SPATIAL DEVELOPMENT OF EUROPE'S NORTH WESTERN PERIPHERY

Position Paper prepared by Professor Jim Walsh for

ESPON SEMINAR

Queen's University, Belfast

February 22-23, 2005

Spatial Development in Europe's north-western periphery: implications of ESPON results

Professor Jim Walsh, NIRSA, NUI Maynooth, Ireland

Introduction

This paper provides an overview of the main findings from the ESPON research programme as a background for more detailed presentations and analyses at the first international seminar organised by a network of ESPON Contact Points. The purpose of the seminar is to disseminate ESPON research outputs and to stimulate further discussion of issues related to European spatial planning especially in north-western peripheral areas beyond the Pentagon. Following a brief outline of the structure of the ESPON research programme the paper focuses mainly on the principal research conclusions and the associated policy implications that have been identified in a selection of research projects. This will be followed by some more general observations on the ESPON programme.

Throughout the 1990s considerable progress was achieved in advancing the role of spatial planning in Europe. The first phase of the voluntary collective international effort to develop basic principles and objectives for a territorial approach to economic and social development in the EU culminated with the adoption of the European Spatial Development Perspective (ESDP) in Potsdam in 1999. The publication of the ESDP was a major milestone in the history of European spatial planning, notwithstanding the many internal contradictions in relation to policy objectives which it contained. This resulted in goals such as 'balanced competitiveness' which is an outcome to accommodate compromises in the political sphere, and concepts such as 'polycentric urban networks' which in practice may be applied at different geographical scales but with contradictory implications for territorial planning at different scales.

The momentum unleashed following the publication of the ESPD was maintained by the Study Programme for European Spatial Planning 2000-2001 (SPESP) which laid the basis for a European Spatial Planning Observation Network (ESPON). Funding for the ESPON Programme for the period 2002 – 2006 is provided jointly by the INTERREG 111 Community Initiative and the member state governments. The broad aim of the ESPON research programme is to increase knowledge about territorial structures, trends and policy impacts in the enlarged European Union.

The need for this programme has been reinforced by more recent developments, most notably the introduction of Territorial Cohesion as a significant complement to the previously adopted EU goals of economic and social cohesion, and secondly the inclusion of Territorial Cohesion as a goal (article 3) in the Constitution for Europe. Strategic territorial planning is widely regarded as an essential component of public policy frameworks required to support the goal of territorial cohesion. A further impetus to

advancing the need for detailed research on the processes underlying the territorial dimension of development, and for identifying new strategies to accommodate more complex sets of objectives, has come from three different sources: enlargement, the Lisbon Declaration (2000) re the challenges and opportunities presented by the transition to knowledge based economies, and the Gothenburg Declaration (2001) on environmentally sustainable development. Each of these initiatives, coupled with efforts to reposition the EU in the global economic framework, will bring new challenges which are likely to have differential impacts across the regions of Europe. In recognition of this possibility new visions for spatial development are already being formulated for new macro level transnational regions (e.g., *A Vision for Northwest Europe*) as well as within several countries, e.g., Ireland, Scotland, Wales.

The ESPON Research Programme

The ESPON research programme consists of several strands including:

- Eleven **thematic projects** on a broad range of topics such as polycentrism, urban-rural relations, enlargement, demographic trends and migration, transport services and networks, telecommunications services and networks, natural hazards and climate change, natural heritage, cultural heritage, the information society, role of small and medium size towns,
- **Eleven Policy Impact projects** on policies such as the CAP and rural development, EU transport and TENs policies, Research and Development, Energy Services and Networks, Structural Funds, EU Fisheries policy, Governance systems, and application of ESDP concepts and principles,
- **Five Coordinating and Cross thematic projects** covering Integrated tools for European spatial development, Spatial scenarios, Territorial dimension of Lisbon and Gothenburg processes, Territorial impacts of EU economic policies, Europe in the World.

