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Division of Urban Studies

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ESPON Action 1.1.3:

PARTICULAR EFFECTS OF ENLARGEMENT OF THE EU AND BEYOND ON THE POLYCENTRIC SPATIAL TISSUE WITH SPECIAL ATTENTION ON DISCONTINUITIES AND BARRIERS

First Interim Report

”OPTIONS FOR SPATIALLY BALANCED DEVELOPMENTS IN THE ENLARGEMENT OF THE EU (ODEN)”.

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1. Summary of main findings

The main findings from the work being done in February and March 2003 within ESPON Action 1.1.3:

Consensus has been met on indicators and data needed to develop a new database, including territorial indicators and the facilities needed for mapmaking. Consensus has also be achieved at the Kick-off meeting of the Transnational Project group regarding concepts and methodologies to be applied (see below)

A first list of statistical and geographical data has been produced

A first list of data to be used contains:

- Popualtion indicators
- Employment indicators
- Economic Indicators
- Accessibility
- Cohesion indicators

The work on the establishment of a database is being pursued in cooperation with our Partner Jörg Neubauer of Nordregio.

A first overview on concepts and methodologies to be applied (Summary)

1) Summary of concepts as agreed upon by the Transnational Project Group:

Polycentricity and Urban networks:

Regarding the character of the concept of polycentric spatial development, as distinguished from earlier concepts for spatial development the following features may be stressed:

- dynamic process
- cities not only as supplying centres but as driving forces of development
-not only a model of settlement structure but of functional networks
- activation of endogenous regional potentials
- model to be applied at several levels
- tracing polycentrism should start from the 1990s

The concept of polycentrism will be further elaborated with the special concerns of enlargement and urbanization, which include:

- Sectoral economic changes
- The geographic situation and the demographic potential
- Urbanisation and urban systems
- Interconnections of the urban systems of the enlargement countries with EU - 15 and beyond EU –27 regions

Flows and transition processes

We consider transformation to be more or less synonymous with transition. It should, however, be kept in mind that these two concepts can be substantively different with respect to continuities and discontinuities in the development process. We consider the following types of flows:

- direct foreign investments and/or trade flows, goods transport flows
- migration flows
- cross-border passenger flows

Political economic transformation

Political economic transformation includes a number of parallel processes:

- Marketisation in abolishing the directive system of central planning, liberalisation of prices and wages, etc..
- Privatisation of state assets, compensation of people expropriated in the past, legal regulation of different types of corporations and enterprises, guaranteeing the rights to property.
- Opening trade barriers by abolishing discriminative trade barriers, liberalisation of foreigntrade, steps to-wards convertibility of the currency, establishing the legal and economic preconditions of foreign direct and portfolio investment;
- New functions of central and local government, new regional level new government structure, new institutions and new forms of partnerships.

Convergence/divergence

We have agreed on the dimensions of convergence in accordance with the: Second report on Economic and Social Cohesion, CEC [2001].
- productivity, competitiveness and economic performance
- demography and migration
- investment
- infrastructure endowment
- human resource development
- innovation and RDT

It may be assumed that the concept of polycentric development is the proper spatial model for pursuing the goal of territorial cohesion.

Accessibility

Very simple accessibility indicators take only transport infrastructure in an area itself into account as an endowment factor. More complex accessibility indicators take account of the connectivity of transport networks by distinguishing between the network itself and the activities or opportunities that can be reached by it. These indicators always include in their formulation a spatial impedance term that describes the ease of reaching other such destinations of interest. Impedance can be measured in terms of travel time, cost or inconvenience and may also include social, economic and political barriers.

Spatial integration, cooperation, links and barriers

Spatial integration means the convergence of different geographical sites and regions in terms of time costs and psychological distance. It means the establishment of dense transport and telecommunication networks, and the enabling of speedy, frequent and bureaucracy-free movement of people, goods and information. It means, to make borders as penetrable and "spiritualised" as possible. It also means to create transnational co-operation networks between cities, regions and all other actors of spatial development.

Partnerships at all levels and in all spheres are necessary to foster integration: between national administration, between regional and local governments, between economic, political, environmental and cultural institutions, among enterprises, cities and regions.

Resources and environment

It is important that spatial development also considers the possible effects on, and policy decisions made regarding, sustainable social and ecological development. Thus this concept will include issues such as reducing total environmental impact (”ecological footprint”) of polycentric urban activities in the wider European arena, promoting efficient settlement and land use patterns so as to minimise urban sprawl, minimising the environmental impacts of expanded transport networks in an enlarged Europe, sustainable energy management in light of the Kyoto Protocol and inter-European networking in the form of Activities Implemented Jointly for reducing greenhouse gas emissions.

2) Methodologies to be used in WP 3 Diagnosis: Spatial tissue, polycentrism and discontinuity in candidate countries and border regions

(a) Methodology for the analysis of patterns of spatial interaction

The first step is to analyse and map current patterns *of flows of goods and people* in and across border regions in the Eastern parts of the EU. This will be done with existing data.

The following step is to pursue *accessibility modelling,* which will be followed up in WP 4 with construction of scenarios.

(b) Analysis of the development of the spatial tissue

The first step is an analysis of the current network of cities/regions in the candidate countries. This will be done by applying methods developed within *network theory*.

Depending on the availability and usability of data , the spatial response within candidate countries to *convergence* criteria will be analysed:

In the second step we will utilise both global and *local spatial autocorrelation indices* in investigating the networks of spatial patterns of regional development in candidate countries, and in cross-border regions of EU/candidate countries.

(c) Spatial cooperation and integration leading to convergence/divergence

This will be accomplished using specific methods depending on the processes that will be described and analysed.. When the focus is on dispersion in different variables between and within regions 'σ-convergence' is perhaps the most useful method based on cross-section data between two different time periods. β-convergence is used when time-series are used and indicates how fast or slow different regions are changing. In analyses of regions or nations at quite different levels β-convergence is perhaps the most useful method and indicator. Here, both methods will be used to reveal the transition and convergence/divergence process with regard to regions within the EU, and with regard to the EU and the candidate countries.

3) Methodologies to be implemented in WP 4. Spatial impact of enlargement on the EU and accession countries

Enlargement scenario study 1.Spatial economic dynamics in the EU in the long term

The methodology will support the need to preserve multidimensional representations of each scenario based on policy-relevant sets of indicators. The centrepiece of this project is the development of a GIS-based integrated modelling and decision support system, which enables the development and simulation of trend scenario based on "what-if" hypothesis' testing, and the explorations of the consequences on the emerging economic and spatial structures, of changing critical indicators such as transportation, zoning patterns and various related locational decisions involving growth pole strategy.

Enlargement scenario study 2. Impact assessment of TEN-T and TINA developments

The methodology proposed here to measure the territorial effects of transport policies is to use a quasi-production function model with accessibility. This type of model is based on an extension of the production-function approach in which the classical production factors are complemented by one or more variables representing the locational advantage, or accessibility of a region. The SASI model developed in the 4th RTD Framework EUNET/SASI project, updated and extended in the 5th RTD Framework IASON project and to be used in ESPON action 2.1.1 is such a kind of model and will be used for this scenario study.

Discussion of preliminary results and a first indication on policy recommendations

During the weeks that Action 1.1.3 has been operative, the transnational project group has been:

- concentrating on developing the database in collaboration with ESPON 3.1

- exploring analyses of the options for a polycentric development in Eastern Europe in light of the process of enlargement

- exploring analysis of the problems and opportunities in spatial cooperation and integration in the enlargement process, and

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. – consolidating preliminary statements regarding the policy areas to be addressed in ESPON measure 1.1.3.

Polycentricity and urban development:

- The problems and the opportunities of the urban systems of the 12 countries of enlargement with regard to their polycentric development present many resemblances but also important differences.
- The first common problem is the weakness of the urban systems to support polycentric territorial growth.
- All these urban systems are found (with important differences between them) away from the single Global Integration Zone of EU –15. The urban systems of the Czech Republic, Slovakia, Hungary and Slovenia are located in axial extensions of this GIZ. These axial extensions present the potential of fast growth.
- The development of these axial extensions will certainly encourage the urban system of Poland as well. This urban system has the possibility of rapidly strengthening its bonds with the wider Baltic region.
- The urban systems of the three small Baltic countries have possibilities of enhancing relatively fast their links with the wider region of Baltic, and to a relatively smaller degree with the countries of CIS and Russia.
- The connections of the urban systems of the Balkan countries with the urban systems of countries of EU–15 are rather weak today (with significant differences among the different countries). In condition that there will be a powerful aid intervention, these urban systems have the possibility of developing their interconnections so much with those of countries of EU – 15 as with those of CEE , Black Sea countries and the Middle East.
- Another common problem (that concerns the big majority of countries that have been examined) in the prospect of enlargement, is the case of over promoting the growth of capitals at the expense of the rest of the urban systems. It is therefore necessary to promote the development of networks between the intermediate and small cities in relation to the rapidly transforming rural space, in order to avoid important economic and social problems of enlargement outside the capitals regions.

Spatial co-operation and integration accentuated in the enlargement process:

- rapidly increasing disparities among regions, in particular between capital regions and peripheries on the one hand and border areas neighbouring EU 15 and the ´internal´borders between Candidate countries
- dominant role and increasing importance of borders and hence border regions,
  partly caused by the recent partitions and foundations of new states
- in some places natural barriers (mountain ranges; rivers lacking bridges) and administrative shortcomings still inhibit better cross-border interaction
- at the regions along the borders not only the West-East cascades of income (and productivity) meet, but also ethnic ties and mutual knowledge of languages, thus creating special potential for growth, not always appreciated by central authorities
- taking over the Schengen-border regime at the future external border will be experienced as a return of serious restriction at both sides of the new border line
- part of the legacy of the traditional centrally-organised political system that its regionalisation efforts shows "top-down"-features whereas the experience within the European Union is that regional development is driven most by decentralised units of governance
- different states of the process of regionalisation between the Candidate countries

Wealth differentials can be regarded as problems in one way but also as chances.

First indication of policy recommendations to be elaborated in the future work of ESPON 1.1.3:

1. Balanced widening of the EU transport network
2. New forms of cross-border cooperation
3. Policy that supports sustainable development in the economic, social, ecological and organizational senses
4. Recommendations for a bottom-up perspective and forums for stakeholders involved, new forms of partnerships

In exploring the types of policy recommendations that are likely to come out at following stages of the process of enlargement, we estimate that we will be able to discuss pre-conditions and needs for a more balanced widening of the EU transport networks. This will be needed as a tool for a more polycentric development at different levels and to simulate growth and cohesion the whole ESPON territory.

New forms of cross-border cooperation will be recommended to cope with the differing levels of functionality and democratic empowerment in the new border zones. Tentatively, we expect the highest levels of both functionality and democratic power to be found in the land-based border regions within current EU15

The next highest levels of both indicators are expected to be found in EU15 borders to the Candidate Countries of Poland, the Czech Republic, Hungary and Slovenia.

At the lowest level of functional integration and democratic participation, we hypothesise to findt he future external borders of the new EU25.

We recommend a bottom-up perspective and improved forums for stakeholders involved at all regional scales. This means that new partnerships should develop in order to ensure vertical political cooperation and horizontal integration of policy sectors. Finally, our policy recommendations will deal with the overall objective of a sustainable development.

Update of project operations.

The ESPON measure 1.1.3 ”The particular effects of enlargement of the EU and beyond on the polycentric spatial tissue with special attention on discontinuities and barriers” in the form of our project ”Options for spatially balanced developments in the enlargement of the EU (ODEN)” initiated work in January 2003. A kick-off meeting held in Stockholm on January 24-25 was attended by all partners and contributed gaining consensus on the concepts, methodologies and indicators utilised bythis project, as well as making the timetable and work schedule more precise..

Contracts between the Lead partner (KTH) are in the process of being signed with each of the partners and the meeting budget has been redistributed to reflect that fact that KTH does not have to pay VAT on services rendered.

