projects measure 1.1.[38];
- First ideas and draft guidelines on spatial planning for natural hazard risk reduction;
- First proposals to improve monitoring systems for natural and technological hazards[39];

e) A first overview on concepts and methodology and possible final results.

f) Establishment of a new database, so far based on indicators available and with the ability to produce European maps. Database with variables related to natural and technological hazards, in respect of the DPSIR model;

g) A second revised and extended request for further indicators to be collected (mainly) from Eurostat and the EEA, by summer 2003 (the latest).

January 2004 (third interim report):

(g) A working report on the main results elaborating the approach introduced in the previous report including databases, indicators, map-making and a analysis/diagnosis in Europe, as well as the existing territorial imbalances and regional disparities based on the research questions above, including an extended number of available territorial indicators and European maps showing, as far as possible, interrelationships between the aspects concerning the and the territorial integration of candidate countries in an enlarged EU.

(h) Development of appropriate tools for the processing of the new data base, indicators and map-making

(i) Applicable systems for the monitoring and benchmarking of new trends of territorial developments in the context of the European territory, including candidate countries and neighbouring countries;

j) Detection of typologies of regions revealing risks and potentials for the identified types of regions;

k) Policy recommendations, which could provide the basis for future focus of Community interventions post 2006, to improve an integrated territorial approach in the management of natural and technological hazards, including institutional settings and instruments. Particular attention should be paid to peripheral and ultra-peripheral regions.

August 2004 (final report):

l) An executive summary of the main results of the research undertaken and recommendations for policy development.

m) Comprehensive presentation of trends in relation to a polycentric and balanced development of an enlarged European Union;

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[37] JRC-IES is developing together with DG-ENV a European Flood Action Plan, where good practices for flood management are incorporated. Collaboration and co-ordination is therefore required

[38] JRC-IES is developing together with DG-ENV a European Flood Risk Map, showing areas sensitive to river flooding. Thus for floods, such a map of sensitive areas is already being developed

[39] JRC-IES is developing a European Flood Forecasting System, which will be extended to droughts and landslides during FP6 to provide 10-day flood and landslide pre-warnings and seasonal drought forecasts at EU scale. Co-ordination is thus required.

n) Presentation of access points and concrete ideas for policy responses to improve an integrated territorial approach in the management of natural and technological hazards, at different scales and in different parts of the Union, that could improve territorial cohesion;
- Proposal for guidelines on spatial planning for natural hazard risk reduction;
- Proposals to improve monitoring systems for natural and technological hazards[40];

o) Presentation of the developed territorial indicators, concepts and typologies linked to transport infrastructure and services, including maps;
p) Presentation of the database and the mapping facilities developed, covering as far as possible an enlarged EU and neighbouring countries: Medium and long term scenarios on spatial effects of climate change on land use, land cover and resources [41] that could be inputs to the forthcoming scenario development under ESPON project 3.2;
r) Listing of further data requirements and ideas of territorial indicators, concept and typologies as well as on further developments linked to the database and mapping facilities;

vi) Rationale and structure

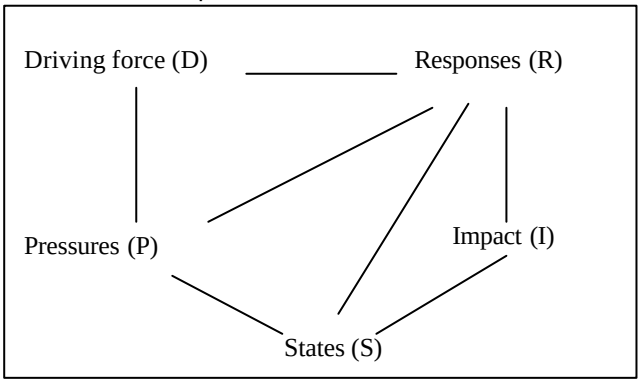
The following text has the role of shaping the mind of thinking in developing a proposal for undertaking the ESPON action 1.3.1. The text is not meant to be exhaustive, but only to provide guidance for the tenderer.

1. Approaches to the definition and methodology, background information on approaches so far which should be taken into account

The basic foundation for the project is the territorial integrated approach and the spatial policy orientations put forward by the ESDP and carried further by the Commission in the Second Cohesion Report proposing a territorial dimension in future Structural Funds.
Apart from the points addressed under the specific research questions the following points should be deepened.

1.1. DPSIR Model

The work of the European Environment Agency is built around a conceptual framework know as the DPSIR assessment framework. DPSIR stands for Driving forces, Pressures, States, Impacts and Responses. Particularly useful for policy-makers, DPSIR builds on the existing OECD model and offers a basis for analysing the inter-related factors that impact on the environment.
The aim of such an approach is:
- to be able to provide information on all of the different elements in the DPSIR chain;
- to demonstrate their interconnectedness;
- to estimate the effectiveness of Responses.



[40] JRC-IES is developing a European Flood Forecasting System, which will be extended to droughts and landslides during FP6 to provide 10-day flood and landslide pre-warnings and seasonal drought forecasts at EU scale. Co-ordination is thus required.

[41] The resulting maps of land use under a different climate could be used to estimate the effect on natural hazards, to incorporate both the effect of changed climate/weather itself, but also changed land use. JRC-IES has tools to perform this analysis for floods and droughts. Thus, co-ordination is needed.

The state and impact should also consider the relation of vulnerable areas to spatial typologies in order to detect which type of regions are mostly affected, which types of activities in those regions are mostly affected, and which consequences are expected for spatial development? Such as costal areas, arid central areas with high potential of fires a.s.o.

1.2. Synthetic index of vulnerability

Elaborating the synthetic index of vulnerability should be based initially on the information and the methodology already used for creating an indicator of natural hazards, in the framework of the SPESP. This indicator combines data on earthquakes, volcanic activity, tidal waves, snow avalanches and slope instability. Flooding is an additional important hazard, but here no appropriate data was available at this stage.

A map including seismic and volcanic risks, risks of tsunamis, slope instability and snow avalanches have been realized. The value given for seismic and volcanic risk and tsunamis varies according to the proportion of the NUTS region overlapping each danger class in the source map (United Nations Environment Programme/Global Resource Information Data set GNV63). The slope instability and avalanche risks are obtained from elevation and slope data, which come from the Digital Elevation Model HYDRO1K (US Geological Survey).

2. Indicators and data

2.1. Indicators published by the European Environment Agency

The EEA has already published some indicators in respect of the DPSIR model which could be useful to examine climate change and technological hazards. For further information, see : http://themes.eea.eu.int/all_indicators_box

Pressures related to climate change:

- Carbon dioxide emissions;
- Emissions of greenhouse gases;
- Fluorinated gas emissions;
- Methane emissions;
- Nitrous oxide emissions;
-

Pressures related to technological hazards:

- Accidental and illegal discharges of oil by ships at sea;
- Generation of nuclear waste;
- Percentage contribution to soil contamination from localised sources;
- Related to issues mentioned in the Communication – Towards a Thematic Strategy on sustainable use of pesticides [42]

States related to climate change:

- Global and European mean temperature
- Hazards such as mentioned in the Council Regulation EEC n° 2158/92 concerning forest fires [43],

States related to technological hazards:

- Input of hazardous substances in the north-east Atlantic;

Responses related to technological hazards:

- Expenditures on clean-up of contaminated sites
- Progress in management of contaminated sites

2.2. MARS - The European Commission's Major Accident Reporting System

MARS is based on the requirements of EU Directive 96/82/EC ("Seveso II") and dedicated to the collection of data on major industrial accidents. A major accident is defined as a major emission, fire or explosion resulting from uncontrolled developments in the course of the operation of any establishment covered by the Seveso Directive, and leading to serious danger to human health

[42] COM/2002/349 final
[43] Official Journal L 217, 31/07/1992

and/or the environment, immediate or delayed, inside or outside the establishment, and involving one or more dangerous substances.
Apart from the points addressed under the specific research questions the following points should be deepened.

2.3. Other indicators are already compiled by the ESPON Projects

- Based on the findings of the first step, to reach an agreement in order to make an inventory of precisely the different kinds of indicators which are needed and which deal with, at least, the following themes:
  - Natural hazards: earthquakes, volcanic activity, tidal waves, snow avalanches, slope instability, flooding, drought, forest fires, etc.;
  - Technological hazards: industrial hazards (see "Seveso Directive [44]"), nuclear hazards, mining, including hazards relating to pipelines, marine transport etc.

3. Quantitative and qualitative analysis

The analyses should be the base to answer the following question already mentioned under the primary research questions. (For each of these themes, the list of indicators should conform to the DPSIR model.) In addition the following should be considered:

- Ruptures and continuums in the development of spatial structures: a comparison between cases of contaminated site decontamination: Developments in the contaminated site management (CSM) have been towards increasing case-based risk assessment emphasising the local context of management decision. While there are community and regional effects (resources, land use pressure etc.) with varying significance for the construction of risk and the chosen management option in different contamination cases, similarly the CSM has its impacts on spatial structure - either changing or strengthening it (regional actors, fairness of risk distribution etc.). A two-way analysis of the effects is emerging: from the spatial structure into the CSM in local agenda and the effects of CSM on spatial structure. The comparative case study analysis of selected development processes should be chosen.
- Spatial development barriers resulting from natural and technological hazards: If approved by the research rivers with extended flooding areas, areas of risk for fires because of lacking humidity, coastal areas, could become barriers for spatial development

4. Conclusions and recommendations

- The project should highlight the main points where policy responses might be brought to bear taking into account the results of good practice and inputs to medium and long term scenarios concerning spatial effects of climate change on land use, land cover and resources:
- on spatial planning for natural hazard risk reduction;
- gather information on how national, regional and local authorities manage natural and/or technological hazards, to review good practice; including good practice of risk reduction through land-use planning, and an integrated approach of emergency risk management and land-use planning;
- propose improvements of monitoring systems for natural and technological hazards [45];

In contributing to the development of policy strategies reference should be made to all policy options in the ESDP which are connected with this issue. Recommendations have to address all relevant Community and national policies in order to promote the potential of the regions. The role of territorial governance as well as the European Strategy for Sustainable Development has to be integrated into propositions.
It should be investigated how for the findings are relevant and could be applied to Structural Funds policy and other policies with territorial impact (e.g. competition, transport, telecommunication, research) should also be made, bearing in mind co-ordination and coherence among them.

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[44] Council Directive 96/82/EC of 9 December 1996 on the control of major-accident hazards involving dangerous substances (O.J .n° L 010 , 14 January 1997)

[45] JRC-IES is developing a European Flood Forecasting System, which will be extended to droughts and landslides during FP6 to provide 10-day flood and landslide pre-warnings and seasonal drought forecasts at EU scale. Co-ordination is thus required.

In view of deriving policy recommendations the study should also focus on the influence of territorial governance and institutional aspects, revealing the mechanism of power partitioning, decision making and co-operation processes. In this context, networking seems to be of great importance, in particular between "neighbours" across borders.

vii) Existing access points

The access points listed below can serve the purpose of providing the tenderer useful information for preparing a proposal. It is by no means meant to be exhaustive, but only as information that can be helpful in tracing additional useful background information

- One of the four thematic priorities of the Fifth framework programme of the European Community for research, technological development and demonstration activities (1998 - 2002) deals with "Energy, Environment and sustainable development". One of the key actions developed under this priority aims to develop technologies and methods for environmental impact assessment, risk forecasting, prevention, evaluation and mitigation. The priorities of this actions focus on the following key areas:
  - analysis of factors increasing the level of natural risks;
  - methods, models and tools for hazard vulnerability and risk assessment;
  - effective tools and methods for information management;
  - innovative methods and technologies to combat disasters and alleviate their consequences;
  - improvement of the operational safety of hazardous installations.

  Ref. : http://europa.eu.int/comm/research/eesd/leaflets/en/generic01.html
- The European Commission (DG Environment) has launched a two-year project called Eurosion. Its objective is to provide a package of recommendations for policy-making and information management practices to address coastal erosion in Europe, after thorough assessment of knowledge gained from past experiences and of the current status and trends of European coasts. However, the project also aims at producing results of immediate value for policy-makers and managers at other administrative levels.
- The major outcome expected from Eurosion is an analysis of where erosion management is focused today and where it should be focused in the future – at what administrative levels and with what types of measures – in order to determine where more action needs to be taken.
- A digital geographical database will provide a consistent framework for integrating existing multidisciplinary data-sets produced at local, national and regional levels into a seamless European database, and for reporting to European policy-makers the status and trends of relevant features such as elevation and bathymetry, infrastructure, hydrographical features, littoral geo-morphological aspects, sea level rise, driving forces, pressures and coastal reporting.
- Ten pilot sites within the European Union and accession countries have been selected in order to explore the present and potential role of Geographical Information Systems (GIS) and other decision-support tools for managing coastal erosion processes, the involvement of local stakeholders in decision-taking processes, and the prerequisites for implementing integrated coastal zone management practices. The state-of-the-art of current practices in coastal erosion prevention and management at various levels, based on a Europe-wide review of successful and unsuccessful strategies, measures and experiments, will be analysed. The immediate result of this undertaking will be an on-line shoreline management guide of practical examples from all over Europe, highlighting the weaknesses and strengths from technical, economic, and social points of view.
- Finally, policy recommendations will be formulated, backed up by figures derived from the data base and based on results from the pilot case studies and the state-of-the-art report. The executive summary will be printed and disseminated Europe-wide and presented to the expert community in March 2004. Ref. : http://www.eurosion.org/
- The Sixth Environmental Action Programme of the European Community 2001-2010 entitled "Environment 2010: Our Future, Our Choice" identifies four priority areas:

  - Tackling climate change: to stabilise the atmospheric concentrations of greenhouse gases at a level that will not cause unnatural variations of the earth's climate.
  - Nature and Bio-diversity - protecting a unique resource: to protect and restore the functioning of natural systems and halt the loss of bio-diversity in the European Union and globally. To protect soils against erosion and pollution.
  - Environment and Health: to achieve a quality of the environment where the levels of man-made contaminants, including different types of radiation, do not give rise to significant impacts on or risks to human health.
  - Sustainable use of natural resources and management of wastes: to ensure the consumption of renewable and non-renewable resources does not exceed the carrying capacity of the environment. To achieve a de-coupling of resource use from economic growth through significantly improved resource efficiency, dematerialization of the economy, and waste prevention.

- The Global Monitoring for the Environment and Security (GMES) Initiative (1998-2008) is to support the implementation of the 6th Environmental Action Programme (6th EAP) as it represents the environmental dimension of the Community's Sustainable Development Strategy.
- GMES is a European initiative. The aim is to support Europe's goals regarding sustainable development and global governance, by facilitating and fostering over the next decade the provision of enhanced quality data, information and knowledge. It will do so by paying particular attention to better use of information technologies and by stimulating partnership and co-operation across the whole variety of stakeholders and actors.

The components of the initiative are institutional (e.g. federating needs, securing long-terms efforts) and technical (e.g. monitoring infrastructure, building information networks). Its added value resides in the relation of coherence and efficiency from the data acquisition to the production and use of information. The aim is to achieve a significant leap forward in the quality of information and services delivered.

The Environmental Reports of the EEA already built a good starting base for the investigation of those kinds of hazards with particular reference to their spatial effects. The SPESP already considered this topic under the spatial criteria of land use and natural assets.[46] The land use study already compared the list of important types of landscapes with the categories compiled in the land use statistics of Eurostat. The combination of these data with climate data supports the identification of areas with specific problems under climate change. In addition, the study presents the results of a survey undertaken among Member States on the assessment of different indicators in terms of their usability and availability in each Member State. The study on natural assets also compares different indicator systems available at EU (EEA), UN and OECD level referring to the driving force pressure and response system which provides a good starting point for further work. GIS referenced data and satellite information systems will play a major role for the investigation under this action. The new Commission's/Eurostat's Initiative on Environmental European Spatial Data Infrastructure (E-ESDI) can also considerably contribute. Interreg IIC and IIB projects are also dealing with this issue, therefore, providing some experience on a transnational scale.

- Interreg IIC and IIB projects, in some cases also dealing with spatial effects, nature and technology, can provide some experience on transnational scale.

In addition, an ESPON Data Navigator creating an overview, a handbook, giving information on principal data sources, contact points etc, is under elaboration. The Data Navigator is expected to cover, in principle, all countries in an enlarged European Union as well as neighbouring countries. The Data Navigator is scheduled to be finalised by end September 2002.

[46] SPESP 2000 CD report of working group on natural assets p. 66 ff and working group on land use point 3.

Terms of reference on ESPON action 1.3.2.

TERRITORIAL TRENDS OF THE MANAGEMENT OF THE NATURAL HERITAGE

(2002-04)

(o) Political challenges for the ESPON projects

The Second Report on Economic and Social Cohesion, published in January 2001, presented for the first time a third territorial dimension of the cohesion (beside the economic and social cohesion), which calls for a better co-ordination of territorially relevant decisions. Stressing the persistence of territorial disparities within the Union, the report stated the need for a cohesion policy not limited to the less developed areas as well as the need to promote a more balanced and more sustainable development of the European territory.

The Second Cohesion Report represents in that respect a follow up of the European Spatial Development Perspective (ESDP), adopted at ministerial level in May 1999, calling for a better balance and polycentric development of the European territory.

The projects launched under the ESPON programme shall follow an integrated approach and, seen together, cover a wide range of issues, such as:

- Identifying the **decisive factors relevant for a more polycentric European territory**; accessibility of a wide range of services in the context of enlargement; integration of wider transnational spaces; promotion of dynamic urban growth centres; linking peripheral and disadvantaged areas with those centres; etc.
- Developing **territorial indicators and typologies** capable of identifying and measuring development trends as well as monitoring the political aim of a better balanced and polycentric EU territory
- Developing **tools supporting diagnoses of principal structural difficulties as well as potentialities**, such as disparities within cities and regenerating deprived urban areas; structural adjustment and diversification of rural areas; strategic alliances between neighbouring cities at transnational, national and regional scale; new partnerships between rural and urban areas; potential support from infrastructure networks in the field of transport, telecommunication, energy; etc.
- Investigating **territorial impacts of sectoral and structural policies** in order to enhance synergy and well-co-ordinated decisions relevant for territorial development within policy fields such as Structural Funds, agriculture, transport, environment, research and development; developing methods for measuring the territorial impact of sectoral and structural policies; etc.
- Developing **integrated tools in support of a balanced and polycentric territorial development**; approaches to enhance the potential of cities as drivers of regional development, new tools for integrated urban-rural development and planning, etc.

With the results of all the ESPON projects, the Commission and the Member States expect in particular to have at their disposal: **a diagnosis of the principal territorial trends** at EU scale as well as the difficulties and potentialities within the European territory as a whole; **a cartographic picture of the major territorial disparities** and of their respective intensity; a number of **territorial indicators and typologies assisting a setting of European priorities** for a balanced and polycentric enlarged European territory; some **integrated tools and appropriate instruments** (databases, indicators, methodologies for territorial impact analysis and systematic spatial analyses) to improve the spatial co-ordination of sector policies.

In this respect, the ESPON projects will serve as a strong scientific basis for the propositions of the Commission in the Third Report on Cohesion, at the end of 2003, in view of the reform of post-2007 Structural Funds.

(i) Relation to the ESPON 2006 programme

The priorities describing the work-programme of the ESPON 2006 Programme are structured in four strands:

1. **Thematic projects** on the major spatial developments on the background of typologies of regions, and the situation of cities.
2. **Policy impact projects** on the spatial impact of Community sector policies and Member States' spatial development policy on types of regions with a focus on the institutional inter-linkages between the governmental levels and instrumental dimension of policies
3. **Co-ordinating and territorial cross-thematic projects** represent a key component of the programme. These projects evaluate the results of the other projects towards integrated results such as indicator systems and data, typologies of territories, spatial development scenarios. The cross section projects help to thematically co-ordinate the whole programme and add value to the results and to fill gaps, which are unavoidable when different themes are dealt with in different projects.
4. **Scientific briefing and networking** in order to explore the synergies between the national and EU source for research and research capacities.

This project belongs to the first strand and therefore holds a key position for the elaboration of the whole programme by the preparation of the common ground for the investigation of the basic net of spatial structure in Europe. Therefore a strong co-ordination with all other ongoing projects is needed, in particular with the other project in the same strand and with the coordinating and cross-thematic under priority three and the Co-ordination Unit.

ii) Thematic scope and context

Natural heritage is an essential part of the environmental assets of each country. The value of (bio)diversity has been largely recognized by EU policies. Such a heritage must certainly be preserved from hazards, but also creatively managed to reach a condition of sustainable development, for example by the recognition and valorisation of natural networks and individual natural assets in integrated development strategies. New forms of development must be found to assure synergy and co-existence of men activities and actions affecting the natural heritage.

According to the European Landscape Convention, adopted on 20 October 2000 in co–operation with the Council of Europe, the landscape contributes to the formation of local culture and is a basic component of the European natural and cultural heritage, promoting the consolidation of the European identity. Landscape is an important part of the quality of life of different areas of the European continent. However, development within many sectors of activity accelerates the transformation of landscapes.

At the same time, natural heritage is increasingly considered an asset and a development potential in the economic development of cities and larger territories. The location of new investments is progressively taking factors of qualities in the surrounding areas into account, such access to beautiful landscapes and sites during leisure time. This brings extra focus and potential synergy to the management of the natural heritage. By-in-large, it also calls for a management approach that integrates the natural heritage as an important part of the development of larger territories, cities and regions.

Any overlapping with regard to, on the one hand, the thematic scope of project 1.3.1 on natural and technological hazards and, on the other hand, to the forthcoming project 1.3.3 on cultural heritage, shall be avoided by strong co-ordination.

iii) General objectives

a) To refer to the three fundamental objectives with in the ESDP with regard to balanced and sustainable spatial development: the economic and social cohesion, the conservation of natural resources and cultural heritage and more balanced competitiveness of the European territory;

b) To contribute to the identification of the existing spatial structure of the EU territory, in particular the degree and diversity of physical and functional polycentrism at different geographical scales, and to gain concrete and applicable information on the EU wide effects of

spatially relevant development trends and their underlying determinates. Therefore, the project should be sustained by empirical, statistical and/or data analysis;
c) To define concepts and to find appropriate territorial indicators, typologies and instruments as well as new methodologies to consider territorial information linked to polycentrism, to detect territories (preferably below NUTS 2) most negatively and positively affected by the identified trends with special reference to regions in terms of accessibility, polycentric development, environment, urban areas, territorial impact assessment; particular attention will be paid to areas exposed to extreme geographical positions and natural handicaps such as mountain areas, islands , ultra-peripheral regions; reflections should as well be included on relevant issues from the perspective of Europe and its territorial structure in a global or world-wide context;
d) To develop possible orientations for policy responses, taking the diversity of the European territory into account, and considering institutional, instrumental and procedural aspects;
e) To consider the provisions made and to provide input for the achievement of the horizontal projects under priority 3, such as tools for diagnosis and observation and long term scenarios, as well as evaluation and assessment procedures.
In the efforts to meet these objectives the project shall make best use of existing research and relevant studies.

iv) Primary research issues envisaged

- To agree on a list of indicators which deal with, at least, the four following themes:
  - Land cover, land use, landscapes;
  - Ecosystem diversity;
  - Biodiversity;
  - Natural resources: mainly water and soil.

  (For each of these themes, the list of the indicators should conform to the DPSIR model. Synergies should be established with the European Environment Agency, Eurostat and DG Joint Research Centre of the European Commission, where a range of related indicators are being developed which provide starting points of this project:
  - Land cover, land use, landscapes: dominant pressures of land use, land cover changes, land cover and land use change within and in the surroundings of protected areas, urban sprawl, access to green urban areas, landscape diversity, loss of small/linear landscape features, etc.;
  - Ecosystem diversity: fragmentation of habitats and ecosystems, etc.;
  - Biodiversity: species richness, number of threatened species, etc.;
  - Natural resources: loss of organic matter in soil, soil sealing, soil erosion, contaminated sites, accumulation of heavy metal in soils, deposition of pesticides in soil, water use, water quality, nitrogen surplus by river basins, etc.)
- To develop appropriate tools for the creation of a database encompassing these indicators and offering compatibility with a geographic information system, in order to provide a consistent, homogeneous, reliable, and up-datable database;
- As regards these four themes, to identify "ecologically sensitive areas"[47], using spatial analysis methods and geographic information system tools. To identify the most relevant criteria for defining such areas and for assessing the possible (positive as well as negative) impacts for the local/regional economies concerned (as regards for example, competition of locations);
- To develop a diagnosis, at European level, for each of the four themes mentioned above. This diagnosis should focus on two points and take into account the spatial structure of the European territory and should make reference to the typologies of regions developed all ESPON projects in particular in project 1.1.1. (polycentrism) and 1.1.2. (urban-rural relation):
  - The description of the current situation, the past evolution (long-term and recent) and future perspectives;

[47] Sensitive areas in relation to hazards are subject to project 1.3.1.

- To develop some case studies selected on the base of a typology covering whole Europe , for example:
  - Examples of areas where significant conflicts are emerging between man-made activities and their natural heritage.
  - Cases of good practice, for each of the four themes mentioned above, in reconciling and managing the conflicts through planning, especially participatory planning mechanisms and where the natural heritage is used as an asset in integrated territorial development strategies;
- To elaborate contributions to a medium (5-10 years) and long term (10-50 years) scenarios referring to the four themes and, at least, two situations, which are finalised in the future ESPON project 3.2.:
  a. Evolution under current trends;
  b. Evolution in a sustainable way.
  The territorial impacts of these scenarios should be illustrated through a series of maps.
- To highlight main points where policy responses might be brought to bear.
  - To analyse how far Community policy related to each of the four themes affects the concept of a polycentric development.
  - To identify which type of territorial development patterns would minimise conflicts and maximise synergy between natural heritage and economic activities and, hereby, contribute to the better management of an area's natural heritage.
  - To identify conditions for taking better advantage of Community environmental policy objectives in relation to economic and social development as well well as support to territorial cohesion.
  - To identify feasible structures at EU level in order to coordinate the Community environmental policy better with spatial policies and to provide reference for a better territorial orientation of the EU environmental policy. To identify whether a co-ordination with national policies is necessary.
  - To analyse how Structural Funds and the Community environmental policy could develop a more coherent and effective approach in promoting territorial cohesion and environmental objectives.

v) Expected results and timetable

The research undertaken during the interim reports is supposed mainly to work on the data available at the national statistical offices, Eurostat and other national and European institutions, and normally be based on existing administrative units. From 2003 until August 2004, the research should complement the missing territorial/regional data and complement tools and territorial indicators if possible beyond the NUTS classification and the NUTS 3 level.

One of the main objectives of the ESPON 2006 Programme is to focus on research with policy relevance and to contribute to the development of relevant policies. Therefore, the deliverables of the research project should be highly operational and coordinated in time, as far as possible, to fit into the relevant political agenda. The following timetable and specification of output is reflecting this objective:

February 2003 (first interim report):

a) Consensus on indicators required: Consensus on indicators and data needed, after a precise analysis of the availability and comparability of data at Community level, to develop new database, including territorial indicators and the facilities needed for map-making. For the analysis, the results of the study programme and the results of other ESPON projects in course, in particular under priority 3.1, should be taken into account. This task should also define the appropriate geographical level and technology required for data collection, taking into account the availability of relevant data.

b) A first detailed and comprehensive list of main requests for statistical and geographical data to be collected mainly from Eurostat, the EEA and National Statistical Institutes and National Mapping Agencies in spring 2003.

c) A preliminary overview on concepts and methodology and hypothesis for further investigation.

August 2003 (second interim report):

d) Preliminary results on the basis of available territorial indicators, including European maps showing the existing spatial structure of the natural heritage, as far as possible related to settlement structure, areas facing problems of lagging behind and the accessibility to different parts and types of territories within Europe (in respect of the DPSIR model);

e) A first overview on concepts and methodology and possible final results.

- Identification of the most relevant criteria for defining such areas and their impacts;
- For each of these themes, a descriptive diagnosis of the current situation, the past evolution, the future perspectives, as well as political measures related to them and their impacts;
- f) Establishment of a new database, so far based on indicators available and with the ability to produce European maps (EU 27 maps of "ecologically sensitive areas"),. with variables related to, at least, four themes selected:
- Land cover, land use, landscapes;
- Ecosystem diversity;
- Biodiversity;
- Natural resources: mainly water and soil;

g) A second revised and extended request for further indicators to be collected (mainly) from Eurostat and the EEA.

January 2004 (third interim report):

(g) A working report on the main results of the research undertaken including databases, indicators, map-making and a analysis/diagnosis of the transport sector in Europe, as well as the existing territorial imbalances and regional disparities in natural heritage based on the research questions above, including an extended number of available territorial indicators and European maps showing, as far as possible, interrelationships between the state and pressure of natural heritage and territorial features, such as the degree of polycentrism, accessibility to typologies of regions and territories, areas lagging behind (and eventually facing migration) and the territorial integration of candidate countries in an enlarged EU, including:

- Compilation of a number of case studies;
- For each of the 4 themes, at least two scenarios at European scale referring respectively to an evolution on the basis of current trends and evolution under sustainable conditions. Maps should accompany each of the scenarios;
- First proposals on how to contribute to the better management of an area's natural heritage and to improve policy responses. Definition of institutional settings and instruments in support of a better management.
- First proposals of possible thematic adjustments regarding the Community environmental policy in order to avoid unintended spatial effects and benefit from synergy and potentials in relation to the ESDP and the Structural Funds policy.

(h) Preliminary results on the significance of natural heritage for spatial development regarding different types of regions

(i) Development of appropriate tools for the processing of the new database, indicators and map-making

(j) Applicable systems for the monitoring and benchmarking of new trends of territorial developments in the context of the European territory, including candidate countries and neighbouring countries;

k) Detection of typologies of regions revealing risks and potentials for the identified types of regions;

l) Policy recommendations, which provide the basis for the future focus of Community interventions post 2006 and the coordination of the EU environmental policy with the spatial development including institutional settings and instruments. Particular attention should be paid to regions with extreme geographical conditions..