This is an extraordinarily ambitious programme undertaken across 29 countries with a strong focus on regional level (NUTS 2 and NUTS 3) analyses and a very restricted timeframe requiring all projects to be completed by the end of 2006. Ten projects were completed by end of August 2004. The interim and final reports for each of the projects can be accessed on the ESPON website, www.espon.lu. Collectively the reports provide a very considerable amount of new insights into the multi-facetted nature of development trends when viewed from a territorial perspective that will be of use to policy makers, programme administrators and academic researchers at all levels throughout Europe. The programme has also demonstrated the very large gaps that exist in the current state of knowledge concerning spatial development indicators, as well as the diversity of inherited governance frameworks, natural and cultural heritage, settlement patterns and infrastructural provision throughout Europe which together can contribute to tensions concerning spatial development objectives in different regions and at different geographical scales.

Overview of Project Results

This section draws together the main conclusions from the first round of projects with a special focus on the implications for peripheral regions in North-West Europe outside the Pentagon. The outcomes from the thematic projects are considered first.

Projects 1.1.1 and 1.1.2. The potential for polycentric urban development and new urban – rural relationships.

One of the key spatial development guidelines contained in the *European Spatial Development Perspective* was the 'development of a polycentric and balanced urban system and strengthening of the partnership between urban and rural areas' (ESDP, 1999 p. 19) as an alternative to the outdated dualism between city and countryside. These ideas were explored further within the SPESP and became the first two thematic research projects in the ESPON programme.

Project 1.1.1. commences with an attempt to operationalise the concept of polycentricity relying on indicators to measure three dimensions: the *size distribution* of cities/towns in each national urban system, *relative location* measured by distances between centres, and *connectivity* measured by levels of accessibility. Using measurements for the chosen indicators countries are classified according to the level of polycentricity of their urban systems. This analysis has produced some surprising or even counter-intuitive results such as the claim that Ireland has one of the most polycentric systems while the UK system is less polycentric than might have been expected.

Using data compiled by national statistical agencies on the size of centres and estimates of the size of hinterland labour markets the project identifies almost 1600 Functional Urban Areas (FUAs) which are treated as the basic building blocks of the European urban system. Those FUAs that achieve the highest scores on indicators representing key urban functions are designated as MEGAs, Metropolitan European Growth Areas, of which there are 76. These are further analysed in relation to their levels of critical mass, competitiveness, connectivity and knowledge basis which results in a four level categorisation.

Dublin and Manchester are identified as Category 2 MEGAs, e.g. cities that are relatively large, competitive and often possessing strong human capital. They are differentiated from Category 1 MEGAs (which are absent from the UK or Ireland; London, along with Paris, is recognised as belonging to a separate category of Global Nodes) mainly in relation to size, competitiveness and accessibility. Comparator Category 2 MEGAs include Stockholm, Gothenburg, Helsinki and Oslo. Each is regarded as having a very important role in future efforts to build polycentric networks.

There are no examples of Category 3 MEGAs in Ireland or Wales. However, Glasgow and Edinburgh, along with Birmingham, are recognised as belonging to this category which includes centres that are described as smaller and more peripheral, having lower competitiveness, and weaker human capital endowment. The paucity of such centres in the UK and Ireland contrasts with the south of France, and northern Italy. There is an extensive distribution of Category 4 MEGAs especially in the Baltic and east European countries that

have recently acceded to the EU. However, only Cork is identified in Ireland and Southampton in the UK.

Going beyond the MEGAs the project identifies several FUAs that are regarded as having either a national or transnational level of importance. However, the most striking feature of their distribution (Map 5.1 Final Report Project 1.1.1) is the relative paucity of such centres in Ireland, Scotland, Wales and northern England and the extensive zones beyond the functional hinterlands of the MEGAs. Finally, it is worth noting that Northern Ireland is very poorly represented in the analysis. It is very surprising that Belfast is not identified as even a Category 4 MEGA.