ODEN 1.1.3 has also welcomed a new Associate Partner into our transnational group. As Switzerland has now become a full member of ESPON look forward to cooperation with the Institute for Economic & Regional Studies at the University of Neuchatel, represented by Professor Olivier Crevoisier.

2. Short presentation of approaches, methodologies, typologies and concepts

2.1 Approaches

Enlargement of the European Union by the accession of transforming economies and societies will have particular effects on the fibre of the European territory, especially at the internal and external border regions. These effects will require more emphasis on balanced and sustainable spatial development, with special attention to the issues of transitional political and administrative systems, possible geographic polarisation, capricious development of technical infrastructure, environmental stress and a shrinking public sector.

The *specific tasks* for Action 1.1.3 are to:

- Define the appropriate geographical level impact analysis of scenarios
- Identify relevant indicators on spatially balanced developments
- Identify usable and comparable data
- Analyse and diagnose the current state of the spatial structure particularly in Candidate countries and in the present EU border regions. Analyse the current flows and interaction within the urban system, in particular Candidate countries and at the present EU border regions
- Develop scenarios and accomplish territorial impact assessment of the enlargement process and the development of the TEN and TINA network
- Suggest policy options to achieve a balanced spatial development in the course of EU enlargement

According to the *Contract* for ESPON project 1.1.3 (version 5.12.2002) the 1st Interim report in May 2003 should report progress made on:

- Consensus on indicators and data needed to develop a new database, including territorial indicators and the facilities needed for mapmaking.
- A first list of statistical and geographical data
- A first overview on concepts and methodology to be applied
- Discussion of preliminary results
- A first indication on policy recommendations
- establishment of a new data base
- A second revised and extended request for further indicators

2.2 Outline of Methodologies in 1.1.3

2.2.1. Methodologies to be used in WP 3 Diagnosis: Spatial tissue, polycentrism and discontinuity in candidate countries and border regions

Work package 3 will examine spatial structure and transformation in the enlargement process. Therefore a deeper look at spatial tissue, polycentrism and discontinuity in the candidate countries and in particular border regions is necessary. Three categories of border regions are considered

- The border between the EU15 and EU 27,
- the internal borders between the member states,
- borders between the present candidate states and
- the new external borders

Besides the description and mapping of the general spatial tissue, the analyses will focus on spatial discontinuities and barriers, interaction and co-operation and the polycentrism concept as a main strategy for territorial cohesion.

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The following three dimensions are crucial for handling this subject:

a) *the process of spatial interaction*
b) *the characteristics and territorial variation in the spatial tissue, and*
c) *evaluation of spatial co-operation and integration.*

In particular the socio-economic functionality of different regions and larger territories (including a compilation of relevant national studies with European focus) will be analysed. The emergence of integration zones at the transnational and global levels will be analysed.

(a) Methodology for the analysis of patterns of spatial interaction

The first step in this study is to analyse and map current patterns *of flows of goods and people* in and across border regions in the Eastern parts of the EU. This will be done with existing data. As far as possible (concerning level of available flow data) spatial interactions will be analysed in trems of:

- direct foreign investments
- goods transport flows and/or trade flows
- migration flows
- cross-border passenger flows

The volume and orientation of flows will be evaluated with reference to institutional barriers to trade and migration

The following step is to pursue *accessibility modelling,* which will be followed up in WP 4 with construction of scenarios.. The idea is to provide a typology of NUTS-3 regions based on their accessibility to candidate countries before and after enlargement and TEN-T/TINA network development. This would show which regions already have a good location with respect to candidate countries and which regions would benefit in the future from the combination of political/economic integration and infrastructure development and which regions would lose due to their newly acquired peripheral status

(b) Analysis of the development of the spatial tissue

The first step is an analysis of the current network of cities/regions in the candidate countries. This will be done by applying methods developed within *network theory*. We will analyse homogeneity, discontinuities and multiscalar position:

- wealth differential between neighbouring regions
- dynamics of regions
- spatial structures in the light of the concept of polycentric development (application of results of ESPON 1.1.1);
- barrier effects by natural, economic, cultural and administrative circumstances.

Depending on the availability and usability of data , the spatial response within candidate countries to *convergence* criteria will be analysed:

Performance indicators:

Competitiveness
business activities.
productivity
economic performance
attraction for investments

Resources for the future – potential:

human resources
R&D expenditure
patents
CPMR indicators on polycentricity

policy indicators

A first indication of policy recommendations which will emerge from this study concern:

- Policy options to liberate synergies in emerging urban systems
- Formulate instruments that would help to improve the economic and population development of cities situated in peripheral regions

Develop instruments to promote actions to foster spatial effects, especially in regions surrounding capital cities

In the second step we will utilise both global and *local spatial autocorrelation indices* in investigating the networks of spatial patterns of regional development in candidate countries, and in cross-border regions of EU/candidate countries.

The global spatial autocorrelation indices measure the overall extent of spatial dependency and clustering, but they do not produce enough information concerning the characteristics of individual locations. In the local autocorrelation analysis, however, each location in the data set is considered separately, and an autocorrelation measure is derived from data concerning its local neighbourhood. This allows the results of the cross scale analysis to be visualised as a map rather than presented as a single statistic or table.

The results may indicate, for example, tendencies towards

- mosaic-like urban/rural divergence
- regionally clustered economic dynamics
- or spatially stable cohesion and convergence in candidate countries, and in current cross-border areas of the EU.

The study continues the work of the SPESP study spatial integration and gives new insights to spatial structure of regional dynamics in Europe. The results are presented as maps, comparing neighbouring regions. The issues to be dealt with in the 2nd *Interim report and which will be answered more properly in following reports are:*

- what characterizes the the spatial pattern of development in old and new EUcross-border regions
- where are the high and low spatial clusters of economic dynamics located,
- how can the the phenomenon of economic convergence/divergence within the local neighborhood concerned be visualised
- what is the role of different types of cities and regions as growth poles in regional development in candidate countries.

First indications on policy orientations:

At the end, the policy implications of the answers to these questions will be evaluated.

Data sources and project implementation

The dataset to be used in this analysis is intended to cover the period 1990-2000. The final list of indicators - as well as the spatial scale to be used and the regions/countries included - is decided on the basis of the results from the data inventory module, WP2. The spatial statistics software used in the analysis is ArcGIS 8.1.[1]

Spatial cooperation and integration leading to convergence/divergence

The question is which approaches are to be followed towards a new transnational and cross-border integration, taking into consideration even sea borders between two countries. We will identify the general discontinuities and barriers at European scale using the following indicators :differences in wealth or unemployment, barriers to residential migration or cross-border commuting.

This will be accomplished using specific methods depending on the processes that will be described and analysed. When the focus is on dispersion in different variables between and within regions 'σ-convergence' is perhaps the most useful method based on cross-section data between two different time periods. β-convergence is used when time-series are used and indicates how fast or slow different regions are changing. In analyses of regions or nations at quite different levels β-convergence is perhaps the most useful method and indicator. Here, both methods will be used to reveal the transition and convergence/divergence process with regard to regions within the EU, and with regard to the EU and the candidate countries (see e.g. Button and Pentecost, 1999)[2].

By using indicators of convergence and divergence it is possible to assess continuities and discontinuities in transition processes. According to neo-classical economic theory convergence is an indication of integration and better resource allocation. According to centre-periphery models, divergence between regions may be an indicator of increased integration – the 'backwash effect' is larger than the 'spread effect' (see e.g. Myrdal, 1957)[3].

By analysing cross-border mobility of different types it is possible to find indicators of both integration and barriers. Increased mobility are generally a sign of increased integration, especially if it is not a one-way process. Increased patterns in combination with convergence in income and wealth provide indications on a well-functioning integration process without abrupt discontinuities. Increased one-way migration in combination with divergence in incomes results in spatial polarisation.

By using these typologies it is possible to analyse cooperation in the integrative process and hampering barriers with regard to transnational and cross-border regions in a simple and illustrative way.

The crucial hypotheses regarding processes of Spatial co-operation and integration are:

Integration into the growing European Union is, of course, a major goal of the whole Danube region. However, integration within the Danube region (between the countries as well as within the countries) has to be considered not only an equivalent goal, but, first and foremost, the main route to economic prosperity in the Danube Region. Neighbourhood is the key of cohesion. There are already existing promising stories of cross-border institutions like EUREGIO or city networks and other co-operations.

WP 3 also includes a comparative analysis of other expressions of the integration processes in transnational and cross-border regions. The analysis includes cross border regions becoming insiders in an enlarged EU as well as ongoing and potential cooperation between EU regions and future neighbouring regions.. The basic method will be derived from current advances in network theory. The method of research will also encompass analyses of relevant e g Interreg programme evaluations and studies with European focuses using statistical evaluation analyses in order to quantify relationships and map the results

[2] K. Button and E. Pentecost, 1999, Regional Economic Performance within the European Union, Edward Elgar Publishing. Cheltenham, UK and Northampton, MA. . For a more thorough discussion of different convergence concepts, see Barro and Sala-i-Martin (1999).

[3] G. Myrdal, 1957, Economic Theory and Underdeveloped Regions, Macmillan: London.

Work plan and division of labour WP3 until 2nd Interim report

a. Development of spatial tissue

Recording, analysing and mapping of indicators on the development of the urban system and the processs of spatial integration: Analysis of at the time available data on the spatial response within candidate countries to *convergence* criteria

b. Patterns of interaction

Recording, analysing and mapping disparities and discontinuities by means of spatial autocorrelation coefficients and methods used in the SPESP study on spatial integration

c. Spatial cooperation and integration

Recording, analysing and mapping of co-operations and barriers. The volumes of EU-fundings will be recorded, I e: Volume (standardised)
of pre-accession aid pogrammes Phare, Phare CBC, Sapard, ISPA, European Investment Bank (EIB)
European Bank for Reconstruction and Development (EBRD), to indicate the countries´ involvement/integration into the EU´s development policies

CBCs: Cross-border-co-operations encompassing activities (Interreg, Phare CBC, EUREGIOs and City- and regions´- co-operation networks

The analysis of the above described short-terms will mainly be made by literature review, expert interviews and statistical analysis. A qualitative assessment of literature review combined with statistical data will give an insight on spatial integration in border regions mainly effected by EU-enlargement.

The crucial hypotheses regarding processes of Spatial co-operation and integration are:
Integration – meaning removal of barriers - into the growing European Union is, of course, a major goal of the whole. East of the EU15. However, integration within the Danube region (between the countries as well as within the countries) has to be considered not only an equivalent goal, but, first and foremost, the main route to economic prosperity from the Danube Region in the south to he Baltic Sea Region in the north. Neighbourhood is the key of cohesion. There are already existing promising stories of cross-border institutions like EUREGIO or city networks and other co-operations.

A first indication of policy recommendations which will emerge from this analysis concern the measures to be taken in order to overcome the following barriers to integration in the course of enlargement:

- Natural (mountains, rivers)
- Languages and ethnic minorities.
- Schengen regimes
- Differing decentralization/regionalisations of administrations

Another indication of policy orientation is suggestions on best practices for new cross-border programmes in Eastern Europe , involving reforms in regional administration and governance.

2.2.2. Methodologies to be implemented in WP 4. Spatial impact of enlargement on the EU and accession countries

WP4 aims at an 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. We will identify particular effects of the stepwise integration of the candidate countries on territorial development.

Methodology in Enlargement scenario study 1.Spatial economic dynamics in the EU in the long term

The methodology will support the need to preserve multidimensional representations of each scenario based on policy-relevant sets of indicators. The centrepiece of this project is the development of a GIS-based integrated modelling and decision support system, which enables the development and simulation of trend scenario based on "what-if" hypothesis' testing, and the explorations of the consequences on the emerging economic and spatial structures, of changing critical indicators such as transportation, zoning patterns and various related locational decisions involving growth pole strategy.