August 2004 (final report):

m) An executive summary of the main results of the research undertaken and recommendations for policy development.

o) Comprehensive presentation of the state and pressure, restrictions and potential of the natural heritage in relation to a polycentric and balanced development of an enlarged European Union;
p) Presentation of access points and concrete ideas for policy responses to the territorial trends at different scales and in different parts of the Union, that could improve territorial cohesion;
q) Presentation of the developed territorial indicators, concepts and typologies linked to natural heritage, including maps;
r) Presentation of the database and the mapping facilities developed, covering as far as possible an enlarged EU and neighbouring countries
s) Listing of further data requirements and ideas of territorial indicators, concept and typologies as well as on further developments linked to the database and mapping facilities as well as formulation of further research necessary in the policy field.

vi) Rationale and structure

The following text has the role of shaping the mind of thinking in developing a proposal for undertaking the ESPON action 1.3.2. The text is not meant to be exhaustive, but only to provide guidance for the tenderer.

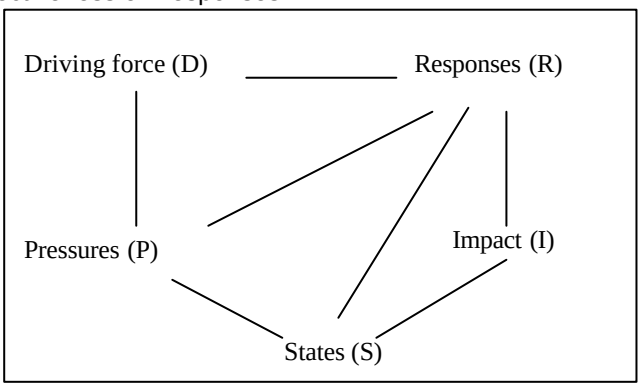
1. Approaches to the definition and methodology

The basic foundation for the project is the territorial integrated approach and the spatial policy orientations put forward by the ESDP and carried further by the Commission in the Second Cohesion Report proposing a territorial dimension in future Structural Funds.
Apart from the points addressed under the specific research questions the following points should be deepened.

1.1. Background information: DPSIR Model

The work of the European Environment Agency is built around a conceptual framework know as the DPSIR assessment framework. DPSIR stands for Driving forces, Pressures, States, Impacts and Responses. Particularly useful for policy-makers, DPSIR builds on the existing OECD model and offers a basis for analysing the inter-related factors that impact on the environment.
The aim of such an approach is:

- to be able to provide information on all of the different elements in the DPSIR chain;
- to demonstrate their interconnectedness;
- to estimate the effectiveness of Responses.



- To agree on a list of indicators which deal with, at least, the four following themes:
  - Land cover, land use, landscapes;
  - Ecosystem diversity;
  - Biodiversity;
  - Natural resources: mainly water and soil.

For each of these themes, the list of the indicators should conform with the DPSIR model.

1.2. Focussing the methodology

The methodology should concentrate on those issues which are most important for the achievement of the ESPON objectives in the field of spatial development and natural heritage. Therefore it is of utmost importance to set the links between the issue of natural heritage and the

spatial development. A conceptual framework should clarify the potential and the restrictions caused by the natural heritage with regard to the spatial development. It is evident that potentials and restriction very much depend on the type of regions, therefore close cooperation with the projects 1.1.1. and 1.1.2. is required.

As the management of natural heritage is also subject of this project a methodology should be developed which should be capable to cover the policy requirements in particular on the EU level and in relation to national polices.

2. Indicators and data

2.1. Reference and approaches

The indicator work must be related to the research question as already mentioned in the section (iv).

- In addition 10 case studies selected on the base of a typology covering whole Europe, for example Examples of areas where significant conflicts are emerging between man-made activities and their natural heritage.

2.2. Statistical and geographical information

2.2.1. SPESP

Indicator	Type	Source	Scale	Resolution
Pressures on the environment	P	GISCO, CORINE Land Cover	Unknown	NUTS 5, 250 m grid
Emissions of polluting gases	P	EMEP, GISCO, AIRBASE, APIS, GIRAFE, CORINAIR	Unknown	50 km grid
Water quality	S	Large rivers databases, Pesticides in groundwater	Unknown	Unknown
Water resources	S	GISCO (Climatic section), CORINE Land Cover, DTM	Unknown	Unknown
Coastal value	S	CORINE Coastal Erosion, CORINE Land Cover	1:100.000	NUTS 5
Ecosystem diversity	S	CORINE Land Cover, DTM, Geological information	Unknown	NUTS 3 or 5
Biodiversity	S	European Atlas of flora, birds, mammals, amphibians, reptiles and invertebrates	Unknown	Unknown
Value according to Directive 92/43/EEC	S	Undetermined	Unknown	Unknown
Potential productivity	S	DTM, Climate data, Soil map	Unknown	Unknown
Natural hazards	S	Various	Unknown	Unknown
Threats to natural resources	S	ISRIC, European Network for Forest Damage Monitoring	Unknown	Unknown
Designated or protected areas	S	Common database on designated areas	Unknown	NUTS 5

Ref.: "1.6. Natural assets – Environmental indicators", *in* "Development of indicators reflecting criteria of spatial differentiation" [1999], INDUROT, Universidad de Oviedo (Spanish National Focal Point of SPESP), 80p. + Annexes

2.2.2. Indicators published by the European Environment Agency

The EEA has already published some indicators in respect of the DPSIR model which could be useful to examine land cover, land use, landscapes, ecosystem diversity, biodiversity, natural resources, mainly water and soil. For further information, see: http://themes.eea.eu.int/all_indicators_box

Driving force related to land cover; land use, landscapes

- Change in area and use of grasslands

Pressures related to land cover; land use, landscapes

- Pressures on grasslands
- Land take by transport infrastructure

Responses related to land cover; land use, landscapes

- Agri-environmental management contracts
- Protection of grasslands
- Implementation of strategic environmental assessment in the transport sector

Driving force related to ecosystem diversity and biodiversity

- Agricultural intensity
- Tourism intensity

States related to ecosystem diversity and biodiversity

- Species in dry grasslands
- Fragmentation of ecosystems and habitats

Impact related to ecosystem diversity and biodiversity

- Ecosystem damage area by air pollution

Responses related to ecosystem diversity and biodiversity

- Organic farming
- Pressures related to natural resources, mainly water and soil
- Percentage contribution to soil contamination from localised sources
- States related to natural resources, mainly water and soil
- Ammonium concentrations in rivers
- Biochemical oxygen demand in rivers
- Nitrogen concentrations in rivers
- Phosphorus concentrations in rivers
- Responses related to natural resources, mainly water and soil
- Urban wastewater treatment
- Expenditures on clean-up of contaminated sites
- Progress in management of contaminated sites

2.2.3. Indicators published by Eurostat

- Land cover, land use, landscapes
- Agricultural area and organic farming
- Total forest area
- Growth of built-up area
- Ecosystem diversity and biodiversity
- Use of agricultural pesticides
- Protected area as a percentage of total area
- Number of threatened species
- States related to natural resources, mainly water and soil
- Intensity of water use
- BOD concentration in selected rivers
- Quality of bathing water

Apart from the points addressed under the specific research questions the following points should be deepened.

3. Quantitative and qualitative analysis

- The elaboration of scenarios referring to the four themes should be supported by the case studies (both mentioned above). Cases of good practice, for each of the themes in reconciling and managing the conflicts through planning, especially participatory planning mechanisms should be considered in order to detect relations with the other thematic fields of the ESPON programme and to deduce policy responses. Focus could be on:

- Conflicts between natural heritage and transport: Today and even more in the future conflicts between transport and the preservation of the natural heritage exist. The ´ecologically sensitive areas´ with certain regulations limiting the environmental impacts of transportation are expected for the future. Environmental criteria for defining such areas and possible impacts of the limitations to local economies concerned (regarding the competition of locations) could become part of the agenda of European spatial development planning.
- The identification of territorial development patterns which would minimise the conflicts between natural heritage and economic activities and, therefore, contribute to the better management of an area's natural heritage.

- Analyses of how far the Community policy related to each of the four themes (land use, ecosystem diversity, biodiversity and natural resources) affects the concept of a polycentric development and the urban-rural relations is another import issue.
- Identification on how to take better advantages of the Community environmental policy in terms of economic and social development.
- Analysis of a more integrated and efficient approach of Structural Funds and the Community environmental policy in promoting territorial cohesion and environmental objectives.

4. Conclusions and recommendations

- The project should highlight the main points where policy responses might be brought to bear taking into account the results of good practice and the medium and long term scenarios concerning the potentials and restrictions for the territorial development in relation to management of natural heritage. Reference should be made to a broad variety of types of regions in Europe, including
- Integrated spatial planning for the natural heritage;
- Information on how national, regional and local authorities manage natural heritage in a promising way;
- Proposals to improve monitoring systems for natural heritage;
- The possible contribution of sound management of the natural heritage for an integrated spatial approach.

In contributing to the development of policy strategies reference should be made to all policy options in the ESDP which are connected with this issue. Recommendations have to address all relevant Community and national policies in order to promote the potential of the regions. The role of territorial governance as well as the European Strategy for Sustainable Development has to be integrated into propositions. Furthermore the coordination of the environmental policy with spatial development policy in particular on the EU level should be investigated.

It should be investigated how for the findings are relevant and could be applied to Structural Funds policy and other main policies with territorial impact (e.g. competition, transport) should also be made, bearing in mind co-ordination and coherence among them.

In view of deriving policy recommendations the study should also focus on the influence of territorial governance and institutional aspects, revealing the mechanism of power partitioning, decision making and co-operation processes. In this context, networking seems to be of great importance, in particular between “neighbours” across borders.

vii) Existing access points

The access points listed below can serve the purpose of providing the tenderer useful information for preparing a proposal. It is by no means meant to be exhaustive, but only as information that can be helpful in tracing additional useful background information

The Environmental Reports of the EEA already built a good starting base for the investigation of those kind of hazards with particular reference to their spatial effects. The SPESP already considered this topic under the spatial criteria of land use and natural assets.[48] The land use study already compared the list of important types of landscapes with the categories compiled in the land use statistics of Eurostat. The combination of these data with climate data supports the identification of areas with specific problems under climate change. In addition, the study presents the results of a survey undertaken among Member States on the assessment of different indicators in terms of their usability and availability in each Member State. The study on natural assets also compares different indicator systems available at EU (EEA), UN and OECD level referring to the driving force pressure and response system which provides a good starting point for further work. GIS referenced data and satellite information systems will play a major role for the investigation under this action. The new Commission’s/Eurostat’s Initiative on Environmental European Spatial Data Infrastructure (E-ESDI) can also considerably contribute.

[48] SPESP 2000 CD report of working group on natural assets p. 66 ff and working group on land use point 3.

Interreg IIC and IIB projects are also dealing with this issue, therefore, providing some experience on a transnational scale.

- The SPESP has identified two conceptual frameworks for the identification and development of environmental indicators and for organising information:
  - Structure by habitats, which permits an organization of the indicators and gives scientific coherence to the system: six thematic areas are developed: atmosphere, inland waters (quality/resources), coastal and marine environment, geological substrata and soils, as well as biosphere and natural hazards. Indicators can then make reference to one or several of them;
  - Causal framework, which takes into account the main elements involved in the decision-making process and for which the DPSIR model is used.
- Among the four thematic priorities and the 23 key actions of the Fifth framework programme of the European Community for research, technological development and demonstration activities (1998 - 2002), some are of interest for the study, for example, for the priority "Quality of life and management of living resources", the key action "Sustainable agriculture, fisheries and forestry, including integrated development of rural areas" and for the priority "Energy, Environment and sustainable development", the key action "Socio-economic aspects of environmental change".
- Ref.: http://europa.eu.int/comm/research/quality-of-life/leaflets/en/
  and http://europa.eu.int/comm/research/eesd/leaflets/en/generic01.html
- The **Sixth Environmental Action Programme** of the European Community 2001-2010 entitled "Environment 2010: Our Future, Our Choice" identifies four priority areas:
  - Tackling climate change: to stabilise the atmospheric concentrations of greenhouse gases at a level that will not cause unnatural variations of the earth's climate.
  - Nature and Bio-diversity - protecting a unique resource: to protect and restore the functioning of natural systems and halt the loss of bio-diversity in the European Union and globally. To protect soils against erosion and pollution.
  - Environment and Health: to achieve a quality of the environment where the levels of man-made contaminants, including different types of radiation, do not give rise to significant impacts on or risks to human health.
  - Sustainable use of natural resources and management of wastes: to ensure the consumption of renewable and non-renewable resources does not exceed the carrying capacity of the environment. To achieve a de-coupling of resource use from economic growth through significantly improved resource efficiency, dematerialization of the economy, and waste prevention.
- The **Global Monitoring for the Environment and Security (GMES)** Initiative (1998-2008) is to support the implementation of the 6th Environmental Action Programme (6th EAP) as it represents the environmental dimension of the Community's Sustainable Development Strategy.
- GMES is a European initiative. The aim is to support Europe's goals regarding sustainable development and global governance, by facilitating and fostering over the next decade the provision of enhanced quality data, information and knowledge. It will do so by paying particular attention to better use of information technologies and by stimulating partnership and co-operation across the whole variety of stakeholders and actors.
- The components of the initiative are institutional (e.g. federating needs, securing long-term efforts) and technical (e.g. monitoring infrastructure, building information networks). Its added value resides in the relation of coherence and efficiency from the data acquisition to the production and use of information. The aim is to achieve a significant leap forward in the quality of information and services delivered.
- Other websites of interest:
  Natura 2000: http://europa.eu.int/comm/environment/nature/natura.htm
  Emerald (network of Areas of Special Conservation Interest):
  http://www.nature.coe.int/english/cadres/emerald.htm

In addition, an ESPON Data Navigator creating an overview, a handbook, giving information on principal data sources, contact points etc, is under elaboration. The Data Navigator is expected to cover, in principle, all countries in an enlarged European Union as well as neighbouring countries. The Data Navigator is scheduled to be finalised by end September 2002.

TERMS OF REFERENCE ON ESPON ACTION 1.3.3.

THE ROLE AND SPATIAL EFFECTS OF CULTURAL HERITAGE AND IDENTITY

(2004-06)

(Preliminary, incomplete, finalisation when project will be tendered, for the timing see annex 3)

i) Thematic scope and context

Culture is becoming an increasingly acknowledged asset for territorial development although, or because, the regional culture is endangered by equalisation due to globalisation and the European integration, in particular in the context of enlargement. The concept of culture is not well defined in the European context and the notion laid down in the ESDP, in terms of cultural heritage, seems to be not sufficient to cover the whole issue.

Culture can be both, supporting and hindering spatial development. It can cause lock-in effects and also integration. Cultural identity is seen as an important asset for the well being of people. However, not much is known yet about the importance of culture for territorial development, and a tool for its systematic investigation still needs to be developed. A typology of regions in a broad understanding which shows where and how culture could influence territorial development would be helpful to better understand the differences of spatial development in the context of Europe .

Cultural landscape is the visible result of history on the territory; therefore it is a utmost topic, especially in Europe. A balanced and sustainable spatial development can be reached only by protecting and enhancing the landscape, considering a number of aspects: rural and urban typical settlements, ancient agricultural landscapes, the rich network of historical roads with related settlements and infrastructures, the marks left by industrialization and urbanization. Cultural heritage is a concept which goes beyond architectural heritage, and should not be dominated solely by the past. It is the cornerstone of local, regional, national and European identity. Accordingly, spatial planning should approach this issue in a comprehensive and integrated manner.

This action should consider the integration between protection policies and spatial planning, the new creative ways to valorise and manage cultural and natural heritage, how contemporary architecture can give added value to landscape, how cultural landscape protection can contribute to improve life quality and its role for achieving economic sustainable development. Cultural heritage is a concept which goes beyond architectural heritage, and should not be dominated solely by the past. It is the cornerstone of local, regional, national and European identity. Accordingly, spatial planning should approach this issue in a comprehensive and integrated manner.

This question needs to take into account the question of cultural links between certain European regional communities crossing borders to neighbouring countries (e.g. South Mediterranean countries) and also between these neighbouring countries, particularly in relation to immigration.

ii) Primary research questions

- Identification, gathering of existing and proposition of new indicators and data and map-making methods to measure and to display the state, trends and impacts of the developments referred to above. Compilation of national studies with European focus;
- Provision of a broad concept for cultural heritage which builds upon practicable and measurable categories;
- Examination of territorial typologies with reference to the most important conflicts and mutual support between cultural heritage and current human (economic) activities;
- Identification of types of regions with particular strong relations between the following aspects: cultural heritage, identity and social, environmental and economic development.

iii) Existing access points

Cultural diversity was, up to now, mostly considered in terms of cultural landscapes and urban cultural heritage. However, the study on cultural assets of the SPESP[49] , starting with a broader approach, already indicated a broader understanding of this subject by subdividing the functions of cultural landscapes into the categories of social, political and regional functional areas (which can be covered by religion, power, historic monuments), economic functional areas (economic and agricultural sectors) and social und cultural functional areas (education and health services, housing, recreation, tourism). A comprehensive survey identified the availability and quality of a wide range of indicators which could be used as a starting point for further collection of data in this t field of research.[50] The action should also show environmental, cultural landscape and cultural heritage quality developments.[51] Further access offers European Commission (2001): From land cover to landscape diversity in the EU. [52]

Interesting research questions

"Natural and cultural heritage"

The project proposal "Urban renewal" and the requirements of the preservation of historic monuments are of interest for the whole European research. Urban renewal is a continuous process of trying to revitalize cities in Europe, mainly in disadvantaged regions.

The task of a project within this proposal is to present the potentials of urban renewal as an urban development instrument to actively support this revitalization process, to show the experiences in Europe in using this instrument and which guidelines for action can be formulated.

Cultural Heritage – Tourism. Chances and Limits

This project proposal might help to answer the question important for some EU Member States how to deal with tourism in European regions with specific characteristics. In some regions it causes a considerable use pressure, in others it is an important, if not even the only development factor.

Experiences of working on this proposal could already be gained in the framework of the "Study Programme on European Spatial Planning" within the theme of "Cultural Assets" of the strand "Criteria for Spatial Differentiation" by creating accessibility models.

Natural and cultural heritage as development assets – Comparative study at the regional and local level in selected Member and Accession States

Heritage is increasingly seen as a major impulse for social and economic progress, as sustainable competitive advantage. The basic hypothesis based on international studies and discussion is that conservation of cultural heritage can be pursued by development measures. The local level development strategies are here in the key position. The main objective of the study is to find out to what extent the regional and local authorities in EU Member States and Accession Countries consider natural and cultural heritage values as development assets. Furthermore, the set of best practises will be discussed. Later the project municipalities and other interested local and regional actors will be invited to test the elaborated model, to build a strategic framework able to co-operate on development strategies.

Integrated heritage governance

1. In most European countries the main responsible for the national cultural heritage is the national board of antiquities. By tradition, this kind of heritage governance is strongly directed towards conservation of single monuments. The urgent requirement of today is to find solutions for protecting larger landscape units and urban entities. This can be carried out only by

[49] SPESP 2000 CD report of working group on cultural assets p. 18 ff.
[50] Ibidem, p. 43ff.
[51] Council of Europe (1997): The EMERALD Network – a network of areas of Special Conservation Interest for Europe. TP96\TPVS75SER.96. Secretariat of the Bern Convention. Strasbourg.
[52] http://europa.eu.int/comm/agriculture/publi/landscape/index.htm .

integrating traditional conservation considerations into planning measures as well as regional and strategic environmental impact assessments. The task would be to document the situation among member states in Europe in terms of integrated heritage governance, in order to improve the status of heritage in various development agendas.

2. Spatial effects of natural and cultural heritage is another viewpoint. Here issues of relevance are, among others, to evaluate the effects of cultural heritage (and nature) and identity on regional migration patterns and economic growth. A question to be answered is whether the protection of cultural and natural assets leads to lock-in effects or if it contribute to the overall development.

TERMS OF REFERENCE
ESPON ACTION 2.1.1.

TERRITORIAL IMPACT OF
EU TRANSPORT AND TEN POLICIES

(2002-04)

(o) Political challenges for the ESPON projects

The Second Report on Economic and Social Cohesion, published in January 2001, presented for the first time a third territorial dimension of the cohesion (beside the economic and social cohesion), which calls for a better co-ordination of territorially relevant decisions. Stressing the persistence of territorial disparities within the Union, the report stated the need for a cohesion policy not limited to the less developed areas as well as the need to promote a more balanced and more sustainable development of the European territory.

The Second Cohesion Report represents in that respect a follow up of the European Spatial Development Perspective (ESDP), adopted at ministerial level in May 1999, calling for a better balance and polycentric development of the European territory.

The projects launched under the ESPON programme shall follow an integrated approach and, seen together, cover a wide range of issues, such as:

- Identifying the **decisive factors relevant for a more polycentric European territory**; accessibility of a wide range of services in the context of enlargement; integration of wider transnational spaces; promotion of dynamic urban growth centres; linking peripheral and disadvantaged areas with those centres; etc.
- Developing **territorial indicators and typologies** capable of identifying and measuring development trends as well as monitoring the political aim of a better balanced and polycentric EU territory
- Developing **tools supporting diagnoses of principal structural difficulties as well as potentialities**, such as disparities within cities and regenerating deprived urban areas; structural adjustment and diversification of rural areas; strategic alliances between neighbouring cities at transnational, national and regional scale; new partnerships between rural and urban areas; potential support from infrastructure networks in the field of transport, telecommunication, energy; etc.
- Investigating **territorial impacts of sectoral and structural policies** in order to enhance synergy and well-co-ordinated decisions relevant for territorial development within policy fields such as Structural Funds, agriculture, transport, environment, research and development; developing methods for measuring the territorial impact of sectoral and structural policies; etc.
- Developing **integrated tools in support of a balanced and polycentric territorial development**; approaches to enhance the potential of cities as drivers of regional development, new tools for integrated urban-rural development and planning, etc.

With the results of all the ESPON projects, the Commission and the Member States expect in particular to have at their disposal: **a diagnosis of the principal territorial trends** at EU scale as well as the difficulties and potentialities within the European territory as a whole; **a cartographic picture of the major territorial disparities** and of their respective intensity; a number of **territorial indicators and typologies assisting a setting of European priorities** for a balanced and polycentric enlarged European territory; some **integrated tools and appropriate instruments** (databases, indicators, methodologies for territorial impact analysis and systematic spatial analyses) to improve the spatial co-ordination of sector policies.

In this respect, the ESPON projects will serve as a strong scientific basis for the propositions of the Commission in the Third Report on Cohesion, at the end of 2003, in view of the reform of post-2007 Structural Funds.

i) Relation to the ESPON 2006 Programme

The priorities describing the work-programme of the ESPON 2006 Programme are structured in four strands:

1. **Thematic projects** on the major spatial developments on the background of typologies of regions, and the situation of cities.
2. **Policy impact projects** on the spatial impact of Community sector policies and Member States' spatial development policy on types of regions with a focus on the institutional inter-linkages between the governmental levels and instrumental dimension of policies
3. **Co-ordinating and territorial cross-thematic projects** represent a key component of the programme. These projects evaluate the results of the other projects towards integrated results such as indicator systems and data, typologies of territories, spatial development scenarios. The cross section projects help to thematically co-ordinate the whole programme and add value to the results and to fill gaps, which are unavoidable when different themes are dealt with in different projects.
4. **Scientific briefing and networking** in order to explore the synergies between the national and EU source for research and research capacities.

This project belongs to the second strand and therefore holds a key position for the elaboration of the whole programme by the preparation of the common ground for the investigation of the effects of sector policies on the spatial structure in Europe. Therefore a strong co-ordination with the all other projects in particular with the other project in the same strand on the methodological aspects of the impact analysis, with the relevant thematic projects on territorial trends under the first strand and with the coordinating and cross-thematic under priority three is required as well as with the Co-ordination Unit.

ii) Thematic scope and context

The diversifying effects of infrastructure networks are already the subject of measure 1.2. This measure concentrates on the territorial evaluation of the effects of TENs (transport, energy and telecommunication). Major questions under this action are how far TENs provide the right answers for a territorial development as described in the ESDP. The measures proposed in the White Paper "The European transport policy by 2010" (COM 2001/370) should provide the framework for the subject investigated under this action. Reference has to be made to the policy options developed in the cross sectoral approach of the ESDP. The ESDP stresses the need for an integrated approach for improved transport links, makes reference to the polycentric development model, highlights the efficient and sustainable use of infrastructure and refers to the importance of the diffusion of innovation and knowledge. In particular, this integrated approach should be followed in analysing transport and telecommunication networks. Any analysis should take into account the principle of territorial balance, the particular problems of peripheral regions and the improvement of secondary networks. Any overlaps to ESPON project 1.2.1. 1.2.2. and 1.2.3 concerning infrastructure and telecommunication access, as well as policy impacts addressed under measure 2.1., have to be avoid by a strong co-ordination of the projects.

iii) General objectives

a) To develop methods for the territorial impact assessment of sectoral policies;
b) To develop territorial indicators, typologies and concepts and establishing a database and map-making facilities and to sustain the project by empirical, statistical and/or data analysis;
c) To analysis of the territorial trends, potentials and problems deriving from the policy, at different scales, and in different parts of an enlarged European territory;
d) To show the influence of sector policies on spatial development at relevant scales;
e) To show the interplay between EU and sub-EU spatial policies and best examples for implementation;

f) To recommend further policy developments in support of territorial cohesion and a polycentric and better balanced EU territory;
g) To find appropriate instruments to improve the spatial co-ordination of EU and national sector policies and the ESDP;
h) To consider the provisions made and to provide input for the achievement of the horizontal projects under priority 3.

In the efforts to meet these objectives the project shall make best use of existing research and relevant studies.

iv) Primary research issues envisaged

- Identification, gathering of existing and proposition of new indicators and data and map-making methods to measure and to display the state, trends and impacts of the developments referred to above. Compilation of national studies with European focus;
- Operationalisation of the policy options developed in the ESDP relevant for a territorial impact analysis of the transport and TEN policies, and development of a methodology for impact analysis at EU scale.
- Conceptualisation and elaboration of a territorial impact analysis for transport and TEN policy with special consideration of the following points:
    - Are all transport modes included in order to achieve a long term sustainable mobility of goods and persons, and a polycentric spatial development?
    - Do transport and TEN policies address the emerging border and integration problems taking into account the variety of regions and the arriving enlargement? Do transport and TEN policies provide adequate accessibility and connectivity in the regions of the EU and in Europe (particular attention to be paid to peripheral and ultra-peripheral regions)?
    - Are TENs contributing to the reduction of spatial disparities?
    - What spatial effects are expected in terms of present and future congestions of transport and TEN policies?
    - How far do transport and TEN policies support the concentration of development corridors, consider the concept of polycentric development, and which further spatial effects are emerging?
    - How far do transport and TEN policies affect the spatial diffusion of innovation and knowledge in Europe?
    - What kinds of resources are available at EU level in order to conduct a policy formulated in the White Paper on Transport? Does the necessary co-ordination with national policies take place?
    - How far do TENs support the concentration of development corridors, consider the concept of polycentric development, and which further spatial effects are emerging?

Resources are available at EU level in order to conduct a policy formulated in the White Paper on Transport. Does the necessary co-ordination with national policies take place?

v) Expected results and timetable

The research undertaken during the interim reports is supposed mainly to work on the data available at the national statistical offices, Eurostat and other national and European institutions, and normally be based on existing administrative units. From 2003 until August 2004, the research should complement the missing territorial/regional data and complement tools and territorial indicators if possible beyond the NUTS classification and the NUTS 3 level.
One of the main objectives of the ESPON 2006 Programme is to focus on research with policy relevance and to contribute to the development of relevant policies. Therefore, the deliverables of the research project should be highly operational and coordinated in time, as far as possible, to fit into the relevant political agenda. The following timetable and specification of output is reflecting this objective:

September 2002 (first interim report):

a) Consensus on indicators and necessary data after a precise analysis of the availability and comparability of data at Community level. For these analyses, the results of the study programme and the results of the ESPON projects in course, in particular under priority 3.1, should be taken into account. This task should also define the appropriate geographical level and technology required for data collection, taking into account the availability of the data . A first detailed and comprehensive list of data mainly requests for statistical and geographical data should be collected from Eurostat, the EEA and National Statistical Institutes and National Mapping Agencies.

b) First outline of the methodology of the impact analysis and the structure of the description of the sector policy.

February 2003 (second interim report):

c) Development of the database, indicators and map-making considering the progress of the other research projects.

d) A second revised and extended request for further indicators should collected from Eurostat and the EEA by the end of 2002 (the latest).

e) Presentation of the methods for the territorial impact assessment;

f) Definition of appropriate indicators, typologies and instruments to detect regions and territories most negatively and positively affected by the identified trends with special reference to accessibility, polycentric development, environment, urban areas, structurally weak areas, and new methodologies to consider territorial information.

g) Presentation of hypothesis on the territorial effects of relevant measures of the investigated policy.

August 2003 (third interim report):

h) Application of the methodology, analysis of the hypothesis previously developed.

i) Presentation of a comprehensive working report on tentative results of the research undertaken so far giving a first analysis /diagnosis of the transport sector in Europe as well as the existing territorial imbalances and regional disparities in transport infrastructure as well as tentative results on the spatial effects at EU level and in Member States in terms of the economic relocation and other spatial criteria (including databases, indicators and maps);

j) First propositions on improvement of the sector policy and related instruments,

k) First proposition on the institutional aspects of the spatial co-ordination of EU sector policies and for better co-operation between transport policies at EU, national and regional level.

August 2004 (final report):

l) Improvement of the methodology and the analysis taking into account the results of the third interim reports of the other projects in particular with regard to the candidate countries.

(m) Comprehensive presentation of territorial impacts related to the enlarged European Union (27 countries);

n) Formulation of conclusions and proposition of possible thematic policy adjustments regarding the sector policy in order to avoid unintended spatial effects in relation to the ESDP and the structural Funds policy.

o) Definition of institutional settings and instruments, which could support a better co-ordination of sector policies towards spatial concerns;

p) Presentation of new territorial indicators and EU databases including candidate and possibly neighbouring countries

q) Formulation of the further research necessary in the policy field.

vi) Rationale and structure

The following text has the role of shaping the mind of thinking in developing a proposal for undertaking the ESPON action 2.1.1.. The text is not meant to be exhaustive, but to serve the purpose of guiding the tenderer.