The analysis is taken further by attempts to model the geographical extent of future FUA hinterlands using estimates of the populations that can reach the FUA centres within 45 minutes by car. New areas called Potential Urban Strategic Horizons (PUSHs) are identified, along with Potential Polycentric Integration Areas (PIAs). A Polycentric Integration Area includes those FUAs which share at least one-third of their potential commuter catchment area with another larger FUA. The report recommends that spatial planning strategies should support the development of PIAs especially in regions outside the Pentagon. The analysis shows that of the top 21 PIAs five are located in the UK: London, Manchester, Birmingham, Sheffield and Leicester. When the PIAs are compared with the PUSH areas the population of the Greater Manchester PIA exceeds that of the Global node centred on London. These findings merit further discussion within the UK. For Ireland, Scotland, and Northern England the analysis presents further challenges. There is a strong suggestion that there could be additional benefits if Glasgow and Edinburgh cooperated on establishing a PIA. In the case of Northern Ireland some potential gains for Belfast are noted by establishing closer links with Derry. It might be more appropriate to consider the potential that might emerge from a Dublin –Belfast PIA which may become more of a reality over the next twenty years. Elsewhere in Ireland the potential for a strong PIA based on linkages between Cork, Limerick and Galway should be considered.

The findings from the project on polycentrism point towards the possibility of some policy contradictions between different geographical scales. Specifically the goal of achieving balanced competitiveness across the EU territory by promoting strong polycentric zones (e.g. PIAs) beyond the Pentagon may in fact lead to locally stronger tendencies towards monocentricity and less territorial cohesion within some member states. This is clearly a possibility in Ireland and elsewhere unless long-term spatial strategies are implemented.

The project on **urban rural relations** (**Project 1.1.2**) was the first systematic attempt to measure urban-rural relationships on a pan European scale. Despite enormous constraints imposed by data gaps in relation to flows and exchanges between urban and rural areas the project team firmly reject the traditional dichotomy between urban and rural areas. Numerous types of interactions are identified and proxy variable are used to establish a two-pronged approach leading to a typology of areas based on the dominant types of rural urban relations. Attention is focussed on both the structural properties (landuse patterns, settlement structure and population distribution) and functional relations (uses of the

physical environment such as various forms of production and consumption) of territorial units.

A harmonised typology of six rural area types was produced based on two dimensions: the degree of urban influence and the degree of human intervention. Beyond the larger cities most of the rural areas of Ireland, Wales and Northern England are classified as areas with low urban influence and medium human intervention. By contrast, extensive areas of Scotland, especially the highlands and islands, are classified as areas of low urban influence and also low human intervention. The typology provides a useful summary of the variety of conditions across rural Europe. However, its usefulness as a policy tool is limited by the range of indicators available and the fact that most of the data are available only at NUTS2 or NUTS 3 levels.

The macro level pan European analysis was complemented by several case studies, including one from Ireland and from Ryedale in Yorkshire. These provide evidence of many different types of linkages between urban and rural areas ranging from traditional roles where rural areas provide food and labour for the urban centres, to new relationships organised around new consumption patterns in which certain aspects of rural living are given higher priority than previously. The report argues that the urban and rural must increasingly be seen as mindsets and not as something that can be fully captured by indicators defined outside of the localities (p. 208). In the context of North West Europe there have been extensive changes with far reaching implications in Ireland over a relatively short period. Many of the rural issues identified in parts of the UK in the 1970s and 1980s seemed to be of little relevance to the Republic of Ireland. However, over the past decade the situation has changed in many rural areas as a result of population deconcentration, increased levels of personal mobility, and new consumption patterns, that have given rise to increase demand for tourism and leisure related facilities in some rural areas. These areas and others within commuting distance of the main towns and cities have experienced considerable pressures in relation to single dwellings in the countryside.

The study recommends stronger roles for villages and small towns in relation to the provision of services, more emphasis on diversifying rural economies, an overall focus on sustainability including the liveability or rural areas, and institutional arrangements to support horizontal and vertical coordination and integration of policies. The diversity of rural areas is emphasised throughout the report. All of the issues identified are of particular relevance in the more sparsely settled parts of North West Europe and they point towards a need for more comprehensive rural development programmes that take account of local conditions and which are implemented within frameworks for strategic spatial planning at the regional level.

