

ESDP

## Summary report on 2.2 Typology of cities and urban-rural relationships

Prepared by Denise Pumain with the help of the working group  
Version of 17/12/1999

### Introduction

Section 2.1 of the report identifies main trends which are challenging urban and rural areas in the EU. The aim of this section 2.2 is to show how these processes may affect the variety of local and regional contexts, according to the existing uneven distribution of people and activity among cities, towns and rural areas in the European territory.

The efficiency of territorial policies is heavily depending upon the modulations which will adapt them to specific local situations. A good and spatially exhaustive knowledge of regional variations in rural and urban types and patterns is therefore needed before any implementation of territorial policies. Moreover, the specific processes of diffusion of changes in territories have to be anticipated when significant redistribution of trends in relative shares of local development are wanted. Settlement systems react in their own way to social, economic, technological and cultural changes. They usually tend to keep the same general structure (defined as relative inequalities in size and specialisations of their different parts) because each part of the system is quickly adopting most of ongoing changes. This well-known spatial diffusion process is very often biased by the urban hierarchy and gives a recurrent advantage to the largest metropolitan areas, if no counteracting measures are taken.

After a long period of thirty years of diffusion of the amenities of the “consumer society” (symbolised by automobile and washing machine) towards the smallest town and village, even in most isolated and peripheral regions, the 1990's have revealed new trends toward economic and territorial concentration in Europe, which can be interpreted as a first stage of the territorial response to the diffusion of the new organisations linked with the “information society”, the globalisation of the economy and the European integration. By reinforcing the territorial inequalities, these metropolisation trends may increase the risks of congestion and environmental pressures in the more urbanised and wealthy areas while desertification processes may occur in most isolated regions and rural zones. This process is partially compensated by another trend which has decentralised the major urban areas towards their rural surroundings and encouraged the development of secondary centres in their most accessible peripheries.

The *ESDP's* aim to achieve balanced development across the EU territory has strong resonance with the traditional regional development policy aimed at providing financial incentives and appropriate infrastructure in less prosperous regions. However, the *ESDP's* point of departure from this traditional model lies in both its policy approach to distribution of resources and its proposed policy tools. As regards the *policy approach*, the pursuit of development in the ‘periphery’ is not proposed to take place at the cost of any losses to the ‘core’. So, the

development of the periphery is not to be achieved through outflows of resources from the 'core'. Hence, the twin policy aims of 'development' and 'balance' is pursued. Instead, balancing at the level of European inter-regional scale is promoted through creating new 'cores' and more "dynamic zones of global economy integration" which are well distributed throughout EU territory.

As regards *policy tools*, the 'balance' is to be pursued through 'polycentric spatial arrangement in the 'periphery' instead of linking core and periphery through infrastructure projects as is the case in existing EU policy measures. The *ESDP* proposes a new policy measure based on "the polycentric arrangement of the EU territory". It suggests that EU's spatially effective policy measures, particularly the use of funding from the Structural Fund in current Objective 1 areas, should be oriented towards the promotion of this polycentric development model (*ESDP*, 1999, para. 72).

## 1 Polycentric Spatial Development

The concept of polycentricity has at least three meanings in the context of European spatial planning and regional geography.

- *At the scale of Europe as a whole* (inter-regional), the possibility of developing multiple dynamic growth zones across Europe (see figure 1), to challenge the tendencies for a strong core region to which other parts of the territory are peripheral. In this context, South East England, for example, as well as Northern Italy are generally positioned as part of the existing dynamic growth core.
- *At the scale of the territory* (intra-regional), the situation where there are multiple urban centres, often interconnected, rather than a single dominant centre. In Europe, the type examples are the Randstadt in the Netherlands and the Rhine region in Germany, in contrast to the Paris region or to Southern England which is focused around the core of London.
- *At the scale of the urban agglomeration* (intra-urban). This refers to the multiplicity of nodal points within large urban areas, which challenge traditional notions of cities focused around their city centres. This situation is common in large formerly industrial conurbations, as in the Ruhr area or in many large cities in UK, it is also observed in touristic rivieras along the Italian or Spanish coasts.

The concern of the Study Programme and the *ESDP* is primarily with the first and second meanings of polycentricity. At the scale of Europe, the emphasis is upon identifying potentials for promoting multiple growth zones. As proposed by the *ESDP*, this model should be pursued across the whole EU territory "to ensure regionally balanced development, and create global economy integration zones" (*ESDP*, 1999, para. 67). At the scale of territory, the focus is on developing these in such a way that benefits spread out from key nodes within a region to other parts. Within this context, intra-regional polycentricity is understood as a form of "settlement structure" which is characterised by "a graduated city-ranking" (*ESDP*, 1999, para.71).