1. Elaboration of a methodology for the impact analysis/assessment on Transport and TEN Policies

The methodology should take account of the spatial concepts developed under priority 1 and 3. The methodology should also allow indicating different level policy in order to identify the relevant actors for a better territorially coordinated policy.

At present we dispose of many assessment methods and models (see point vii existing access points, for some examples). The aim of this study should be to draw these existing assessment methods together (addressing their weaknesses) into a tightly focused, operational assessment tool, oriented towards the needs of decision makers.

The methodology should also allow indicating different level policy in order to identify the relevant actors for a better territorially coordinated policy.

Close attention will be paid to the definition of a methodology for simulating the impact of new major transport, energy or telecommunication infrastructures. As for the rest of ESPON projects, the project should focus on the whole European territory, including candidate countries (EU-27).

2. Presentation of transport and TEN policies with reference to the territorial dimensions and the governmental level responsible for the implementation of transport policy

The structured presentation of the transport and TEN policy should allow identifying the relevant parameters for the territorial impact assessment for all three dimensions, the policy (contents and strategies), polity (institutions, organizations) and politics (processes) also regarding particularly spatial disparities and imbalance of the E.U territory on the background of the typologies developed in the projects under the ESPON priority 1 and 3.

At first the project should provide a short description of the present situation and future trends of the TEN in the EU, particularly in terms of spatial disparities and imbalances within the EU territory, taking into account the variables mentioned below.

3. Data, spatial concepts and indicators

3.1. Territorial typologies

Apart from typologies referring the policy investigated other territorial typologies prepared by the projects in particular prepared under priority should be taken into account.

3.1.1. TENS and accessibility

Indicators on transport and accessibility are already developed under ESPON 1.2.1. Are those topologies sufficient or are adjustments necessary in order to identify the effects of TENs and transport policy.

3.1.2. TENS and typologies of polycentrism, corridors and urban-rural relations

The relation between TENs and the (poly)centric structure of Europe should be addressed as well as the contribution to urban rural relations. Are the typologies prepared in the ESPON projects 1.1.1. and 1.1.2. sufficient in order to investigate the effects or are adjustments necessary? How far do TENs support the concentration of development corridors, consider the concept of polycentric development, and which further spatial effects are emerging?

3.1.3. Typical regions in relation to specific transport policies

The question is whether, in terms of transport policies, there are typical regions to be identified. A typology is connected with specific national and regional policies.

3.1.4. Transport and territorial cohesion

Apart form the various typologies of regions to be investigated a major effort should be dedicated to the contribution of the TEN and transport policy to the territorial cohesion.

3.1.5. Other typologies, sustainable development

Are other typologies of regions seen as being important in order to investigate the effects of TENs and transport policy? Which typologies allow the indication of sustainable regions in terms of the transport infrastructure?

3.2. Indicators and data collection

Description and quantification of variables characterising Transport and TEN-T policies: Indicators are already subject to a project under envisaged ESPON action 1.2.1. indicating a very close cooperation is required.

Taking into account the existing transport indicators and the methodology of the territorial impact assessment developed (see non-exhaustive list below) the collection of further statistical and geographical data and the integration of existing and new databases[53] is required.

Data gathering should occur at the lowest territorial level possible (ideally, NUTS III level). It should cover the 15 Member States as well as the candidate countries.

On the basis of these data, the study should provide a first analysis /diagnosis of the transport sector in Europe as well as the existing territorial imbalances and regional disparities in transport infrastructure.

Key existing transport indicators (EUROSTAT) (Non exhaustive list):

- Quantities of freight and passengers moved and the vehicles and infrastructure used:
- Total transport of goods by road, railway, inland waterways and maritime (tonne-kilometres)
- National transport, t-km, as % of total transport of goods by road, railway, inland waterways
- Rail transport of passengers, millions passengers and passenger-km
- Passenger cars per 1 000 inhabitants
- Passenger car transport. Million passenger kilometres
- Total passengers air traffic by Member State (intra and extra-EU)
- Safety: number of deaths (road, rail, aviation, maritime), number of accidents involving personal injury

Regional dimension of transport statistics (NUTS 2):

- Density: Road (kilometres by 100 km2), Rail (inhabitants by rail km), Cars (number of cars by 10 inhabitants)
- Road freight transport within and between the regions of the European Union

4. Analysis of the transport policy and TEN policies in relation to a balanced territorial (and regional) development

4.1. TEN and Transport Policy and accessibility

Assessment of the effects of transport investment in general and of the TEN policy and related investments in particular on the following variables: accessibility (taking into account the implications of the development of the information society and of telecommunications), connectivity, inter- and multi-modality sustainable use of infrastructure and productivity of enterprises (in particular considering the reduction of production costs and trading costs by new infrastructures). The appropriate index and indicators should be developed. See study on the concepts under action 1.2.1.

The analysis and tools developed should have a dynamic character showing the interacting processes determining regional socio-economic development.

The project should address how the Transport policy and TEN policy influences those concepts, developed under action1.2.1 and 3.1. of the ESPON Programme.

4.2. Assessment the effects of the transport policy and TEN policy on the territorial balance and the regional development (using indicators defined above)

The contractor should assess the effects of investment in transport infrastructure in general and of TENs in particular on territorial development and regional economies, as well as on the distribution and location of activity, the functioning of the labour market and trade flows, in particular, it should evaluate the effects seen in a territorial dimension and consider including the following variables and the typologies defied above under point 3 (non-exhaustive list):

[53] Where harmonised (Eurostat) data sources do not provide the data for the indicators at the appropriate geographical level, the consultant will have to examine national and possibly regional data sources to try to complete the data sets. The collection of this data should be done in co-ordination with data collection provided by the contractant/s of ESPON works under priority 4.

Demographic indicators:
- population density
- migration trends (between the linked areas)
- evolution of the population
- new urban poles at different scales

Regional economic strength:
- Growth Domestic Product (GDP) per inhabitant in Purchasing Power Parity (PPP)
- Evolution of GDP per inhabitant
- FDI growth
- Creation of enterprises
- Trade flows
- GDP per person employed

Labour market:
- Unemployment rate (long term, young, women…)
- Evolution of unemployment rate
- Employment rate
- Poverty rate

Environment:
- CO2 emissions
- Noise pollution
- Congestion

5. Qualitative analysis of the interactions between transport policy and other territorially relevant community policies

The study should provide a qualitative analysis of the interactions between the transport policy and other territorially relevant community policies, as the following ones:

5.1. Interaction with Structural Funds Policy

Infrastructure endowment represents a key factor determining real convergence, sea transport vital for island and coastal regions. How far contributes the improvement of access to remote peripheral and ultra-peripheral regions the regional development potential? Which services of general interest in Europe can be defined on the base of the findings?[54] Which role does the TINA play in that context (EUR 90 billion total cost of constructing trans-European networks in the 12 candidate countries).

5.2. Interaction with Environmental Policy

Interactions with environmental policy relate to congestion (1/10 of TEN-T is congested), air quality and climate change (transport account for 28% of CO2 emissions in 1998, the main greenhouse gas; if nothing is done CO2 emissions up 50% between 1990 and 2010, 84% of transport emissions generated by road transport), tackling noise pollution (noise standard for new aircraft…). What potential is available for environmental-friendly modes of freight transport (inland waterways and rail) also considering those, which have not yet been realised. The Gothenburg European Council postulated breaking the link between economic growth and transport growth at the heart of the sustainable development strategy. Furthermore, transport is for 98% dependent on oil, 70% of which is imported.

5.3. Interaction with Research Policy within a territorial dimension

Consider latest developments in new transport technologies and their territorial effects (Galileo…) for the assessment of future effects. How far does TENs affect the spatial diffusion of innovation and knowledge in Europe?

5.4. Interaction with Internal Market and Competition Policy:

Opening the national freight markets to cabotage causes the territorial effects. National, regional and local monopolies in transport (road and rail), shipping lobbies may have further distorting effects on the spatial balance and are not economically viable and every case.

[54] Report from the Commission to the Laeken European Council, Communication from the Commission COM/2000/580, article 16 Treaty

6. Orientations for policy recommendations

6.1. Improvements of Transport and TENs Policies for a better territorial cohesion

Results should address the assessment of how Transport and TENs policies,

- Underpins regional development;
- Enhance infrastructure potential;
- Monitors the synergies between economic actors;
- Builds pertinent and comparable indicators in order to evaluate transport capacities in regions.

What kind of resources is available at EU level in order to conduct a policy formulated in the White Paper on Transport. Does the necessary co-ordination with national policies take place?

Transport planning should to take into account an integrated strategic approach where transport decisions are based on an understanding of their implications and anticipation of their consequences. Transport must be perceived as a means of achieving the broad range of aims of the society, and not as an aim in itself. This implies a move away from a fragmented approach focusing on individual projects or modes of transport. One component of this new approach should lead to the promotion of multi-modal transport systems, efficient and sustainable use of transport infrastructure as well as joint planning of transport, spatial development and land use.

The primary obstacle to this kind of holistic approach is co-ordination. Therefore the issue of governance and organisation needs to be carefully addressed.

6.2. ESDP

Reference should be made to all policy options in the ESDP dealing with the question of transport. Recommendations should address institutional and procedural aspects of the TENs and transport policies in order to achieve a better balanced spatial development of the EU territory. Proposals should make reference to relevant ESDP policy options and to the context of the proposal mentioned above. In addition, reference should be made to the current transnational areas under Interreg III B.

6.3. Structural Funds Policy and other policies

Contributions should also consider a stronger integration in Structural Funds Policy as well as co-ordination and coherence with other territorially relevant policies.

In order to ensure synergy between Community and national programmes territorial impact analyses in various regional development programmes should be considered. These analyses could form part of a strategic spatial development planning at national, regional or local level, and of strategies within Structural Funds programmes. Guidelines on how to implement Territorial Impact Assessment of transport policy at regional level (institutions, practitioners, etc.) could be reflected. Particular attention should be paid to issues arising from the principle of subsidiarity. Case studies for specific regions could be provided.

Recommendations should take account of the policy context and scope of the study mention above. Taking into account mainly the analysis on the effects of TEN on the reduction of territorial imbalances, regional disparities and accessibility of peripheral areas (NUTS III level) the project should develop recommendations for the improvement of Community transport policy and consistency between Community and national policies and integration of transport policy in spatial planning and regional development plans Case studies for specific regions should be provided.

The study should consider and review, among others, the conclusions of the projects implemented under the Commission's Demonstration Program on Integrated Coastal Zone Management (ICZM) as regards the potential for coordination on transport matters.

The Strategic Environmental Assessment approach to pro-active strategic planning and guidelines for major transport and mobility planning (including the TEN-T) should be promoted. In the case of ICZM for example, guidelines could suggest that it is generally preferable to keep major road or rail axes as far inland as possible.

vii) Existing access points

Data work relies much on the findings under sub-measure 1.2.2. Joint investigation of data is strongly recommended. The SPESP study on spatial integration[55] also provides interesting proposal for data work under this sub-measure such as volume of goods transported and number of persons in transport.

The SPESP report detected a shortage of important data at regional level concerning ISDN lines and fax accessibility and other communication network related information.[56] The spatial integration studies already mentioned the need to measure the telephone and Internet traffic connections between districts, but also the number of computer links to the Internet.[57]

The Commission's White Paper "European transport policy for 2010: time to decide" and background documents for the "Revision of the Trans-European Transport Networks "TEN-T" Guidelines" provide interesting access points for the investigation of the questions raised, as well as the past and current research activities of the Joint Research Centre and the European Environmental Agency

A research project called EUNET/SASI (4th Framework Programme), which investigated socio-economic impacts of transport investments and in particular developed indicators to assess accessibility to/of TEN-Ts should be take into account.

The follow-up of that project, the IASON project, under the 5th Framework Programme, will study the indirect effects of transport investments and policies, in particular in the spatial context by describing the extension and refinement of the two already existing European-level regional economic models, SASI and CGEurope. Other data inputs can be provided by the databases compiled in SCENES, TIPMAC and in the ETIS projects BRIDGES and CONCERT.

In addition, results of the INDICATORS project (DG TREN) concerning the development of performance indicators to monitor and develop the TEN-T, including enlargement aspects, should be considered in this study.

Finally, an ESPON Data Navigator creating an overview, a handbook, giving information on principal data sources, contact points etc, is under elaboration. The Data Navigator is expected to cover, in principle, all countries in an enlarged European Union as well as neighbouring countries. The Data Navigator is scheduled to be finalised by August 2002.

[55] SPESP 2000 CD report of working group on spatial integration, p. 51ff.
[56] SPESP 2000 CD report of working group on economic strength, p. 114.
[57] SPESP 2000 CD report of working group on spatial integration p. 52

TERMS OF REFERENCE
ESPON ACTION 2.1.2.

TERRITORIAL IMPACT OF
EU RESEARCH AND DEVELOPMENT POLICY

(2002-2004)

(o) Political challenges for the ESPON projects

The Second Report on Economic and Social Cohesion, published in January 2001, presented for the first time a third territorial dimension of the cohesion (beside the economic and social cohesion), which calls for a better co-ordination of territorially relevant decisions. Stressing the persistence of territorial disparities within the Union, the report stated the need for a cohesion policy not limited to the less developed areas as well as the need to promote a more balanced and more sustainable development of the European territory.

The Second Cohesion Report represents in that respect a follow up of the European Spatial Development Perspective (ESDP), adopted at ministerial level in May 1999, calling for a better balance and polycentric development of the European territory.

The projects launched under the ESPON programme shall follow an integrated approach and, seen together, cover a wide range of issues, such as:

- Identifying the **decisive factors relevant for a more polycentric European territory**; accessibility of a wide range of services in the context of enlargement; integration of wider transnational spaces; promotion of dynamic urban growth centres; linking peripheral and disadvantaged areas with those centres; etc.
- Developing **territorial indicators and typologies** capable of identifying and measuring development trends as well as monitoring the political aim of a better balanced and polycentric EU territory
- Developing **tools supporting diagnoses of principal structural difficulties as well as potentialities**, such as disparities within cities and regenerating deprived urban areas; structural adjustment and diversification of rural areas; strategic alliances between neighbouring cities at transnational, national and regional scale; new partnerships between rural and urban areas; potential support from infrastructure networks in the field of transport, telecommunication, energy; etc.
- Investigating **territorial impacts of sectoral and structural policies** in order to enhance synergy and well-co-ordinated decisions relevant for territorial development within policy fields such as Structural Funds, agriculture, transport, environment, research and development; developing methods for measuring the territorial impact of sectoral and structural policies; etc.
- Developing **integrated tools in support of a balanced and polycentric territorial development**; approaches to enhance the potential of cities as drivers of regional development, new tools for integrated urban-rural development and planning, etc.

With the results of all the ESPON projects, the Commission and the Member States expect in particular to have at their disposal: **a diagnosis of the principal territorial trends** at EU scale as well as the difficulties and potentialities within the European territory as a whole; **a cartographic picture of the major territorial disparities** and of their respective intensity; a number of **territorial indicators and typologies assisting a setting of European priorities** for a balanced and polycentric enlarged European territory; some **integrated tools and appropriate instruments** (databases, indicators, methodologies for territorial impact analysis and systematic spatial analyses) to improve the spatial co-ordination of sector policies.

In this respect, the ESPON projects will serve as a strong scientific basis for the propositions of the Commission in the Third Report on Cohesion, at the end of 2003, in view of the reform of post-2007 Structural Funds.

i) Relation to the ESPON 2006 Programme

The priorities describing the work-programme of the ESPON 2006 Programme are structured in four strands:

Thematic projects on the major spatial developments on the background of typologies of regions, and the situation of cities.

Policy impact projects on the spatial impact of Community sector policies and Member States' spatial development policy on types of regions with a focus on the institutional inter-linkages between the governmental levels and instrumental dimension of policies

Co-ordinating and territorial cross-thematic projects represent a key component of the programme. These projects evaluate the results of the other projects towards integrated results such as indicator systems and data, typologies of territories, spatial development scenarios. The cross section projects help to thematically co-ordinate the whole programme and add value to the results and to fill gaps, which are unavoidable when different themes are dealt with in different projects.

Scientific briefing and networking in order to explore the synergies between the national and EU source for research and research capacities.

This project belongs to the second strand and therefore holds a key position for the elaboration of the whole programme by the preparation of the common ground for the investigation of the effects of sector policies on the spatial structure in Europe. Therefore a strong co-ordination with the all other projects in particular with the other project in the same strand on the methodological aspects of the impact analysis, with the relevant thematic projects on territorial trends under the first strand and with the coordinating and cross-thematic under priority three is required as well as with the Co-ordination Unit.

ii) Thematic scope and context

The advancements of the Information Society contribute to a more harmonious territorial development in Europe while at the same time having adverse effects, which are to some extend objected but also intensified by the R&D policy at EU level. The ESDP stresses the integrated approach for improved transport links, makes reference to the polycentric development model, highlights the efficient and sustainable use of infrastructure and refers to the importance of the diffusion of innovation and knowledge. Those effects need to be investigated by a methodology, which allows measuring and assessing the impact of public R&D programmes in different types of regions. R&D takes place most probably in those regions where the central functions of companies are concentrated (usually in the metropolitan and urban centres). However, the new economy has developed a slightly different demand on location patterns avoiding old industrial areas and giving rise to some particular regions at the fringes of the EU and in central rural areas. Based on scientific excellence criteria, R&D policy does not primarily consider the location of private R&D investments and activities, but Community and the Member States' R&D policies could better take into account of some territorial factors, which allow a more balanced development in Europe. Therefore, it is important to develop appropriate tools for the observation of the territorial effects of the R&D policy, which would be able to focus on the specific demands of the EU. A better comprehension of the interaction between R&D policy, seed/venture capital availability and human resources development at the local or regional level, technology innovation strategies should allow refining the instruments of sector and spatial policies.

Particular co-ordination is necessary with the previous ESPON action 2.1.1. on Transport and TENs policies and action 1.2.3. on the spatially relevant aspects of the information society. Overlapping with the policies addressed under the measure 2.1. have to be taken into account.

iii) General objectives

a) To develop methods for the territorial impact assessment of sectoral policies;

b) To develop territorial indicators, typologies and concepts and establishing a database and map-making facilities and to sustain the project by empirical, statistical and/or data analysis;

c) To analysis of the territorial trends, potentials and problems deriving from the policy, at different scales, and in different parts of an enlarged European territory;
d) To show the influence of sector policies on spatial development at relevant scales;
e) To show the interplay between EU and sub-EU spatial policies and best examples for implementation;
f) To recommend further policy developments in support of territorial cohesion and a polycentric and better balanced EU territory;
g) To find appropriate instruments to improve the spatial co-ordination of EU sector policies and the ESDP;
h) To consider the provisions made and to provide input for the achievement of the horizontal projects under priority 3.
In the efforts to meet these objectives the project shall make best use of existing research and relevant studies.

iv) Primary research issues envisaged

- Identification, gathering of existing and proposition of new indicators and data and map-making methods to measure and to display the state, trends and impacts of the developments referred to above. Compilation of national studies with European focus;
- Operationalisation of the policy options developed in the ESDP relevant for a territorial impact analysis of the R&D policy, and development of a methodology for impact analysis at EU scale.
- Conceptualisation and elaboration of a territorial impact analysis for R&D policy with special consideration of the following points:
    - How far does the R&D addresses the emerging border and integration problems taking into account the variety of regions and the arriving enlargement? Does the R&D policy provide adequate accessibility in the regions of the EU and in Europe?
    - What spatial effects are expected in terms of current and future R&D policy?
    - How far does the R&D policy support the concentration of development corridors, consider the concept of a polycentric development, and which further spatial effects are emerging?
    - How far does the R&D policy affect the spatial diffusion of innovation and knowledge in Europe?
- What kind of resources is available at the EU level in order to conduct the R&D policy? Does the necessary co-ordination with national policies take place?
- What are the territorial conditions to take better advantages of the R&D policy in terms of innovation and economic development?
- How should R&D policy at the EU and Member State levels be designed and co-ordinated to promote an equal access to knowledge infrastructures for all European territories?
- How could the Structural Funds and R&D policy develop a more coherent and effective approach in promoting R&D capacities and territorial cohesion?

v) Expected results and timetable

The research undertaken during the interim reports is supposed mainly to work on the data available at the national statistical offices, Eurostat and other national and European institutions, and normally be based on existing administrative units. From 2003 until August 2004, the research should complement the missing territorial/regional data and complement tools and territorial indicators if possible beyond the NUTS classification and the NUTS 3 level.
One of the main objectives of the ESPON 2006 Programme is to focus on research with policy relevance and to contribute to the development of relevant policies. Therefore, the deliverables of the research project should be highly operational and coordinated in time, as far as possible, to fit into the relevant political agenda. The following timetable and specification of output is reflecting this objective:

September 2002 (first interim report):
a) Consensus on indicators and necessary data after a precise analysis of the availability and comparability of data at Community level. For these analyses, the results of the study programme and the results of the ESPON projects in course, in particular under priority 3.1, should be taken into account. This task should also define the appropriate geographical level and technology required for data collection, taking into account the availability of the data. A first detailed and comprehensive list of data mainly requests for statistical and geographical data should be collected from Eurostat, the EEA and National Statistical Institutes and National Mapping Agencies.
b) First outline of the methodology of the impact analysis and the structure of the description of the sector policy.
February 2003 (second interim report):
c) Development of the database, indicators and map-making considering the progress of the other research projects.
d) A second revised and extended request for further indicators should collected from Eurostat and the EEA by the end of 2002 (the latest).
e) Presentation of the methods for the territorial impact assessment;
f) Definition of appropriate indicators, typologies and instruments to detect regions and territories most negatively and positively affected by the identified trends with special reference to accessibility, polycentric development, environment, urban areas, structurally weak areas, and new methodologies to consider territorial information.
g) Presentation of hypothesis on the territorial effects of relevant measures of the investigated policy.
August 2003 (third interim report):
h) Application of the methodology, analysis of the hypothesis previously developed.
i) Presentation of a comprehensive working report on tentative results of the research undertaken so far giving a first analysis /diagnosis of the R&D sector in Europe as well as the existing territorial imbalances and regional disparities in R&D capacity and innovation as well as tentative results on the spatial effects at EU level and in Member States in terms of the economic relocation and other spatial criteria (including databases, indicators and maps);
j) First propositions on improvement of the sector policy and the instruments,
k) First proposition on the institutional aspects of the spatial co-ordination of EU sector policies.
August 2004 (final report):
l) Improvement of the methodology and the analysis taking into account the results of the third interim reports of the other projects in particular with regard to the candidate countries.
(m) Comprehensive presentation of territorial impacts related to the enlarged European Union (27 countries);
n) Formulation of conclusions and proposition of possible thematic policy adjustments regarding the sector policy in order to avoid unintended spatial effects in relation to the ESDP and the structural Funds policy.
o) Definition of institutional settings and instruments, which could support a better co-ordination of sector policies towards spatial concerns;
p) Presentation of new territorial indicators and EU databases including candidate and possibly neighbouring countries
q) Formulation of the further research necessary in the policy field.

vi) Rationale and structure

The following text has the role of shaping the mind of thinking in developing a proposal for undertaking the ESPON action 2.1.2.. The text is not meant to be exhaustive, but to serve the purpose of guiding the tenderer.

1. Elaboration of an appropriate methodology for the impact analysis/assessment of the R&D policy

The methodology should take account of the spatial concepts developed under priority 1 and 3. The methodology should also allow indicating different level policy in order to identify the relevant actors for as better territorially coordinated policy. What are the features of a R&D policies mostly affecting the territorial distribution of R&D activities and which effects derive such as e.g. the pattern of investments, development of human capital a.s.o.. Is any model available to measure the spatial aspects?, and which are the most important determinants to consider?

At present some assessment methods and models are available (see point vii existing access points, for some examples). The aim of this study should be to draw these existing assessment methods together (addressing their weaknesses) into a tightly focused, operational assessment tool, oriented towards the needs of decision makers.

The methodology should also allow indicating different level policy in order to identify the relevant actors for a better territorially coordinated policy.

2. Presentation of R&D policy with reference to the territorial dimensions and the governmental level responsible

The structured presentation of the EU R&D policy should allow identifying the relevant parameters for the territorial impact assessment for all three dimensions, the policy (contents and strategies), polity (institutions, organisations) and politics (processes) regarding particularly spatial disparities and imbalance of the EU territory

At first the project should provide a short description of the present situation and future trends of research policy in the EU, particularly in terms of spatial disparities and imbalances within the EU territory, taking into account the variables mentioned below.

The project should focus on both, on the dynamics of the spatial distribution of private R&D and interactions with patterns of change in the public sector, as well as on the extend to which policies to develop knowledge based industries in more peripheral regions can mobilise EU funding to develop new R&D capacities.

3. Data, spatial concepts and indicators

3.1. Territorial typologies

3.1.1. R&D typologies

Which kind of typologies of regions with regard to R&D activities is appropriate in order to investigate the effects of the R&D policy?

3.1.2. Relation to other important territorial typologies

Territorial and regional disparities, contributions of research policy to the European Spatial Development Perspective: The project should provide an in-depth analysis of territorial and regional disparities in research infrastructure and innovation capacities. Further the contribution of research policy to the following spatial planning objectives laid down in the ESDP (not exhaustive, the project under measure 3.1. will provide further spatial typologies) should be examined.

3.1.3. Polycentrism and urban-rural relations

Polycentric Spatial Development and a New Urban-Rural Relationship: With the intention of fostering polycentric and balanced spatial development in the EU, cities which are relatively far apart should co-operate in networks - for example co-operation between universities and research centres - aimed at solving common problems (ESDP policy aim, paragraph 77). The diversification of the rural economy, especially in structurally weak areas, also includes research and technology in small and medium sized towns leading to extra-regional links and networks, access to information and knowledge, etc (ESDP policy aim, paragraph 96). To what extend could R&D Policy contribute?

3.1.4. Parity of Access to Infrastructure and Knowledge

In the policy aim “Diffusion of Innovation and Knowledge” it is pointed out that access to knowledge and the capacity for innovation are still spatially unbalanced. Regionally

interdependent labour markets and production and service locations require dynamic innovation systems, effective technology transfer, institutions for training their workforces and as well as access to an adequate supply of high-quality training and to research. Therefore one policy option (n° 35, paragraph 131) recommends "Wide-ranging integration of knowledge-relevant policies, such as the promotion of innovation, education, vocational training and further training, research and technology development, into spatial development policies, especially in remote or densely populated areas."

3.1.5. R&D and territorial cohesion

The Second Report on Social and Economic Cohesion[58] highlights crucial issues for research in lagging regions: attempt to increase the capacity of businesses to absorb new technology and know-how developed elsewhere, the capability of the work force to use this technology and adapt to new techniques, the entrepreneurial spirit to seek out new market opportunities and the availability of risk capital for innovation. In less favoured regions the (business) environment is often characterised by a combination of structural weaknesses, such as lack of a dynamic business services sector, a poorly developed financial system, weak links between the public and private sectors, sectoral specialisation in traditional industries with little inclination to innovate, low levels of public support for innovation and aid schemes which are poorly adapted to the needs of local SMEs. Therefore developing new forms of organisational and institutional co-operation as well as deploying resources in dynamic and innovative areas seems to be essential.[59]

3.2. Indicators and data collection

The project should quantify the territorial and regional disparities in research within the 15 Member States as well as for the 12 candidate countries. The collection of data for the basic indicators should take place on the NUTS III level. (non exhaustive list)[60].

3.2.1. Research and innovation[61]

- "Investment in knowledge" – public and private investment in RTD
- Scientific and technological productivity

3.2.2. Innovation capacity[62]

- business expenditure on RTD,
- government expenditure on RTD,
- loan activities of the EIB number of patent applications,
- share of participating SMEs

3.2.3. Human resources and mobility[63]

- Level of education and training
- Career possibilities,
- training and mobility incentives
- number of places in universities,
- share of the resident population who have completed tertiary education leading to a first university degree or equivalent[64],

58 p. 59, p. 62

59 see also the Communication from the Commission: The Regional Dimension of the European Research Area

60 Where harmonised (Eurostat) data sources do not provide the data for the indicators at the appropriate geographical level, the consultant will have to examine national and possibly regional data sources to try to complete the data sets. The collection of these data should be done in co-ordination with data collection provided by the contractant/s of ESPON works under priority 4.

61 see the latest figures in "Key Figures 2001" and the special CORDIS web-site http://www.cordis.lu/rtd2002/indicators/home.html

62 see Annex 2: European Innovation Scoreboard (innovation indicators)

63 The Commission has an ongoing exercise on Benchmarking National RTD policies with 5 expert groups (on the topics Public and Private Investment in RTD, Human Resources, Scientific and Technological Productivity, Impact of RTD on Competitiveness and Employment and Public understanding of Science and Scientific Culture); these groups will complete their work in mid 2002. See the latest progress report (Commission staff working paper: Benchmarking National RTD Policies: first results. SEC (2002) 129).

64 see Urban Audit: list of indicators

- number of re-integration grants

3.2.4. Research infrastructures, access to infrastructure, co-ordination of research activities

- PC equipment,
- internet sites,
- telephone lines, etc.
- number and type of networks

4. Quantification and analysis of the effects of the research policy on the balanced and sustainable development of the territory

4.1. Quantification of the effects of the R&D policy

Based on the indicators elaborated above, the task of the study is to examine the effects of the sectoral policy, thus research policy, on overall regional and territorial development. The project should evaluate and quantify the effects of research investment and the result of research policy on spatial typologies provided from the projects under ESPON priority 1 and 3 also using the following indicators (at NUTS III level not exhaustive list)[65]

4.1.1. Demographic indicators

- migration trends
- population changes, population groups [66]
- population density
- trends linked to urban poles

4.1.2. Regional economic strength

- Attractiveness (number of created SMEs, etc.)[67]
- GDP
- Growth rate of labour productivity

4.1.3. Labour market, training and education

- (Un)employment rate and trends
- Level of training and education

4.2. Setting the link to spatial concepts

A more complex task is to analyse the effects of the R&D policy within the typology of regions developed by other ESPON projects in particular describing the territorial trends in different thematic fields such as accessibility and polycentrism. Are counter-weighting processes visible, how far are on-going polarising territorial trends supported or is a more complex picture visible?