The long term consequences of sustained rural-urban migration and the outcomes from the second demographic transition are evident from analyses of recent trends in population change. **ESPON Project 1.1.4** has shown that there are extensive rural areas where populations are decreasing especially in parts of Scandinavia, the southern regions of Eastern Europe, northern regions in Spain and inland parts of Portugal. Most of rural Scotland appears to be in decline due to a combination of natural decrease and net out-

migration. In Wales there is a distinct east/west divide with population continuing to decline in the western parts which are more rural and less accessible.

On the island of Ireland there is a significant contrast between the very modest growth recorded in Northern Ireland compared with exceptionally high rates of just over one percent per annum in the Republic of Ireland. There the growth is fuelled by a reversal of long term migration patterns and levels of fertility that are relatively high when compared to most other parts of Europe. There has been very significant growth in some rural areas associated with increased levels of long distance commuting (which is in part due to lower house prices in small towns and rural areas), a more vibrant rural economy and a transition to strongly service oriented local economies in high amenity rural areas. There are, however, extensive areas covering approximately half of the rural territory where the populations are either in decline or only marginally increasing.

The demographic experiences of different parts of Ireland and Scotland demonstrate that the traditional trend of rural decline can be reversed in some areas. However, there are many issues related to settlement patterns and economic development that need to be addressed within the context of comprehensive integrated frameworks for spatial development at the local level. Otherwise, there are risks of development trends that are environmentally unsustainable and situations where contestation rather than harmony becomes the norm in relations between different sections of the rural population.

Projects 1.2.1 and 1.2.2 on Transport and Telecommunications Networks and Services

Physical infrastructure networks are essential to facilitate communication and exchanges between cities and territories of resources, goods, people and information. Access to networks is becoming an increasingly important factor in territorial development which is recognised in the ESDP where 'parity of access to information and knowledge' is identified as a key objective. **Project 1.2.1** on transport networks has used several models to guide extensive analyses of inter-regional accessibility according to different modes of transport. Significant contrasts in accessibility levels between core and peripheral regions are evident and furthermore the gaps are continuing to widen. Ireland and the more remote parts Scotland are shown to be particularly disadvantaged according to almost every accessibility index with the situation somewhat less severe in Wales and Northern England. In relation to the Functional Urban Areas the research found there are only a few FUAs beyond the Pentagon with accessibility indices greater than the ESPON average. These include Manchester and Liverpool while Dublin like many other peripheral capital cities has an index between 80-100% of the ESPON average.

These contrasts in accessibility via transport networks pose a major challenge for the weaker and more peripheral regions. Higher transport costs and longer journey times from these regions to the central market areas impact on the economic competitiveness of businesses. Further investments in infrastructure are required but these need to be accompanied by investments in the other factors that also contribute to regional competitiveness. These include public sector investment in human and knowledge capitals as well as private sector investments in new areas of production with a shift towards higher

value added goods and services. The experience of Ireland since the early 1990s demonstrates that very significant economic convergence can be achieved despite continuing infrastructural deficits.

This project notes the importance of the unequal legacy of transport infrastructures, and also the discordance between the short and medium term policies responding to political objectives on the one hand and the longer term timeframes required for major infrastructural development. This reminder is very necessary in relation to devising realistic scenarios that take account of the ESDP objectives.

A number of recommendations in the report provide practical proposals that are appropriate to high level pan European spatial planning. As such the projects that are identified merit specific EU level co-funding. The transport proposals will contribute to the goal of strengthening the possibilities for strong polycentric networks beyond the Pentagon while at the same time facilitating more interaction with that core mega region. However, attention will also be required to enhancing the accessibility of rural areas, especially the more remote areas, in order to strengthen rural-urban linkages and to avoid further marginalisation of large tracts of the European rural landscape and its residents. There is also a need for greater coordination of the proposals re transport corridors with the recommendations from the report on management of the natural heritage (1.3.2).