Thus, for the ESDP, promoting polycentricity is a major *policy aim* at the European scale whilst at the same time it is a key *policy tool* at the intra-regional scale. It is in this context that the challenge of identifying the potentials for polycentric development across Europe forms one of the key components of the Study Programme. Identifying patterns of relationships and in particular the urban – rural relationships is therefore seen as a key step towards locating potential polycentric development which in turn would create future ‘global economic zones’ in Europe.

## **2 Scope of the study**

The policy discussion of polycentric territorial development in the *ESDP* leads to a concern with identifying and classifying territorial differentiation and producing city and regional typologies. The Study Programme brief required a review of ‘typologies of cities and urban systems’. Initial work in the Programme reviewed a range of typologies of cities. However, it soon became clear that the work on typologies tended to emphasise particular attributes of different cities, rather than the flows between cities and their hinterlands. It is the latter which is a key concern for the overall study of rural-urban relationships.

Two objectives have guided our study: 1) to identify and characterize the main cities which could be selected as possible growth centres (global integration centres) in a polycentric development policy framework; 2) to identify and describe different regional contexts of urban and rural patterns, which are to be differentiated for developing adapted policies aiming at improved and intensified partnerships.

The exercise has to take into account different possible geographical scales for which the definition of policies may vary, either at the level of Europe as a whole or at more regional and local levels. It emphasises the diversity of local conditions due to large variations in number, size, functional specialisation, social and cultural assets, density and spacing of rural and urban settlements. The main challenge was to gather a wide diversity of information which has to be spatially detailed and exhaustive throughout Europe, and must consider a large number of variables which are necessary for describing territories in their complexity. As it was made in parallel to the studies about main indicators of point 1 of the report, it could not rely on the results of the work made on regional indicators and had to use the available comparable data on cities, towns and villages. The main difficulty in research was caused by the scarcity of appropriate data for the description of urban/rural relationships, especially regarding flows (consumption of urban services, frequentation of leisure areas), the lack of comparability of existing data about urban areas, especially of harmonised information about recent changes, and the differences in urban and rural concepts throughout the European community of researchers and statisticians.

Several different approaches have been developed in the working group. Besides the general presentations which were given in general meetings, two special meetings were held in Paris for discussing specific issues and two questionnaires have been sent to every national focal point. Many members have provided information and texts, either based on studies about their own country or on researches made at European scale. The results which are summarised below and commented in more detail in the annexed documents must then be considered as a first insight into a state of knowledge which has to be developed by the future ORATE system. If it points out

many problems which remain, it also suggests solutions for improving the level of our knowledge and preparing policy tools.

### **3 Typology of European cities in a European polycentric development context**

To make possible a comparison between cities in European Union is a more than ever necessary challenge. More and more, various urban actors need and ask an information about their partners, or about potential locations, in such terms that an evaluation is possible, so information has to be comparative. At first, this seems an impossible task. The expected information is not available, or when it can be collected, it exists under as many different forms as there are national states within the European Union. Even Eurostat who did a very efficient work for producing valuable statistical tools for the comparison of socio-economic regional data has not yet developed such an instrument about towns and cities. Because of this lack of basic sources, the first investigations required all the experiences and skills of urban researchers: they had to find indirect measurement allowing for comparison, or several means for comparing structures which were described in a variety of different ways.

The working group started from a review of existing urban typologies at European scale, and in a second step tried to check if it was possible to make a synthesis out of these comparative studies, which could be useful for identifying potential centres of economic development in various regional contexts. The result is rather unsatisfactory and underlines the necessity of collecting specific information, in a more complete way (especially for secondary regional centres, i.e. medium sized towns), with updated and fully comparable data.

#### **3.1 Review of existing urban typologies**

A detailed review was prepared by the French group and is included as Annex 1. Although a large bibliography including hundred of titles has been reviewed, significant typologies of European towns and cities are not so many: about half a dozen of studies which were published at the end of the eighties or in the nineties have provided detailed and comparative descriptions of full samples of urban cases over the whole territory of the European Union. Usually the set of European cities is defined after a threshold of population size and includes from 40 to 230 of the largest urban areas. Most indicators have been especially collected by the authors of the study and have been submitted to multivariate analysis. (Exceptionally studies on population growth between 1950 and 1990 have considered up to 5000 towns and cities (urban agglomeration of 10 000 inhabitants and more defined in a comparable way in the Geopolis data base) in Western and Eastern Europe (Cattan et al. 1994 and 1999).