5. Analysis of the interactions between Research Policy and other territorially relevant Community policies

5.1. Structural Funds Policy

For the establishment and strengthening of a "European Research Area" the following aspects should be taken into account: policies on finance, human resources, the relationship between the public an the private sectors, the creation of a common reference framework and values, and regional aspects ("territorialisation" of research policies). [68] Innovation has become a key element in economic development; special attention to this factor has to be drawn in lagging regions.

[65] These basic data are to be developed by contractor/s of works under priority 4 of ESPON programme
[66] Attention is to be drawn to possible "brain drain" effects through increased mobility of researchers.
[67] It should be taken into account in the assessment that there is not necessarily a link between an increase in RTD resources and personnel in Objective 1 regions and the innovative capacity of businesses situated there (see studies of RTD expenditure from the Structural Funds, Second Report on Economic and Social Cohesion, p. 102).
[68] Second report on Economic and Social Cohesion 2001, p. 99

5.2. Environmental policy

Research activities undertaken within the environment framework programme sustainable development and the territorial effects; where are these activities located and why?

5.3. Other territorially relevant policies

- Enterprise policy: importance of the (regulatory, institutional, organisational) environment to operate, firms, especially SMEs; link between scientific system and business, the role and effects of R&D policy?
- Competition policy: the capacity to innovate belongs to the vital factors for competition, where are the most competitive firms located, how far is this related with the distribution of the most innovative firms?

6. Orientations for policy recommendations

6.1. Improvements of the R&D policy for a better territorial cohesion

The results should also address the assessment of how R& D policies,

- Underpins regional development;
- Enhance R&D human resources and infrastructure potential;
- Monitors the synergies between economic actors and academic institutions; public and private sectors, local, regional, national and European levels of organisation;
- Builds pertinent and comparable indicators in order to evaluate RDI in regions.

6.2. ESDP

Reference should be made to all policy options in the ESDP dealing with the question of research and development. Recommendations should address institutional and procedural aspects of the R&D policy in order to achieve a better balanced spatial development of the EU territory. Proposal should make reference to the ESDP policy options and to the context of the proposal mentioned above. In addition, reference should be made to the current transnational areas under Interreg III B.

6.3. Structural Funds Policy and other policies

Contributions should also be made to the integration in Structural Funds Policy as well as co-ordination and coherence with other territorially relevant policies. Reference should be made to the relation between the 6th Framework Programme, Structural Funds interventions as well as national and regional research programmes.

Territorial impact: in order to ensure synergy between Community and national programmes, it would be desirable to incorporate impact analyses into the various regional development programmes. These analyses could form part of a strategic spatial development planning at national, regional or local level, and of strategies within Structural Funds programmes. Guidelines on how to implement Territorial Impact Assessment of research policy at regional level (spatial planning, institutions, practitioners, etc.) should be considered. Particular attention should be paid to issues arising from the principle of subsidiarity. Case studies for specific regions should be provided.

vii) Existing access points

The access points listed below can serve the purpose of providing the tenderer usefull information for preparing a proposal. It is by no means meant to be exhaustive, but only as information that can be helpful in tracing additional useful background information.

The SPESP report on economic strength[69] and spatial integration already identifies the problem of lack of data, data which is essential in order to identify the effects of R&D policies, such as the location of company headquarters, persistence of enterprises with IT branches and the location of foreign direct investments. Empirical work under action 1.2.3. (scheduled to be launched in 2004) on the information society will provide inputs for the investigation of the R&D policy. Also the DG RTD GMES initiative could provide important inputs.

Other useful documents:

- European Governance: A White Paper. COM(2001) 428 final.

[69] SPESP 2000 CD report of working group on economic strength, p. 114f.

- Agence Européenne "Territories and Synergies" (Co-ordination): Spatial Impacts of Community Policies and Costs of Non-Co-Ordination. June 2001.
- Communication from the Commission: The Regional Dimension of the European Research Area. COM(2001) 549 final.
- COM (2001) 94 final
    - Proposal for a decision of the European Parliament and of the Council concerning the multi-annual framework programme 2002-2006 of the European Community for research, technological development and demonstration activities aimed at contributing towards the creation of the European Research Area.
    - Proposal for a Council decision concerning the multi-annual framework programme 2002-2006 of the European Atomic Energy Community (EURATOM) for research, technological development and demonstration activities aimed at contributing towards the creation of the European Research Area.
- For the latest information on the European Research Area and the Framework Programme consult the following web-sites:
    - http://www.cordis.lu/rtd2002/home.html
    - http://europa.eu.int/comm/research/index_en.html
- European Innovation Scoreboard – Innovation indicators:[70]
    - Human resources: share of S&T graduates among all post-secondary graduates; percent of workforce with a tertiary education; percent of total employment in medium-high and hi-tech manufacturing; percent of total employment in high-tech services
    - Knowledge creation: government R&D funding as % of GDP; business expenditure on R1D as a percentage of GDP; number of patent applications in high tech classes per million population
    - Transmission and application of knowledge: percent of manufacturing SMEs that innovate in-house; percent of manufacturing SMEs involved in co-operative innovation; total innovation expenditures in the manufacturing sector as a percentage of total turnover
    - Innovation finance, output and markets: venture capital investment in technology firms as a percent of GDP; capitalisation of new (new, parallel, secondary) markets as a percent of GDP; sales share of products new to the market in the manufacturing sector; internet users per 100 inhabitants; share of ICT markets as a percent of GDP; change in share of total OECD production in hi-tech sectors (1992-96)

In addition, an ESPON Data Navigator creating an overview, a handbook, giving information on principal data sources, contact points etc, is under elaboration. The Data Navigator is expected to cover, in principle, all countries in an enlarged European Union as well as neighbouring countries. The Data Navigator is scheduled to be finalised by August 2002.

[70] Communication from the Commission to the Council and the European Parliament: Innovation in a knowledge-driven economy. COM (2000) 567 final.

TERMS OF REFERENCE
ESPON ACTION 2.1.3.

THE TERRITORIAL IMPACT OF
CAP AND RURAL DEVELOPMENT POLICY

(2002-04)

(o) Political challenges for the ESPON projects

The Second Report on Economic and Social Cohesion, published in January 2001, presented for the first time a third territorial dimension of the cohesion (beside the economic and social cohesion), which calls for a better co-ordination of territorially relevant decisions. Stressing the persistence of territorial disparities within the Union, the report stated the need for a cohesion policy not limited to the less developed areas as well as the need to promote a more balanced and more sustainable development of the European territory.

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ii) Thematic scope and context

The (Common) Agricultural Policy (CAP) faces particular demands in the light of recent developments. Most prominent are: reforms of the support system, the consequences of enlargement, agriculture increasingly deals with the production of non-food goods, the changing role of farmers' society towards landscape conservation and environmental management. Recent developments in the meat sector call for less intensive meat production, and a trend towards more organic and sustainable agriculture is foreseeable.

The changing policy will also affect the land use pattern and, therefore, the development potential of rural areas. The CAP already took first steps away from a regulating price system and quantities towards its "rural development" chapter (importance of the agro-environmental measures and measures for the less-favoured areas, and impact of rural development in terms of population maintenance for example) with improved links into the EU Structural Policy. The need for better co-ordination between agriculture and environmental policies is strongly emerging.

The mentioned development trends influencing agricultural production and policy do not affect all regions in the same way. A territorial impact analysis should identify territorial patterns of those regions at risk and with best potentials. This should also consider approaches towards ecological networks and the preservation of natural areas. Scenario approaches with territorial reference may help to understand the consequences of (implemented or not) policy changes.

Projects should also take into account the effects of national policies; in the case of agriculture, national policies and the national implementation of the Community policy will play a key role in the agricultural land use.

The concept of multi-functionality has been widely adopted as the new paradigm of EU Agricultural Policy. However, measurement and realisation of related issues is not well advanced and heavily contested between different interest groups, and among opponent countries in the WTO negotiation process.

A clearer assessment of the spatial dimensions of land use by agriculture (and forestry) and its relevance for rural/regional development might provide new perspectives for structural development of agriculture and regional integration. This seems particularly important for the large amount of less-favoured areas, and especially the mountain areas, in the EU-15 and candidate countries.

The change in the orientation of EU Agricultural Policy towards the integration of environmental concerns and consumer aspects, and a comprehensive assessment of the positive aspects provided by low input farming systems for landscape management, environmental performance, consumer demands and the viability of peripheral areas could be an important element against marginalisation processes.
Concerning the environment, the need for better co-ordination between the agricultural policy and the environment policy should be highlighted. Overlapping with the policies addressed under the following measure 2.2. has to be taken into account.

iii) General objectives

a) To develop methods for the territorial impact assessment of sectoral policies;
b) To develop territorial indicators, typologies and concepts and establishing a database and map-making facilities and to sustain the project by empirical, statistical and/or data analysis;
c) To analysis of the territorial trends, potentials and problems deriving from the policy, at different scales, and in different parts of an enlarged European territory;
d) To show the influence of sector policies on spatial development at relevant scales;
e) To show the interplay between EU and sub-EU spatial policies and best examples for implementation;
f) To recommend further policy developments in support of territorial cohesion and a polycentric and better balanced EU territory;
g) To find appropriate instruments to improve the spatial co-ordination of EU sector policies and the ESDP;
h) To consider the provisions made and to provide input for the achievement of the horizontal projects under priority 3.
In the efforts to meet these objectives the project shall make best use of existing research and relevant studies.

iv) Primary research questions

- Identification, gathering of existing and proposition of new indicators and data and map-making methods to measure and to display the state, trends and impacts of the developments referred to above. Compilation of national studies with European focus;
- Operationalisation of the policy options developed in the ESDP relevant for a territorial impact analysis of the CAP; and development of a methodology for the impact analysis on the EU scale;
- Conceptualisation and elaboration of a territorial impact analysis of CAP with special consideration of the variety of rural areas in Europe in terms of environmental and climate conditions, population density, employment and farm structure, accessibility, peripherality, degree of intensive farming.
    - What spatial effects are expected in terms of addressing present and future problems of rural areas?
    - How far does the CAP affects the concept of a polycentric development, and which further spatial effects are emerging?
    - What kind of resources is available at EU level in order to conduct the CAP? Does the necessary co-ordination with national policies take place?

v) Expected results and timetable

The research undertaken during the interim reports is supposed mainly to work on the data available at the national statistical offices, Eurostat and other national and European institutions, and normally be based on existing administrative units. From 2003 until August 2004, the research should complement the missing territorial/regional data and complement tools and territorial indicators if possible beyond the NUTS classification and the NUTS 3 level.

One of the main objectives of the ESPON 2006 Programme is to focus on research with policy relevance and to contribute to the development of relevant policies. Therefore, the deliverables of the research project should be highly operational and coordinated in time, as far as possible, to fit into the relevant political agenda. The following timetable and specification of output is reflecting this objective:

September 2002 (first interim report):

a) Consensus on indicators and necessary data after a precise analysis of the availability and comparability of data at Community level. For these analyses, the results of the study programme and the results of the ESPON projects in course, in particular under priority 3.1, should be taken into account. This task should also define the appropriate geographical level and technology required for data collection, taking into account the availability of the data. A first detailed and comprehensive list of data mainly requests for statistical and geographical data should be collected from Eurostat, the EEA and National Statistical Institutes and National Mapping Agencies.

b) First outline of the methodology of the impact analysis and the structure of the description of the sector policy.

February 2003 (second interim report):

c) Development of the database, indicators and map-making considering the progress of the other research projects.

d) A second revised and extended request for further indicators should collected from Eurostat and the EEA by the end of 2002 (the latest).

e) Presentation of the methods for the territorial impact assessment;

f) Definition of appropriate indicators, typologies and instruments to detect regions and territories most negatively and positively affected by the identified trends with special reference to accessibility, polycentric development, environment, urban areas, structurally weak areas, and new methodologies to consider territorial information.

g) Presentation of hypothesis on the territorial effects of relevant measures of the investigated policy.

August 2003 (third interim report):

h) Application of the methodology, analysis of the hypothesis previously developed.

i) Presentation of a comprehensive working report on tentative results of the research undertaken so far giving a first analysis /diagnosis of the agricultural sector in Europe as well as the existing territorial imbalances and regional disparities in agriculture and rural develpment as well as tentative results on the spatial effects at EU level and in Member States in terms of the economic relocation and other spatial criteria (including databases, indicators and maps);

j) First propositions on improvement of the sector policy and the instruments,

k) First proposition on the institutional aspects of the spatial co-ordination of EU sector policies.

August 2004 (final report):

l) Improvement of the methodology and the analysis taking into account the results of the third interim reports of the other projects in particular with regard to the candidate countries.

(m) Comprehensive presentation of territorial impacts related to the enlarged European Union (27 countries);

n) Formulation of conclusions and proposition of possible thematic policy adjustments regarding the sector policy in order to avoid unintended spatial effects in relation to the ESDP and the structural Funds policy.

o) Definition of institutional settings and instruments, which could support a better co-ordination of sector policies towards spatial concerns;

p) Presentation of new territorial indicators and EU databases including candidate and possibly neighbouring countries
q) Formulation of the further research necessary in the policy field.

vi) Rationale and structure

The following text has the role of shaping the mind of thinking in developing a proposal for undertaking the ESPON action 2.1.3.. The text is not meant to be exhaustive, but to serve the purpose of guiding the tenderer.

1. Elaboration of an appropriate methodology for the impact analysis/assessment

The methodology should take account of the spatial concepts developed under priority 1 and 3. The methodology should also allow indicating different level policy in order to identify the relevant actors for as better territorially coordinated policy. It should indicate, which are the access points on how to measure the territorial effects of the policy investigated.

At present we dispose of many assessment methods and models (see point vii existing access points, for some examples). The aim of this study should be to draw these existing assessment methods together (addressing their weaknesses) into a tightly focused, operational assessment tool, oriented towards the needs of decision makers.

The methodology should also allow indicating different level policy in order to identify the relevant actors for a better territorially coordinated policy.

2. Presentation of agricultural and rural development situations and trends in E.U with reference to the territorial dimensions and the governmental level responsible for the implementation of transport policy

The structured presentation of the CAP should allow identifying the relevant parameters for the territorial impact assessment for all three dimensions, the policy (contents and strategies), polity (institutions, organisations) and politics (processes) regarding particularly spatial disparities and imbalance of the EU territory.

- Aims, principal measures of the policy;
- Qualitative analysis of the interactions between CAP and other community policies:
- Interactions with regional policy: measures encouraging adaptation and development of rural areas; CAP accompanying measures for less-favoured areas (see point 5 in detail)
- Interactions with environmental policy: CAP accompanying measures such as agri-environmental measures and compensatory allowances for less-favoured areas (mountains) (see point 5 in detail),
- The major challenges of the enlargement

At first the aims, principal measures of the policy must be described. The major challenges of the enlargement play a key role in this measure. Furthermore, the description of the policy instrument is particularly important in the field of agriculture where very controversial processes such as intensification are also driven by policy independent factors such as technology. If these policies are not properly described, e.g. the study becomes meaningless compare the situation of a tobacco farmer in Greece, a cereals farmer in the Parisian basin, a Welsh sheep producer, or a German sugar beet grower. The policy mix in all situations is very different. There is the need to describe policy at the same level as the policy outcomes. The link of the description of the policy with policy outcomes is very important; otherwise the study will just become a description of the agricultural situation in a number of different regions. This would have, of course, implications for territorial development policy, but it would not answer the question of the territorial impact of the CAP.

A practical solution would appear either to try and bring in a dimension of policy description through indicators linked to expenditure on different types of policy (each type of direct payment, each type of rural development measure and the level of market support) or alternatively to have a case study approach.

It is obvious that the objectives of the CAP are mentioned in the Treaty, art 33. (with appropriate indicators). Therefore, the main challenge in improving the CAP's contribution to achieve a more balanced territorial development is ensuring the best balance between CAP, territorial and cohesion objectives. All in all, this seems to be the major scope for improvement.

3. Data, spatial concepts and indicators

3.1. Territorial typologies

3.1.1. CAP and rural development typologies

Which kind of typologies of regions with regard to CAP and rural development policies and the agricultural activities are appropriate for the further investigations? Strong links exist with the ESPON project on urban-rural relations (1.1.2.), where relevant typologies are set up as well.

3.1.2. Relation to other important territorial typologies

Territorial and regional disparities, contributions of research policy to the European Spatial Development Perspective: The project should provide an in-depth analysis of territorial and regional disparities in agriculture. Further the contribution of research policy to the following spatial planning objectives laid down in the ESDP (not exhaustive, the project under measure 3.1. will provide further spatial typologies) should be examined:

3.1.3. Polycentrism

Polycentric Spatial Development and a New Urban-Rural Relationship: With the intention of fostering polycentric and balanced spatial development in the EU, the diversification of the rural economy, especially in structurally weak areas, also includes new approaches for the agricultural and rural development policy leading to extra-regional links and networks.

3.1.4. CAP and cohesion

All reports repeatedly point out the importance of structural change for lagging agricultural regions. Which kind of typologies describes those regions, which are the important indicators?, which ones describe more successful regions and which spatial features characterise those regions?

3.2. Indicators and data collection

The project should quantify the territorial and regional disparities in research within the 15 Member States as well as for the 12 candidate countries. The collection of data for the basic indicators should take place on the NUTS III level (non exhaustive list)[71].

3.2.1. Description and quantification of the variables characterising CAP and rural development policy,

The contractor should make an in-depth analysis of this sector in particular of spatial disparities and imbalance of the E.U territory (including the candidate countries): productions, farm structures, demography, creation of jobs, share of agricultural employment, etc.

Using the indicators presented below as an indicative list[72], statistical and geographic data should be collected and analyses. Data should be collected at the lowest possible geographic level (ideally NUTS 3 and below). There is a need for more detailed data than NUTS 3 particularly in areas with very low population density. The data should cover candidate countries as well as the 15 members states.

The main variables to be considered (not exclusive) are the following:

a) Agricultural land use and livestock:

- Share of Average Utilised Agriculture Area (UAA) from total area
- Indicators of agricultural land use: proportion of arable land, permanent grassland and pastures, permanent cultures, fallow land
- Average Utilised Agriculture Area (UAA) per holding
- Number of heads of livestock or number of heads of Livestock Units (LSU) per holding

[71] Where harmonised (Eurostat) data sources don't provide the data for the indicators at the appropriate geographical level, the consultant will have to examine national and possibly regional data sources to try to complete the data sets. The collection of these data should be done in co-ordination with data collection provided by the contractant/s of ESPON works under priority 4.

[72] Where harmonised (Eurostat) data sources don't provide the data for the indicators at the appropriate geographical level, the consultant will have to examine national and possibly regional data sources to try to complete the data sets. Where appropriate, the data gathering will also include spatial analysis to derive indicators from different layers of geographic information (functional areas, metropolitan areas). The collection of this data should be done in co-ordination with data collection provided by the Transnational Project Groups of ESPON works under priority 1.

b) Farm structures and farm labour force
- Average Economic Size of the holding : ratio of Standard Gross Margin (SGM), expressed in European Size Unit (ESU), by number of holdings
- Agricultural Income: Farm Net Value Added (FNVA) per Annual Working Unit (AWU)
- Productivity: ratio of SGM expressed in ESU, related to total labour force expressed in AWU
- Average number of AWU by 100ha
- Average number of AWU per holding

3.2.2. Quantification and analysis of the objectives of the CAP and rural development policy in relation with a balanced territorial (and regional) development

The project should examine and evaluate the effects of CAP and rural development policy on the following variables (not exclusive) using spatial typologies developed and provided in the ESPON programme under priority 1 and 3:

a) Agricultural employment ::
- absolute agricultural employment and share of agricultural employment
- evolution of the share of agricultural employment
- proportion of young farmers in the agricultural sector (younger than 35 years)
- evolution of the proportion of young farmers
- proportion of old farmers in the agricultural sector (older than 65 years)
- evolution of the proportion of old farmers

b) Diversification of farm incomes:
- dependence on agricultural sector
- tourism employment and share of tourism employment
- evolution of the share of tourism employment
- evolution of employment in the environmental sector and landscape protection
- activities in small and medium-sized cities (handicrafts, creation of SMEs, IT dependency, etc.)

c) Sustainability of land use
- intensity of land use for agricultural production
- environmental effects of farming
- quality of buildings
- quality of landscapes

d) Others

4. Analysing the effects of the CAP and the rural development policy

Quantification and analysis of the effects of the CAP and rural development policy on the territorial balance and the regional development

Evaluation of the effects of CAP and rural development policy on the balanced territorial development and regional disparities and also the effects on viability of rural communities. Methodology of Territorial Impact Assessment (TIA) should be tested.

Variables to be used (not exclusive) are the following [73]:

a) Demographic indicators
- population density
- share of population younger than 20 years
- share of population older than 60 years
- evolution of the population (average annual change over previous x (5 to 10) years

b) Regional economic strength:
- Growth Domestic Product (GDP) per inhabitant in Purchasing Power Parity (PPP)
- evolution of GDP per inhabitant
- Unemployment rate
- evolution of unemployment rate

[73] Where harmonised (Eurostat) data sources don't provide the data for the indicators at the appropriate geographical level, the consultant will have to examine national and possibly regional data sources to try to complete the data sets. The collection of this data should be done in co-ordination with data collection provided by the contractant/s of ESPON works under priority 4.

- GDP/occupied person (productivity)

c) Social cohesion indicators :

- distribution of incomes : ratio income received by the highest earning 20% and the lowest 20%
- jobless households : share of households in which no member is employed

d) Others :

- access to services :
- equal opportunities
- distance towards main urban areas
- degree of exchange with close urban areas
- ecological effects

5. Interaction with other territorially relevant policies

5.1. Structural Funds Policy

The Agricultural policy could be refocused towards a rural development policy with regard to the enlargement. The rural development part of the policy is already incorporated in the coordinated Structural Funds approach. Mismatches in the aims and the instruments between pricing system and other measure of the CAP on the one hand and the regional policy on the other hand need to be highlighted. Proposals should also be made on how this mismatch could be adjusted.

5.2. Environmental policy

The reform of the agricultural policy also calls for the stronger combination of tasks of the environmental policy and agricultural policy. Income of farmers may include more and more elements deriving from their tasks such as the maintenance and protection of nature and landscape rather than from farming in the narrow sense, in particular in areas with geographical disadvantages. Where are contradictions between these polices where is mutual support expected with a territorial perspective?

5.3. Other territorially relevant policies

Which other policies are of concern in the context of a spatial approach for the agricultural policy?

6. Orientations for policy recommendations

A particular attention should be paid to issues arising from the principle of subsidiarity.

In addition, it would be important to include strategies and preparations towards EU policies undertaken by candidate countries into this study.

6.1. Improvement of the contribution of CAP and rural development policy to territorial cohesion

In the light of the results of the above analysis, improvement of a territorial dimension of CAP and rural development policy (conditions, level of intervention, type of measures, etc.) should be proposed in support of polycentrism and territorial balance.

These propositions should aim to a better viability of rural communities, a reduction of agricultural and rural disparities on the EU territory, a better relationship between rural and urban areas, in particular small and medium-sized cities in rural territories.

6.2. Proposals towards Structural Funds Policy

A stronger interaction of rural development aims with the objectives of cohesion should be investigated. In particular, regional policy should also take into account market support and direct payments, since these play a very important role in the use of land outside urbanised areas, particularly in marginal areas.

Methodologies for a better integration of the CAP and spatial development and planning concerns into Structural Funds regional programmes should be addressed.

Guidelines for an implementation of Territorial Impact Assessment of rural development policy at regional level (regional development bodies, spatial planning institutions, practitioners, etc.) should be investigated.

.3. The ESDP and CAP/rural development policy

The ESDP makes reference to the CAP in particular with regard to the rural development. All relevant ESDP policy options should be addressed and evaluated in this context.

Of particular importance is the following: Which adjustments, amendments and extensions of the policy orientations and aims of the ESDP could be proposed on the background of the findings of the project? How could a further territorial differentiation of ESDP aims and objectives look like?
In addition, reference should be made to the current transnational areas under Interreg III B.

6.4. Proposals for a better integration and coordination of CAP with other policies relevant for territorial development

Proposals should be made for improving policy coordination and a system in support of integrated decision-making and implementation, which could improve coherence between rural development policy and other interacting policies.
Particularly, a substantive work has been done on the regional impact on the environment of the CAP and rural development. The project should include this important dimension.

vii) Existing access points

The access points listed below can serve the purpose of providing the tenderer useful information for preparing a proposal. It is by no means meant to be exhaustive, but only as information that can be helpful in tracing additional useful background information.
The SPESP addressed the question of agricultural land use in three studies, which have already been cited: the land use, natural assets and cultural assets (landscapes), which used GISCO data, partly on very low grid level. The mentioned and investigated indicators are not all available yet but the results of these studies have helped to build up a base to study the spatial effects of the land use and land occupation. The human resource side is strongly related to indicators on the economic and demographic structure of the regions. Indicators were addressed in the studies on social integration and economic strength but these must be considered on a lower NUTS level such as NUTS 2 and 4.
Further access points are:
European Commission 2001: Agriculture, Environment, Rural Development: Facts and figures – a challenge for agriculture[74];
European Commission (2001): From land cover to landscape diversity in the EU;[75]
Buckwell-Report (1999): Towards a Common Agricultural and Rural Policy for Europe – Report of an Expert group.[76]
In addition, the Commission has already strengthened their activities towards the integration of environmental and agricultural observers, which would provide starting points for a territorial analysis.[77]
Moreover, the Commission prepared two Communications on Agri-environmental indicators. 26.1.2000 Com (2000) 20 final: Integration of environmental concerns into CAP.
The new Commission's/Eurostat's Initiative on Environmental European Spatial Data Infrastructure (E-ESDI) can also considerably contribute.
Finally, an ESPON Data Navigator creating an overview, a handbook, giving information on principal data sources, contact points etc, is under elaboration. The Data Navigator is expected to cover, in principle, all countries in an enlarged European Union as well as neighbouring countries. The Data Navigator is scheduled to be finalised by August 2002.

[74] http://europa.eu.int/comm/envir/report/en
[75] http://europa.eu.int/comm/agriculture/publi/landscape/index.htm .
[76] http://europa.eu.int/comm/dg6/publi/buck_en.htm .
[77] COM (2000)20: Indicators for the integration of environmental issues in the Common Agricultural policy (own translation of German title), and COM (2001)144: Statistical information requirements for the surveillance of the integration of environmental demands in the Common agriculture policy

TERMS OF REFERENCE:
ESPON ACTION 2.2.1.

TERRITORIAL EFFECTS OF STRUCTURAL FUNDS

(2002-2005)

(o) Political challenges for the ESPON projects

The Second Report on Economic and Social Cohesion, published in January 2001, presented for the first time a third territorial dimension of the cohesion (beside the economic and social cohesion), which calls for a better co-ordination of territorially relevant decisions. Stressing the persistence of territorial disparities within the Union, the report stated the need for a cohesion policy not limited to the less developed areas as well as the need to promote a more balanced and more sustainable development of the European territory.

The Second Cohesion Report represents in that respect a follow up of the European Spatial Development Perspective (ESDP), adopted at ministerial level in May 1999, calling for a better balance and polycentric development of the European territory.

The projects launched under the ESPON programme shall follow an integrated approach and, seen together, cover a wide range of issues, such as:

- Identifying the **decisive factors relevant for a more polycentric European territory**; accessibility of a wide range of services in the context of enlargement; integration of wider transnational spaces; promotion of dynamic urban growth centres; linking peripheral and disadvantaged areas with those centres; etc.
- Developing **territorial indicators and typologies** capable of identifying and measuring development trends as well as monitoring the political aim of a better balanced and polycentric EU territory
- Developing **tools supporting diagnoses of principal structural difficulties as well as potentialities**, such as disparities within cities and regenerating deprived urban areas; structural adjustment and diversification of rural areas; strategic alliances between neighbouring cities at transnational, national and regional scale; new partnerships between rural and urban areas; potential support from infrastructure networks in the field of transport, telecommunication, energy; etc.
- Investigating **territorial impacts of sectoral and structural policies** in order to enhance synergy and well-co-ordinated decisions relevant for territorial development within policy fields such as Structural Funds, agriculture, transport, environment, research and development; developing methods for measuring the territorial impact of sectoral and structural policies; etc.
- Developing **integrated tools in support of a balanced and polycentric territorial development**; approaches to enhance the potential of cities as drivers of regional development, new tools for integrated urban-rural development and planning, etc.

With the results of all the ESPON projects, the Commission and the Member States expect in particular to have at their disposal: **a diagnosisof the principal territorial trends** at EU scale as well as the difficulties and potentialities within the European territory as a whole; **a cartographic picture of the major territorial disparities** and of their respective intensity; a number of **territorial indicators and typologies assisting a setting of European priorities** for a balanced and polycentric enlarged European territory; some **integrated tools and appropriate instruments** (databases, indicators, methodologies for territorial impact analysis and systematic spatial analyses) to improve the spatial co-ordination of sector policies.

In this respect, the ESPON projects will serve as a strong scientific basis for the propositions of the Commission in the Third Report on Cohesion, at the end of 2003, in view of the reform of post-2007 Structural Funds. In a long term ESPON projects will be a useful guidance for the regions when elaborating their development programmes.

(i) Relation to the ESPON 2006 Programme

The priorities describing the work-programme of the ESPON 2006 Programme are structured in four strands:

1. **Thematic projects** on the major spatial developments on the background of typologies of regions, and the situation of cities.
2. **Policy impact projects** on the spatial impact of Community sector policies and Member States' spatial development policy on types of regions with a focus on the institutional inter-linkages between the governmental levels and instrumental dimension of policies
3. **Co-ordinating and territorial cross-thematic projects** represent a key component of the programme. These projects evaluate the results of the other projects towards integrated results such as indicator systems and data, typologies of territories, spatial development scenarios. The cross section projects help to thematically co-ordinate the whole programme and add value to the results and to fill gaps, which are unavoidable when different themes are dealt with in different projects.
4. **Scientific briefing and networking** in order to explore the synergies between the national and EU source for research and research capacities.