The policy recommendations are generally supportive of the broad ESDP objectives. Specific proposals to improve connectivity especially between the larger centres will help to strengthen the concept of polycentric urban networks and increase the level of critical mass in some networked areas and thereby contribute to the objective of a more competitive European economy, while at the same time facilitating a transition to more geographically balanced development. The proposals re greater use of sea routes should help to reduce congestion on the land corridors. The recommendations re lower speeds on the road network, and a shift towards high speed freight trains are in accordance with the ESDP objectives concerning efficient and sustainable use of infrastructure. More attention to regional and local transport infrastructure will be required to ensure that improvements to international infrastructures will be supportive of the ESDP goal in relation to parity of access.

The territorial impacts of **telecommunications infrastructure and services** are assessed in **Project 1.2.2.** Within the context of EU enlargement, liberalised telecommunications markets, rapid technological change and the anticipated roll-out of next-generation digital mobile and broadband networks, there is a need to review the evidence concerning the extent to which the EU's diverse territories are sharing in the benefits of ICT uptake and usage. From a territorial perspective, such developments offer enormous opportunities for reducing the 'friction of distance' and/or the problems of remoteness from which many peripheral regions and rural areas have suffered. However, in this period of rapid change, it is not clear whether the 'digital divide' between favoured and less-favoured regions, or between cities and rural areas, is widening or narrowing. The answers to these questions have considerable importance from a territorial development perspective.

The focus of the research project was on the ICT-infrastructure, namely fixed telephony networks, mobile telephony, the Internet, broadband and the underlying backbone network technologies to which all other networks are ultimately connected. Project findings were analysed at the macro-, meso- and micro-scales.

As was revealed by the study, each technology exhibits a different territorial pattern. Furthermore, national specificities remain crucial in understanding the territoriality of telecoms. In the field of telecommunications the EU core-periphery distinction does not generally hold true. At the macro-level, a "North-South divide" could be perceived in EU 15 + 2, with the strength of the Nordic countries representing a key component of this. In addition, there is a "West-East divide" in the EU 15 + 2 + N 12, though some individual N 12 countries outpace individual EU 15 countries. Of all technologies, mobile telephony shows the most even territorial spread and to some extent exhibits a "reverse core-periphery" pattern. Most meso-level analysis had to be confined to EU 15 since data was extremely limited for the accession countries. The continuing importance of national specificities is reflected in the narrow "category spread" between regions within countries. Factors explaining such regional differences beyond the national effect are complex and vary between technologies, e.g. high PC and internet take up is associated with development status, with non-Objective 1 regions and those with higher GDP. At the micro-level there is a metro-urban-rural divide both, in the supply of as well as in the demand/uptake for telecommunications.

A typology of regions based on the take up of telecommunications technologies by businesses and households shows the UK regions generally more advanced than those in Ireland. Most of Northern England is classified as 'advanced' while Scotland and Wales are 'moderately advanced'. The level of development in Ireland is described as 'moderate'. In most regions there are pronounced differences between urban and rural areas in relation to the take up of new technologies. This is especially the case in Ireland, though there have been some recent initiatives to assist provision of infrastructure in small towns and rural areas.

Based on the analysis a series of policy options is set out. According to the TPG the "aspatiality" of regulatory policy could be amended, i.e. European and national telecommunications regulations should be adjusted in a way so that they could be used as a tool for regional development. Other suggestions refer to the aggregation of public (and private) sector telecommunications procurement, as well as to the subsidy or construction of telecommunications networks. In addition, greater symmetry of information should be established between public authorities and providers of telecommunications. Common indicators should be developed and their collection needs to be improved and standardised. Finally, a regional observatory is recommended for each Member State.

In summary the policy proposals provide a basis for a coherent approach to achieving the goals of the ESDP but they need to be implemented in full to achieve the results wished for. Further developments in line with ESDP objectives will have to be preceded by significant changes in the roles of governments, private sector companies and regulatory frameworks.