"What if" hypotheses include:

- different extent of EU enlargement;
- different levels and target areas of implementation of EU policies;
- different levels of integration among sectoral policies;
- different levels of barriers' removal
- **Different levels of new barrier establishment on the new EU Eastern borders**

Identification of trends

This stage of the project aims primarily to identify major global trends occurring at the European level and trends, which are important in Europe but not necessarily apparent at the global level. Trends can be separated into those where the general direction over the scenario period can be assumed not to vary significantly (strong trends) and into those which could take a number of possible directions (weak trends).

TRENDS IMPACTING ON:		
ECONOMIC PATTERNS	SOCIAL STRUCTURE	ECOLOGICAL CAPITAL
Liberalisation Deregulation and privatisation in the EU energy sector; Fall in global and European tariff rates Growth in global and European FDI Globalisation Increase in world trade; Expansion of communication networks Culture and international travel Technology Increased spending on R&D Decline in production costs **Deregulation and privatization in transport sector in candidate countries**	Social development Demographic transitions; Human Development Indices; Expenditure in education; Evidence of life-styles changes Employment patterns; Population patterns	Environment CO2 emissions; Consumption Pressure Index; Urban air pollution; Natural Resources Growth in energy consumption; Decline in forest covers; Water and land consumption

Table.1: Preliminary list of trends that will be investigated.

Trends will be operationalised quantitatively through indicators and through a qualitative description in which driving force of this study.

Enlargement scenario study 2. Impact assessment of TEN-T and TINA developments

One of the main obstacles for the integration of the candidate countries into the European Union is the poor quality of transport infrastructure in those countries as well as the links between those countries and EU15. At the same time, this problem is already approached by the European Union's transport policy. However, the territorial impacts of the proposed transport network developments are not clear at all. The outcome might be a higher level of cohesion, but also increased spatial disparities might be the case. Therefore, a second scenario study will assess the impacts of large-scale European infrastructure investments in form of TEN-T and TINA networks on the European regions.

The methodology proposed here to measure the territorial effects of transport policies is to use a quasi-production function model with accessibility. This type of model is based on an extension of the production-function approach in which the classical production factors are complemented by one or more variables representing the locational advantage, or accessibility of a region. The SASI model developed in the 4th RTD Framework EUNET/SASI project, updated and extended in the 5th RTD Framework IASON project and to be used in ESPON action 2.1.1 is such a kind of model and will be used for this scenario study.

The SASI model is a recursive simulation model of socio-economic development of regions in Europe subject to exogenous assumptions about the economic and demographic development of the European Union and the candidate countries as a whole and transport infrastructure investments and transport system improvements, in particular of the trans-European transport networks. For each region the model forecasts the development of accessibility, GDP per capita and unemployment. In addition cohesion indicators expressing the impact of transport infrastructure investments and transport system improvements on the convergence (or divergence) of socio-economic development in the regions of the European Union are calculated.

The main concept of the SASI model is to explain locational structures and locational change in Europe in combined time-series/cross-section regressions, with accessibility indicators being a subset of a range of explanatory variables. Accessibility is measured by spatially disaggregate accessibility indicators which take into account that accessibility within a region is not homogenous but rapidly decreases with increasing distance from the nodes of the networks. The focus of the regression approach is on long-term spatial distributional effects of transport policies. Factors of production including labour, capital and knowledge are considered as mobile in the long run, and the model incorporates determinants of the redistribution of factor stocks and population. The model is therefore suitable to check whether long-run tendencies in spatial development coincide with development objectives discussed above. Its application is restricted, however, in other respects: The model generates distributive, not generative effects of transport cost reductions, and it does not produce regional welfare assessments fitting into the framework of cost-benefit analysis.

The SASI model differs from other approaches to model the impacts of transport on regional development by modelling not only production (the demand side of regional labour markets) but also population (the supply side of regional labour markets), which makes it possible to model regional unemployment. A second distinct feature is its dynamic network database based on a 'strategic' subset of highly detailed pan-European road, rail and air networks including major historical network changes as far back as 1981 and forecasting expected network changes according to the most recent EU documents on the future evolution of the trans-European transport networks.

The SASI model has seven submodels.

- European developments.
- Regional accessibility.
- Regional GDP.
- Regional employment.
- Regional population.
- Regional labour force.
- Socio-economic indicators.

The *spatial* dimension of the model is established by the subdivision of the European Union and the 12 candidate countries in eastern Europe and Liechtenstein, Norway and Switzerland into 1,291 regions (NUTS-3 regions) and by connecting these regions by road, rail, waterway and air networks.

The *temporal* dimension of the model is established by dividing time into periods of one year duration. By modelling relatively short time periods both short- and long-term lagged impacts can be taken into account. In each simulation year the seven submodels of the SASI model are processed in a recursive way, i.e. sequentially one after another. This implies that within one simulation period no equilibrium between model variables is established. In other words, all endogenous effects in the model are lagged by one or more years. The SASI model commences in the year 1981 in order to cover twenty years of the past for validation reasons and makes then forecasts up to the year 2021.

The outcome of SASI model runs are forecasts of regional accessibility, GDP/capita and unemployment pattern in Europe and their translation into cohesion indicators (e.g. coefficient of variation, Lorenz curves and GINI-coefficients).

The SASI model will be used in the second enlargement scenario study to model a limited set of different scenarios with respect to the speed and extent of the enlargement process and with respect to different assumptions on the extent and scheduling of transport infrastructure implementation. The outcome of the model runs will be assessed and compared with respect to territorial patterns of the output indicators and with respect to spatial disparities and cohesion.

The first indication of policy recommendations which will emerge from this scenario study concern:
- recommendations for transport infrastructure policies in the candidate countries,
- recommendations for regional and cohesion policies in the candidate countries,
- recommendations for an possible update of the European Spatial Development Perspective.

The *2nd interim report from Action 1.1.3* will display preliminary results from this particular analysis showing:
- the planned evolution of transport infrastructure in the candidate countries,
- the impact of transport infrastructure development on regional accessibility in the candidate countries,
- the impact of transport infrastructure development on regional development in the candidate countries,
- the impact of transport infrastructure development on spatial disparities and cohesion in the candidate countries and in Europe.

2.2.3 Impact analysis of scenarios

The impact analysis of scenarios will be taken from the scenarios developed within this project. As a final step in this WP, we will assess the effects of enlargement on regional development and translation of trade, foreign direct investment and migration flows on macro-economic variables. The aim is to, as far as possible, evaluate the effects seen from territorial and regional dimensions and consider variables such as demographic indicators, including population density, evolution of the population, new urban poles at different scales; regional economic strength, as seen in GDP per inhabitant in Purchasing Power Parity (PPP), evolution of GDP per inhabitant, creation of enterprises, GDP per person employed, inflation, and changes in the economic sectors; and labour market indicators such as different rates of unemployment (long term, young, women), evolution of unemployment rate, poverty rate, and wage levels. Finally, effects will also be evaluated with regard to environmental problems such as CO2 emissions, noise pollution, and congestion.

The *type of policy recommendations* which will emerge from the analyses of the scenario studies concern:

1. Policy orientation to overcome disparities at the new EU border zones such as new forms of cooperation and projects
2. Policy orientations for a new European transport network
3. Recommendations for various levels of barrier removal (such as institutional barriers)
4. Recommendations for horizonatal coordination among sectoral policies

Detailed workplan and division of labour WP4

	Scenario Study 1 CASA	Scenario Study 2 SASI	Impact Analysis
To 2nd Interim 0308	implementation of methodology, first tentative results	implementation of methodology, first tentative results	First tentative indication of results
To 3rd Interim 0409	Testing of several policy scenarios, final results	Testing of several policy scenarios, final results	First results of analysis
To Final ESPON Report 0512	Refinement, conclusions	Refinement, conclusions	Final Ananysis

2.3 Typologies

We will attempt to produce innovative insights reflecting the particular needs of the various border regions by classifying the patterns of spatial development and interaction in the unique situation of the enlarged Union and its new neighbours, Several typologies of functional regions and relations will be focused on in our analysis, based on the production of new maps. We will look for the "problem areas" as well as the potential that exists in the border regions, such as exploring comparative advantage etc. This function approach is important to show political authorities what types of potential synergies can be created. In conclusion we should see how far we can come in extending the border regions:

- Border regions between EU 15 and Candidate countries
- Border regions between Candidate countries
- New border regions (with EU25 and other countries after enlargement)

These typologies will more specifically analyze:

- The spatial tissue of border areas at risk for natural catastrophes (such as flooding) and other severe environmental disturbances.
- Institutional typology of political administrative capacity, democratic power and public participation in the new border areas
- From the accessibility study emerges a typology of NUTS 3 regions based on the degree they are benefiting from EU enlargement and TINA transport infrastructure investments.

From WP 3 will be developed a typology of different types of cities and regions as growth poles in regional development in candidate countries.

- New Global Integration zones developing in the enlargement process (Baltic Sea Region, Greece-Istanbul)

2.4 Elaboration of Concepts in 1.1.3

Elaboration of concepts used particularly in WP 3, as

- Polycentric Spatial Development featuring Polycentricity and Urban networks:
- Flows and Transition:
- Political Economic Transformation:
- Convergence/Divergence:
- Accessibility
- Spatial Integration Cooperation:
- Environment and Resources

2.4.1 Polycentric spatial development

Regarding the character of the concept of polycentric spatial development, as distinguished from earlier concepts for spatial development the following features may be stressed:

- dynamic process
- cities not only as supplying centres but as driving forces of development
- not only a model of settlement structure but of functional networks
- activation of endogenous regional potentials
- model to be applied at several levels
- tracing polycentrism should start from the 1990s

The relation to several levels is a distinct feature (and,"achievement") already expressed explicitly in the ESDP. The concept means:

- at the European level: Several metropolitan regions as global integration zones instead of only one

- at the transnational level: Enforcement of a polycentric system of metropolitan regions, city clusters and city networks
- at the national level: systems of cities including the corresponding rural areas and towns

open for application at lower levels, e.g. for the development within city regions (intra-regional)

Polycentricity and urban networks:

The concept of polycentrism will be further elaborated with the special concerns of enlargement and urbanization:

It makes sense to start by refering to certain spatial planning goals. This is where *the primary concept of the ESDP, the polycentric spatial development,* becomes relevant. It seems to be even more important for the regions and cities of the enlargement area (as well as neighbouring regions and cities within EU-15 territory), given that the undergoing transition process involves considerable investments into, (and thereby changes of), the technical and institutional infrastructure in these parts of Europe. Thus, the manoeuvring space for spatial development policy has to be considered comparably on a larger spatial perspective than present EU territory. This means alternatively that the potential risk of missing the aims of the ESDP is considerably higher too.

Technical and institutional infrastructure improvements enabled by EU aid have already important territorial effects. Yet these are expected to be surpassed by the territorial effects of EU "acquis" and Community policies.

The enlargement countries

As agreed in the Copenhagen Council (2002), ten countries (Latvia, Estonia, Lithuania, Poland, Czech Republic, Slovakia, Hungary, Slovenia, Cyprus and Malta) will join the EU in 2004 and two other countries (Bulgaria and Romania) will join the EU in 2007. The accession demand of Turkey will be examined in 2004.

Factors influencing the typology of urban systems in the enlargement countries

Sectoral economic changes

The majority of these countries belong in Central and Eastern Europe (CEE: Latvia, Estonia, Lithuania, Poland, Czech Republic, Slovakia, Hungary, Slovenia and Romania) and present certain common economic and social characteristics, that are related more or less to pre-existing socialist development structures as well as problems of transition to the market economy and economic restructuring.

We report here three fundamental characteristics of this transition:

- The rural sector of these countries is shrinking rapidly, however its participation in the economy continues to be very important, when compared with EU – 15 standards (especially in the case of Poland). This change creates pressures on the countryside and reinforces the immigration to cities.
- The industrial sector is also declining, reflecting on the economy of several larger or smaller industrial centres that are facing recession. Therefore, significant economic restructuring in the wider region is necessary.
- The administrative system in general and the mechanisms of spatial planning implementation in particular, continue to present important weaknesses.