This project belongs to the second strand and therefore holds a key position for the elaboration of the whole programme by the preparation of the common ground for the investigation of the basic net of spatial structure in Europe. Therefore a strong co-ordination with the all other projects in particular with the other project in the same strand on the methodological aspects of the impact analysis, with the relevant thematic projects on territorial trends under the first strand and with the coordinating and cross-thematic under priority three is required.

ii) Thematic scope and context

The Sixth Periodic Report and the Second Cohesion Report already provided a broader understanding of economic development. Structural Funds are already subject to evaluations on horizontal themes such as environmental effects or gender questions. The time is due to undergo Structural Funds to a territorial impact assessment or analysis (TIA), with consideration of the efforts already made by the UK delegation of the CSD in researching the scope of TIA as a valuable tool for assessing the impact of spatial development against spatial policy objectives or prospects for an area or a larger territory.

As a first step the method for such an assessment needs to be set up on the base of the experience of Structural Funds evaluation and the evaluations already done. The Second Cohesion report already approached in some respect the Structural Funds from a broader territorial point of view.

In parallel to the activities around the Structural Funds, the developed methodology should also be applicable to undertake territorial assessments of an enlarged European territory, including effects of pre-accession aid and the Phare/Tacis/Meda programmes, providing comparable results for the enlarged Union and its neighbours. This will be done in an upcoming project 2.2.2, which starts when the first results has been delivered from this project. Therefore, possible overlaps with other EU policies addressed under measure 2.1. have to be taken into account and have to be avoided through close cooperation.

iii) General objectives

a) To develop methods for the territorial impact assessment of structural policies;
b) to show the influence of structural policies on spatial development at the relevant EU scale;
c) to sustain every study by empirical, statistical and/or data analysis;
d) to show the interplay between EU and sub-EU spatial policies and best examples for implementation;
e) to find appropriate instruments to improve the spatial co-ordination of EU structural policies;
f) to consider the provisions made and to provide input for the achievement of the horizontal projects under priority three.

iv) Primary research issues envisaged

- Identification, gathering of existing and proposition of new indicators and data and map-making methods to measure and to display the state, trends and impacts of the developments referred to above. Compilation of studies with European focus;
- Operationalisation of the policy options developed in the ESDP relevant for a territorial impact analysis of the Structural Funds programmes; development of a methodology for impact analysis at EU scale;
- Conceptualisation and elaboration of a territorial impact analysis for Structural with special consideration of the following points:
  - The variety of regions in Europe in terms of their environmental and climate conditions, population density and settlement structure, employment and enterprise structure, accessibility, and peripherality and economic strength.
  - How far do the Structural Funds address the emerging border and integration problems taking into account the forthcoming enlargement?
  - How far do the Structural Funds support the concentration of development corridors, consider the concept of a polycentric development, and which further spatial effects are emerging?
  - The impact of regional policy on R&D potential geography.
- What kinds of resources are available at the EU level in order to conduct the Structural Funds programmes? Does the necessary co-ordination with national policies take place?

v) General expected results

The research undertaken during the interim reports is supposed mainly to work on the data available at the national statistical offices, Eurostat and other national and European institutions, and normally be based on existing administrative units. The research should complement the missing territorial/regional data and complement tools and territorial indicators if possible beyond the NUTS classification and the NUTS 3 level.

One of the main objectives of the ESPON 2006 Programme is to focus on research with policy relevance and to contribute to the development of relevant policies. Therefore, the deliverables of the research project should be highly operational and coordinated in time, as far as possible, to fit into the relevant political agenda. The following timetable and specification of output is reflecting this objective:

March 2003 (first interim report):

a) Proposal on indicators and necessary data after a precise analysis of the availability and comparability of data at Community level. For these analyses, the results of the study programme and the results of the ESPON projects in course, in particular under priority 3.1, should be taken into account. This task should also define the appropriate geographical level and technology required for data collection, taking into account the availability of the data. A first detailed and comprehensive list of statistical and geographical data should be collected from Eurostat, the EEA and other European and National Statistical and Mapping Offices.

August 2003 (second interim report):

b) A first overview on concepts and methodology and preliminary results of the territorial impact of Structural Funds and Cohesion Fund. Proposal on a second revised and extended list of further indicators to be collected from Eurostat and the EEA and other European and National Statistical and Mapping Offices.

August 2004 (third interim report):

c) Report (including update of databases) of territorial impact of Structural Funds, Cohesion Funds. Report on particular effects of Community Interventions under INTERREG programmes.

d) Proposal of new appropriate indicators, typologies and instruments to detect regions and territories most negatively and positively affected by the identified trends (with special reference to the policy aims of the ESDP dealing with polycentric development, accessibility, natural and cultural heritage and assets, environment, urban areas, etc.) to be used in territorial impact assessment, and new methodologies to consider territorial information.

e) Policy recommendations in view of implementation of Structural Funds in relation to measures, eligible areas and delivery mechanisms.

March 2005 (final report):
f) Elaboration of institutional settings and instruments, which could support a better co-ordination of structural, regional programmes with spatial planning and sector policies towards spatial concerns;
g) Models of regional programmes and spatial plans applicable to different types of regions integrating Structural Funds, Cohesion Funds, sector policies and national policies and taking into account the guidelines and priority actions of the ESDP.

vi) Rationale and structure

The following text has the role of shaping the mind of thinking in developing a proposal for undertaking the ESPON action 2.2.1. The text is not meant to be exhaustive, but to serve the purpose of guiding the tenderer.

1. Elaboration of a methodology for the impact analysis/assessment

The methodology should take account of the spatial concepts developed under priority 1 and 3. The methodology should also allow indicating different level policy in order to identify the relevant actors for as better territorially co-ordinated policy.

A territorial impact analysis and evaluation needs to refer to certain spatial goals. Here again comes in the primary concept of the ESDP the polycentric spatial development.

At present we dispose of many assessment methods and models (see point vii existing access points, for some examples). The aim of this study should be to draw these existing assessment methods together (addressing their weaknesses) into a tightly focused, operational assessment tool, oriented towards the needs of decision makers. The methodology should also allow indicating different level policy in order to identify the relevant actors for a better territorially coordinated policy.

The assessment method should take into account the agenda of a territorial sustainable development and territorial competitiveness and cohesion as lined out in the ESDP. That means to consider territorial, economic environmental and social indicators. Also take into account indicators that describe social segregation on a regional scale and then tests those indicators on the European scale. One purpose would be to develop the cartographic presentations of territorial, economic and social cohesion/segregation, including the use specific symbols of well-being.

It seems to be of the more importance for the regions and cities of the enlargement area (and neighbouring regions and cities within EU-15 territory), since the current transition process implies considerable investments into (and thereby changes of) the technical and institutional infrastructure in these parts of Europe. Thus, the space of manoeuvring for spatial development policy is to be considered comparably larger than within the current EU territory. This means on the other hand the range of possibilities missing the aims of the ESDP is considerable higher, too. Thus, the interrelation with project 1.1.1. should be taken into account.

2. Presentation of Structural Funds policy (including Cohesion Fund) with reference to the territorial dimensions and the governmental level responsible.

The structured presentation of the policy should allow identifying the relevant parameters for the territorial impact assessment for all three dimensions, the policy (contents and strategies), polity (institutions, organisations) and politics (processes) also regarding particularly spatial disparities and imbalance of the E.U territory on the background of the typologies developed in the projects under the ESPON priority 1 and 3. It should describe the relevant operational programmes and strategies and measures adopted having negative or positive effect in territorial balances and polycentrism.

The methodology should be transferable in order to be adapted and applied in project 2.2.2. focusing on territorial impacts in candidate countries of the “Community aquis” and pre-accession instruments (ISPA,PHARE, TACIS, MEDA).

3. Indicators and data bases

Description and quantification of the variables, which characterise the Structural Funds policy in their spatial effects. Development of territorial indicators is already subject to other ESPON projects under priority 1 and 2. Consequently a very close cooperation is required.

Data gathering should occur at the lowest territorial level possible (ideally, NUTS III level and below). It should cover the 15 Member States as well as the candidate countries (EU 27) and the neighbouring countries (mainly Norway and Switzerland).
Among others, data for following variables should be collected:
Community Structural interventions from 1989 to 1999 and programmed interventions for 2000-2006:
Interventions within Structural Funds programmes by investment category and mainly:
Projects financed by the Cohesion Fund
Intervention should be valued in monetary terms (financial amount invested by Community funds and by Member States funds) and in physical terms (ex: km of highways/railways, number of employees trained, enterprises and direct employment created etc).
Impact on territorial and regional balances mainly in terms of:
Population growth and population density
Connectivity, accessibility and decongestion
GDP growth
Social aspects, quality of life: social services,
Environment and land use
Indicators from the ESPON Programme produced by the ongoing projects should be used in order to comprehensively describe the territorial dimension of Structural Funds.
The Commission intends to provide Structural Funds evaluation reports, which have already been commissioned on her part. These reports should be able to contribute further to data collection and methodology.

4. Analysis of results of Cohesion policy in relation to a balanced territorial (and regional) development

4.1. Structural Funds and territorial specialisation

It is a constant puzzle why convergence between regions of EU has not occurred at the same level as convergence among Member states. There have been some obvious successes like that of Ireland, Portugal and Spain at national level. However, in many countries the effects of regional policy (EU and national policy as well) have been rather modest. These different outcomes should be studied in order to single out the causes for different developments.
Some hypotheses should be studied, among others:
a) Growing accessibility leads to competition and division of labour where some regions might choose or are forced into trajectories ending in lock-in situations in the longer run.
b) Direct investments from outside in some cases besides offering local jobs also tap profits and invest this somewhere else.
c) Investments in less developed Member states have been concentrated in the capital regions, leaving the peripheral regions and the rural, low density areas outside the development process.
d) The role of local natural assets and availability of land.
The differences of the Structural Funds approach so far and the advantages and the disadvantages of a more integrated and territorial orientated approach addressing territorial cohesion (side of economic and social cohesion) should be visible.

4.2. Structural Funds effects on the future territory

At a second step, the analysis should evaluate how Structural Funds programmes may contribute to a balanced territorial development in an enlarged EU within the perspective that impacts may be expected, probably, in the peripheral regions of EU, as they might become more peripheral, and as present investments in these regions may be diverted to future Member states.
Also impacts in bordering regions and possible solutions should be examined. The situation after 2006 may imply a kind of shift in Regional Funds support from the present EU-15 border regions to the new eastern borders (partly already rather well developing). Complications for cross-border co-operation with reverse signs? Furthermore, in this context it turns out, that a sound capacity of regional bodies and actors at the regional level in the candidate countries concerns also the neighbouring states.

4.3. Structural Funds and other financial instruments for a territorial policy

The funding of regions with economic weaknesses is a task of both the EU Member States and the European Commission. Some Member States use national financial equalization instruments trying to redistribute the societal wealth from the more prosperous to the poorer regions. It is in accordance with the principle of subsidiarity to first using national financial equalization before applying for European instruments.

The task of a project within this measure is to find out the instruments of national financial equalization, what are their differences and common grounds, which relations they have to European regulations and which guidelines for action might be derived from these considerations with regard to the Reform of the Structural Funds?

4.4. Spatial integration through Interreg-initiative – (Meta-)evaluation of the effectiveness of the regional cooperation in promoting integration within a macro-region

There is already a great amount of experiences gathered in the various Interreg-projects. The evaluations that are carried out in direct connection with the programme documents or single projects are rather technical in nature. They do not provide an insight to the processes taking place at the scale of so-called macro-regions, such as Baltic Sea Region or a particular part of it.

The ability of the Interreg-initiative to promote territorial integration and cohesion would be the focus of the project. Study should focus in particular advanced areas in spatial planning as the Baltic Sea Region and especially the impression given by the Interreg IIC, which has given the floor to Interreg IIIB. Reference on the attempts to promote new sub-regions within the Baltic Sea Region (Baltic Bridge, Baltic Palette, Bothnian Arc) should in this context be made. The Interact Programme could play an important role in order to collect information and communicate intermediate results. Existing evaluation reports may be made available in order to avoid duplication of work.

5. Policy recommendations and conclusions

The recommendations should take account of the policy context and scope of the study. Proposals should be made particularly:

- on the improvement of the methodology to select eligible areas
- on the selection and improved focussing of policy measures with particular attention to territorially bound development assets
- on the policy delivery mechanisms with particular regard to the coordination and integration of sector policies with strong territorial effects.

The policy recommendations should make reference to all relevant policy options on the ESDP.

Policy recommendation should also present practical solutions and proposals for:

Institutional settings and instruments which could support a better co-ordination of structural, regional programmes with spatial planning and sector policies towards spatial concerns;

Models of regional programmes as well as spatial development perspectives and plans applicable to different types of regions integrating Structural Funds, Cohesion Funds, sector policies and national policies and taking into account the guidelines and priority actions of the ESDP

vii) Existing access points

The access points listed below can serve the purpose of providing the tenderer useful information for preparing a proposal. It is by no means meant to be exhaustive, but only as information that can be helpful in tracing additional useful background information:

The SPESP programme offers some access points for indicator works through the study on typology of cities and urban and rural relations. Functional regions require as a corner stone for the monitoring of territorial development, that the functions can be measured (Headquarter functions, labour markets commuter zones a.s.o.).

Further aspects such as how far do Structural Funds address accessibility could benefit from research on the TEN, on spatial networks or on the R&D policy, in particular within the ESPON programme.

Projects on the evaluation of the horizontal objectives of the Structural Funds which provide an additional source for the investigation of the territorial aspects of Structural Funds well as specific studies on implementation of the SDEC like “The Spatial and Urban dimensions in the 2000-06

objective 1 & 2 programmes. 2002 » (studied prepared by University of Strathclyde for DG Regional Policy) .Other cross-sectoral aspects are already covered by different sources and mainly studies launched by DG Environment from European Commission.[78]

Progress on a methodology for conveying territorial impact assessment or analises has been done at European level with the UK taking the lead. Further information can be obtained by contacting by the UK delegation dealing international spatial development and planning matters.

Projects developed by the JRC (Joint research centre from EU) under regional modelling could be particularly relevant for co-ordination of policies in a specific area.

Finally, an ESPON Data Navigator creating an overview, a handbook, on information on principal data sources, contact points etc, is under elaboration. The Data Navigator is expected to cover, in principle, all countries in an enlarged European Union as well as neighbouring countries. The Data Navigator is scheduled to be finalised by end September 2002.

[78] See for example: European Commission DG XI (Environment) (1998): A handbook on the Environmental assessment of Regional Development Plans and EU Structural Funds Programmes. London.

TERMS OF REFERENCE:
ESPON ACTION 2.2.2.

THE TERRITORIAL EFFECTS OF PRE-ACCESSION AID AND PHARE/TACIS/MEDA

(2002-04 finalising in 06)

(Preliminary, incomplete, finalisation when project will be tendered, for the timing see annex 3)

(o) Political challenges for the ESPON projects

The Second Report on Economic and Social Cohesion, published in January 2001, presented for the first time a third territorial dimension of the cohesion (beside the economic and social cohesion), which calls for a better co-ordination of territorially relevant decisions. Stressing the persistence of territorial disparities within the Union, the report stated the need for a cohesion policy not limited to the less developed areas as well as the need to promote a more balanced and more sustainable development of the European territory.

The Second Cohesion Report represents in that respect a follow up of the European Spatial Development Perspective (ESDP), adopted at ministerial level in May 1999, calling for a better balance and polycentric development of the European territory.

The projects launched under the ESPON programme shall follow an integrated approach and, seen together, cover a wide range of issues, such as:

- Identifying the **decisive factors relevant for a more polycentric European territory**; accessibility of a wide range of services in the context of enlargement; integration of wider transnational spaces; promotion of dynamic urban growth centres; linking peripheral and disadvantaged areas with those centres; etc.
- Developing **territorial indicators and typologies** capable of identifying and measuring development trends as well as monitoring the political aim of a better balanced and polycentric EU territory
- Developing **tools supporting diagnoses of principal structural difficulties as well as potentialities**, such as disparities within cities and regenerating deprived urban areas; structural adjustment and diversification of rural areas; strategic alliances between neighbouring cities at transnational, national and regional scale; new partnerships between rural and urban areas; potential support from infrastructure networks in the field of transport, telecommunication, energy; etc.
- Investigating **territorial impacts of sectoral and structural policies** in order to enhance synergy and well-co-ordinated decisions relevant for territorial development within policy fields such as Structural Funds, agriculture, transport, environment, research and development; developing methods for measuring the territorial impact of sectoral and structural policies; etc.
- Developing **integrated tools in support of a balanced and polycentric territorial development**; approaches to enhance the potential of cities as drivers of regional development, new tools for integrated urban-rural development and planning, etc.

With the results of all the ESPON projects, the Commission and the Member States expect in particular to have at their disposal: **a diagnosis of the principal territorial trends** at EU scale as well as the difficulties and potentialities within the European territory as a whole; **a cartographic picture of the major territorial disparities** and of their respective intensity; a number of **territorial indicators and typologies assisting a setting of European priorities** for a balanced and polycentric enlarged European territory; some **integrated tools and appropriate instruments** (databases, indicators, methodologies for territorial impact analysis and systematic spatial analyses) to improve the spatial co-ordination of sector policies.

In this respect, the ESPON projects will serve as a strong scientific basis for the propositions of the Commission in the Third Report on Cohesion, at the end of 2003, in view of the reform of

post-2007 Structural Funds. In a long term ESPON projects will be a useful guidance for the regions when elaborating their development programmes.

(i) Relation to the ESPON 2006 Programme

The priorities describing the work-programme of the ESPON 2006 Programme are structured in four strands:

5. **Thematic projects** on the major spatial developments on the background of typologies of regions, and the situation of cities.
6. **Policy impact projects** on the spatial impact of Community sector policies and Member States' spatial development policy on types of regions with a focus on the institutional inter-linkages between the governmental levels and instrumental dimension of policies
7. **Co-ordinating and territorial cross-thematic projects** represent a key component of the programme. These projects evaluate the results of the other projects towards integrated results such as indicator systems and data, typologies of territories, spatial development scenarios. The cross section projects help to thematically co-ordinate the whole programme and add value to the results and to fill gaps, which are unavoidable when different themes are dealt with in different projects.
8. **Scientific briefing and networking** in order to explore the synergies between the national and EU source for research and research capacities.

This project belongs to the second strand and therefore holds a key position for the elaboration of the whole programme by the preparation of the common ground for the investigation of the basic net of spatial structure in Europe. Therefore a strong co-ordination with the all other projects in particular with the other project in the same strand on the methodological aspects of the impact analysis, with the relevant thematic projects on territorial trends under the first strand and with the coordinating and cross-thematic under priority three is required.

ii) Thematic scope and context

The Sixth Periodic Report and the Second Cohesion Report already provided a broader understanding of economic development. Structural Funds are already subject to evaluations on horizontal themes such as environmental effects or gender questions. The time is due to undergo Structural Funds to a territorial impact assessment or analysis (TIA), with consideration of the efforts already made by the UK delegation of the CSD in researching the scope of TIA as a valuable tool for assessing the impact of spatial development against spatial policy objectives or prospects for an area. during 2000-01 . As a first step the method for such an assessment needs to be set up on the base of the experience of Structural Funds evaluation and the evaluations already done. The Cohesions report already approached in some respect the Structural Funds from a broader territorial point of view.

In parallel to the activities around the Structural Funds, the developed methodology could also be applied to undertake a territorial assessment of the pre-accession aid and the Phare/Tacis/Meda programmes in order to develop comparable results for the enlarged Union and its neighbours. Possible overlapping with the policies addressed under measure 2.1. have to be taken into account.

iii) General objectives

a) To develop methods for the territorial impact assessment of sectoral policies;
b) to show the influence of sector policies on spatial development at the relevant EU scale;
c) to sustain every study by empirical, statistical and/or data analysis;
d) to show the interplay between EU and sub-EU spatial policies and best examples for implementation;
e) to find appropriate instruments to improve the spatial co-ordination of EU sector policies;
e) to consider the provisions made and to provide input for the achievement of the horizontal projects under priority 3.

iv) General expected results

until March 2003 (interim report):

a) Proposal on indicators and necessary data after a precise analysis of the availability and comparability of data at Community level. For these analyses, the results of the study programme and the results of the ESPON projects in course, in particular under priority 3.1, should be taken into account. This task should also define the appropriate geographical level and technology required for data collection, taking into account the availability of the data. A first detailed and comprehensive list of statistical and geographical data to be collected from Eurostat, the EEA and other European and National Statistical and Mapping Offices.

until August 2003 (2nd interim report):

b) A first overview on concepts and methodology and preliminary results of the territorial impact of Structural Funds and Cohesion Fund. Proposal on a second revised and extended list of further indicators to be collected from Eurostat and the EEA and other European and National Statistical and Mapping Offices.

until August 2004 (3rd interim report):

c) Final report (including update of data bases) of territorial impact of Structural Funds, Cohesion Funds. Preliminary results on pre-accession and external Community Funds PHARE, MEDA and TACIS. Report on particular effects of community interventions under INTERREG programmes.

d) Proposal of new appropriate indicators, typologies and instruments to detect regions and territories most negatively and positively affected by the identified trends with special reference to accessibility, polycentric development, environment, urban areas, territorial impact assessment, and new methodologies to consider territorial information.

e) Policy recommendations in view of implementation of Structural Funds in relation to measures, eligible areas and delivery mechanisms.

until March 2005 (final report):

f) elaboration of institutional settings and instruments which could support a better co-ordination of structural, regional programmes with spatial planning and sector policies. towards spatial concerns;

g) models of regional programmes and spatial plans applicable to different types of regions integrating Structural Funds, Cohesion Funds, sector policies and national policies and taking into account the guidelines and priority actions of the ESDP.

v) Primary research questions

- Identification, gathering of existing and proposition of new indicators and data and map-making methods to measure and to display the state, trends and impacts of the developments referred to above. Compilation of studies with European focus;
- Operationalisation of the policy options developed in the ESDP relevant for a territorial impact analysis of the Structural Funds and Ispa/Phare/Tacis/Meda programmes; development of a methodology for impact analysis at EU scale;
- Conceptualisation and elaboration of a territorial impact analysis for Structural with special consideration of the following points:
    - the variety of regions in Europe in terms of their environmental and climate conditions, population density and settlement structure, employment and enterprise structure, accessibility, and peripherality.
    - How far do the Structural Funds address the emerging border and integration problems taking into account the forthcoming completion of enlargement?
    - How far do the Structural Funds support the concentration of development corridors, consider the concept of a polycentric development, and which further spatial effects are emerging?
    - The impact of regional policy on R&D potential geography.
- What kinds of resources are available at the EU level in order to conduct the Structural Funds and Ispa/Phare/Tacis/Meda programmes? Does the necessary co-ordination with national policies take place?

vi) Rationale and structure

1.Elaboration of a methodology for the impact analysis/assessment

The methodology should take account of the spatial concepts developed under priority 1 and 3. The methodology should also allow indicating different level policy in order to identify the relevant actors for as better territorially co-ordinated policy.

A territorial impact analysis and evaluation needs to refer to certain spatial goals. Here again comes in the primary concept of the ESDP the polycentric spatial development. It seems to be of the more importance for the regions and cities of the enlargement area (and neighbouring regions and cities within EU-15 territory), since the current transition process implies considerable investments into (and thereby changes of) the technical and institutional infrastructure in these parts of Europe. Thus, the space of manoeuvring for spatial development policy is to be considered comparably larger than within the current EU territory. This means on the other hand the range of possibilities missing the aims of the ESDP is considerable higher, too. Thus, the interrelation with Action 1.1.1. should be taken into account.

The project should also take into account indicators that describe social segregation on a regional scale and then tests those indicators on the European scale. One purpose would be to develop the cartographic presentations of social cohesion/segregation, including the use specific symbols of well-being. The role of segregation in regional policy making could be investigated in both in the case study countries and in Europe in general.

The approach to the methodology will be developed primarily by the project 2.2.1.. This 2.2.2. project should concentrate on the adaptation of the methodology to the needs in the non-EU countries and on the clarification of the data base in the respective countries.

2. Presentation of Structural Funds policy (including Cohesion Fund) with reference to the territorial dimensions and the governmental level responsible.

At first the project should provide a short description of the present situation and future trends of pre-accession aid and PHARE/TACIS/MEDA, particularly in terms of spatial disparities and imbalances within the EU territory, taking into account the variables mentioned below.

The structured presentation of the pre-accession aid and PHARE/TACIS/MEDA should allow identifying the relevant parameters for the territorial impact assessment for all three dimensions, the policy (contents and strategies), polity (institutions, organisations) and politics (processes) also regarding particularly spatial disparities and imbalance of the E.U territory on the background of the typologies developed in the projects under the ESPON priority 1 and 3. It should describe the relevant operational programmes and strategies and measures adopted having negative or positive effect in territorial balances and polycentrism.

3. Indicators and data bases

Description and quantification of the variables, which characterise the Structural Funds policy in their spatial effects. Indicators are already subject to a project under envisaged ESPON action 1.1.1. to 1.3.3. and 2.1.1.-2.1.3. Consequently a very close cooperation is required.

Data gathering should occur at the lowest territorial level possible (ideally, NUTS III level and below). It should cover the 15 Member States as well as the candidate countries (Eur 27) and the neighbouring countries (mainly Norway and Switzerland).

Among others, data for following variables should be collected:

Community Structural interventions from 1989 to 1999 and programmed interventions for 2000-2006:

Interventions within Structural Funds programmes by investment category and mainly:

Projects financed by the Cohesion Fund

Projects financed by PHARE, TACIS, MEDA

Small project funds financed by PHARE

Projects financed by ISPA

Intervention should be valued in monetary terms (financial amount invested by Community funds and by Member States funds) and in physical terms (ex: km of highways/railways, number of employees trained, enterprises and direct employment created etc).

Impact on territorial and regional balances mainly in terms of :

Population growth and population density
Connectivity, accessibility and decongestion
GDP growth
Quality of life: social services, environment

4. Analysis of results of Cohesion policy in relation to a balanced territorial (and regional) development

Following points should be particularly addressed.

Structural Funds and territorial specialisation

It is a constant puzzle why convergence between regions of EU has not occurred at the same level as convergence among Member states. There has been some obvious successes like that of Ireland, Portugal and Spain at national level. However, in many countries the effects of regional policy (EU and national policy as well) have been rather modest. These different outcomes should be studied in order to single out the causes for different developments.

Some hypotheses should be studied, among others:

a) Growing accessibility leads to competition and division of labour where some regions might choose or are forced into trajectories ending in lock-in situations in the longer run.

b) Direct investments from outside in some cases besides offering local jobs also tap profits and invest these somewhere else.

c) Investments in less developed Member states have been concentrated in the capital regions, leaving the peripheral regions and the rural, low density areas outside the development process.

Structural Funds effects on the future territory

At a second step, the analysis should evaluate how could Structural Funds programmes contribute to a balanced territorial development in an enlarged EU on the perspective that impacts may be expected, probably, in the peripheral regions of EU, as they might become more peripheral and as present investments in these regions may be diverted to future Member states.

Also impacts in bordering regions and possible solutions should be examined. The situation after 2006 may imply kind of a shifting of the Regional Funds support from the present EU-15 border regions to the other side (partly already rather well developing). Complications for cross-border co-operation with reverse signs? Furthermore, in this context it turns out, that a sound capacity of regional bodies and actors at the regional level in the candidate countries concerns also the neighbouring Member States.

Structural Funds and other financial instruments for a territorial policy

The funding of regions with economic weaknesses is a task of both the EU Member States and the European Commission. Some Member States use national financial equalization instruments trying to redistribute the societal wealth from the more prosperous to the poorer regions. It is in accordance with the principle of subsidiarity to first using national financial equalization before applying for European instruments.

The task of a project within this measure is to find out the instruments of national financial equalization, what are their differences and common grounds, which relations they have to European regulations and which guidelines for action might be derived from these considerations with regard to the Reform of the Structural Funds?

Spatial integration through Interreg-initiative – Meta-evaluation of the effectiveness of the regional cooperation in promoting integration within a macro-region

There is already a great amount of experiences gathered in the various Interreg-projects. The evaluations that are carried out in direct connection with the programme documents or single projects are rather technical in nature. They do not provide an insight to the processes taking place at the scale of so-called macro-regions, such as Baltic Sea Region or a particular part of it. The ability of the Interreg-initiative to promote integration would be the focus of the project. Study should focus in particular advanced areas in spatial planning as the Baltic Sea Region and especially the impression given by the Interreg IIC, which has given the floor to Interreg IIIB. Reference on the attempts to promote new sub-regions within the Baltic Sea Region (Baltic Bridge, Baltic Palette, Bothnian Arc) should in this context be made.

5. Policy recommendations and conclusions

The recommendations should take account of the policy context and scope of the study. Proposals should be made particularly:

- on the improvement of the methodology to select eligible areas
- on the selection of policy measures
- on the policy delivery mechanisms

The policy recommendations should make reference to all relevant policy options on the ESDP.

Policy recommendation should also present practical solutions and proposals for:

Institutional settings and instruments which could support a better co-ordination of structural, regional programmes with spatial planning and sector policies towards spatial concerns;

Models of regional programmes and spatial plans applicable to different types of regions integrating Structural Funds, Cohesion Funds, sector policies and national policies and taking into account the guidelines and priority actions of the ESDP

vii) Existing access points

The SPESP programme offers some access points for indicator works through the study on typology of cities and urban and rural relations. Functional regions require as a corner stone for the monitoring of territorial development, that the functions can be measured (Headquarter functions, labour markets commuter zones a.s.o.).

Further aspects such as how far do Structural Funds address accessibility could benefit from research on the TEN, on spatial networks or on the R&D policy.

Projects on the evaluation of the horizontal objectives of the Structural Funds which provide an additional source for the investigation of the territorial aspects of Structural Funds well as specific studies on implementation of the SDEC like “The Spatial and Urban dimensions in the 2000-06 objective 1 & 2 programmes. 2002 » (studied prepared by University of Strathclyde for DG Regional Policy) .Other cross-sectoral aspects are already covered by different sources and mainly studies launched by DG Environment from European Commission.[79]

Projects developed by the JRC (Joint research center from EU) under regional modelling could be particularly relevant for co-ordination of policies in a specific area.