The project on **Territorial Trends in the Management of the Natural Heritage (Project 1.3.2)** highlights the negative impacts of the CAP on the natural environment. While these and other impacts are reasonably well documented the project found that the policy responses are rather piecemeal and not sufficiently coordinated. The project recommends closer attention in strategic spatial planning to environmental impacts of development. In particular more care is needed in the selection of transport corridors for development and more encouragement should be given to developments at high accessibility nodes in order to reduce impacts on the wider rural territories. The report also recommends that greater appreciation be shown to the value of natural assets as a positive support factor for stimulating regional development. Like many other projects it is recommended that enhanced management of the natural heritage will require better horizontal and vertical coordination in the preparation and implementation of spatial development strategies.

The natural heritage is a major asset in Ireland and the UK. The introduction of agri environment programmes and the decoupling of production subsidies may help to reduce the impacts associated with agriculture. More generally, there is still a need to promote greater awareness and adoption of sustainable development principles, and to put in place structures to resolve conflicts between environmental, economic and social dimensions of development that take account of local circumstances and also the wider public interest to reflect the 'public good' aspect of the natural heritage.

Territorial Impacts of EU Policies

Almost every policy area has potentially some territorial impacts either directly or indirectly. Thus far research projects have been completed on three major EU policy areas: the CAP and Rural Development, Transport, and Research and Development. Each of the three projects encountered significant problems in relation to data availability at appropriate geographical scales and there were also issues around developing models to examine impacts separately from the geographical incidence of spending under different policies. Each project attempted to measure both incidences and impacts and they also assessed the extent to which the policy outcomes were in conformity with the ESPON objectives.

The CAP has traditionally been the policy with the largest EU budget and potentially the largest territorial impacts. The main conclusion from Project 2.1.3 is that in aggregate terms the CAP does not promote the ESDP objectives of balanced development or territorial cohesion. The geographical distribution of Pillar 1 CAP expenditure (market price supports and direct income payments) is shown to be systematically and significantly higher in more accessible and prosperous regions, and lower in more peripheral and less developed regions at all scales. Furthermore, the analyses demonstrate that the recent transition to single direct payments and the related decoupling of production subsidies is unlikely to change the inherited uneven spatial patterns of expenditure under this policy.

The shift towards more emphasis on rural development under Pillar 2 of the reformed CAP, is found to provide an opportunity for harmonizing the outcomes from this policy area with those of ESPON. The territorial impacts of Pillar 2 (including the Less Favoured Areas

Programme, agri-environmental schemes, and other rural development measures) are more dispersed and to some extent more consistent with the territorial cohesion objectives of the EU. Case studies undertaken in relation to some specific areas of rural development highlight the differences in implementation between regions and also the methodological challenges of isolating CAP and Rural Development policy effects from others. The report also highlights the very significant negative environmental impacts associated with the productivist model that has underpinned the modernization of European agriculture, and is cautious about the capacity of current agri-environment programmes to overcome or ameliorate the damage that has already occurred.

The report strongly supports the 'European model of agriculture' as espoused by European leaders and recommends a rebalancing of the CAP & RDP budgets with more resources directed towards Pillar 2 measures, though there needs to be a shift from the current agri-dominated perspective informing rural development policy measures to one that is more inclusive. The experience gained from the LEADER programme should be built upon with more resources allocated towards integrated rural development programmes that facilitate greater levels of local participation and which are supported by institutional structures that can provide both horizontal and vertical coordination of several distinct policy areas. These proposals present major challenges to the policy domain at the European level as well as more locally.

Future EU approaches to agriculture and rural development policy are of very great significance especially in Ireland, Scotland and Wales where the sector still has a major role in some rural areas. The evidence from the case studies shows that patterns of adaptation vary between different types of rural areas for many reasons. Economic diversification towards activities relying on local markets seems to be most successful in rural areas that are relatively more accessible. There may be fewer opportunities in intermediate and more remote areas, with the exception of places with strong tourism potential as in the west and southwest of Ireland. There are many challenges remaining in relation to the transition towards a multifunctional agriculture and rural development policy as promoted by the EU.