The geographic situation and the demographic potential

We can identify different groups of countries according to their geographic situation, their demographic dynamics and their relationships to each other, as well as to EU – 15 countries.
The first group is formed by the three Baltic democracies with their small size and population but with established powerful relationships to each other.
Poland belongs in the same geographic region but it is strongly differentiated, among all enlargement countries by its large population size and the still powerful presence of a vast rural sector.The four countries in the heart of Central Europe that will join EU in 2004 (Czech Republic, Slovakia, Hungary

and Slovenia) have rather low demographic indicators and hold powerful relationships with their neighbouring EU – 15 countries.

Romania is attached to this macro-region. However its close links with the Balkans make its position as part of this group only peripheral. In reality, even though Romania and Bulgaria hold concrete agreements to join the EU in 2007, in contrast to the rest of the Western Balkans, we could still not study them outside the context of the Balkan region.

We can consider that the Balkan region includes Romania, Bulgaria, Croatia, Bosnia -Herzegovina, Serbia – Montenegro, FYROM, Albania, Greece and Turkey (as for its European part).

The Balkan countries present significant demographic differences. Romania has rather high demographic indicators, while the population of Bulgaria, Serbia – Montenegro and Greece is close to the population standards of small EU – 15 countries. Finally, Croatia, Bosnia -Herzegovina, Albania and FYROM, present significantly smaller demographic dynamics.

The Balkan countries present strong and differentiated relationships to each other, which are strengthened during the last years following the pace of political developments. The links between Greece, Bulgaria and Romania have strengthened considerably. The relationships of these three countries with the rest of the Balkan countries have strengthened more slowly. However it is very likely that they will be reinforced considerably in the coming years.

Cyprus and Malta present many similarities. Both are island regions, that have relatively small demographic potential and their economy is supported considerably by tourism.

Urbanisation and urban systems

In the beginning of '50s, the majority of the population of the Central and Eastern European countries (CEE) was rural, (60 % in Hungary, 65 % in Slovakia, 70 % in Poland and in Romania).

Equally and even higher were the corresponding figures in the Balkan countries.

The situation was reversed during the last fifty years: two thirds of the population of Central and Eastern European (CEE) countries are now urban, with a maximum rate in the Czech Republic (75 %) and a minimum rate in Slovenia (50 %) and Romania (55 %).

In the majority of CEE countries, the capital city plays a primary economic and cultural role. Only Poland has considerable regional centres.
Three agglomerations, those of Budapest, Warsaw and Prague, form an integral part of the European metropolises network.

Two other factors differentiate the urban system of Central and Eastern Europe (CEA) from that of Western Europe. The first is the lack of a complete network of small and medium-sized cities (with the exception of Poland, the Czech Republic, Slovakia and Slovenia). The second is linked to the disparities between urban and rural living conditions.

The urban systems of the Balkan countries present many similarities with CEE countries. The capital cities play a primary economic and cultural role as well. Istanbul is an exception, rivalling Ankara, the capital of Turkey, in importance. Among Balkan capital cities, Athens is mostly integrated in the network of European metropolises, due to its size and EU membership.

Istanbul tends to play a significant role in the network of European metropolises, in correspondence to its recent rapid demographic and economic development.

The potential of Bucharest and Sofia to enhance their role is limited today by their small size and growth dynamics. However, their potential to be incorporated in the network of European metropolises will certainly increase considerably in the coming years.
The prospects of capital cities of the rest of the Balkan countries couldn't be clearly appreciated today, because of persisting political problems. It is most likely that the political stability of the region will be consolidated; therefore the role of Zagreb, Serajevo and Belgrade, the most important cities of the region, will be strengthened considerably.

In all Balkan countries, the rest of the urban network, (excluding the capital cities) is weak. Comparatively, the urban system of Greece is the most developed. Salonica is a powerful centre, which already plays an important role in the Balkans that will be strengthened considerably inthe future.

The living conditions in most Balkan cities are considerably lower than those of EU-15.

Finally, the urban systems of Cyprus and Malta differ considerably from those of CEE and Balkan countries.

The urban system of Cyprus is relatively balanced and powerful taking into consideration the size of the island. The total of Malta constitutes substantially a single urban region. The living conditions in the cities of both islands are comparatively satisfactory.

Interconnections of the urban systems of the enlargement countries with EU - 15 and beyond EU – 27 regions:

The three small Baltic countries have already powerful relationships with the wider Baltic Sea region, which will be strengthened in the future.

Poland has established links with a tendency to become more strengthened — in addition to the dominant western link with Germany also with the northern part of the the Baltic regionas well as with the Southern Central European space of both EU - 15 and countries of enlargement, as well as the Eastern countries of the Community of Independent countries. Warsaw but also other big cities of Poland have a considerable potential to enhance their role as centres in the EU-27 and wider regions.

The links between the urban systems of the southern Central European enlargement countries and the western EU – 15 countries already exist to a significant extent. Budapest and Prague already constitute powerful nods of the Central European urban system and their role will be strengthened fast in the future. Bratislava, even though smaller, presents a powerful degree of integration.

The urban systems of Balkan countries present of course a lower degree of integration with the urban system of EU -15 countries. As we reported already, their incorporation in this space advances at a differentiated pace and in relation to different parameters.

The urban systems of Cyprus and Malta are very open and present the potential to be incorporated fastin the urban network of EU-27 and beyond, despite the disadvantage of their island character.

Problems and opportunities with polycentricity accentuated in the enlargement process

The problems and the opportunities of the urban systems of the 12 countries of enlargement with regard to their polycentric development present many resemblances but also important differences.

The first common problem is the weakness of the urban systems to support polycentric territorial growth.

All these urban systems are found (with important differences between them) away from the single Global Integration Zone of EU –15. The urban systems of the Czech Republic, Slovakia, Hungary and Slovenia are located in axial extensions of this GIZ. These axial extensions present thepotential of fast growth.

The development of these axial extensions will certainly reinforce the urban system of Poland as well. This urban system has the possibility of strengthening fast its bonds with the wider Baltic region.

The urban systems of the three small Baltic countries have possibilities of enhancing relatively fast their links with the wider region of Baltic, and to a relatively smaller degree with the countries of CIS and Russia.
The connections of the urban systems of the Balkan countries with the urban systems of countries of EU–15 are rather weak today (with significant differences among the different countries). In condition that there will be a powerful aid intervention, these urban systems have the possibility of developing their interconnections so much with those of countries of EU – 15 as with those of CEE , Black Sea countries and the Middle East.
Another common problem (that concerns the big majority of countries that have been examined) in the prospect of enlargement, is the case of over promoting the growth of capitals at the expense of the rest of

the urban systems. This risk represents the other side of the coin in enhancing the role of capitals in the network of European metropolises.

It is therefore necessary to promote the development of networks between the intermediate and small cities in relation to the rapidly transforming rural space, in order to avoid important economic and social problems of enlargement outside the capitals regions.

Crucial hypothesis regarding enlargement and polycentricity

- Enhancement of the role of the capital cities of the enlargement countries in the network of European metropolises at the expense of the rest of the national urban systems.
- Development of the cities, city clusters and city networks located in development corridors which mainly constitute axial extensions of the single Global Integration Zone of EU–15.
- Growing restructuring pressures on the cities, city clusters and city networks located in old industrial regions and rural regions, especially those of the Eastern part of the enlargement area.

2.4.2 Flows and transition processes

We consider transformation to be more or less synonymous with transition It should, however, be kept in mind that these two concepts can be substantively different with respect to continuities and discontinuities in the development process. Transformation is in general more connected with abrupt and revolutionary processes than transition. Transformation is characterised less by stages in the development process as is transition. The candidate countries from the former Soviet bloc have been often called 'transition countries' since the beginning of the 1990s. The correct term should perhaps instead be 'transformation countries' during the fist part of the decade and then 'transition countries' as a consequence of the smoother development from the middle of 1990s. Here, however, we use the two terms synonymously.

We consider the following flows:

-direct foreign investments and/or trade flows, goods transport flows
-migration flows
-cross-border passenger flows

An increased integration will, naturally, result in an expanding trade between the countries in the enlarged EU. Already now, the trade between these countries is of great importance but there is still a lot of hindrances between the EU-countries on the one side and the transition countries on the other.

With regard to the economies in the EU15, Germany is generally the most important trading partner with regard to the transition countries. Many of the candidate countries are, however, still oriented towards the old Soviet Bloc with regard to the trading patterns. There is, thus, a long way to go before we can talk about an integrated enlarged EU according to the trading patterns - both according to the various countries´ export and import.

At first sight, we can suppose that the trade between the Western and Eastern parts of Europe will show the pattern of the theory of comparative advantages. The problem in this case is, however, that data about factor endowments are in many ways incomplete. Instead - to get a hint of differing countries´ factor endowments - we are obliged to use some form of *ad hoc* explanation. The theory of 'revealed comparative advantages' - which is more a method than a theory - follows a deduction like this: If there is some power in the theory of comparative advantages, the countries which export capital-intensive products have a lot of capital compared to the importing country and vice versa (Belassa, 1965; for the East-West trade, see e.g. Neven & Röller, 1991). The same reasoning is, of course, true with regard to the other factors too - including technology and educational level.

The free trade has thus, resulted in an adjustment process among the labour-intensive branches and also in the regions where these branches are over-represented. There are, however, still branches and regions where an increased trade within an enlarged EU will have negative effects. Some products and branches, which are labour-intensive but not entirely dependent of low wages will, however, probably be affected by an increased import. This will of course also have regional implications especially with regard to regions that will experience a more intensive competition from the transition countries. The result will be that at least the industrial expansion in these districts will slow-down or even result in retardation.

Factor Endowments and Factor Mobility

After the discussion of the regional effects of an increased trade within an enlarged EU, the differing factor endowments between the countries in the EU and the transition countries its effects on the mobility of labour and capital will be discussed.

Implications for Capital Mobility

Different regions have differently composed capital and labour markets, which implies that the development possibilities are not equal regarding choices of technology available for adoption. Since there exists a mutual dependence between the labour force's competence structure and the introduction of new technology, a lack of competence is a restriction to innovative activities and technology renewal. This relationship applies especially in old industrial regions or rural areas characterised by economic backwardness.

Even if capital moves to cheap labour, this type of investment pattern is not post-industrial. Instead, it is a defensive investment pattern, which to a great extent characterises the early phases of the industrial society in some regions at the same time as it is a sign of the development of a post-industrial investment pattern in other regions - in regions where these types of investments are beginning to be history and standardized cheap labour is no longer a competitive advantage. Such technology may be socially desirable, but the risk exists that regional segmentation and polarisation are reinforced leading to knowledge-based production in the centre and standardised production in the periphery. This polarisation will thus be accentuated by a post-industrial investment pattern where highly-educated labour will increasingly be a location factor for mobile capital in the knowledge-based sectors.

On the other side, this investment pattern will stimulate the growth of the purchasing power in these countries with an expansion of the home market of both consumer and capital goods. Besides exporting cheap industrial goods these countries and regions are turning into a large market themselves.

To summarise, the composition of the labour force affects the industrial and post-industrial location patterns in an enlarged EU. Post-industrial activities like knowledge-based industries are most frequent in regions with a high share of highly educated labour. Traditional labour-intensive industrial activities are concentrated in areas with low labour costs and a surplus of low educated labour. These differences in factor endowments and labour markets may accentuate both regional segmentation and polarisation.

On the other hand, the result according to the relation is an increase in both employment and purchasing power in the candidate countries. This will serve to promote their economic development, despite increasing specialization in a labour-intensive direction and even result in economic renewal and transformation if labour begins to become scarce in these countries.

Implications for Labour Mobility

If there are some hindrances with regard to capital mobility, these are - at least today - much more obvious with regard to labour mobility. There is no common labour market within the potentially enlarged EU today and there is still a long way to go before this point is reached. This implies, thus, that the following reasoning will be very hypothetical.

According to traditional push-pull theories, these economic disparities should, in a free labour market, give rise to high migration from the transition countries to the Western European and Nordic countries. This implies that labour surplus and low wages in the transition countries will be the determinant factors behind the migration decisions, but even the high wages in EU15 will give some hopes about the future, which will further stimulate the labour mobility process.