[79] See for example: European Commission DG XI (Environment) (1998): A handbook on the Environmental assessment of Regional Development Plans and EU Structural Funds Programmes. London.

TERMS OF REFERENCE
ESPON ACTION 2.2.3.

Territorial effects of Structural Funds in urban areas
(2002-04)

(o) Political challenges for the ESPON projects

The Second Report on Economic and Social Cohesion, published in January 2001, presented for the first time a third territorial dimension of the cohesion (beside the economic and social cohesion), which calls for a better co-ordination of territorially relevant decisions. Stressing the persistence of territorial disparities within the Union, the report stated the need for a cohesion policy not limited to the less developed areas as well as the need to promote a more balanced and more sustainable development of the European territory.

The Second Cohesion Report represents in that respect a follow up of the European Spatial Development Perspective (ESDP), adopted at ministerial level in May 1999, calling for a better balance and polycentric development of the European territory.

The projects launched under the ESPON programme shall follow an integrated approach and, seen together, cover a wide range of issues, such as:

- Identifying the **decisive factors relevant for a more polycentric European territory**; accessibility of a wide range of services in the context of enlargement; integration of wider transnational spaces; promotion of dynamic urban growth centres; linking peripheral and disadvantaged areas with those centres; etc.
- Developing **territorial indicators and typologies** capable of identifying and measuring development trends as well as monitoring the political aim of a better balanced and polycentric EU territory
- Developing **tools supporting diagnoses of principal structural difficulties as well as potentialities**, such as disparities within cities and regenerating deprived urban areas; structural adjustment and diversification of rural areas; strategic alliances between neighbouring cities at transnational, national and regional scale; new partnerships between rural and urban areas; potential support from infrastructure networks in the field of transport, telecommunication, energy; etc.
- Investigating **territorial impacts of sectoral and structural policies** in order to enhance synergy and well-co-ordinated decisions relevant for territorial development within policy fields such as Structural Funds, agriculture, transport, environment, research and development; developing methods for measuring the territorial impact of sectoral and structural policies; etc.
- Developing **integrated tools in support of a balanced and polycentric territorial development**; approaches to enhance the potential of cities as drivers of regional development, new tools for integrated urban-rural development and planning, etc.

With the results of all the ESPON projects, the Commission and the Member States expect in particular to have at their disposal: **a diagnosis of the principal territorial trends** at EU scale as well as the difficulties and potentialities within the European territory as a whole; **a cartographic picture of the major territorial disparities** and of their respective intensity; a number of **territorial indicators and typologies assisting a setting of European priorities** for a balanced and polycentric enlarged European territory; some **integrated tools and appropriate instruments** (databases, indicators, methodologies for territorial impact analysis and systematic spatial analyses) to improve the spatial co-ordination of sector policies.

In this respect, the ESPON projects will serve as a strong scientific basis for the propositions of the Commission in the Third Report on Cohesion, at the end of 2003, in view of the reform of post-2007 Structural Funds.

i) Relation to the ESPON 2006 Programme

The priorities describing the work-programme of the ESPON 2006 Programme are structured in four strands:

Thematic projects on the major spatial developments on the background of typologies of regions, and the situation of cities.
Policy impact projects on the spatial impact of Community sector policies and Member States' spatial development policy on types of regions with a focus on the institutional inter-linkages between the governmental levels and instrumental dimension of policies
Co-ordinating and territorial cross-thematic projects represent a key component of the programme. These projects evaluate the results of the other projects towards integrated results such as indicator systems and data, typologies of territories, spatial development scenarios. The cross section projects help to thematically co-ordinate the whole programme and add value to the results and to fill gaps, which are unavoidable when different themes are dealt with in different projects.
Scientific briefing and networking in order to explore the synergies between the national and EU source for research and research capacities.

This project belongs to the second strand and therefore holds a key position for the elaboration of the whole programme by the preparation of the common ground for the investigation of the effects of sector policies on the spatial structure in Europe. Therefore a strong co-ordination with the all other projects in particular with the other project in the same strand on the methodological aspects of the impact analysis, with the relevant thematic projects on territorial trends under the first strand and with the coordinating and cross-thematic under priority three is required.

ii) Thematic scope and context
In general urban areas are centres of growth – rich in culture, innovative, prosperous, however social and economic disparities are in some cases more distinct within towns and cities than between regions. The urban issue comprises a wide range of problems: environmental pollution, transport congestion, social and educational issues, poverty and (long-term) unemployment are counted among them. Some, such as inner-city decay or urban sprawl, are typical difficulties agglomerations are facing, by others urban areas are affected in particular, like pressure on the environment, social exclusion or security issues. Furthermore immigration and minority groups are special topics public authorities as well as the population have to deal with.
Towns and cities play a major role for the (economic) development of their surrounding suburban and rural areas, but besides positive effects, potential adverse impacts, such as displacement effects, should not be forgotten. Taking this into account, it seems vital for a sustainable urban and regional development to tackle the specific problems of urban areas – in core regions as well as in peripheral areas, comprising mountain areas, islands and areas with natural or demographic handicaps as well as different types and sizes of urban areas: metropolitan areas, urban industrial clusters, intermediate cities etc..
Apart from the URBAN Community Initiative urban issues are dealt with under the Objective 1, 2 and 3 programmes of the Structural Funds. Target regions and groups as well as areas of assistance vary among the programmes and the programming periods. In many cases, urban areas and urban policy have been tackled mainly within Objective 2 programmes in the context of industrial and services restructuring as far as they contribute to urban rehabilitation and development. In the second cohesion report the urban question is addressed as one priority with an important territorial dimension. The inclusion of a territorial approach in the interventions under the Structural Funds, notably concerning basic principles of the European Spatial Development Perspective (ESDP), varies in ways and extent.
Taking into account the obvious link of this action with ESPON measure 1.1, especially action 1.1.1., as well as the actions under measure 2.1. on impact of sectoral policy 9The forthcoming actions 2.2.1. and 2.2.2. on territorial effects of Structural Funds and accession aid), a strong co-operation and exchange of data and results have to undertaken in order to avoid double work.

iii) General objectives

a) To develop methods for the territorial impact assessment of the policies;
b) To develop territorial indicators, typologies as well as new methodologies to consider territorial information and concepts and establishing a database and map-making facilities and to sustain the project by empirical, statistical and/or data analysis to gain concrete and applicable information on the EU wide effects of spatially relevant development trends and their underlying determinates;
c) Special attention to detection of territories most negatively and positively affected by the identified trends with special reference to regions in terms of accessibility, polycentric development, environment, urban areas, territorial impact assessment; particular attention will be paid to areas exposed to extreme structural economic and social conditions (mainly due to structural re-conversion of vital economic sectors) and geographical positions and natural handicaps such as mountain areas, islands, ultra-peripheral regions;
d) To analysis of the territorial trends, potentials and problems deriving from the policy, at different scales, and in different parts of an enlarged European territory, ;
e) To show the territorial influence of the policies on spatial development at relevant scales;
f) To show the interplay between EU and sub-EU spatial policies and best examples for implementation;
g) To recommend further policy developments in support of territorial cohesion and a polycentric and better balanced EU territory and to refer to the three fundamental objectives with in the ESDP with regard to balanced and sustainable spatial development: the economic and social cohesion, the conservation of natural resources and cultural heritage and more balanced competitiveness of the European territory;
h) To develop possible orientations for policy responses considering institutional, instrumental and procedural aspects;
i) To consider the provisions made and to provide input for the achievement of the horizontal projects under priority 3 such as tools for diagnosis and observation and long term scenarios, as well as evaluation and assessment procedures.
In the efforts to meet these objectives the project shall make best use of existing research and relevant studies.

iv) Primary research issues envisaged

As mentioned before, the co-operation with action 1.1.1, 2.2.1. and 2.2.2 is essential, as several research questions overlap.

- Identification, gathering of existing and proposition of new territorial indicators and data to measure and display the state, trends and impacts of the developments referred to above for urban areas. Compilation of national studies with European focus;
- Operationalisation of the policy options developed in the ESDP relevant for a territorial impact analysis of the Structural Funds in urban areas. Development of a methodology for an impact analysis at EU scale;
- More specific territorial questions in the framework of urban affairs with as regards the variety of regions in Europe are:
    - How far do Structural Funds address the process of metropolisation in relation to accelerated greenhouse effects and climate change?
    - In which respect do Structural Funds address the question of control of urban sprawl and the links between urban and rural areas?
    - Metropolisation increases socio-spatial segregation and inequity of access to public services such as education, health, transport, culture. Furthermore, there are claims that the European social model is endangered. Which kind of territorial effects derive from these problems?
- These issues imply the necessity of good urban governance, which could be promoted at the European level. The effects of Structural Funds in urban areas should be evaluated and assessed in the sense of how far important urban functions are, in fact, strengthened.

v) Expected results and timetable

One of the main objectives of the ESPON 2006 Programme is to focus on research with policy relevance and to contribute to the development of relevant policies. Therefore, the deliverables of the research project should be highly operational and co-ordinated in time, as far as possible, to fit into the relevant political agenda. The following timetable and specification of output is reflecting this objective:

September 2002 (first interim report):

a) Consensus on indicators and necessary data after a precise analysis of the availability and comparability of data at Community level. For these analyses, the results of the study programme and the results of the ESPON projects in course, in particular under priority 3.1, should be taken into account. This task should also define the appropriate geographical level and technology required for data collection, taking into account the availability of the data . A first detailed and comprehensive list of data mainly requests for statistical and geographical data should be collected from Eurostat, the EEA and National Statistical Institutes and National Mapping Agencies.

b) First outline of the methodology of the impact analysis and the structure of the description of the sector policy.

March 2003 (second interim report):

c) Development of the database, indicators and map-making considering the progress of the other research projects.

d) A second revised and extended request for further indicators should collected from Eurostat and the EEA by the end of 2002 (the latest).

e) Presentation of the methods for the territorial impact assessment;

f) Definition of appropriate indicators, typologies and instruments to detect regions and territories most negatively and positively affected by the identified trends with special reference to accessibility, polycentric development, environment, urban areas, structurally weak areas, and new methodologies to consider territorial information.

g) Presentation of hypothesis on the territorial effects of relevant measures of the investigated policy on the base of a preliminary diagnosis, typology and evolution of European urban areas using available territorial and socio-economic indicators and data. In addition, presentation of hypothesis on the effectiveness, impact and added-value of Structural Funds interventions.

h) First analysis of the urban areas in Europe and the effects of the Structural Funds in Urban areas (including databases, indicators and maps), the investigation of urban areas should include with regard to the territorial types of areas (such as metropoles, industrial clusters, intermediate cities); strength and weaknesses, structural difficulties, risks (movements in industries and services, globalisation and enlargement) and potentials.

August 2003 (third interim report):

i) Application of the methodology, analysis of the hypothesis previously developed in all types of areas including the accession countries.

j) Presentation of an executive report completing in particular the analysis under h) and providing first recommendations for the present programming period to enhance the territorial approach as well as management and implementation of interventions under Objective 1, 2 and 3 in urban and in urban industrial areas, in particular in the context of the mid term review in 2003,

k) Policy recommendations, which provide the basis for the future focus of Structural Funds interventions post 2006, both in the present Member States and the candidate countries, including institutional settings and instruments;

l) Proposal of a methodology for the territorial impact assessment of Structural Funds policies and of appropriate instruments to improve the spatial co-ordination of Structural Funds interventions and EU sector policies with implications for spatial development (task to be co-ordinated with sector impact studies, ESPON priority 2);

August 2004 (final report):

l) Improvement of the methodology and the analysis taking into account the results of the third interim reports of the other projects in particular with regard to the candidate countries.

m) Formulation of conclusions and proposition of possible thematic policy adjustments regarding the Structural policy in order to avoid unintended spatial effects in relation to the ESDP and the structural Funds policy.
n) Presentation of access points and concrete ideas for policy responses on the territorial trends facing urban areas at different scale and in different parts of the Union that could improve territorial cohesion and proposals for the co-ordination of EU and Member States' policies with implications for the spatial development and possible policy adjustments;
o) Presentation of new territorial indicators and EU databases including candidate and possibly neighbouring countries
p) Formulation of the further data requirements and research necessary in the policy field.

vi) Rationale and Structure

The following text has the role of shaping the mind of thinking in developing a proposal for undertaking the ESPON action 2.2.3.. The text is not meant to be exhaustive, but to serve the purpose of guiding the tenderer.

1. Elaboration of a methodology for the territorial impact analysis/assessment of Structural Funds on urban areas

The methodology should take account of the spatial concepts developed under priority 1, 2 and 3. The methodology should also allow indicating different level policy in order to identify the relevant actors for a better territorially coordinated policy.
At present we dispose of many assessment methods and models (see point vii) on existing access points, for some examples). The aim of this study should be to draw these existing assessment methods together (addressing their weaknesses) into a tightly focused, operational assessment tool, oriented towards the needs of decision makers. The methodology should also allow indicating different level policy in order to identify the relevant actors for a better territorially coordinated policy.
Close attention should be paid to the definition of a methodology for the assessment of the impact of Structural Funds. As for the rest of ESPON projects, the project should focus on the whole European territory, including candidate countries (EU-27).
Each of the tasks of the study may require research tools, which the contractors should explain in their tender documentation. A combination of methodologies will be used in the study, including:

- Literature Review of available economic and other research relevant to Objective 1, 2 and 3 programmes.
- Desk Research based on Structural Fund documentation, Operational Programmes, ex ante, mid-term, final and thematic evaluations and monitoring committee papers.
- Data analysis, using data from EU, national, regional statistical services and monitoring systems and other sources.
- Structured Interviews with key stakeholders, particularly national, regional and local authorities, the European Commission, the main economic and social partners and members of monitoring committees.
- Case studies on particular issues should be well reasoned in a smaller number of OPs .

Data sources include programming documents, evaluations, monitoring committee papers, economic literature, national, regional and local authorities' data systems, EU and national statistics, etc. In many cases the data availability in the Member States is not sufficient in particularly where Member States do not intend to undertake ex post evaluations. It may be necessary for the contractor to undertake fieldwork on the priority issues for this study to complete the information on the entire programming period.
Based on the urban types elaborated in this project and taken from ESPON project 1.1.1., 1.1.2. and 3.1., a comparison of interventions among the different types should be undertaken, i.e. to qualify and quantify the territorial impact of the interventions within the framework of Objective 1, 2 and 3 in urban areas and urban-industrial areas in decline. The research should draw on results of the (ongoing) evaluations carried out by Member States and the European Commission, including the ex post evaluation of the URBAN Community Initiative and other sector Community Initiatives (Konver, Resider, Rechar, SME etc).

2. Presentation of the Structural Funds policies in urban areas with reference to the territorial dimensions and the governmental level responsible for the implementation

The structured presentation of the policy should allow identifying the relevant parameters for the territorial impact assessment for all three dimensions, the policy (contents and strategies), polity (institutions, organizations) and politics (processes) also regarding particularly spatial disparities and imbalance of the E.U territory on the background of the typologies developed in the projects under the ESPON priority 1 and 3.

At first the project should provide a short description of the present situation and future trends of the Urban policy in the EU, particularly in terms of spatial disparities and imbalances within the EU territory, taking into account the variables mentioned below.

3. Diagnosis, data, spatial concepts and indicators

3.1. Description

The diagnosis will elaborate on the challenges and problems, strengths and weaknesses urban areas are facing in the current Member States and in the candidate countries as well as in the development of the territorial system as such. It will also examine recent developments and changes in industry and services sector and their territorial effects, in particular on the development of specific urban areas. This part will include a diagnosis of the future trends in European cities in the context of new economy and globalisation, enlargement of the European Union and economic restructuring in certain industrial and services sector.

3.2. Territorial typologies

The definition of appropriate indicators, typologies and instruments in order to detect regions and territories most negatively and positively affected by the identified trends with special reference to accessibility, polycentric development, environment, urban areas, structurally weak areas, and new methodologies to consider territorial information builds the first step.

Territorial typologies should describe and analyse the potentials and difficulties of urban areas including urban areas endeavouring economic restructuring in industrial and services sectors in the current Member States and in the accession countries. Different types of areas and target groups based on socio-economic, environmental and, in particular territorially indicators (in co-operation with action 3.1. as the cooperating knot of all typologies produced in the ESPON programme) should be identified.

3.3. Indicators and data collection

Taking into account the existing indicators and the methodology of the territorial impact assessment developed (see non-exhaustive list below) the collection of further statistical and geographical data and the integration of existing and new databases[80] is required.

Data gathering should occur at the lowest territorial level possible (ideally, NUTS III level). It should cover the 15 Member States as well as the candidate countries. (among others, see list of variables for the Urban Audit II; co-ordination with action 3.1).

On the basis of these data, the study should provide a first analysis /diagnosis of the situation of urban areas in Europe as well as the existing territorial imbalances and regional disparities.

4. Analysis of the Structural Funds' urban policy in relation to a balanced territorial (and regional) development

- The study should identify how far the Urban policy under the Structural Funds considers the territorial weakness. The analyses should consider that the target areas and groups of the Structural Funds do not entirely coincide with the territorial weaknesses identified in the current Member States and the candidate countries. The comparison should take into account the need of Community interventions in view of a sustainable, balanced territorial development.

[80] Where harmonised (Eurostat) data sources do not provide the data for the indicators at the appropriate geographical level, the consultant will have to examine national and possibly regional data sources to try to complete the data sets. The collection of this data should be done in co-ordination with data navigator projects under ESPON priority 4.1.

4.1. Assessment of programme target areas and groups in relation to the territorial requirements

An analysis of the areas selected and of strategies adopted and implemented as well as an appraisal of the effectiveness of management and implementation systems under Objective 1, 2 and 3 concerning urban areas has to be carried out by the contractor for; 1994-1999, 2000-2006 (partially).

The analysis should compare on the base of the description of the policy under point 2:

- programme areas: selection criteria, characteristics
- strategies: in both programming periods, changes in strategies, relative role of public and private resources, identification of types of strategy focus.

For this task the contractor will propose a representative sample of programmes (which will also provide the basis for the other tasks); the final choice will be agreed with the ESPON Co-ordination Unit.

4.2. Assessment of the "programme effectiveness" and the "territorial effectiveness"

An analysis of the achievement of the programme objectives set out in the programming documents at measure level (including physical endowment, creation of jobs, mobilisation of endogenous potential and synergies within related programmes) which represents the "programme effectiveness"; 1994-1999 represents the starting point.

Attainment of the objectives at measure level should be quantified in terms of direct effects as (for example non exhaustive list):

- number of enterprises and jobs created or maintained, number of employees trained,
- improvement of the enterprises productivity,
- research institutes and universities concerned,
- urban and urban-rural networks created etc).

This task will be based on the sample established under point 4.1. and focus on selected programme priorities relevant for urban areas[81].

However, the territorial typologies addressing the advantages and disadvantages of territories with regard to various aspects addressed in point 2 allow to analyse the programme effectives with reference to the different types of regions. The main question will be how far differences in the "programme effectiveness" exist in different types of regions defined in the typologies under point 2. Is it possible to identify a kind of "territorial effectiveness" of particular programmes and measures?

4.3. The territorial impact

- A quantitative and qualitative assessment of the socio-economic impact of the interventions under Objective 1, 2 and 3 in urban areas at programme level considering the typology of regions and urban areas for the programming period 1994-1999 should quantify and qualify the territorial and socio-economic impact of Structural Funds interventions under Objective 1, 2 and 3 in urban and urban-industrial declining areas using territorial and socio-economic

[81] Objective 1
- Investment in transport infrastructure, infrastructure for telecommunications and the information society and infrastructure in the energy field
- Refurbishing and rehabilitation (including rehabilitation of urban areas and industrial sites)
- Investment in human resources (education) and health
- Direct investment in the productive sector to create lasting jobs
- Environmental protection (environmental infrastructure)
- Strengthening the research and development capacities of regions

Objective 2
- Direct investment in the productive sector to create lasting jobs
- Aid for SMEs and local development, with particular emphasis placed on TEPs
- Strengthening the research and development capacities of regions
- Regeneration of industrial sites and depressed urban areas

Objective 3
- Promoting employability, entrepreneurship, adaptability, equal opportunities

variables which describe the relative prosperity of the target cities concerned and changes due to Structural Funds interventions. The impact analysis should particularly focus on the following issues(co-ordination with action 1.1.1.; see also list of variables of Urban Audit II):

- Territorial approach (ESDP policy aims)
- Economic aspects (e.g. regional economic strength, attractiveness)
- Demography (e.g. migration trends, population changes, population density)
- Environment (e.g. CO_2-emissions, congestion)
- Training and education (e.g. level of education and training)
- Labour market, (e.g. (un)employment rate and trends)
- Social aspects (e.g. poverty level)

Aspects to be taken into account are the elaboration of urban development strategies, an improved physical endowment, changes in institutional structures, the mobilisation of economic and non-economic actors and additional financial resources available.

- For this task it will be essential to analyse also the influence of territorial governance and the institutional framework (power partitioning, decision making and co-operation processes) and the administrative/policy instruments used beside Structural Funds interventions. Special attention should be paid on financial aspects, such as financial resources partitioning, the fiscal system and subsidies. This provides the basis for task 6.3. Policy recommendations and propositions post 2006.

4.4. Management and implementation

Management and implementation systems contribute to the effectiveness, efficiency and impact of the forms of assistance (administrative structure, partnership, project selection, final beneficiaries, costs of programming and implementation). Comparing both programming periods, changes should be detected as far as possible for the time being.

5. Qualitative analysis of the interactions between the Structural Funds policy in urban areas and other territorially relevant community policies

5.1. Interaction with other Structural Funds Policy

The results of the ongoing ex post evaluations of Objective 1, 2 and 3 as well as of URBAN Community Initiative and other sector Community Initiatives (Resider, Rechar, SME etc) for the programming period 1994-1999 should be considered in order to compare the types of interventions.

5.2. Interaction with other territorial relevant policies

The „Community" dimension of the added value of public intervention relates to the specific benefits which result if the intervention is carried out at Community and not state or regional level. In the DG REGIO Working Paper on Community added value[82] the definition of Community added value as well as criteria and indicators to measure the added value of Structural Policies are elaborated. Starting from that, the major questions to be addressed are:

- Did/does the intervention contribute to the achievement of Community objectives and to the ESDP such as economic, social and territorial cohesion or sustainable development and to the implementation of transnational priorities like good governance? Did/does the intervention raise consciousness for these EU objectives and priorities?
- Had the areas already been identified as needing special development under national/regional regulations before the Structural Funds intervention? Had a development and/or national resources or other Community funds been allocated before?
- Comparison of Structural Funds interventions with existing national programmes and working methods (existence, financial allocations, working methods like partnership and multi-annual planning, advantages/disadvantages). Did/do the implementation methods of the Structural Funds ensure greater effectiveness of the interventions? Work out how the Structural Funds interventions interact with and complement national/regional measures.

[82] see "Community added value in the context of Structural Policies. Definition and Evaluation Criteria". DG REGIO Working Paper. 2002

- Had/have the interventions a significant impact on the development of transnational co-operation, networking and exchange of experience?
- How was/is co-ordination and coherence of the different Community interventions under the Structural Funds and under the Cohesion Funds and the EIB assured?
- How was/is co-ordination and coherence with other Community interventions outside Structural Funds (ex. SME and R&D policies) and with national/regional programmes assured? The study should compare, in particular, the map of eligible areas under Structural Funds and the map of assisted areas within State aid regime in terms of geographical and population coverage and aid intensity.
- What was/is the Community added value of the interventions and which measures guarantee the highest added value towards the territorial development?

6. Orientations for policy recommendations

6.1. Improvements of the Structural funds policy towards a better territorial cohesion

Recommendations for the present programming period to enhance the territorial approach as well as management and implementation of interventions under Objective 1, 2 and 3 in urban and in urban industrial areas, in particular in the context of the mid term review in 2003 are expected.

Lessons of the 1994-99 programming period and the programme planning for the current period (2000-2006) should be drawn in order to derive policy recommendations and propositions regarding interventions in urban areas and urban industrial areas in decline for the reform of the Structural Funds post 2006 taking into consideration different needs among the current Member States as well as the accession countries.

Looking back at 1994-1999 and the programming planning for 2000-2006 shortcomings and possible improvements have to be identified in the following areas:

- Programme rationale
- Selection of areas and target groups
- Eligible actions
- Programming process and strategy
- Implementation methods and structures
- Co-ordination, coherence and complementarity of the interventions with other Community policies and national/regional policies

In a next step the contractor should discuss how these findings can be integrated into the Objective 1, 2 and 3 programmes until 2006. The contractor should establish indications to be taken into account by Member States and Commission for the mid-term revision in 2003.

Looking beyond 2006 the contractor should discuss if the programme rational is likely to be justified and appropriate in the context of enlargement. Here it could be necessary to elaborate different positions for the EU 15 and the new Member States. Which (major) lessons of the 1994-1999 and the 2000-2006 programme generation should be taken into account for possible interventions after 2006.

Undertaking this task the contractor has to integrate on the one hand principles of good territorial governance and sustainable development in all policy recommendations. On the other hand it is crucial to bear in mind the relevant (national) framework (institutional, administrative, legal, fiscal framework). Underpinning this overall judgement the most important outputs and results of the interventions should be summarised.

Based on all previous tasks, the contractor should elaborate a concrete and proposal for Structural Funds interventions post 2006. It should be distinguished by the following priorities with regard to the sustainability criteria and policy aims and policy options mentioned in the ESDP. In addition proposals should integrate several aspects in particular:

- Cross-border, transnational, interregional activities (reference should be made to the current transnational areas under Interreg III B).
- Pilot projects, innovative projects
- Co-ordination, coherence, complementarity of interventions and policies
- Actions and measures providing the highest added-value

The situations and needs of current Member States and the candidate countries shall be considered as well.

6.2. ESDP

Vice versa reference should be made to all policy options in the ESDP dealing with the question of urban development. Recommendations should address institutional and procedural aspects in order to achieve a better balanced spatial development of the EU territory.

6.3. Territorial impact assessment, the structural Funds Policy and other policies

Contributions should also consider a stronger integration in Structural Funds Policy as well as co-ordination and coherence with other territorially relevant policies. In order to ensure synergy between Community and national programmes territorial impact analyses in various regional development programmes should be considered. These analyses could form part of a strategic spatial development planning at national, regional or local level, and of strategies within Structural Funds programmes.

Guidelines on how to implement Territorial Impact Assessment (institutions, practitioners, etc.) could be reflected. Particular attention should be paid to issues arising from the principle of subsidiarity. Case studies for specific regions could be provided.

The primary obstacle to this kind of holistic approach is co-ordination. Therefore the issue of governance and organisation needs to be carefully addressed.

The project should develop recommendations for the improvement of Community urban policy and consistency between Community and national policies. Examples for the better integration of Urban policy in spatial planning and regional development plans should be provided.

vii) (Existing) Access Points

The SPESP programme offers some access points for indicator works through the study on typology of cities and urban and rural relations. Functional regions require as a corner stone for the monitoring of territorial development, that the functions can be measured (Headquarter functions, labour markets commuter zones a.s.o.). Further aspects such as how far do Structural Funds address accessibility could benefit from research on the TEN, on spatial networks or on the R&D policy The European Commission could make available the projects on the evaluation of the horizontal objectives of the Structural Funds which provide an additional source for the investigation of the territorial aspects of Structural Funds. Other cross-sectoral aspects are already covered by different sources.[83]

- Agence Européenne "Territories and Synergies" (Co-ordination): Spatial Impacts of Community Policies and Costs of Non-Co-Ordination. June 2001.
- University of Strathclyde: The Spatial and Urban dimensions in the 2000-06 objective 1 & 2 programmes. 2002.
- Ex-ante/mid-term/ex-post evaluations of Objective 1, 2 and 3: carried out by the Member States and the European Commission.
- Ex-ante/mid-term/ex-post evaluations of URBAN and other Community Initiative: carried out by the Member States and the European Commission.
- European Governance: A White Paper. COM(2001) 428 final.

[83] See for example: European Commission DG XI (1998): A handbook on the Environmental assessment of Regional Development Plans and EU Structural Funds Programmes. London.

TERMS OF REFERENCE ON ESPON ACTION 2.3.1.

THE APPLICATION AND EFFECTS OF THE ESDP IN MEMBER STATES (2004-06)

(Preliminary, incomplete, finalisation when project will be tendered, for the timing see annex 3)

i) Thematic scope and context

The ESDP is somehow a unique instrument under all policies. Although being non-binding and supported by the European Commission and the informal structure of Ministries responsible for Spatial Planning, the ESDP should be relatively broadly known by now. Nevertheless, its effects are rather diffuse.

Four years after the presentation of the final version of the ESDP, it is time to conduct an assessment of the effects of the ESDP at EU level and in each Member State in order to identify the potential of the ESDP and to find best examples of its application and implementation, as well as the difficulties of non-application.

Related to this assessment will be the main expected impacts of the ESDP, namely to contribute to the horizontal and vertical co-ordination and to the spatial integration of policies at EU level and in Member States. Beyond this general assessment, special attention should be paid to the question of how the ESDP has helped to co-ordinate sectoral policies that means how far a horizontal integration of sectoral policies could be achieved towards the consideration of territorial issues.

This evaluation should be practitioner oriented – to assess the usefulness of the ESDP's concepts and in what direction the ESDP should be further developed. Special links should be established with the actions under measure 2.1. and 2.2. which investigate the territorial aspects of sector policies. Links should also be established with the following action 2.3.2. on the co-ordination of territorially oriented policies.

ii) Primary research questions

- Development of a strategy for the assessment of the ESDP's impact in the EU and Member States considering the strategy of the ESDP calling for a vertical and horizontal co-ordination and spatial integration.
- Useful categories for the investigation of assessment instruments will be, for example, of the so called "softlaws" such as guideline, and the "hardlaw" such as regulations.
- Empirical assessment of the application of the ESDP at EU level and by Member States. Special attention should be paid to the sectoral co-ordination at EU level and to its vertical co-ordination in the Member States;
- Assessment of what does mean spatial integration in theory and in practices with regard to the application of the ESDP;
- Assessment of the application of the ESDP in policy documents;
- Case studies on the assessment of the application of policy options of the ESDP in selected measures such as the Interreg programme;
- Which lessons can be learned, where are the strengths and weaknesses of the ESDP approach, which improvements are recommended for the possible revision of the ESDP.

iii) Existing access points

The starting point for this evaluation should be the results of the assessment on the application of the ESDP undertaken under the Belgian Presidency in the second half of 2001. The investigation on the sectoral policies of the EU will have already produced some outputs when by the time this action t starts in 2003. Special links should be established with the Interact programme.