The study of territorial impacts of EU transport and telecommunications policies is mainly conducted via a series of scenario analyses (Project 2.1.1). The main general result from the analyses is that the overall effects of transport infrastructure investments and other transport policies are small compared with those of socio-economic and technical macro trends, such as globalization, increasing competition between cities and regions, ageing of the population, etc.

The second main result is that the magnitude of the effect seems to depend strongly on the already existing level of accessibility. For regions in the European core additional gains in accessibility through more motorways or high-speed rail lines may bring only little additional incentives for economic growth, while in the regions at the European periphery or in the accession countries, however, a gain in accessibility through a new motorway or rail line may bring significant progress in economic development. But also the opposite

may happen if the new connection opens a formerly isolated region to the competition of more efficient or cheaper suppliers in other regions.

The analysis of cohesion effects shows that in particular the distinction between relative and absolute convergence or divergence is important and that the spatial level at which cohesion is measured matters. The same holds true also for the comparison of polycentricity of MEGAs at the European level and polycentricity of FUAs in individual countries. Transport policies which reinforce polycentricity at the European level, may increase the dominance of capital cities within their national urban systems and so contradict the goal of the ESDP to achieve a balanced polycentric urban system.

Regarding pricing policies increased private transportation costs clearly work against the general objectives of cohesion and polycentricity. Not only regions in the European periphery, but also regions in the periphery of their respective national markets suffer from increasing transportation costs, because their interaction with the markets is more dependent on transportation than that of more central regions.

Regarding ICT policies the study is able to demonstrate that within the two typologies of regions (objective 1 regions, advanced regions), different reactions to a specific ICT policy exist. Within non-lagging regions, some areas are able to take advantage from both indiscriminate and efficiency policies, while others react exclusively to efficiency policies; similarly, there are lagging regions that react dynamically to cohesion policies, while others seem unable to react.

Among the policy recommendations two are of particular relevance. The first is to continue with the TEN and TINA plans despite their anti-cohesion effects at the meso level, but to stimulate the poorer regions for development of their secondary networks. The second one is that the lagging regions, rural regions and peripheral regions should be compensated for negative effects of pricing policies. These findings are particularly relevant to the rural and less developed regions in North West Europe where there are significant deficits in infrastructure provision. The need for comprehensive national or regional level spatial development strategies is also evident in order to ensure that more balanced and sustainable patterns of development can be achieved in both the stronger metropolitan and weaker rural regions.

The final report of ESPON project 2.1.2 on ‘The Territorial Impacts of EU Research and Development Policies’ shows that:

- research, innovation and high technology ‘hotspots’ tend to be concentrated in core areas of North West Europe and Scandinavia,
- there are extensive areas in Southern, Central and Eastern Europe where R&D and innovation levels are low, with the exception of some of the capital city regions.
- many new member and accession states perform strongly in terms of human capital, which is regarded as an important component of innovation systems.
- there is some tentative evidence of regional ‘catch-up’ in that growth rates in lower performing regions tend to be higher, (however the plateau effect has to be taken into account).

The research for this project confirms a positive relationship between GDP, levels of tertiary education and employment in high tech manufacturing and R&D expenditure. In the case of participation in the research Framework Programmes, a negative relationship was found between participation rates and levels of high tech manufacturing employment. This result may reflect the reality that high tech manufacturing in a given territory does not necessarily require a local presence of R&D capacity.

While these results shed some light on which types of region are more likely to engage in R&D, they tell us little about the mechanisms that affect R&D activity. This reflects the explanatory limitations of the quantitative data available (particularly at regional level) and highlights the importance of the qualitative aspects of this study. By combining the regional data that were available, however, it was possible to construct typologies of regions, according to their R&D and innovation "profile". This gives a more complete picture of regional disparities (by combining indicators rather than viewing them in isolation) and provides a sound basis for further research into the policy implications.