However, according to the segmented labour market theories, this should result in those workers who are released in the continued structural transition of the candidate countries' economies not being in demand in either the private or the public sectors in Western Europe. It seems that even if a supply of mobile labour should appear in the candidate countries, the EU15 demand for this kind of labour seems quite limited. This does not, however, imply that no migration from the candidate countries to Western Europe will occur - it only says that such a migration will not be in reply to a demand for the type of labour that the countries can offer. For highly educated labour from the candidate countries the situation are of course quite different.

The economic transformation in the transition countries not only has implications on the international migration, internal migration will also be affected. When the unemployment increase and the regional unemployment levels and living standard diverge, the internal migration pattern will be changed in a way more alike the migration pattern in development countries. This will result in an out-migration from rural areas to larger towns and metro areas, where the labour market is more diversified. From a human capital approach this is rational even if there are no jobs directly in the destination areas. The more diversified labour market in these areas will give the migrants a better chance to find one compared to staying home.

There are, however, also regions in the transition countries which are both in- and out-migration areas according to different migratory groups. Especially some border regions where there are large differences in livings standards both according to the national centre - where it is higher - and according to the surrounding neighbour areas on the other side of the border - where it is lower. At the same time there has, however, been a large inflow of people to the metro areas.

Future Mass Migration?[4]

After the collapse of the Soviet Block, many words of fear were heard about a future mass migration from East to West. The large gaps in wages and living standard, the dreams of a new life in the Western World were factors which all gave rise to fears about a mass migration from the former Soviet Bloc to the Western countries. These economic motives were then reinforced by geopolitical factors such as wars and ethnic conflicts.

The economic factors can be handled more easily than the geopolitical factors. The latter are much more unforeseen and it is almost impossible to take care of these factors in a discussion of future migratory movements. Because of this fact, the discussion - based on traditional neo-classical push-pull models - had been focused on the differences in living conditions, wages, and employment opportunities, which should result in an increased migration, even mass migration, from East to West.

History stands also witness of a lot of cases where differences in living conditions have resulted in large migratory movements.

There are thus still a lot of formal obstacles towards to a free common labour market, which of course are hampering factors with regard to the East-West migration. This fact implies that there still is an enormous potential emigration pressure in the candidate countries, which will be released when the borders in the future will be totally opened. This reasoning is in line with the neo-classical push-pull approach with its focus on economic motives and equilibrium. The SLM-approach pay also regard to economic motives but from another point of view - instead of a development towards equilibrium this approach focus on a development towards disequilibrium. This disequilibrium exists together with situation where migration has slowed down despite of large differences in wages and living standard.

A future common labour market within an enlarged EU will, of course, stimulate labour mobility as one important obstacle for free migratory movements has disappeared. The effects on one-way migration as a consequence of open borders will, however, be diminished if the gap in living conditions will be smaller. Much of the fear for a mass migration can thus be cured by a continued positive economic development in the transition countries. The latter development will, however, stimulate migration in another way. The catching-up process will stimulate migration and labour mobility in both directions as a consequence of increased similarities in economic structure on both sides of the Baltic Sea. This has nothing to do with mass migration - instead it is a natural ingredient in economic development. Unfortunately, even if there are signs of an increased return migration to some of the transition countries, a situation of two-way migration is far away. Here, a polycentric development will be of utmost importance to stimulate symmetric relations and two-migratory flows with an enlarged EU.

The specific problems and opportunities with flows, integration and transition processes accentuated in the enlargement process are

[4] This part of the project will pursued in cooperation with our partner ITPS who is also ESPON project 1.1.4 Lead Partner

- Questions concerning future external economic links (possible reorientation) of Eastern regions of the present candidate countries. At present this links are predominantly oriented towards the non-accession East European countries.
- The relationship between the demand for transit transport versus domestic transport in candidate countries

The crucial hypotheses regarding flows, integration and transition processes are:

- General reorientation of economic flows from East to West (in case of candidate countries) has already taken place during the 90s. What is now expected is growing intensity and changing composition of flows
- Some transport flows will become modified due to elimination of barriers between the present candidate countries (par example we can already observe the changes in Polish-Finish HGV traffic direction from Baltic Sea ferries to Via Baltica road through Baltic States)

2.4.3 Political economic transformation

The transformation in the Candidate Countries after the fall of the Berlin Wall was not only political, but economic and social as well. Political economic transformation includes a number of parallel processes:

- marketisation: abolishing the directive system of central planning, liberalisation of prices and wages, establishing institutions of capital, money and commodity markets, abolishing the system of extensive subsidies, introducing the regulation of competition, anti-monopolistic measures and of consumers' protection.
- privatisation: privatisation of state assets, compensation of people expropriated in the past, legal regulation of different types of corporations and enterprises, guaranteeing the rights to property;
- opening trade barriers: abolishing discriminative trade barriers, liberalisation of foreign trade, steps to-wards convertibility of the currency, establishing the legal and economic preconditions of foreign direct and portfolio investment;
- new functions of central and local government, new regional level new government structure, new institutions
    - change in the relationship between ministries and enterprises, streamlining of government,
    - changes in procedures of public administration,
    - new system of taxation and budget expenditure control,
    - establishing and enforcing new regulations against corruption and fraud,
    - new administrative and financial system of regional and local governments.
    - Transfer of power and financial responsibilities from central to local governments in particular to self-government units
    - Introduction of intermediate levels of self-government in some candidate countries

The specific problems and opportunities with political economic transformation processes accentuated in the enlargement process are:

Administrative change to reflect the demands of EU membership may be difficult in the Candidate Countries, as in any nation. But the challenge is to attempt to produce institutional synergies on all levels of governance that will aid further liberalisation of economies and further facilitate growth.

Overcoming the large shadow economies that exist in some countries.

The crucial hypothesis regarding political economic transformation processes is:

Political economic transformation in the Accession countries affecting the European spatial tissue will be facilitated by a transparent bottom-up approach and the introduction of new forms of partnerships and local governmental involvement achieve convergence and polycentric urban development.

2.4.4 Convergence/divergence

Dimensions of convergence (source: CEC [2001], Second report on Economic and Social Cohesion)
- productivity, competitiveness and economic performance
- demography and migration
- investment
- infrastructure endowment
- human resource development
- innovation and RDT

By the term/goal in the Amsterdam treaty (Art. 16) territorial cohesion the entire spatial development activities of the Union are given a new commitment. In the ´Second report on economic and social cohesion´ the European Commission makes clear that this will be taken as a reason for the restructuring of regional policy for the period after 2006. Unfortunately, it is defined nowhere so far.

However, it may be assumed that the concept of polycentric development is the proper spatial model for pursuing the goal of territorial cohesion.

While usually economic and social cohesion is measured by criteria/indicators for certain territories like GDP per capita, Employment, Income, Male/female employment, Population change, educational level etc, for assessing territorial cohesion there might be criteria/indicators relevant like specific relations/exchanges between territories, eg migration, commercial links, cultural relationships, institutional relations, accessibility etc.

The specific problems and opportunities with convergence/divergence processes accentuated in the enlargement process are:

The different feedback processes that will dominate the regional development in balanced or unbalanced directions: If the centrifugal forces will dominate a monocentric development, divergent development will be the result and the concentration process will be accentuated. If the centripetal forces instead dominate, a polycentric and convergent development will be the consequence. This is also more in line with the recommendation from ESDP and in line with the whole ESPON programme. In such, to hamper a monocentric development and stimulate a polycentric one is a political question that in many cases will be controversial

Geographical focus: On NUTS2-level more data will be available, but NUTS3-level provides better information; examples have shown that countries can show convergence on NUTS2-level, but divergence on NUTS3-level.

Time scale: At different time scales there are differences between statistical convergence (base year seems to be 1995)

Economic performance is one of the possible indicators, which could be described as net value added. At the same time we should look at the driving forces for regional economic development, which can be both economic and social (e.g. accessibility, skilled labour supply, R&D expenditures etc.).

The crucial hypothesis regarding convergence/divergence processes is:

Which are the driving forces (both economic and social) for convergence?

2.4.5 Accessibility

In the context of spatial development, the quality of transport infrastructure in terms of capacity, connectivity, travel speeds etc. determines the quality of locations relative to other locations, i.e. the competitive advantage of locations as such. This is usually measured as accessibility. Investments in transport infrastructure but also removals of social, economic and political barriers as it will happen in the enlargement process lead to changing locational qualities of this type.

There are numerous definitions and concepts of accessibility. Very simple accessibility indicators take only transport infrastructure in an area itself into account as an endowment factor. More complex accessibility indicators take account of the connectivity of transport networks by distinguishing between the network itself and the activities or opportunities that can be reached by it. These indicators always

include in their formulation a spatial impedance term that describes the ease of reaching other such destinations of interest. Impedance can be measured in terms of travel time, cost or inconvenience and may also include social, economic and political barriers.

In this study, the more complex accessibility indicators will be used. This will be done by following the definitions of ESPON actions 1.2.1 and 2.1.1 in which accessibility as such and its impact on regional development play prominent roles. A close co-operation with both projects is ensured, because S&W, one of the main partners in this project, is also a main partners in both projects mentioned above.

The specific problems and opportunities with accessibility processes accentuated in the enlargement process are
- several regions in the candidate countries might improve their locational position with respect to other European regions.
- due to different investment priorities, accessibility by rail might grow much slower than accessibility by road,

T*he crucial hypotheses regarding accessibility processes are*:
- The implementation of TINA networks will increase regional disparities in terms of accessibility in the candidate countries.
- The implementation of TINA networks in the candidate countries will improve their absolute level of accessibility, but relative gaps to regions of EU15 will continue to exist..

2.4.6 Spatial cooperation and integration

Stability and security of the European continent can only be achieved through its economic, social, political and spatial integration. So the concept of integration has several meanings. One of them is spatial integration.

Spatial integration means the convergence of different geographical sites and regions in terms of time costs and psychological distance. It means the establishment of dense transport and telecommunication networks, and the enabling of speedy, frequent and bureaucracy-free movement of people, goods and information. It means, to make borders as penetrable and "spiritualised" as possible. It also means to create transnational co-operation networks between cities, regions and all other actors of spatial development.

Partnerships at all levels and in all spheres are necessary to foster integration: between national administration, between regional and local governments, between economic, political, environmental and cultural institutions, among enterprises, cities and regions.

We also must have in mind that the speed of integration differs due to different political, economic and geographic factors from country to country.
By stressing the importance of spatial integration, we do not want to divert attention from the form of integration, being of primary importance for the southeastern European countries: economic and political integration in the framework of the European Union.

But even in this respect, one should distinguish between integration and accession. Countries, not applied for accession into the European Union, can also take part in several elements of the European integration process. Several European integration initiatives and organisations are not reserved to EU member countries and member candidates. European integration is a process comprising all countries of the continent.

The specific problems and opportunities with Spatial co-operation and integration accentuated in the enlargement process are:

- rapidly increasing disparities among regions, in particular between capital regions and peripheries on the one hand and border areas neighbouring EU 15 and the ´internal´borders between Candidate countries
- dominant role and increasing importance of borders and hence border regions, partly caused by the recent partitions and foundations of new states

- in some places natural barriers (mountain ranges; rivers lacking bridges) and administrative shortcomings still inhibit better cross-border interaction
- at the regions along the borders not only the West-East cascades of income (and productivity) meet, but also ethnic ties and mutual knowledge of languages, thus creating special potential for growth, not always appreciated by central authorities
- taking over the Schengen-border regime at the future external border will be experienced as a return of serious restriction at both sides of the new border line
- part of the legacy of the traditional centrally-organised political system that its regionalisation efforts shows "top-down"-features whereas the experience within the European Union is that regional development is driven most by decentralised units of governance
- different states of the process of regionalisation between the Candidate countries

Wealth differentials can be regarded as problems in one way but also as chances.