TERMS OF REFERENCE ON ESPON ACTION 2.3.2.

THE GOVERNANCE OF TERRITORIAL AND URBAN ORIENTED POLICIES FROM THE EU TO THE LOCAL LEVEL

(2004-06)

(Preliminary, incomplete, finalisation when project will be tendered, for the timing see annex 3)

i) Thematic scope and context

Spatial policy approaches are widely scattered between sector policies, in particular with regard to variety of approaches at EU level, in Member States and their administrational structures. This diversity will even grow further with the enlargement of the EU. The "EU Compendium of Spatial Planning Systems and Policies"[84] already revealed the complexity of policy instruments and implementation tools available within the EU, and only focussing on the planning side.

Although providing a strong base, the planning compendium itself is becoming outdated. Comparative research is needed on how effective different systems are, e.g. considering a policy mix of land use planning, local government powers and taxation policy in meeting common spatial development objectives such as urban regeneration, balancing urban-rural needs, and location of waste facilities.

If the EU moves on to an integrated territorial perspective, the web of spatially relevant policy delivery mechanisms, in particular considering the authorities responsible for regional economic development and infrastructure in all countries, need to be better understood and co-ordinated. Research examining the delivery of sectoral policies is already available but must be evaluated against the monitoring potentials for improved spatially focused policy.

As well, cities constitute privileged places for the territorial integration of sectoral policies formulated from the EU to the local level. The possible links of these policies, closely connected with the question of urban governance, shall be studied, especially in the light of the Urban CIP experience.

ii) Primary research questions

Elaboration of a research framework which allows to comprehensively investigate the issue of governance as well as the vertical and horizontal institutional structure and the instrumental dimension of decision making and implementation of territorially oriented policies;

Definition of indicators that characterise successful governance when developing and implementing territorial and urban policies;

Preparation of comparable cases studies (preferably with transnational focus) on governance at EU level regarding wide common territorial issues such as polycentrism, urban sprawl, urban-rural balance, accessibility;

Conclusions should be drawn towards the identification of success conditions, actor constellations and best practice examples on the governance of urban and territorial decision making;

Assessment of strategies for the update of the 'EU Compendium of Spatial Planning Systems and Policies'.

iii) Existing access points

The EU Compendium of Spatial Planning provides a good starting point for the planning part of the governance structure. In 2003, actions under priority 1 should already be able to indicate areas with "more and less successful" territorial development in terms of e.g. polycentrism, urban-rural relations a.s.o. Of course, these developments will be subject to deviating conditions in those areas. These results could provide a base for the selection of case study areas.

[84] European Commission 1997 and the following country reports.

Terms of reference:
ESPON action 3.1.

INTEGRATED TOOLS FOR
EUROPEAN SPATIAL DEVELOPMENT TERRITORIAL
(2002-2004)

(o) Political challenges for the ESPON projects

The Second Report on Economic and Social Cohesion, published in January 2001, presented for the first time a third territorial dimension of the cohesion (beside the economic and social cohesion), which calls for a better co-ordination of territorially relevant decisions. Stressing the persistence of territorial disparities within the Union, the report stated the need for a cohesion policy not limited to the less developed areas as well as the need to promote a more balanced and more sustainable development of the European territory.
The Second Cohesion Report represents in that respect a follow up of the European Spatial Development Perspective (ESDP), adopted at ministerial level in May 1999, calling for a better balance and polycentric development of the European territory.
The projects launched under the ESPON programme shall follow an integrated approach and, seen together, cover a wide range of issues, such as:
- Identifying the **decisive factors relevant for a more polycentric European territory**; accessibility of a wide range of services in the context of enlargement; integration of wider transnational spaces; promotion of dynamic urban growth centres; linking peripheral and disadvantaged areas with those centres; etc.
- Developing **territorial indicators and typologies** capable of identifying and measuring development trends as well as monitoring the political aim of a better balanced and polycentric EU territory
- Developing **tools supporting diagnoses of principal structural difficulties as well as potentialities**, such as disparities within cities and regenerating deprived urban areas; structural adjustment and diversification of rural areas; strategic alliances between neighbouring cities at transnational, national and regional scale; new partnerships between rural and urban areas; potential support from infrastructure networks in the field of transport, telecommunication, energy; etc.
- Investigating **territorial impacts of sectoral and structural policies** in order to enhance synergy and well-co-ordinated decisions relevant for territorial development within policy fields such as Structural Funds, agriculture, transport, environment, research and development; developing methods for measuring the territorial impact of sectoral and structural policies; etc.
- Developing **integrated tools in support of a balanced and polycentric territorial development**; approaches to enhance the potential of cities as drivers of regional development, new tools for integrated urban-rural development and planning, etc.
With the results of all the ESPON projects, the Commission and the Member States expect in particular to have at their disposal: **a diagnosis of the principal territorial trends** at EU scale as well as the difficulties and potentialities within the European territory as a whole; **a cartographic picture of the major territorial disparities** and of their respective intensity; a number of **territorial indicators and typologies assisting a setting of European priorities** for a balanced and polycentric enlarged European territory; some **integrated tools and appropriate instruments** (databases, indicators, methodologies for territorial impact analysis and systematic spatial analyses) to improve the spatial co-ordination of sector policies.
In this respect, the ESPON projects will serve as a strong scientific basis for the propositions of the Commission in the Third Report on Cohesion, at the end of 2003, in view of the reform of post-2007 Structural Funds.

(i) General scope and context

The priorities describing the work-programme of the ESPON 2006 Programme are structured in four strands:

1. **Thematic projects** on the major spatial developments on the background of typologies of regions, and the situation of cities.
2. **Policy impact projects** on the spatial impact of Community sector policies and Member States' spatial development policy on types of regions with a focus on the institutional inter-linkages between the governmental levels and instrumental dimension of policies
3. **Co-ordinating and territorial cross-thematic projects** represent a key component of the programme. These projects evaluate the results of the other projects towards integrated results such as indicator systems and data, typologies of territories, spatial development scenarios. The cross section projects help to thematically co-ordinate the whole programme and add value to the results and to fill gaps, which are unavoidable when different themes are dealt with in different projects.
4. **Scientific briefing and networking** in order to explore the synergies between the national and EU source for research and research capacities.

This project ***Integrated tools for European spatial development*** belongs to the third strand and therefore holds a key position in the elaboration of the whole programme by the preparation of the common ground for the other projects and the integration of the results of the other projects towards coordinated conclusions. Further task is to secure the consideration of the enlargement issue in all thematic and policy impact study.

As one important aspect, the analysis should not be bounded to European territory. Even if most studies will be constrained by Eurostat databases (covering EU and accessing countries), all projects will contribute with inputs, and project 3.1 should contain a short analysis of the situation of Europe with reference to the world scale, in particular to neighbouring territories. This task should be done through a synthesis of databases available at that scale, with states as reference unit, or through databases available on a grid scale (UNEP).

ii) Specific objectives

Preparation of this project, entitled "**Integrated tools for European spatial development**", comprises:

Support to the co-ordination on technical and scientific level of the ESPON 2006 Programme and the projects under measure 1 and 2, including data collection, development of a GIS facility and map-making, thematic coordination preparing for the cross thematic exploitation of integrated results based on all projects prepared under the programme.

The work takes place on five levels:

- Technical and analytical support and coordination (data-base, GIS and mapmaking, concepts and typologies for spatial analyses, spatial concepts)
- Territorial and thematic coordination of the ongoing projects
- Preparation for the exploitation of results of all projects
- Compilation and structuring of recommendations to further policy development in support of territorial cohesion
- Assistance in the promotion and networking of the ESPON programme

The project has its central task in offering scientific support for the achievement of the objective of the ESPON 2006 Programme. In this respect, the project will imply support to and a close co-operation with the Co-ordination Unit of the ESPON in Luxembourg, and contain the following elements:

a) To provide a common framework for the projects prepared under priorities 1 and 2, i.e. provide common definitions and formats for the collection of a ESPON database and developing a common mapmaking tool, common framework for territorial indicators, typologies and concepts etc.

b) To summarise and evaluate intermediate and final results of the projects under priority 1 and 2 from a technical and scientific viewpoint in order to support integrated results of the ESPON 2006 programme;

c) To bring added value to the results of the single projects through dialogue with TPG on their results and their potential use in different contexts, such as scenarios and recommendations for policy development;
d) To examine the achieved results in the light of the ESDP;
e) To support the preparation of making results of the ESPON programme accessible to policy makers;
f) To support the communication and better understanding of spatial development trends and issues of territorial cohesion within an enlarged EU;
g) To support the elaboration of consistent recommendations to future policy development in support of a better balanced and polycentric European territory that recognises the importance of a territorial dimension.

iii) Expected results and timetable

The research undertaken during the interim reports is supposed mainly to work on the data available at the national statistical offices, Eurostat and other national and European institutions, and normally be based on existing administrative units. From 2003 until August 2004, the research should complement the missing territorial/regional data and complement tools and territorial indicators if possible beyond the NUTS classification and the NUTS 3 level.
One of the main objectives of the ESPON 2006 Programme is to focus on research with policy relevance and to contribute to the development of relevant policies. Therefore, the deliverables of the research project should be highly operational and coordinated in time, as far as possible, to fit into the relevant political agenda. The following timetable and specification of a number of important results to be achieved is reflecting this objective:

October 2002 (first interim report):

a) Definition of common standards for the collection of data in the programme and a structure of the ESPON database and GIS suitable to deal with the variety of data to be collected and processed during the ESPON Programme;
b) Consensus with ongoing TGP on indicators and necessary data following a precise analysis of the availability and comparability of data at Community level. In this analysis, the results of the SPESP study programme and the ESPON projects in course, should be taken into account. The task comprises as well a definition of an appropriate geographical level and the technological requirements for data collection, taking into account the availability of the data. A first detailed and comprehensive list of statistical and geographical data should be collected from Eurostat, the EEA and National Statistical Institutes and National Mapping Agencies before mid 2002.
c) Support of networking and communication on scientific and technical matters between the research groups by the provision of inventories and the support of mutual exchange among the projects under all priorities on data, typologies and intermediate results as well as mapping.

March 2003 (second interim report):

d) A first overview on concepts and methodology 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 addressed to Eurostat and the EEA by mid 2003 (the latest).
g) Working document being a scientific report on results so far in creating tools for the identification of potentials, weaknesses, 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 in doing so be able guide other projects for the elaboration of the third interim reports for November 2003;

September 2003 (third interim report)

h) Identification of orientations on an implementation of territorial objectives into EU policies – from analytical tools to feasible policy measures;

i) Compilation of intermediate results on the territorial trends and impact of policies based on the variety of studies and themes covered by the ongoing projects
j) Working document on tentative recommendations to policy development towards the ESDP and the Structural Funds after 2006, including possible European priorities in different part of the enlarged EU territory and the necessities to coordinate the impacts of spatially relevant sector policies.
k) Working document to prove first steps towards the preparation of methodologies for prospective scenarios.

October 2004 (final report)

l) Finalising the ESPON database, GIS and mapmaking facility as well as a co-ordinated, common approach to concepts and typologies for spatial analyses, including necessary technical specifications;
m) An integrated scientific summary and main conclusions on the basis of the reports submitted by the first round of projects, including final recommendations relevant for policy development towards territorial cohesion.
n) A final comprehensive working report including the final findings of the above-mentioned working documents, including potential scientific and technical recommendations for the follow up project 3.2 on policy scenarios.

iv) Rationale and structure

The following text has the role of shaping the mind of thinking in developing a proposal for undertaking the ESPON action 1.1.1. The text is not meant to be exhaustive, but to serve the purpose of guiding the tenderer.
As mentioned above under the specific objectives the main task are considered as follows:
First group of tasks belong to the *frame setting and coordination of the programme*

- Technical and analytical support and coordination (data-base and mapmaking, concepts and typologies for spatial analyses, spatial concepts
- Territorial and thematic co-ordination of the research projects

The second group shall provide scientific and technical support to the *exploitation* of the programme

- Preparation for the exploitation of results of all projects
- Compilation and structuring of recommendations to further policy development in support of territorial cohesion

Finally a support to the *communication and networking* task:

- Assistance in the promotion and networking of the ESPON programme

A. Frame setting and coordination

1. Technical and analytical support and coordination (data-base, GIS and mapmaking, concepts and typologies for spatial analyses - provision of a common approach for all ESPON projects)

The aim of this project is to provide a common scientific and technical structure for all projects of the ESPON 2006 Programme, encompassing:

1.1. Indicators, data and mapping

- Definition of standards for the formulation of indicators;
- Provision of a practical common architecture for the collection and integration of data;
- Definition of standards for the collection of data;
- Pooling of data and coordination of data collection for the programme;
- Definition of common minimum standards for the creation of map output;
- Development of guidelines on schematic cartography and symbolisation

For the detail definition of this task see also the part of the project described as **Technical framework for ESPON GIS support to annex 1-4 of this tender information**.

1.2. Reporting

- The project shall assist the Coordination Unit in elaborating a common approach for reporting and corporate identity of the ESPON programme;

- Provide working documents, including an iteratively updated inventory on all intermediate and final reports prepared by all projects;

2. Support for the integration of European spatial databases

Integration of European spatial databases is a core task, which will provide the basic material for all further research within the ESPON programme. Starting from the databases and indicator system suggested and compiled by the SPESP, regular contacts with National Statistical Agencies, Eurostat and European Environment Agency need to be established for a critical review of the existing material. Most European databases suffer from a lack of integration recognised by the institution responsible for their management (EUROSTAT, EEA). During 2001-2003, this task would not only result in the creation of new databases, but also propose efficient solutions for the integration of the existing ones and for a better exploitation of their contents through the use of new tools of cartography, GIS and spatial analysis. Tasks will include the collection and exploitation of the necessary data in the priority fields of the programme (accessibility, polycentric development, environment, urban areas, territorial impact and new methods in territorial information). The CU shall be involved in matters of importance related to the financing of an ESPON database.

The results of this exercise should provide the basis for the next step to be taken by the follow up project 3.2. (2003-2006), where an integrated system of cartographical outputs ought to be proposed, which could be interactively used by policy makers and territorial planners. These data shall be collected, as far as possible, with wide geographical coverage (i.e. including neighbouring countries, Eastern and Southern Mediterranean countries) and using new territorial information methods such as satellite information and digital elevation models.

3. Territorial typologies

All projects of the ESPON programme have to develop and apply spatial typologies considering certain groups of regions and territories at risk such as e.g. the outermost regions of the EU, coastal areas, islands, mountain areas as well as areas with low population density or specific spatial potentials and advantages, such as the central urban areas. Typologies are prepared for descriptive and normative reasons, which means to simply describe spatial phenomena and their effects or to indicate potential political action. Both types of typologies are necessary for the deduction of proposals for policy development. The cross-thematic project has the important task to identify the most prominent determinants of each thematic project, to combine these determinants for more thematically complex typologies and to report these typologies for the further use in the thematic projects.

4. Clarification of spatial concepts and territory as a common framework for all ESPON projects

The ESDP includes, apart from adopted policy guidelines and aims for the development of the European territory, 4 basic elements relevant for territorial development:

- cohesion (economic and social)
- competitiveness (of different territories)
- co-operation (within larger territories, between cities and between rural and urban ares) - preservation and development (of natural and cultural assets)

These basic elements encompass the reconciliation of economic, social and environmental factors leading to a sustainable development, which shall transcend into all programmes, projects and research related to spatial development. The ESPON Programme shall obviously support sustainable development and offers the opportunity to employ a sustainability approach to the development of territories. A challenge for the ESPON projects lies in applying this approach.

Clarification of the concepts and definition of the indicators to measure spatial and social integration: The research carried out under the Study Programme (SPESP) built the base for the creation of unambiguous concepts of:

- "spatial integration",
- "spatial or territorial cohesion",
- "social integration",
- “territorial impact”
- “r-urban”

These concepts are in a general way already behind the ESDP and the Structural Fund regulation. However, the concepts need to be clarified and detailed and territorial indicators defined for the measurement of progress achieved towards European integration at various geographical scales. Furthermore the concepts and indicators for the measurement of the following concepts need to be elaborated:

- "accessibility", not only in terms of the various means of transport (air, water, road and rail), but also in terms of information and communications technology;
- "polycentric development" with reference to potentials and dynamics, particular in urban poles, which can be explored individually or through strategic co-operation with neighbouring cities or rural territories, and which is relevant at all geographical scales;
- "environment" in terms of the identification of sensitive sites and areas of natural and technological hazards, as well as areas being assets for spatial development;
- "urban areas" on the basis of a joint definition of "urban-ness" and the role played by urban areas in the territorial structure;
- "landscape" in terms of identification of sensitive structures and areas and the role played in a territorial and cultural development context;
- "territorial impact assessment" in terms of defining a concept, which can be used for the measurement of impacts of Community and national sectoral policies and of major infrastructure projects.

5. Coordinated approach for the thematic projects under priority 1

The project should ensure that typologies and approaches taken in the different projects under priority 1 are mutually considered for the project to be able to carry out the meta studies mentioned below in point B.1. The project should also support the coordination of projects under priority 1 with projects under priority 2: Are the territorial typologies on polycentrism or for infrastructure networks useful and applicable for the evaluation of the territorial effects of Structural Funds or the territorial effects of R&D policy?

6 Coordinated 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 coordinated policy. The cross-thematic project supervises the technical and scientific coordination between these project in the process of the development of an appropriate assessment methodology.[85] As a result of these efforts a general common and co-coordinated 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.

B. Exploitation, conclusions and recommendations

1. Exploitation

1.1. Cross-analysis, comparison

The results of the projects developed under Priorities 1 and 2 ought to be evaluated towards the development of integrated tools for European spatial development. This priority is more technically oriented and concentrates on the results developed under the first phase of the ESPON programme. That means, for example, to summarise the indicators suggested in those projects, and to compare and check their consistency as a whole and in relation to the existing indicators currently used in Structural Funds programmes. The results will be suitable tools for the diagnosis of territorial trends, elaboration of scenarios, policy instruments and institutional settings. A comprehensive view towards the various sectoral dimensions within the territorial view should also build on the feed back from the Member States and Accession Countries.

1.2. Reference to the ESDP

[85] The methodology can benefit form the Commission's internal study: The impact of Community sectoral policies and the costs of non-coordination

The ESDP is the first European effort on policy orientation for the development of the EU territory. It consists of overall guidelines as well as a number of policy aims relevant for the ESPON Programme. In pursuing integration and a horizontal approach, 4 basic elements are present: cohesion (economic and social), preservation and development (of natural and cultural assets), competitiveness (of different territories), and co-operation (within larger territories, between cities and between rural and urban areas). These basic elements are supposed to be applied in support of sustainable development and thereby transcend all programmes, projects and research related to spatial development. The ESPON programme offers the chance to apply these overall aims in factual research. This is actually required already in the ESDP document and for researchers it is a major challenge to support the operationalisation of this overall aim. Tenderers should include their comprehensive understanding on the achievement of sustainable territorial development.

According to some critics, cohesion, co-operation, preservation and competitiveness are highly exclusive with respect to one another, and that opposite political claims do not represent a pertinent context of sincere research. The question is whether, or to what extent, with the territorial reference it is possible that these elements can be reconciled simultaneously towards common objectives.

Furthermore it should be investigated, whether there are visible limits of the spatial approach, and how it could be further improved. The territorial approach was put on the agenda in order to bring added value to policies through better co-ordination of their overall impact. How far can the territorial approach support economic and social cohesion and sustainable development of the EU, and how?

2. Integrated tools

"Integrated tools" covers an inventory, which should systematise the outcomes of the programme and explore the coordination, framework setting and compilation efforts under Point A.1 to 6.

- Are there typologies, which proved to be useful for the investigation of a range of thematic issues?
- Which definitions of spatial concepts proved to be most acceptable under the specific conditions of all member states?
- Which indicators do best and most comprehensively describe the spatial situation in the most important respects and could be used as a reference to a range of subjects?
- Which approaches to territorial impact assessment proved to be successful and can be recommended for further applications?

3. Compilation and structuring of recommendations on further policy development in support of territorial cohesion.

3.1. The Community interventions

Specification of potential thematic fields for Community intervention and how it could be articulated within national, regional and local policies. The Cohesion report and the ESDP policy orientations already provide references. A review of the application of those concepts, indicators and the use of new databases should be included. That could mean the evaluation of indicator systems and data pools for various purposes (Structural Funds, spatial observation, provision by Eurostat, EEA) and, in particular, in relation to the policy options of the ESDP:

- to define combining territorial indicators and socio-economic indicators, of areas with a common dynamic integration, having a European dimension and an interregional and transnational character and to establish a diagnosis of these areas; combining territorial and socio-economic indicators in order to define European global integration zones, and the use of these zones as diagnostic tools;
- to define territories and their specific features at risk; the Cohesion report already identified such regions which should be evaluated under a wider set of indicators;
- to specify in which fields and under which sectoral and structural policies a Community intervention, as regards territorial development, could be envisaged and how this could be linked to national, regional and local policies. To specify which Community actions are to be implemented and which modifications are to be included in the current sectoral policies for a balanced development of the Community territory;

- Evaluation of mapping methods developed in the previous projects for various purposes and, on that experience, creation of new useful methods and classifications.

These results should provide the basis for the preparation of a method for spatial analysis of transnational territories. Preparation of a methodology for the elaboration of spatial scenarios should be undertaken during 2004-06.

3.2. The ESDP

Furthermore it should be investigated, which elements for improvements and recommendations derive from the projects relevant for the policy guidelines and aims as well as the scope of the ESDP: How could a further territorial differentiation of the ESDP policy aims be supported? Where do gaps exist, which need to be better addressed? Which elements should be further elaborated?

4. Further research

Finally an inventory on open questions from ongoing projects and requirements for further research should be compiled, which could provide guidance for the second phase of the programme (2004-2006) and the long-term development of the ESPON.

C. Assistance in the promotion and networking of the ESPON programme

1. ESPON web site managed by the CU

The Coordination Unit will provide information to a specific and a wider public on progress made in the ESPON programme. As example, in principle, the maintenance of the ESPON web site and the production of newsletters and briefing are the tasks of the Co-ordination Unit. All projects are requested to contribute to the periodic information via the ESPON web site of the CU. The tenderer of project 3.1. has to provide inputs by synthesizing information provided by the other projects and contribute in general to the content of those two media.

2. ESPON Briefings and conferences

The cross-thematic project plays a key role in the thematic preparation of the ESPON briefings for ESPON Contact Points and the ESPON conferences (2 per year). Both are key elements for the co-ordination of the ESPON Program. The TPG shall provide scientific and technical support to Coordination Unit.

3. Preparation of working papers and a final synthesis report

The project takes responsibility for the preparation of working papers (on the basis of inputs from ongoing TPG) and a final synthesis report. One medium will be the Internet. As no particular printing costs are foreseen the Coordination Unit intends to further explore possibilities for printing key documents, in particular aimed at informing the political process.

4. Communication and tools for presentation

The ESPON has to be effective in presenting operational results to politicians, administrators, scientists and a wider public. In this respect, the tenderer should allocate resources and ideas for presentation of the (intermediate) results to the scientific community. These presentations shall be co-ordinated with the Coordination Unit in order to obtain mutual benefits. Ideas, which are already in discussion with the Coordination Unit, are ranging from an atlas to the interactive Internet presentation of the results. Elaboration of new communication tools can be taken only after approval by the Monitoring committee.

vi) Existing access points

The access points listed below can serve the purpose of providing the tenderer usefull information for preparing a proposal. It is by no means meant to be exhaustive, but only as information that can be helpful in tracing additional useful background information.

In particular, experiences in preparing a bid for this project could be gained in the framework of the "Study Programme on European Spatial Planning" within the themes of "Geographical Position", "Spatial Integration", "Economic Strength", "Social Integration", "Land-use Pressure", "Natural Assets" and "Cultural Assets" of the strand "Criteria for Spatial Differentiation". A first cross-sectional approach related to this priority has already been implemented within the Study Programme and should be continued within the ESPON 2006 Programme.

Further access is provided by the E-ESDI (Environmental - European Spatial Data Infrastructure) project launched by the DG Environment together with the EEA, the Joint Research Centre and Eurostat now called INSPIRE. The INSPIRE project represents the starting point for a spatial database on all sectors.[86]

In addition, the following could provide interesting information:

- The Second Report on Cohesion and the ESDP
- The Urban Audit already compiled indicators and data on cities across the EU.
- Interreg IIC and IIB projects, which can provide some practical experience on the transnational scale.
- OECD: territorial indicators and analysis
- Conference of Peripheral Maritime Regions of Europe (CPMR): Study on the construction of a polycentric and balanced development model for the European Territory. Second interim report. November 2001.
- DATAR – ingérop: Elaboration of a long term polycentric vision of the European space. December 2001.

Finally, an ESPON Data Navigator creating an overview, a handbook, giving information on principal data sources, contact points etc, is under elaboration. The Data Navigator is expected to cover, in principle, all countries in an enlarged European Union as well as neighbouring countries. The Data Navigator is scheduled to be finalised by August 2002.

[86] See for further information: http://www.ec-gis.org/e-esdi/

Annex I to the terms of reference of ESPON Project 3.1.:

Technical framework for ESPON GIS support

Introduction

As set out in sections III.4 and III.5 of the ESPON programme document[87], it will be a priority to put in place the scientific and technical infrastructure to facilitate the gathering, processing and analysis of the statistical and geographical information and other quantitative indicators emanating from the respective research themes of the Trans-national Project Groups (TPG); polycentrism, the territorial impacts of transport policy, the environment, rural development policy and the like.

In addition to the integration of a considerable volume of data and the setting up of a Geographical Information System, the project will cover a number of related coordination tasks to ensure the smooth running of this pan-European exercise. This will entail close liaison with a range of national bodies and the TPGs, with the aim of bringing together a common operational framework for their respective involvement in the overall work programme.

The ESPON GIS project will culminate in the provision of appropriate tools to offer an insight into the territorial dimension of the various sectoral perspectives, to assist in the diagnosis of territorial trends, elaboration of scenarios, policy instruments and institutional questions. The following tasks will be addressed:

1. Establisment of a Geographical Information System serving spatial planning and regional development policy

The construction, maintenance and development of a GIS site to run in parallel and be fully compatible with the systems in use within the services of the European Commission (DGs Regional Policy, JRC, Eurostat/GISCO). In this sense it will be a requirement that the contractor is in a position to employ his own fully operational ArcInfo GIS software license(s) to run on workstations and desk-top hardware (see annex II), and that he has specialised GIS know-how readily available.

The geographical and statistical databases will be structured so as to be easily updateable when new data become available. To this end, providing good metadata describing the sources, the status and the quality of the datasets will be essential.

Finally, the data model underlying this work must take account of the potential for developments which may take place affecting the Commission's own GIS environment, under the lead of the GISCO unit at Eurostat.

2. Coordination tasks in relation to research inputs

As well as acting as a core data server, ESPON GIS will integrate the subsequent deliverables emanating from the different research topics.

It will be a requirement to develop a common technical framework for the research work carried out in the individual thematic studies. This role will include the elaboration of a common reporting structure among the participants and will oversee the datasets and applications underlying the thematic projects. Furthermore, it will cover the methodological content of the studies vis-à-vis the choice of those modelling and spatial analysis techniques most pertinent to the scope and objectives of the topics concerned. The representation of results through surfaces and grids, rather than purely administrative (statistical) units, is likely to require particular attention.

Additionally, working closely with the project partners, it will be a necessity to develop and implement a common definition of urban (and rural) areas and related typologies, to be used as a framework for data collection and analysis. One specific theme in this context entails the elaboration of criteria on 'European functional urban areas', for example.

It will be necessary, in collaboration with third parties, the TPGs and other potential data suppliers (National Statistical Institutes and Mapping Agencies, the European Environment Agency), to critically review and define which "reference" datasets are appropriate or relevant for each study and to identify which additional data are to be obtained.

[87] THE ESPON 2006 PROGRAMME, Art.53 ERDF

3. Data service

Annex III provides a catalogue of the main geographical datasets and statistical series held by the European Commission which are likely to be of relevance to the present project. All 15 Member States of the European Union as well as the 12 Accession Candidates are to be covered.

These data will have to be complemented with national and regional sources where necessary and appropriate. In a number of cases it will be a significant task to harmonise these datasets, through co-operation between the European and national actors in the field of statistical and geographic data. The data navigator prepared under priority 4.1. of the ESPON CIP provide important inputs.

Although leaving some flexibility depending on the scope of a particular thematic subject the general reference scale for the work will be 1:100,000 for geographic datasets and NUTS[88] level 3 for statistics. In particular cases, data will relate to other geographical levels (e.g. municipalities), or might be available or undergo processing to redistribute them on the basis of a regular grid.

For each of the respective research topics an indicative list (not exclusive) of statistical series and indicators has been elaborated, serving to illustrate the scope of the project and as a basis to elaborate the inventory of basic reference series.