These typologies provide useful information for identifying possible growth centres at various locations and for different territorial levels in Europe. Most of them rely on indicators of economic strength (including GDP, number of firms' headquarters, business services, railway and airway passengers traffic, high level urban amenities), and give indications of rankings in a European hierarchy of cities which are rather similar from one classification to the next. This hierarchical organisation is completed by a more qualitative assessment of towns and cities according to their socio-economic specialisation and quality of urban life and social integration. It is possible to differentiate types of towns and cities which can act as development centres because their economy is already broadly well integrated to global networks, and has developed a

significant part of high tech activity. Usually, unemployment is very low and potentialities for developing innovations and creating new firms are rather high. On the contrary, a still numerous subset of cities have not yet completely recovered from decay of mining and heavy industrial activities and need more specific curative measures before they can act again as development centres. In between is a number of cities whose future appears uncertain and may evolve differently according to circumstances.

### 3.2 Synthesis of typologies

Using the information provided by authors who published large lists of cities according to different types (Cheshire, Hay, Carbonaro and Bevan, 1988, Brunet, 1989, Conti and Spriano, 1990, Cattán, Pumain, Rozenblat and Saint-Julien, 1994 and 1999), it was rather easy for the experts in the working group to harmonise the resulting groupings of cities, by integrating knowledge about their position in an hierarchy of size and stages in development cycles, but for the largest European cities only. Besides the top level which always include London and Paris who have a prominent position with a clear discontinuity on most quantitative indicators, reflecting a higher level in complexity of their urban system, there is a significant level of cities made of most national political capitals together with a few major economic centres. As reflected by the already existing diffusion of foreign investment among the European urban system (figure 2) this group of centres can clearly be used for developing more concerted policies of regional global integration (including for instance Amsterdam, Athens, Berlin, Birmingham, Brussels, Copenhagen, Dublin, Düsseldorf, Frankfurt, Hamburg, Helsinki, Lisbonne, Luxembourg, Madrid, Manchester, Milano, Munich, Rome, Stockholm, Strasbourg, Vienne). Smaller urban areas but with strong specialisation in high tech research and development with well-developed international functions may be classified together with this category (for instance, Barcelona, Köln-Bonn, Lyon, Rotterdam, Torino, Utrecht). It is also rather easy to identify a subset of cities which still have problems of conversion of their economy (as Liverpool, Marseille or Napoli). A general agreement can be reached about the classification of cities belonging to this top level of the urban hierarchy. However it has proved more difficult to assess in a comparable and scientific way, without further study, other possible growth centres which may emerge from the set of small and medium size towns. The lack of relevant and updated statistical information is responsible for that. Indetermination could be solved by developing an appropriate information system on European towns and cities (see below).

When trying to define a combined typology, the Finnish group underlined that it was not well-grounded to include some Finnish cities on ad hoc grounds. Rather, it would be better to recall that the typologies concerned included only the EU12, and thus the newcomer EU countries have to be excluded from the typology at this stage. Another problem is that there is a city network even in the thinly populated areas in the European North, but for obvious reasons it consists of smaller cities. The urban system of the Nordic area differs from the others not so much in the structure of the larger metropolitan regions but rather in the smaller settlements. In a European perspective, the Nordic urban systems lack medium-sized labor-market regions similar to the ones that are found in continental Europe. The character of the Nordic urban system is indeed different from the rest of western Europe. The Nordic achievement in this perspective is to have been able to make the sparsely populated periphery competitive in a way which has not materialized in the other countries. In this sense the capital regions of each of the Nordic countries serves as a dominant gateway for their countries. A clear reflection of this are the hub

functions that have been introduced for the domestic airline systems in Finland, Norway and Sweden. The difference between the north and the south is not the larger settlements. It is rather the domestic urban systems. Up-to-date analyses of the Nordic city typologies have been provided (see annex 3 for Finland). Another attempt of classifying local labour markets (defined by including all municipalities sending more than 20% commuters to the core) has been made for Sweden (Annex 4). Such contributions have usefully completed the reflection on typology and helped in preparing the definition of a next research agenda.

### 3.3 Further research

An indispensable step for conducting further research is **to build a consistent information system on European urban and rural settlements, which does not exist until now in the European statistical system.** Such a system should not describe only large urban areas but also include as precise as possible description of small towns and villages. This means that it should rely on building blocks of the smallest size of local unit which has received statistical information in UE, the NUTS 5 level. This is not intended to be a too expensive and time consuming task because the working group has carefully prepared the agenda, by converging toward an harmonised definition of a European Functional Urban Area, and by insuring the feasibility of data collection for a limited number of significant indicators. Various suggestions from Italy, Denmark, Germany, UK, France, Sweden, Finland and Belgium have much contributed to the convergence toward a general agreement about the following propositions:

#### 3.3.1 Definition of EFUA (European Functional Urban Area)

National statistical offices delimit urban units by different philosophies. In general the closest one comes to a generally accepted definition of the urban unit is the United Nations' *Urban Area Concept*, but it is purely physical and based on distance between buildings combined with ruling in areas of urban use (parking space, sport arenas, parks, outdoor storing areas, cemeteries). This widely used UN-definition is actually an anachronistic delimitation of greater urban units, especially when it comes to comparative studies, because distance between buildings does not determine function, although distances influence function. Extension and density of contiguous urban areas differ due to tradition, legal factors, physical layout, and development stage. National statistical offices delimit units by different philosophies.