The crucial hypotheses regarding processes of Spatial co-operation and integration are:

Integration into the growing European Union is, of course, a major goal of the whole enlargement area. However, integration within this area (between the countries as well as within the countries) has to be considered not only an equivalent goal, but, first and foremost, the main route to economic prosperity in the Enlargement area. Neighbourhood is the key of cohesion. There are already existing promising stories of cross-border institutions like EUREGIO or city networks and other co-operations.

The most important type of spatial barriers is changing during the time differently alongside the:
- borders between present EU and Candidate countries: formal barrier (80s) – barrier of infrastructure (90s) – cultural barrier (future)
- borders between Candidate countries and East European non-accession countries: formal barrier (80s) – barrier of infrastructure (90s) – formal barrier (future)

2.4.7 Resources and environment

As the enlargement process alters the spatial tissue of the greater European territory, both social and ecological patterns of development will be affected. It is thus important that spatial development also considers the possible effects on, and policy decisions made regarding, sustainable social and ecological development. Thus this concept will include issues such as reducing total environmental impact ("ecological footprint") of polycentric urban activities in the wider European arena, promoting efficient settlement and land use patterns so as to minimise urban sprawl, minimising the environmental impacts of expanded transport networks in an enlarged Europe, sustainable energy management in light of the Kyoto Protocol and inter-European networking in the form of Activities Implemented Jointly for reducing greenhouse gas emissions.

The specific problems and opportunities associated with resources and environment accentuated in the enlargement process are:

While in most cases, the environmental policy of the candidate countries is less strict that that of the EU-15 and in some cases the environmental infrastructure technology is severely outdated, the enlargement of the EU is also enlargement of environmental policy, as the Candidate Countries will have to adopt existing environmental regulation into their national policies, in the long-run decreasing waste and helping remove cross-border pollution. There is also enormous additional natural capital and rich biodiversity in the Candidate Countries, which if managed properly could provide additional sustainable natural resources, preservation areas and biotopes for the wider European territory. The process of enlargement is a true test for the EU's commitment to sustainable development. The process of enlargement has already raised the environmental profile in most Candidate Countries as these nations contemplate the costs of complying with EU environmental legislation.

As the process of economic convergence increases at a greater rate with the accession of the Candidate Countries, there is a risk that this increased development in these countries could cause a strain on natural habitats. The greater economic growth and consumption patterns in these countries could greatly increase amounts of greenhouse gases, particularly carbon dioxide into the atmosphere, as could the extension of the TEN-T, and greater automobile dependency. Yet the accession process and the general restructuring related to it, create an opportunity to take the environmental aspects into account by integrating them into

different policy areas, in particular transport, at an early stage when it is perhaps easier and more cost effective

The crucial hypotheses regarding processes enlargement and the environment and resources:

In the short-term, the increased production and consumption resulting from anticipated accelerated economic growth in the Candidate Countries following accession will lead to temporary counter-productive environmental effects, such as increased greenhouse gas emission, increased waste and stresses on environmental infrastructure. However, as the standard of living increases, in the long-run, greater economic prosperity will lead to an augmented interest in environmental protection.

An extension of the TEN-T could lead to greater automobile dependency and consequently increased emissions in the short-term, particularly in urban areas.

2.5 Consensus on Indicators of spatially balanced developments in the enlargement of the EU

This chapter – which is largely building on ESPON 2.1.1 1st Interim Report - presents indicators relevant for the assessment of options for spatially balanced developments during enlargement of the EU. The indicators are distinguished with respect to the kind of territorial impact they measure. Building on these indicators of territorial impacts, cohesion indicators are derived. The indicators treasure the impacts on

- economic activities,
- the sectoral structure of an economy-
- population, i.e. migration flows, the labour market and on accessibility.
- indicators for assessing the role of information and telecommunication technologies on the regional development.

2.5.1 Economic Indicators

Enlargement of the EU has effects on the regional distribution and location of economic activities. This section provides a definition and description of indicators measuring the economic impacts. The indicators mainly comprise GDP per capita and equivalent income measures of user benefits.

2.5.1.1 GDP per Capita

The Gross Domestic Product (GDP) per capita and the real GDP growth rate are the most common measures of the standard of living, wealth and economic growth. The GDP is a standard measure of the size and performance of a regional economy and its competitiveness. Regional GDP is designed to measure total output in a particular area, including services. However, it is also a measure of income, the main components being wages and salaries, profits and rent, though it excludes transfers of income, from individuals and companies (which might transfer part of their profits elsewhere) as well as from government, in the form, for example, of social benefits.

In border regions, where substantial incomes are earned in one high wage region and spent in a low income region, GDP per capita is not a appropriate measure of living standard. Supplement indicators might include car ownership level, consumer sales values (based on special surveys) in the border zones.

For the assessment of the economic performance of regions it is important to observe and compare GDP per capita for certain years as well as the development over time. This is especially important to assess the convergence of regions and will be measured by the change of regional GDP per capita.

Concerning the accurate and comparable measurement of GPD in Candidate countries, we approach the following problems:

Availability
Type: harmonised
Time: 1995-2000 yearly
Spatial unit: NUTS 3

Details:	GDP in Euro, in Euro per inhabitant, in Euro per inhabitant in EU average, in PPS, in PPS per inhabitant, in PPS per inhabitant in EU average.
Coverage:	ESPON space, CH and NO missing

2.5.2 Population Indicators

Regional population indicators are important in ESPON 1.1.3 because they inform about the attractiveness of a region as a place to live and work, which may be influenced by its accessibility and location in relation to previous and future EU borders. There may be two kinds of population indicators:

2.5.2.1 Population by age and gender

Total population as such is not a suitable indicator because it predominantly measures the size of the region. Moreover, in empirical before- and after studies, in which the situation before enlargement is compared with the situation after, changes in population are not informative because they may be caused by a multitude of other reasons, among them fertility, mortality, which are not likely to be affected by accession, or immigration and outmigration for reasons unrelated to the enlargement process. Only in model-based studies in which, besides the specific policy of interest, everything else is kept unchanged, the comparison between total regional population in a scenario in which a specific policy is implemented and a reference or business-as-usual scene, in which the measure is not implemented, is meaningful.
A more appropriate indicator is population change because it neutralises the effect of region size. If after the opening of a new transport project the population in a region has increased more (or decreased less) than in the reference scenario, this may be an effect of the increase in accessibility , which may have led to economic growth in the region which in turn may have attracted population, as above.

Another population indicator of interest is related to age. In general, a younger population is associated with a successful, vibrant economy, whereas an ageing population may indicate a declining economy deserted by a large number of young and active people. This will have obvious effects on the social systems set in place in terms of the tax base for a pension system and a heavier burden on the healthcare system. On the other hand, a high proportion of elderly people may also result from high life expectancy caused by a good health system or from a high proportion of affluent pensioners, as in some Mediterranean regions.

Concerning the accurate and comparable measurement of population by age and gender in Candidate countries, we approach the following problems:

Availability

Type:	Harmonised
Time:	1999
Spatial unit:	NUTS 3
Details:	Male, female, age cohorts in 5 years age groups (male, female) on NUTS 2
Coverage:	ESPON space

2.5.2.2 Migration Flows

Enlargement and eventual free labour mobility is expected to influence interregional migration. If a region is economically successful and so offers more and better paid job opportunities than other regions, it is likely to attract ceteris paribus job-seeking immigrants from poorer regions with fewer job opportunities. Consequently, if a region benefits from economic integration, it will attract more immigrants. Regional positive net migration is therefore a good indicator of the socio-economic effect of policy measure. However, this applies only where international movements of labour are unrestricted, which is a very rare circumstance.

Even within the current European Union, international labour migration is far below the level that could be expected given the differences in wages and job opportunities between the Member States. And immigration into the European Union is constrained by increasingly rigorous national immigration laws. It can be expected that after the pending enlargement of the European Union labour mobility will be constrained for several years. It follows that immigration to the more affluent countries will continue to be far lower than the attraction of these countries would suggest and will therefore not reflect the full impact of integration. Nevertheless, it will be desirable to consider regional net migration, either as total net migration or as net migration as percent of regional population, as regional indicator in ESPON 1.1.3.

In a dynamic regional economic model such as the SASI model interregional migration would be forecast anyway.

Concerning the accurate and comparable measurement of migration flows in Candidate countries, we approach the following problems:
Incomplete registration of migration of residence (disintegration of domicile registration systems)– basically migration into major cities probably are undercounted
Sheer amount of short term, temporal migration to work abroad

Availability
Type: n.a.
Time: n.a.
Spatial unit: n.a.
Details: n.a.
Coverage: n.a.

These may be available from project 1.1.4 in the future.

2.5. 3 Labour Market Indicators

The description of the situation and relevant developments on regional labour markets has to take into account the demand side as well as the supply side of labour markets. Thus it is first necessary to attain distinct information on the regional employment situation, because employment depicts the part of labour markets where supply and demand fit together. Regional employment data show the scope regional population participates on regional wealth due to gainful employment. Indicators describing the structure of regional employment in terms of education, gender as well as labour organisation (part time employment, telecommuting) can generate conclusions concerning the competitiveness and the ability of the working people to arrange with alternating needs on the labour market. Imbalances on labour markets can be directly identified by looking at unemployment indicators.

2.5.3.1 Employment

For empirical purposes employment is measured as follows on EU level: "Persons in employment are those who during the reference week did any work for pay or profit for at least one hour, or were not working but had jobs from which they were temporarily absent. Family workers are also included." (see Eurostat (1999c)). The employment rate represents persons in employment (working part-time as well as full-time) as a percentage of the population of working age (15-64 years).

Concerning the accurate and comparable measurement of migration flows in Candidate countries, we approach the following problems:

Availability
Type: Harmonised
Time: 1995-2001, yearly
Spatial unit: NUTS 2
Details: Total employment, male and female employment sectoral employment (three main economic sectors, a six economic sector employment may be available even on NUTS 3), various data gaps
Coverage: ESPON space

2.3.2 Labour Force Participation

Demographic prospects have implications for the size and age composition of the labour force. These, however, are as much influenced by changes in participation as by demographic trends. Such changes are determined, in turn, by a range of factors, such as attitudes towards further education, the age of retirement and w omen working, as well as the availability of child-care facilities, the nature of pension schemes and the possibility of early retirement and the structure of households. They are also affected by economic factors, especially the ease or difficulty of finding a job, which has a strong effect on people's motivation to join the labour force.

The prospective ageing of the work force and the increased number of older workers raises questions about the effect on the ability to adapt to changes in technology and new ways of working. In the past, the steady stream of young, freshly educated people joining the labour market provided employers, in some degree, with up-to-date technical knowledge and recently acquired skills at a relatively low wage. The decline in this stream and the changing circumstances mean that there will be more need to develop other ways to ensure that the skills of the work force are renewed and that firms can respond to advances in technology and new working methods. This implies more importance to life-long learning, to retraining existing members of the work force and to updating the skills of w omen returning to work after a period of absence for family reasons. Concerning the accurate and comparable measurement of labour force participation in Candidate countries, we approach the following problems:

Large size of the shadow economy

Availability	
Type:	Harmonised
Time:	1995-2001, yearly
Spatial unit:	NUTS 3
Details:	Active population total, male, female, Active population aged under/over 25 years, various data gaps
Coverage:	ESPON space

2.3.3 Unemployment

Empirical data on unemployment indicate the scale of economic and social problems caused by the labour market. Measuring unemployment in a quite detailed manner is essential for elaborating the regional economic effects of infrastructure policy. On the EU level unemployment is measured as follows: Unemployed persons are those who, during the reference week (1) had no employment, and (2) were available to start work within the next two weeks, and (3) had actively sought employment at some time during the previous four weeks. In addition, unemployed persons include those who had no employment and had already found a job to start later. Unemployment by age groups and qualification is chosen as an indicator because young and highly qualified unemployed persons have distinguishable mobility patterns, e.g. they are more likely to commute over longer distances and to change their place of residence.