3.1. Variables characterising the CAP and rural development policy (examples):

- Agricultural land use and livestock
  - Share of Average Utilised Agriculture Area (UAA) from total area
  - Indicators of agricultural land use: proportion of arable land, permanent grassland and pastures, permanent cultures, fallow land
  - Average Utilised Agriculture Area (UAA) per holding
  - Number of heads of livestock or number of heads of Livestock Units (LSU) per holding
- Farm structures and farm labour force
  - Average Economic Size of the holding : ratio of Standard Gross Margin (SGM), expressed in European Size Unit (ESU), by number of holdings
  - Agricultural Income : Farm Net Value Added (FNVA) per Annual Working Unit (AWU)
  - Productivity : ratio of SGM expressed in ESU, related to total labour force expressed in AWU
  - Average number of AWU by 100ha
  - Average number of AWU per holding
  - Share of agricultural employment
  - Evolution of the share of agricultural employment
  - Proportion of young farmers in the agricultural sector (younger than 35 years)
  - Evolution of the proportion of young farmers
  - Proportion of old farmers in the agricultural sector (older than 65 years)
  - Evolution of the proportion of old farmers
- Diversification of farm incomes:
  - Dependence on agricultural sector
  - Share of tourism employment
  - Evolution of the share of tourism employment
  - Other activities (handicrafts, creation of SMEs, tec..)
- Others
  - Quality of buildings
  - Quality of landscapes

3.2 Variables for the quantification and analysis of territorial and regional disparities in the field of research (examples)

- Research and innovation
  - "Investment in knowledge" – public and private investment in RTD
  - Scientific and technological productivity

[88] Nomenclature des Unités Territoriales Statistiques, Statistical Office of the European Communities.

- Innovation capacity, indicators: e.g. business expenditure on RTD, government expenditure on RTD, loan activities of the EIB, number of patent applications, share of participating SMEs

- Human resources and mobility
  - Level of education and training
  - Career possibilities, training and mobility incentives
    Indicators: e.g. number of places in universities, percentage of the resident population who have completed tertiary education leading to a first university degree or equivalent, number of re-integration grants
- Research infrastructure
  - Access to infrastructure
    Indicators: e.g. PC equipment, internet sites, telephone lines, etc.
  - Co-ordination of research activities
    Indicators: e.g. number and type of networks

3.3 Variables for the quantification and analysis of the transport sector and the territorial imbalances and regional disparities in transport infrastructure (examples)

- Quantities of freight and passengers moved and the vehicles and infrastructure used
  - Total transport of goods by road, railway, inland waterways and maritime (tonne-kilometres)
  - National transport, t-km, as % of total transport of goods by road, railway, inland waterways
  - Rail transport of passengers, millions passengers and passenger-km
  - Passenger cars per 1 000 inhabitants
  - Passenger car transport. Million passenger kilometres
  - Total passengers air traffic by Member State (intra and extra-EU)
- Safety
  - Number of deaths (road, rail, aviation, maritime)
  - Number of accidents involving personal injury
- Regional dimension of transport statistics (NUTS 2)
  - Density: Road (kilometres by 100 km2), Rail (inhabitants by rail km), Cars (number of cars by 10 inhabitants)
  - Road freight transport within and between the regions of the European Union

3.4 Environmental indicators and themes (examples)

- Coastal and island regions
  - Over-concentration of population and human activities
  - Deterioration of the coast
  - Reduction in diversity and in biological quality of coastal landscapes
  - Management problems of fresh water resources
  - Coastal erosion
  - Deterioration in the quality of coastal water and reduction in marine resources
- Rural regions and mountain areas of the European Union
  - Threats on forest areas
  - land pressure
- Wetlands
  - land pressure
- Urbanised areas

3.5 Variables for the quantification and analysis of sectoral impacts and Territorial Impact Assessment (TIA)

- Demographic indicators
  - Population density
  - Share of population younger than 20 years
  - Share of population older than 60 years
  - Evolution of the population (average change over previous x years)
  - Migratory trends

- Regional economic strength
  - Growth Domestic Product (GDP) per inhabitant in Purchasing Power Parity (PPP)
  - Evolution of GDP per inhabitant
  - Unemployment rate
  - Evolution of unemployment rate
  - GDP/occupied person (productivity)
  - Poverty rate
  - FDI
  - Trade flows
  - Creation of enterprises
- Social cohesion indicators
  - Distribution of incomes : ratio income received by the highest earning 20% and the lowest 20%
  - Jobless households : share of households in which no member is employed
- Environment
  - CO2 emissions
  - Congestion
  - Noise pollution
- Others
  - Access to services
  - Equal opportunities
  - Degree of exchange with nearby urban areas
  - Ecological effects
  -

3.5 Variables for the analysis of polycentrism

- Territorial densities reflecting physical and functional phenomina
- SPESP[89] criteria
  - Geographical position
  - Economic strength
  - Social integration
  - Spatial integration
  - Land-use pressure
  - Natural assets
  - Cultural assets
- Indicators of competivity (Second Report on Economic and Social Cohesion[90])
  - Economic structure
  - Accessibility
  - Innovation capacity
  - Qualifications
- CPMR[91]
  - Demography
  - Competitiveness
  - Economic attractiveness
  - Connectivity
  - Territorial integration
- Urban-rural relationships (at three territorial levels; global economic integration zones, main development poles, urban functional areas)
  - rural areas (e.g. access to services)

[89] Study Programme on European Spatial Planning, ……
[90] Unity, solidarity, diversity for Europe, its people and its territory - Second Report on Economic and Social Cohesion, European Commission 2001
[91] Conference on Peripheral and Maritime Regions

- urban areas (e.g. social exclusion, pressure on the environment, urban sprawl)
- urban/rural; indicators for exchange between the areas

4. Cartography

The contractor will draw on the work of the post-ESDP Study Programme *SPESP* in order to implement some of its findings as regards the development of techniques for schematic cartography and symbolic language serving spatial planning and regional development policy at the pan-European level.

5. Timetable

The foregoing tasks are to be operationalised as part of the first phase of the ESPON work programme, that is, by October 2004. Further development of the GIS and related data products, especially in the cartographic domain, will take place under the second phase, 2004 to 2006.

Notwithstanding the above, it will be an important responsibility of the contractor to undertake a preliminary, *rapid* review of the data, information and literature already available, and to proceed to a first round of data collection aiming at improving the availability and completeness of the main series, with a view to selecting significant material to support the preparation, by the European Commission, of the 3rd Report on Economic and Social Cohesion.

These tasks represent a tight and highly demanding time schedule. The contractor will be invited to propose (again with the advice of the programme partners) methodologies, which offer the possibility of analysing and delivering, often at short notice, initial “coarse” results (in spatial terms, say at NUTS 2 and NUTS 3). These would be improved later with more sophisticated methods combining local and detailed gridded information to enable a more detailed picture to be produced.

Annex II to the terms of reference of ESPON Project 3.1:

Considerations to be included in order to ensure that texts, data and illustrations (maps, graphics, images, geographical information etc.) prepared as part of a study can be integrated and exploited within the technical operating environment of ESPON Programme (and DG Regional Policy)

In order that the illustrative material prepared for all ESPON projects can be integrated in the technical operating environment of the ESPON programme and DG Regional Policy and with a view to possible publication of ESPON documents, the contractor shall consider the following requirements in the setting of standards:

1. Compilation of texts, tables, graphics and geographic information

The contractor shall undertake to provide to the Co-ordination Unit (on behalf of the Monitoring Committee) with the manuscript and floppy disks or CD-ROM containing the full final text of the document, including all tables, figures and graphics as well as geographic coverage, maps and related coding or programming scripts.

The text is to be prepared using WORD 2000. Any tables or graphics must be prepared using EXCEL 2000 in a Windows 98/2000/XP/NT4.0 environment. The basic and worked quantitative data used to produce the tables, graphics and/or maps should be processed in ACCESS 2000 database format and made available on the media "free of copyright". Geographic information is to be prepared in the form of ARC/INFO coverage, assuring compatibility with the latest coding conventions (nomenclatures), appropriate scales and standard projection of the GISCO reference base of EUROSTAT.

Further technical details should be obtained by contacting the ESPON CU or
or the
GIS department of
DG Regional Policy;
European Commission,
REGIO A1, GIS Dept.,
CSM2 – 1/161,
Rue de la Loi, 200,
B – 1049 BRUSSELS.

The illustrations (tables, charts, graphs, maps and geographical coverage) should be grouped logically on separate directories in the chosen delivery medium. They should be independent from the text of the document. Specific directories will contain the illustrations and underlying data. A summary of the contents of the disks or CD-ROM is to be attached to documents, indicating clearly:

- the names of the directories and files;
- the parts of the document contained in each file;
- the file format and the version and software used.

Corresponding exactly to the files on disk or CD-ROM, the Co-ordination Unit must also be given a copy of the text in its final printed form. The contractor shall undertake to create the document layout using the ESPON layout elaborated so far.

The Coordination Unit will check documents for conformity.

Documents shall be drafted in English.

2. Illustrations, maps

Maps are to be supplied in original form on paper, transparencies or film and on a magnetic medium (disks or CD-ROM) compatible with the IT equipment of the ESPON CU and DG Regional Policy. The maps in the final manuscript must be originals, not photocopies.

As regards the text appearing on each map, geographical names in a specific national territory are to be written in the language of the territory in question, while all other names are to appear in the language of the document. For example, on a map of the Community the names of the towns are to appear in their language of origin but the names of seas are to appear in the language of the document. The key must also be in the language of the document.

Cartographic work is to be carried out with the same software products used by the ESPON CU and DG Regional Policy (ARC/INFO 8.x or ARCVIEW 3.x in a Unix environment or Windows

NT4.0). Please consult the 'GIS' department for further information on the ARC/INFO or ARCVIEW versions to use.
Contractors must, in all cases, deliver the computer programs (languages: AML - ARC/ INFO or AVENUE - ARCVIEW), graphics files (xx.gra, ARC/INFO standard or xx.eps (Postscript New (EPS)) for ARCVIEW) and all the data (and their origin) used to prepare the maps.

3. Drawings, images

Drawings are to be prepared using the software used by DG Regional Policy (ADOBE PHOTOSHOP 5.x, ILLUSTRATOR 9.x under Windows NT4.0). Please consult the GIS department, for the latest versions to use.

Annex III to the terms of reference of ESPON Project 3.1:

Statistical and Geographical data in European Spatial Planning Summary of available datasets by theme (10 January 2002)

The principal source for the present inventory is EUROSTAT. The tables summarise potentially relevant datasets managed at the *GISCO* site along with a selection of statistical series from the *Regio* database.

For the purposes of spatial planning analyses, the listing identifies only those datasets at a nominal scale of 1:3,000,000 or better, since smaller scale information is generally too coarse to offer satisfactory compatibility in this context. For the statistical series of the Regio database (essentially, NUTS listings), these are identified by the notation [SERIES_NAME]. Where data are available at a given NUTS level they are implicitly aggregated to all appropriate higher levels. The listing concentrates primarily on those data available at the NUTS 3 level. Offering only the broadest of European-wide comparisons, data series at NUTS 2 have been retained data where these might serve as inputs to be modelled in conjunction with other data to support the generation of certain indicators.

	Theme	Scale/cover/ resolution	Type, format, units	Geographical extent	Source
1. Topography					
1.1	Coastlines	1:1,000,000	Digital map (vectors)	Pan-Europe	GISCO/Eurostat
1.2	Lakes	1:1,000,000	Digital map (vectors)	Pan-Europe	GISCO/Eurostat
1.3	Hydrological network at 1m	1:1,000,000	Digital map (vectors) Rivers (126,000 segments) and lakes (42,000 segments)	Pan-Europe	Bartholomew
1.4	Hydrological network at 3m	1:3,000,000	Digital map (vectors) Main rivers (6,159 segments) and lakes (2,068 segments)	Pan-Europe	GISCO/Eurostat
1.5	Hydrology: watersheds at 3m	1:3,000,000	Digital map (vectors) 240 drainage basins	Pan-Europe	GISCO/Eurostat
1.6	Altimetry: Digital Elevation model at 3 million	1:3,000,000 30''Long/Latitude	Digital map (grid)	Pan-Europe	EDC, USGS
2. Political and administrative boundaries, regions					
2.1	Administrative boundaries: NUTS (v7) at 10m	1:10,000,000	Digital map (vectors) 1,402 admin units	EU15, EFTA4 and CEC10	GISCO/Eurostat
2.2	Administrative boundaries: NUTS (v7) at 3m	1:3,000,000	Digital map (vectors) 1,402 admin units	EU15, EFTA4 and CEC10	GISCO/Eurostat
2.3	Administrative boundaries: NUTS (v7) at 1m	1:1,000,000	Digital map (vectors) 1,402 admin units	EU15, EFTA4 and CEC10	GISCO/Eurostat
2.4	Administrative regions (political)	1:1,000,000	Digital map (vectors)	EU15 and CEC9	GISCO/Eurostat
2.5	Commune boundaries: SABE at 0.1m	1:100,000	Digital map (vectors) >100,000 units. AT, FI, SE at different scales	EU15 and EFTA4,	GISCO/Eurostat/ EuroGeographics
2.6	Commune boundaries: SABE at 1m	1:1,000,000	Digital map (vectors)	EU15, EFTA4 and CEC10	GISCO/Eurostat/ EuroGeographics

	Theme	Scale/cover/ resolution	Type, format, units	Geographical extent	Source
2. Political and administrative boundaries, regions					
2.7	Area of NUTS 3 regions	NUTS3 data list	Km²	EU15+CEC10	Eurostat/REGIOdb [D3AREA]
3. Socio-economic statistical series					
3.1	GDP (1999)	NUTS3 data list	Values/€/currency/ PPS/per capita	EU15+CEC10	Eurostat/REGIOdb [E3GDP95] [XE_GDP]
3.2	GVA	NUTS3 data list	By sector/branch NACE Rev.1, currency/€	EU15+CEC10	Eurostat/REGIOdb [E3VAB95] [XE3VABP] (MISSING!)
3.3	GVA	NUTS2 data list	By sector/branch NACE Rev.1, currency/€	EU15+CEC10	Eurostat/REGIOdb [E2VAB95] [XE2VABP]
3.4	Employment	NUTS3 data list	By sector, branch NACE Rev.1, work status	EU15+CEC10	Eurostat/REGIOdb [E3EMPL95] [XE3EMPL] (MISSING!)
3.5	Employment	NUTS2 data list	By sector, branch NACE Rev.1, work status	EU15+CEC10	Eurostat/REGIOdb [E2EMPL95] [XE2EMPL]
3.6	Employed persons	NUTS2 data list	By sector, branch NACE-CLIO, work status, sex	EU15+CEC10	Eurostat/REGIOdb Community Labour Force Survey [LF2EMP] [XLFEMP]

	Theme	Scale/cover/ resolution	Type, format, units	Geographical extent	Source
3. Socio-economic statistical series					
3.7	Employment rates	NUTS2 data list	By sex	EU15+CEC10	Eurostat/REGIOdb Community Labour Force Survey [LF2EMPRT] [XLFEMPRT]
3.8	Active population	NUTS2 data list	By age (10-year classes) and sex	EU15+CEC10	Eurostat/REGIOdb Community Labour Force Survey [LF2ACT] [XLFACT]
3.9	Activity rates	NUTS2 data list	By age (10-year classes) and sex	EU15+CEC10	Eurostat/REGIOdb Community Labour Force Survey [LF2ACTRT] [XLFACTRT]
3.10	Gross Fixed Capital Formation	NUTS2 data list	By sector, branch NACE Rev.1	EU15+CEC10	Eurostat/REGIOdb [E2GFCF95] [XE2GFCF]
3.11	Labour force scenarios by sex age 5-year cohorts; High, low and baseline forecasts for 5-year periods to 2025	NUTS2 data list	000's	EU15	Eurostat/REGIOdb [SCEN2LF]
3.12	Unemployment rate (2000)	NUTS3 data list	Harmonised %, total, M/F, <25s	EU15+CEC10	Eurostat/REGIOdb [UN3RT], [XUNRT]
3.13	Unemployed persons (2000)	NUTS3 data list	000's, total, M/F, <25s	EU15+CEC10	Eurostat/REGIOdb [UN3PERS], [XUNPERS]
3.14	Research and development expenditure	NUTS2 data list	By sector (All, business,Government, higher education), €, %GDP	EU15+CEC10	Eurostat/REGIOdb [RD2EXP] [XRDEXP]

	Theme	Scale/cover/ resolution	Type, format, units	Geographical extent	Source
3. Socio-economic statistical series					
3.15	Research and development employment	NUTS2 data list	By sector (All, business,Government, higher education), persons, % of total employment, % of active population	EU15+CEC10	Eurostat/REGIOdb [RD2PERS] [XRDPERS]
3.16	Research and development : Employment in high technology	NUTS2 data list	By sector (Total high tech, manufacturing, services), persons, % of total employment	EU15	Eurostat/REGIOdb [EHT_R]
3.17	Patent applications	NUTS2 data list	8 sections of the International Patent Classification	EU15	Eurostat/REGIOdb [RD2PAT]
3.18	Patent application rates	NUTS2 data list	Rates per million inhabitants, by active population, by R&D personnel, by expenditure	EU15	Eurostat/REGIOdb [RD2PAT]
3.19	Household numbers	NUTS2 data list	000's of households by degree of urbanisation	EU15+CEC10	Eurostat/REGIOdb [RD2PAT_R]
3.20	Tourism: Lodging capacities (2000)	NUTS3 data list	Establishments/Bedrooms/bed places, hotels/campsites etc.	EU15	Eurostat/REGIOdb [RSECT_A/t_3r]
3.21	Tourism: Occupancy	NUTS2 data list	Number of nights spent by residents/non-residents, by lodging type	EU15	Eurostat/REGIOdb [RSECT_B/t_04tr] [RSECT_B/t_05tr] [RSECT_B/t_06tr] [RSECT_B/t_07tr]
4. Population, demography					
4.1	Population by commune 1981	NUTS5 data list	000's	EU12	GISCO/Eurostat
4.2	Population by commune 1991	NUTS5 data list	000's	EU12	GISCO/Eurostat
4.3	Annual average population by sex	NUTS3 data list	000's	EU15+CEC10	Eurostat/REGIOdb [D3POP] [XDPOP]

	Theme	Scale/cover/ resolution	Type, format, units	Geographical extent	Source
4. Population, demography					
4.4	Population by sex and single-year cohorts	NUTS2 data list	000's	EU15+CEC10	Eurostat/REGIOdb [P2AGE90] [XDAGE90]
4.5	Population by sex and 5-year cohorts	NUTS2 data list	000's	EU15	Eurostat/REGIOdb [D2AGE80]
4.6	Density of average total population	NUTS3 data list	000's	EU15+CEC10	Eurostat/REGIOdb [D3DENSIT] [XDDENSIT]
4.7	Births and deaths	NUTS3 data list	000's	EU15+CEC10	Eurostat/REGIOdb [D3NATMOR]
4.8	Population scenarios by sex and 5-year cohorts; High, low and baseline forecasts for 5-year periods to 2025	NUTS2 data list	000's	EU15	Eurostat/REGIOdb [D2SCE]
5. Environment					
5.1	CORINE Land Cover	1:100,000	Digital map (vectors) 44-class, 3-level nomenclature on bio-physical inventory. Min unit 25 ha	EU15 + CEC10 + other areas.	EEA
5.2	CORINE Land Cover	1:100,000	Digital map (100m grid) 44-class, 3-level nomenclature on bio-physical inventory	EU15 + CEC10 + other areas	GISCO/Eurostat EEA
5.3	CORINE Land Cover	1:100,000	Digital map (250m grid) 44-class, 3-level nomenclature on bio-physical inventory	EU15 + CEC10 + other areas	GISCO/Eurostat EEA
5.4	Biotopes	Locations	Point data 7,741 sites identified and described	EU12+Finland	GISCO/Eurostat Ex-DGXI, TF-EEA
5.5	Protected sites: Designated at national, regional and local	Locations	Point data 17,830 sites identified and described	Pan-Europe	EEA/Council of Europe/WCMC/ EIONET

	Theme	Scale/cover/ resolution	Type, format, units	Geographical extent	Source
5. Environment					
5.6	Protected sites: Designated under Community legislation and international conventions	Locations	Point data 1,812 sites identified and described	Pan-Europe + north Africa	CEC ex-DGXI, based on Ramsar, UNEP, UNESCO
5.7	NATURA2000 (Under construction)	1:100,000 or larger	Points, converting to digital map series 30,000 habitat sites from 2 ha to 300,000 ha	EU15+.	DG ENV, EEA, JRC
5.8	Soils map (FAO nomenclature)	1:1,000,000	Digital map (vectors) 15,843 soil polygons	EU12:	DG ENV, JRC
5.9	Climate: Weather records	Sampling points	19 variables, 5,308 stations	EU12, excluding ex-DDR	Ex-DGXI/national meteorological offices
5.10	Climate: Interpolated data	50x50 Km grid	Grid data, monthly for 7 parameters	Pan-Europe + Mahgreb	GISCO/Eurostat/ JRC(MARS)
5.11	Landscapes	1:6,000,000	Digital map (vectors) 30 landscape types in 8 complexes	Pan-Europe	GISCO/Eurostat Ex-DGXI, TF-EEA
5.12	Bio-geographical regions	1:1,000,000	Digital map (vectors)	EU15	European Com and Council of Europe, Bundesamt für Naturschutz
5.13	Natural vegetation inventory	1:3,000,000	Digital map (vectors) 4,162 polygons, 232 vegetation types	Pan-Europe (except some CECs)	European Com and Council of Europe
5.14	Coasts: Morphology and erosion risks	1:100,000	Digital map (vectors) 17,051 coastal segments	EU12 except Greek islands, ex-DDR, Azores/Madeira.	European Com Ex-DGXI
5.15	Air pollution (urban)	Sampling points	115 major European cities (1995) SO2, particulate content, NO2, CO, Pb, Ozone		
6. Energy infrastructure					
6.1	Nuclear Power Stations: Capacity, type, production	Locations	Point data 151 sites	EU12	GISCO/Eurostat
6.2	Electricity: Power stations and transformation stations	Locations	Point data 938 installations	Pan-Europe	GISCO/Eurostat

	Theme	Scale/cover/ resolution	Type, format, units	Geographical extent	Source
6. Energy infrastructure					
6.3	Terminals and refineries, oil and gas	Locations	Point data	Pan-Europe	GISCO/Eurostat
7. Transport					
7.1	Airports	Locations	Point data 1,612 airports	Pan-Europe	GISCO/Eurostat/ various
7.2	TEN airports	Locations	Point data. 331 TEN-eligible airports, 9 airport systems	Pan-Europe	GISCO/Eurostat
7.3	Ports	Locations	Point data 1,848 ports	Pan-Europe	GISCO/Eurostat
7.4	TEN ports	Locations	Point data 619 TEN-eligible EU ports	EU15	GISCO/Eurostat
7.5	Road network	1:1,000,000	Digital map (vectors) Major roads and access points	Pan-Europe	IRPUD
7.6	TEN road network	1:1,000,000	Digital map (vectors) TEN-eligible major roads	EU15	GISCO/Eurostat
7.7	Railway network	1:1,000,000	Digital map (vectors) Major railways and access points	Pan-Europe	IRPUD
7.8	TEN railway network	1:1,000,000	Digital map (vectors) TEN-eligible network	EU15	GISCO/Eurostat
7.9	TEN ferry links	1:1,000,000	Digital map (vectors) TEN-eligible ferry links	EU15+EFTA	GISCO/Eurostat
7.10	TEN inland waterways	1:3,000,000	Digital map (vectors) 654 TEN-eligible river segments	EU15	GISCO/Eurostat
7.11	Inland navigable waterways	1:1,000,000	Digital map (vectors) Navigability status of 2,283 river and canal segments	Pan-Europe	GISCO/Eurostat

	Theme	Scale/cover/ resolution	Type, format, units	Geographical extent	Source
8. Urbanisation					
8.1	Urban centres	Locations	Point data 7,269 towns and cities > 10-20,000 pop, pan-Europe. NB: Some errors and misleading aggregations	Pan-Europe	GISCO/Eurostat
8.2	National and regional capitals	Locations	Point data Status of 1,227 towns and cities	EU15+EFTA4 and 165 in CEC10	GISCO/Eurostat
8.3	Degree of urbanisation	1:1,000,000	Definition of 3 density classes; dense, intermediate and sparse. Algorithm uses contiguity rules to generate agglomerations	Most of EU15. Being updated and completed in-house	DG REGIO, after GISCO/Eurostat
8.4	Urban regions of the Labour Force Survey	1:1,000,000	Coded attributes to link to NUTS	EU15	GISCO/Eurostat
9. Agriculture					
9.1	Land use [A2LAND, XALAND]	NUTS 2 data list	000 hectares Forest, Utilised agricultural area, market gardening, grassland, permanent crops, vineyards, olive groves, arable land, fodder crops, fallow land	EU15 + CEC10	GISCO/Eurostat
9.2	Crops [A2CROPS, XACROPS]	NUTS 2 data list	000 hectares, 000 tonnes, t/ha Details and aggregates of main cereal crops, potatoes, pulses, sugar, oilseeds, flax, cotton, tobacco, orchards, vineyards, olives	EU15 + CEC10	GISCO/Eurostat
9.3	Livestock [A2ANIMAL, XAANIMAL]	NUTS 2 data list	000 head Detailed breakdown by livestock category and operational classes	EU15 + CEC10	GISCO/Eurostat
9.4	Agricultural accounts [A2ACCT97]	NUTS 2 data list	€, subsidies, taxes Series and aggregates for almost 40 crops and derivatives. 6 livestock categories and related products. Outputs, processing activities, consumption, related goods and services, investment, income, wages etc.	EU15	GISCO/Eurostat

	Theme	**Scale/cover/ resolution**	**Type, format, units**	**Geographical extent**	**Source**
9. Agriculture					
9.5	Farm structures [A2EFARM]	NUTS 2 data list	155 variables covering operational details by size and type of holding.	EU15	GISCO/Eurostat
10. Multi-thematic models and data products					
10.1	IMAGE 2000 (Under construction)	25m multi-spectral and panchromatic	satellite imagery	EU15 + CEC10+	EEA/European Commission
10.2	Peripherality	NUTS3 data list	Index values	EU25	IRPUD(Copus)
10.3	CLC-based disaggregation of commune-level population on a 100m² grid (provisional)	1:100,000	Digital map (100m grid)	Most of EU15	JRC

TERMS OF REFERENCE ON ESPON ACTION 3.2.

SPATIAL SCENARIOS AND ORIENTATIONS TOWARDS THE ESDP AND THE COHESION POLICY

(2004-06)

(Preliminary, not complete, finalisation when project will be tendered, for the timing see annex 3)

After the achievement of improving the analytical base, the focus should be directed towards the preparation of projects with prospective character incorporating various spatial development trends in different types of regions. The preparation of scenarios (to 2020 and beyond) should employ an innovative, creative and multi-methodological approach and should be focused on the policy orientation of the ESDP and the Cohesion policy under the heading of a balanced and sustainable development. Most prominent, whit regard to the ESDP policy orientations, are the territorial dimensions identified in the Cohesion report considering

- the least developed regions with gaps in the provision of certain types of infrastructure, particularly in the context of enlargement;
- urban areas as the centres of economic, social and territorial change; and focal points for polycentric development;
- the diversification of rural areas in terms of the structural change of their economic base and its consequences and taking into account their natural and cultural situation;
- cross-border, transnational and interregional co-operation with special consideration of the situation before and after the accession;
- areas with severe geographical handicaps considering the broad variety of those disadvantages.

All scenarios should consider that there may exist different points of view in all Members States and candidate countries. The methods applied should try to integrate these views but, if necessary, allow different kind of scenarios. The art will be to develop a common approach without suppressing deviating positions.

The second step for drawing policy conclusions should be achieved by a kind of roll back process. The identification of scenarios assume policy responses on spatial developments. Consequently, the second part of the measure supports the deduction of necessary policy responses in order to achieve or to avoid intended or unintended spatial developments identified by the scenarios. The question is what do we have to do now if we want to achieve the long term developments proposed in the scenarios. Consequence for policies should cumulate in suggestions for the adaptation of the ESDP and Structural Funds Policy in the wake of the 2007 reform.

Results of previous measures in relation to reviewing the ESDP should take forward the results of measure 2..6 and include transnational and enlargement dimensions.

Territorial impact assessment methodologies should pull together results from 2.1. 2.2, 2.3 etc.

Links should be set up with Interreg III projects, in particular with the Spatial Visions Projects ,and a joint evaluation of the scenarios in the background of the spatial vision experiences should be established.

The scenarios need to be studied with a broad focus, including all the neighbouring countries (also the Balkan area, and the Eastern and South Mediterranean countries). If possible a discussion process with research institutes from those areas ought to be launched.

The scenarios should indicate possible domains and territories of the EU policies and should allow to better identify and describe the strengths and weaknesses of Europe's spatial structure in the midterm future.

In accordance with the ESPON Guidelines 2001-2006, this measure deals with the priorities mentioned under Point 3.1. bullet 1,2 and 3, and Point 3.2 bullet 2,4.
Italy: Interested
The forthcoming enlargement of the European Union presently determines the general formation of a political opinion. The investigation of the regional impacts of the EU Enlargement by means of a scenario by 2025 is therefore of special interest.
Questions to create a scenario might be the following:

- international migration and migration potentials
- regional economic involvements and impacts (regional competitiveness)
- societal and social aspects (subjective regional attitudes of the population on the enlargement)
- adjustment and development of the infrastructure (transport and accessibility; energy networks)
- spatial consequences (development of the German urban system, of rural areas and of the agricultural markets, special aspects of the development of regions on the present external EU border)
- Reform of the European Structural Funds

Expected results
A number of important results can be achieved. Amongst them:
until mid 2002:
a) to reach consensus on indicators and necessary data after a precise analysis of the availability and comparability of data at Community level. For these analysis, the results of the study programme and the results of the ESPON projects in course, in particular under priority 3.1, should be taken into account. This task should also define f the appropriate geographical level and technology required for data collection, taking into account the availability of the data. A first detailed and comprehensive list of main requests for statistical and geographical data should be addressed to Eurostat, the EEA and National Statistical Institutes and National Mapping Agencies before mid 2002.
A second revised and extended request for further indicators should be addressed to Eurostat and the EEA by 2002 (the latest).
until 2003:
b) to create tools for the identification of threads and potentials for a more balanced territorial development such as indicator lists, databases, mapping methods covering all themes in a comprehensive and integrated way;
c) to identify orientations on the implementation of spatial objectives into the existing EU policies – from analytical tools to policy measures;
d) to prepare methodologies for prospective scenarios.
Until 2006:
e) to develop policy scenarios in written and visual form which would help to understand the importance and potentials of the territorial development;
f) to propose ideas for the possible orientation of the up-date of the ESDP and of the Cohesion policy at EU level (bearing in mind that the revision of the ESDP is a genuine task of the CSD).