While two different approaches were used, giving somewhat different results, there were enough common features to allow regions to be assigned to one of five types:

- Type 5 exceptionally strong system of R&D and innovation
- Type 4 strong system of R&D and innovation
- Type 3 mixed fortunes in undertaking R&D and innovation
- Type 2 average strengths in R&D and innovation
- Type 1 weak at undertaking R&D and innovation

With 13 regions each, Types 5 and 4 contain the least number of EU regions (just 8%). These are located in Germany, Finland, France, the Netherlands and the UK. The long 'tail' of poorly performing regions in the context of R&D and innovation activity is clearly evident in this analysis. Most regions are found in Type 1 (32%) closely followed by Type 3. Most member states have at least one region in each of these categories. The weak positions of Greek and Portuguese regions are clearly evident, as is the position of Austrian regions. In this case it is the position of Vienna that is ambiguous as it is performing well on some counts, but less well on others. Northern Ireland is classified as a Type 1 region with Scotland and Wales only marginally better. Unfortunately no data were collected for Ireland. While it would still probably be classified as a Type 2 region there have been significant initiatives over recent years to build a stronger research capacity with innovative programmes to establish a small number of world class research centres funded by a new agency Science Foundation Ireland.

Framework Programme participation is widely dispersed across the European territory, with project participants under the 4th and 5th Framework Programmes in all areas of the EU- 27 +2. The analysis shows a relatively strong 'cross' of regions focused on the north of

Italy extending north-south from the Benelux countries to Rome and east-west from Slovenia through to north east Spain. There are also strong 'islands' of activity in the Iberian peninsular; north west France and central Europe. Although Ireland, the UK, Sweden and Finland demonstrate general strengths, in the case of the UK and Sweden, pockets of weak participation can be identified, especially in Scotland and parts of the north of England. In FP5 rates of participation in Eastern Europe were generally low, reflecting their status as third country participants in the Programmes at the time.

The analysis of regional participation in the Framework Programmes in relation to GDP suggests a significant correlation between participation rates and levels of GDP per capita. Regions in the lowest quartile based on the level of GDP per capita tend to have the lowest levels of participation in the Framework Programmes. Between FP4 and FP5, there is, nevertheless, some evidence that participation by organisations in Less Favoured Regions is increasing.

Preliminary Conclusions

The ESPON programme is a highly ambitious attempt to describe, explain and provide policy proposals in relation to the territorial aspects of all dimension of development measured over 29 countries. Within a short time frame considerable advances have been made. Despite very significant data limitations, language barriers, and different approaches to spatial planning there have been significant achievements. Many new cartographic images of the enlarged plus four additional countries have been produced and several scenarios / simulations have been evaluated for different policy areas. Despite the many limitations the outputs from the ESPON programme have already been used to influence the future of Cohesion policy (see the Third Cohesion Report) and undoubtedly they will influence future national and regional spatial strategies. There is also a very strong consensus that the work needs to be continued under a second ESPON programme. Over the medium to longer term a more permanent European Observatory will be required to support European spatial planning and development programmes. Similar initiatives are required in member states/ regions where there has not been a tradition of systematically organized research on strategic spatial planning.

The outputs from the research projects challenge the traditional core-periphery model of Europe and especially the blue banana metaphor. The territorial structure of Europe is much more complex and furthermore it is very dynamic as evidenced by the research on demographic trends, adoption of new technologies, the transition to more knowledge based economies etc. The processes underlying the changing dynamics at the European, national and regional levels need much more systematic investigation.

The internal conflicts between the ESDP / ESPON objectives, especially at different territorial scales are becoming more evident. This has policy implications at all levels and may necessitate a revision of the objectives and favoured policy options. Furthermore, the status of spatial planning objectives within the broader framework of public policy objectives needs to be clarified; what is the status of the territorial cohesion objective vis a vis the goal of economic competitiveness?

Finally, there is a need for much more analysis of governance structures to support spatial planning and regional development. The limitations of current arrangements in many countries / regions are well known. There is a strong imperative to devise new models appropriate to local circumstances that can effectively overcome issues related to participation, advancing development agendas that are not primarily about increasing economic growth rates everywhere, facilitating genuine cooperation and integration and that are capable of on-going engagement with long term planning.