Concerning the accurate and comparable measurement of unemployment in Candidate countries, we approach the following problems:

Inflated unemployment rate (gaps in the registration system)
Substantial proportion of registered unemployed work in domestic shadow economy or abroad
Large proportion of those who register as unemployed do this in order to qualify for state welfare benefits, in particular state supported health care

Availability	
Type:	Harmonised
Time:	1998-2000, yearly
Spatial unit:	NUTS 3
Details:	Unemployed total, under/over 25 years, male, female in absolute numbers and rates, some countries missing
Coverage:	ESPON space

2.5.4 Information on Sectoral Structure

If sectoral information is required on NUTS-3 level it will only be feasible to use three sectors, (agriculture, industry and service) since data on a more detailed sectoral level will not be available for all NUTS-3 regions of EU-27. Where appropriate the indicators listed in the section above should be differentiated by three or six main economic sectors supplemented by R&D. This is relevant for the task

of explaining transportation flows, the emerging division of labour between regions and the definition of a typology of regions. One might compile the share of these sectors on the basis of the employment or GDP data.

Particularly in remote regions in Candidatre countries, the output in terms of value added in the agricultural sector is low because of low productivity .Although (or perhaps because) a high proportion of employment is found in this sector, it is advisable to use employment shares rather than output shares. Low proportions of employment in the agricultural sector indicate an advanced economic structure. In contrast, a high proportion of employment in the service sector is usually considered indicative of an advanced economic structure. This is not true in every case. There are many service sector jobs that do not necessarily point to an advanced economic structure. On the other hand, a highly productive industrial sector does not necessarily indicate a weak economic structure.

In addition to these conceptual problems, there are also problems with interpreting the data as companies categorised as industrial may incorporate a high share of service occupations. The future orientation of industries is another key indicator of economic strength. Future orientation is used as a guide to the innovative capacity of firms. The indicators most commonly used are those such as R&D investment per employee (or as a share of all investments) or the output and the share of R&D employment from the total employment. Data availability recommends the employment indicator, which also has fewer problems of definition. To describe the innovative potential of the private sector employment in R&D should be limited to the non- governmental sector .

Concerning the accurate and comparable measurement of the current sectoral structure in Candidate countries, we approach the following problems:

Overcounting of agricultural employment (in particular in Poland) which usually includes de facto non working family members and persons maintain in small plots of land (in Poland 1 ha minimum) but working in other occupation (typical case of taxi drivers). Reasons: farmers pay not PIT, farmers are covered by have subsidised public health care system.

Availability	
Type:	Harmonised
Time:	1995-2001, yearly
Spatial unit:	NUTS 2
Details:	Employment in three main economic sectors (six economic sectors employment may be available even on NUTS 3), various data gaps
Coverage:	ESPON space

2.5.5 Accessibility Indicators

In the context of spatial development, the quality of transport infrastructure in terms of capacity, connectivity, travel speeds etc. Determines the quality of locations relative to other locations, i.e. The competitive advantage of locations which is usually measured as accessibility. Investment in transport infrastructure leads to changing locational qualities and may induce changes in spatial development patterns. There are numerous definitions and concepts of accessibility .A general definition is that "accessibility indicators describe the location of an area with respect to opportunities, activities or assets existing in other areas and in the area itself, where 'area' may be a region, a city or a corridor" (Wegener et al., 2002). Accessibility indicators can differ in complexity. Simple accessibility indicators take only transport infrastructure in the area itself into account. This is then measured as the total length of roads, motorways or rail lines, number of railway stations or motorway exits or as travel time to the nearest nodes of high-level networks. These indicators may express important information about the area itself, but they do not reflect the fact that many destinations of interest are outside the area. More complex accessibility indicators take account of the connectivity of transport networks by distinguishing between the network itself and the activities or opportunities that can be reached by it. These indicators always include in their formulation a spatial impedance term that describes the ease of reaching other such destinations of interest. Impedance can be measured in terms of travel time, cost or inconvenience. Removal of a mode with higher costs does not result in a -false -reduction in aggregate travel cost. Out of the large set of possible accessibility indicators, only a small sub-set can be used in ESPON 1.1.3 to assess the impact of transport policies with respect to changing locational qualities. For reasons of

theoretical soundness and explanatory power, the SASI model provides and uses potential accessibility indicator (Fürst et al., et al., 2000), which are proposed to serve as indicator for the project as well. The accessibility indicators include modal and multimodal indicators and consist of accessibility potential by road, accessibility potential by rail, accessibility potential by air, multimodal (road, rail) accessibility potential, multimodal (road, rail, air) accessibility potential.

Concerning the accurate and comparable measurement of accessibility in Candidate countries, we approach the following problems:

Concerning the accurate and comparable measurement of accessibility in candidate countries we do not expect any problems, because the methodologies have been developed already and the data problems have been solved in other ESPON projects S&W is involved.

Type:	Harmonised model output
Time:	1991-2021, five year intervals
Spatial unit:	NUTS 3
Details:	Road, rail, air and multimodal accessibility potential
Coverage:	ESPON space

2.5.6 Cohesion Indicators

The normative literature on welfare measurement at the individual level and the aggregation of individual welfare to that of groups of individuals (e.g. the population of a region) provides a general framework that allows us to study;

the possibility of aggregating individual variables (e g real income) to analogous regional variables, the restrictiveness of the assumptions needed for using only averages and the possibilities to relax these assumptions by using additional information about the distribution of the individual variables;
the sensitivity of the outcomes of such aggregation procedures for the way the regions are determined (size of regions, aggregation of basic geographical units to larger regions);
the appropriateness of using multidimensional concepts of cohesion (e.g. by using not only the average income level, but also the variation around its mean, unemployment, environmental quality, etcetera) and the alternative that supposes an integration of all dimensions at the individual level by using equivalent income measures for the non- monetary aspects involved;
the possibility of decomposing equity concepts (such as inequality measures) at a higher level (such as the European union) to parts corresponding to lower levels (such as the individual countries).

Given the availability of comparable and usable data for some Candidate countries, traditional indicators of cohesion with respect to GDP per capita (in PPS) and accessibility , such as the coefficient of variation and the GINI coefficient will be used.

2.6. Data requirements for analysis of effects of enlargement of the EU and beyond on the spatial tissue

In project 1.1.3 we will utilise the core date indicators supplied to the entire ESPON project.

2.7 First description of policy issues in reaching at spatially balanced developments in the enlargement process

Horizontal co-ordination and endogenous participation in policy design and implementation are prime requirements to reach at a balanced spatial enlargement of the EU and polycentric development. In this section, we will elaborate in which directions sector policies need to be reoriented and coordinated in order to achieve this.
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2.7.1 The need for horizontal co-ordination

Horizontal co-ordination has two dimensions: the co-ordination of policy measures between different government departments and agencies at any given level of government and the co-ordination of policies implemented by the private sector with those of the public sector. In project 1.1.3 we concentrate on public policy areas. The analysis will have three main elements: The identification of horizontal spillover between policy areas by analysis of policy documents The analysis of how policy responds to the evidence of horizontal spillover. The analysis of the organisational structures put in place to implement policy.

A key to understanding horizontal co-ordination is the distinction between identifying spillover between policy areas or establishing co-ordination between them as an aim of policy and the implementation of detailed policy objectives and measures to address such matters. Thus there will be a need to examine both the extent to which spillover is recognised in key policy documents and the way this has shaped the policy design and its implementation. A particular interest is in the ways in which the private sector has been used as a means of implementing policy, through privatisation, public-private partnerships etc. and the institutional arrangements that have been introduced to facilitate this..

Almost all EU policy areas have some relevance to and will be affected by EU enlargement. The principal policy areas which need to be codified are transport policy, regional, structural and cohesion policies; environmental policies; Common Agricultural Policy; internal market, competition and stability and growth policies; and, in particular, the European Spatial Development Policy.

2.7.2 Regional and Cohesion Policies

Current Structural Fund expenditures are heavily weighted towards assistance to Objective 1, lagging regions with GDP/capita below 75% of the EU average, both in terms of the total expenditure and the contribution that can be made towards any particular project. Evidence on the effectiveness of Structural Fund expenditure in raising income levels is mixed. This reaffirms the need to examine projects carefully on an individual basis. The future enlargement of the BU poses major questions for the Structural Funds and their operation after 2006. The two main questions of relevance here are the future geographical distribution of funds, and how this relates to the future development of the network, and any changes in the basis for funding which would change the nature of eligible projects.

2.7.3 Environmental Policy

The Treaty of the Union forcefully states that, "Environmental protection requirements must be integrated into the definition and implementation of other Community policies: (Treaty of the Union Article 130R(2). The importance of integration was reaffirmed in the Sixth Environment Action Programme which stipulates that "integration of environmental concerns into other policies must be deepened" in order to move towards sustainable development. The ESDP indicates that these tasks of integration "…put particular emphasis on links with spatial development and, in particular, land use".

There is as well a strong direct relationship between environmental policy and particularly polycentric development and transport policy embodied in the drive towards sustainability as determined by all four priority areas in the Sixth Environment Action Programme: climate change, nature and biodiversity , environment and health, natural resources and waste. The processes enlargement and polycentric spatial development will have a direct environmental impact on the spatial tissue by their effects on economic development, industrial transformation, mobility, transport and EU environmental policy at the global, EU, national, regional and local levels. Although the impact of enlargement on environmental efforts within the EU as a whole may initially be negative (for instance, environmental constraints on industry can also have important transport implications through affecting the location of economic activity and through policies on waste disposal which can be transport creating), in the long run the EU27´+2 can only gain by increased co-operation.

The Action Programme identifies the need for environmental concerns to be integrated into all EU policies, including spatial policy, and for existing legislation to be implemented. Information is important in ensuring that individuals, firms and other organisations take consistent decisions with regard to the environment and that appropriate incentive structures exist to encourage this. Land use and planning decisions are seen as having a key link with environmental policy and the principle of subsidiarity; all of which interact with the spatial tissue. The key link between policy areas is ensuring both the right

information and the appropriate signals and incentives to ensure consistent decision making. Proper environmental evaluation has a direct link with policies on charging for the use of infrastructure; full implementation of the Action Programme has major implications for the effective cost of using infrastructure, on the balance of costs between different modes and on the benefits of greater emphasis on intermodality . Relevance for indicators: The contribution to environmental policy is a critical aspect of transport network developments. Environmental impact analysis is already a requirement of transport investments, here we need a basic indication of the specific contribution to the goals of the Action Programme (Sixth Environment Action Programme (Decision 1600/2002/EC, 22 July 2002».

2.7.4 Transport Policy

Transport policy in the EU has two main objectives: to ensure efficient operation and development of the transport sector; and to ensure that transport contributes to the completion of the single market. The 2001 White Paper has three main themes of relevance to an evaluation of the TENs:

Shifting the balance between nodes' road quality, rail integration and modernisation, air traffic growth, waterways integration, inter-nodalility regulation versus competition, increased efficiency may lead to further growth;

Eliminating bottlenecks corridor investments, priority links, but problems with finance;
Conflict of interests in case of the new infrastructure investment in Candidate countries between domestic transport demand and transit traffic demand;

Placing users at the heart of policy safety , charging and taxes pricing, investment and subsidiarity . Thus regulation, investment and pricing are all seen as playing a role and hence the impact of each has to be evaluated. Relevance for indicators: The main relevance for indicators is in terms of identifying the way in which the transport projects in question meet policy needs. In practice this is to identify whether a particular project is primarily addressed toward modal shift, bottleneck elimination or increasing the efficiency of use.

According to the 2001 White Paper transport policy in the context of the enlargement of the EU focuses on the infrastructure challenge, the role of rail transport in the candidate countries and on maritime safety. The infrastructure challenge is concerned with connecting the candidate countries to the trans-European network. Priorities should be given to the elimination of bottlenecks, in particular at the borders, and in the modernisation of the rail network.

2.7.5 Common Agricultural Policy

The importance of CAP as a policy area in the enlarged EU requires that regions which have a significant agricultural (or rural) sector need to receive special consideration. This can easily be achieved through an indicator of sectoral structure of each region, although ideally we should define this more precisely according to the nature of the agricultural activity in the region.

Enlargement introduces large challenges to the CAP and this relationship to the spatial tissue of the enlarged EU will be explored further.

2.7.6 Internal Market and Competition Policies

Important policy documents are: Fourth Annual Report on Economic Reform (Cardiff Process) December 2001; The Impact and Effectiveness of the Single Market, Communication from the Commission to the European Parliament and Council 30 October 1996. This relationship with the enlargement of the European spatial tissue will be explored in further detail in later interim reports.

2.7.7 Stability and Growth Policies

The most important policy document is Co-ordination of economic policies in the EU: a presentation of key features of the main procedures, Euro Papers No 45, July 2002. This relationship with the enlargement of the European spatial tissue will be explored in further detail in later interim reports

2.7.8 Proactive spatial policy design

The some of the most important policy recommendations in order to stimulate coordinated spatial policy design are:

New cross-border horizontal coordination and local empowerment
Integrated transportation
Sustainability in all its forms (economic, social, ecological and organisational

2.8 Short report on the application of Common Platform

A full report of the Common Platform will be submitted in the 2nd Interim Report.

2.9 Updated information on preliminary results and maps envisaged for the interim report in August 2003

For the 2nd Interim report, Action 1.1.3 will present a set of preliminary results and policy recommendations. These will serve as hypotheses guiding the work in later and final stages of the project. The report will contain four approaches:

A. Analysis of functionality of border regions
B. Performance differentials between regions
C. Analysis of polycentric developments
D. Accessibility before and after infrastructure plans

A). Results of a preliminary analysis on emerging functionality in cross border regions based both on the flows of goods and people in and across the regions estimated from available statistics, and on qualitative information. The 2nd Interim report will display a first overview of barriers to integration and current experiences of cooperation in border regions.

Barriers considered are of the following types:

- Natural , seas, mountains, rivers
- Languages, ethnic minorities
- Schengen regimes
- Differences in administrative power of regions

Recording and mapping of cross-border cooperation will evaluate the experiences so far on EU development the following border regions.

- Between EU15 and Candidate Countries
- Between Candidate Countries
- New external borders

A typology of regions will be suggested primarily reflecting the different levels of, and potential for
(1) functionality within the region and

(2) political administrative capacity, democratic power and public participation on both sides of the borders. This should serve as an indication of what policy intervention should be suggested and recommended.

Tentatively, we expect the highest levels of both functionality and democratic power to be found in the land-based border regions within current EU15

The next highest levels of both indicators are expected to be found in EU15 borders to the Candidate Countries of Poland, the Czech Republic, Hungary and Slovenia.

At the lowest level of functional integration and democratic participation, we hypothesise to findt he future external borders of the new EU25.

B). The 2nd Interim Report will document and map wealth and economic performance differentials between neighbouring regions in Eastern Europe and we aim at indicating convergence levels. This analysis is based on existing data at NUTS3 level:

-GDP per capita 1995-200 yearly
- Labour force participation
- Unemployment
- Population indicators

This will lead to a first analysis of the needs for horizontally coordinated development programmes for improved cohesion. Almost all EU policy areas have relevance to and will be challenged by EU enlargement. The primary areas necessary to coordinate and target are:

- transport policy
- regional, structural and cohesion policy
- environmental policy
- CAP

We foresee that the needs to be estimated and localised are enormous as compared to the combined resources available in EU15 and in the CC. This will call for a strategic spatial planning process promoting both sustainable and rapid economic growth in the most favourable and accessible locations in Eastern Europe, and to allocate resources to industrial restructuring in least favoured regions, most of them located near the new external borders. The 2nd Report will outline a spatial planning process for convergence, activating endogenous resources in potential growth poles as well as in peripheral regions in industrial decline.

C). The 2nd Report from 113 will also contain a first description and mapping of spatial structures in EU reflecting strategic options for polycentric development in the enlargement process. In particular, this first analysis will concentrate on the strengths and opportunities in the major urban systems in Eastern Europe:

- the urban system based on the capitals of The Czech Republic, Slovakia, Hungary and Slovernia, all located at the axial extension of the GIZ of EU15

- the relatively balanced urban system of Poland, also located at the axis between east and west and with potential to extend into Lithuania and eastward

- the urban system of the three Baltic states' capitals, with the potential to develop as a part of the polycentric region around the southern part of the Baltic Sea

- the Balkan states with possible interconnections with southern EU15 member states of the Eastern European states, and, in the future further relations to Black Sea countries and the Middle East

- particular attention will be paid to the natural barriers to integration faced for Malta and Cyprus

The qualitative analysis focuses on the current as well as the missing links and flows in these emerging urban systems, and gives an overview of the discontinuities which have to be bridged

In later stages of 1.1.3 project, polycentric urban systems at lower levels will be analysed in depth.

D). The 2nd Interim Report, in August 2003, will display tentative results and mapping of accessibility before and after implementation of TEN and TINA networks in Eastern Europe. This includes overviews of the planned evolutions of transport infrastructure in candidate countries. Preliminary results will be presented on the impact of transport infrastructure on accessibility and associated regional economic development at NUTS3 level in the Candidate Countries. The spatial impact of the transport scenario will be evaluated according to its contributions to a polycentric development in Eastern Europe.

PART 2.
Minimum requirement covering each point mentioned in the Addendum to the contract

Data collection shall be specifically addressed in the project. See section 2.5.

The choice of the two proposed scenarios (TEN-T and Spatial economics) should be more thoroughly justified.

The 2001 White Paper *European transport policy for 2010: time to decide* of the Commission of the European Communities states that "the first challenge in making enlargement a success will be to connect the future Member States to the trans-European network; this is a precondition for their economic development, based on anticipated growth in transport, as was the case with the accession of Spain, Portugal and Greece." It continues by saying that "the lack of efficient transport infrastructure networks to cope with this anticipated growth in movements is still greatly underestimated. And yet that infrastructure is a key element of the strategy for the economic development of the candidate countries and their integration into the internal market." The important link mentioned between transport infrastructure and regional economic development is exactly the concern of the enlargement scenario study 2 to be conducted by applying the SASI model. However, there are, depending on the regional settings, many impacts of transport infrastructure developments on regional development possible and there exists uncertainty concerning the magnitude and phasing of investments in the TINA networks. Therefore, a limited set of different scenarios with respect to the speed and extent of the enlargement and with respect to different assumptions on the extent and scheduling of transport infrastructure implementation will be analysed by using the SASI model in the second enlargement scenario study.

The focus on Phare and CBC activities (page 56) might be too ambitious.

While our main focus will not be on these activities, we would still like to treat the total budgets of these programmes and activities per country for different years because we think this data can be organised and will give a good insight about the volumes and changes. Furthermore this data can be standardised and so comparisons are possible.

We also want to look at city networks in the frame of Interreg IIC and IIIB and other city networks outside these programmes, because they are, from our point of view, important cross-border activities.

The timing of WP 4 shall be changed to September 2003.

Work Package 4 will be begun in during the summer of 2003 and thus will be able to provide some requests for additional information as well as some preliminary outputs for the 2nd Interim report.

The Transnational Project Group should include the institutions from Candidate Countries more actively as real partners.

We are making efforts to include institutions from the Candidate Countries as more active partners. The problem is finding funding for this. ESPON measure 1.1.3 is receptive to the addition of new partners from the Candidate Countries upon their joining the ESPON Network

The reports from the projects shall be operational and communicative and not too academic in style.

This and other reports from ESPON measure 1.1.3 will strive to be operational and communicative in style and to produce policy-relevant recommendations.

1.1.3 Time-table Jan 2003-Dec 2005

	Interim report 1 March 2003	Interim report 2 August 2003	Interim report 3 August 2004	Final report December 2005
WP1	Overview concepts, method.	Expanded terms and methodology		
WP2	Data, indicators needed, to be collected, mapmaking	Additional data collection accession countries	Processing new database,	More identification of indicators, mm method
WP3	Prel. indication of EU spatial tissue, structure in CC, polycentricity n urban networks	Enlarg. Effects on CC, Update spat. tissue, structure, analysis cities, regions	Prov. Final results on urban nodes, polycentrism, complementarities etc.	Deepening knowledge spatial tissue in CC
WP4	Preliminary hypotheses on spatial effects	Prel, indication spatial effects on enlargement	Provision diagnose spatial effects of enlarg. On EU and CC	Final diagnose, impact of enlargement on EU and CC
WP5	Indication policy recommendations	Networking and coop. proposal, policy results	Provision policy results	Final policy recommendation Executive summ.

Revised Budget and Work Packages

(EUR = Euro , W. D. = Working Days)																				
ESPON 1.1.3 Work Packages	**KTH**		**Nordregio**		**CASA**		**S&W**		**ÖIR**		**Karelian**		**TNI inro**		**NTUA**		**CEDRU**		**ITPS**	Total Working Days:	
	EUR	W.D.	EUR	W.D.	EUR	W.D.	EUR	W.D.	EUR	W.D.	EUR	W.D.	EUR	W.D.	EUR	W.D.	EUR	W.D.	W.D.		
Project Management	52000	83.3																			50000
Common Activities			2400	4	1200	2	1200	2	1200	2	1200	2	1200	2	1200	2	1200	2		18	10800
WP 1 Conceptual Framework	9000	15	1200	2	1200	2	1200	2	1200	2	1200	2	1200	2	1200	2	1200	2		31	18600
WP 2 Data inventory, indicators	3000	5	36000	60	0		0		0		0		0		600	1	600	1		67	40200
WP 3 Diagnosis. Spatial Tissue, Polycentrism and discontinuity in Candidate Countries and Border Regions																					
Spatial Interaction, Accessability Modelling	3000	5	3000	5	0		3000	5	10200	17	21600	36	0		4200	7	4200	7		82	49200
Spatial Tissue, Territorial patterns, convergence	3000	5	3000	5	0		0		13200	22	0		16800	28	4200	7	4200	7		74	44400
Spatial Cooperation and Integration	3000	5	3000	5	0		0		13200	22	0		0		4800	8	4800	8		48	28800
WP 4 Spatial impact of enlargement on the EU and accession countries																					
Enlargement scenario: Spatial economic	3000	5	0		39000	65	0		0		0		0		0		0			70	42000
dynamics in the EU in the long-term																					
Enlargement scenario: Assessmetnof TEN-T	3000	5	0		0		39000	65	0		0		0		0		0			70	42000
TINA developments																					
Territorial Impact Analysis	3000	5	0		7200	12	4200	7	0		0		0		0		0			24	14400
WP Policy Recommendations	19800	33	1200	2	1200	2	1200	2	1200	2	1200	2	1200	2	1200	2	1200	2		49	29400
	102000	166.3	50000	83	50000	83	5000	83	40000	67	25000	42	20000	34	17500	29	17500	29	0	515	
VAT			12500																		39500
Meetings																					75700
																				TOTAL	**460000**

Work Package budget: 1.1.3 (ODEN)		
	Total work days	EUR
WP 1 Conceptual Framework:	31	18600
WP 2 Data Inventory, Indicators	67	40200
WP 3 Diagnosis: Spatial Tissue Polycentrism and Discontinuity	204	122400
WP 4 Spatial Impact of enlargement on the EU and accession countries	164	98400
WP 5 Policy recommendations	49	29400
Common Activities	18	10800
Total Excluding VAT		**319800**
Project administration	83.33	52000
VAT		12500
Meeting costs		75700
Total sought for this bid (EUR)		**460000**

ESPON 1.1.3 budget per partner All amounts in EUR, VAT included for Nordregio	
KTH Project management and WP leader (incl. VAT, if required, overhead)	102,000
Nordregio (Include. VAT)	62,500
CASA	50,000
S&W	50,000
ÖIR	40,000
Karelian	25,500
TNO Inro	20,000
NTUA	17,500
CEDRU	17,500
Total costs for partners	385,000

1.1.3 ODEN'S GEOGRAPHICAL SCOPE