The urban unit presents a concentration of people, activity, capital and buildings. It is constituted by markets of for example labor, retail, services, culture or housing. It is structured on major roads, railroads and terminals. And it functions by flows of people, goods, energy, information and money. To construct an operational definition based on features of such a functional urban unit is a "mission impossible".

Series of attempts to present a European counterpart to the metropolitan region concept of the United States are still short of results which can be used for the purpose of comparing large cities (see for example NUREC, 1994). The *Functional Urban Region* is widely used in different types of analysis like the Cheshire et al study (1988). This reflects an urban definition and delimitation based on daily flows - in practice often commuting to work. Relying on large building blocks (e.g. districts for England, NUTS4 or NUTS3 in general) and defined after a low threshold of commuting share of labor force (10%), these FUR have large boundaries which suits to large

metropolitan areas but aggregate many smaller towns. Their limit have not been updated since 1970. Other studies like the original French work on categorizing and analyzing the European Union urban system uses the *Agglomeration Perimeter* concept (Brunet, 1989; Cattan et al, 1994). However updated until 1990 and including a large part of urban activities (since employment is usually more concentrated than resident population) this framework is too narrow for embracing the recent significant developments of activities and residences in rural fringes outside the agglomerated zone. In spite of these attempts no easy way to define and delimit the European cities does exist.

In the SPESP working group (2.2) meeting November 25, 1999 at the university of Paris, Sorbonne a suggestion from the Danish Focal Point was presented, discussed, elaborated, and agreed upon (see Annex 5, C. Matthiessen).

The *European Functional Urban Area (EFUA)* is defined stepwise using NUT5 units as fundamental units which are combined. Step 1 defines a contiguous core comprehending the NUTS5 units which are categorized as or includes parts of the urban area of the city in question (NUTS5 units categorized as the built-up urban area by the United Nation definition). Step 2 adds NUTS5 units from which commuting to work within the core exceeds 40 percent of the active labor force of each unit. The EFUA has to be contiguous. A NUTS5 unit can only be part of one EFUA (the one with the highest percentage of incoming labor force commuting). Step 3 adds NUTS5 units to which commuting from the area defined in step 1 and step 2 exceeds 40 percent of the number of jobs within the unit in question (this could for example be the case of a large outlying airport). Again a NUTS5 unit can only be part of one EFUA (the one with the highest percentage of incoming labor force commuting to the unit). The units defined in steps 1, 2 and 3 then constitutes the EFUA.

In large and complicated urban regions like the Rhein-Ruhr, the Randstad or the Midland conurbation, a higher level definition must be formulated in addition. This type of unit could be defined by overlapping labormarkets, or by other type of flows as for example flows to high-order terminals or flows represented by business service operators. This type of units could be named the *Consolidated European Urban Area (CEUA)*. An operational definition including such complementary considerations should be discussed and formulated at a later stage.

Applications showing the relative extension of urban agglomeration (UN definition) and functional urban area (EFUA) have been made for Belgium (E. Vanhecke, figure 3) and a region of France (INSEE-DATAR, figure 4). The latter also shows in superposition the patterns of consumer trips, which could be used for a better understanding of relationships between urban and rural areas.

### **3.3.2 List of relevant indicators**

A list of indicators which should be collected in a comparable way for classifying towns and cities after their centrality level and their development potential has been discussed in meetings and through a questionnaire. The list appears as a conclusion at the end of Annex 2 and a simplified list in Annex 6. Many countries including Austria, Belgium, Finland, France, Greece, Ireland, Italy, Luxembourg, The Netherlands and Portugal have sent data or promised to send them according to this list. The Italian group has prepared a report showing the feasibility of

EFUA delimitation and indicator collection and their relevance for classifying Italian cities in a relevant way (Annex 6 and 7).

In conclusion, more or less comparable indicators are available in UE countries for comparing cities. It would be an illusion and a useless exercise to try to classify cities in definite, permanent and all purposes categories. However, relevant indicators do exist for identifying broad classes of urban areas with different regional sphere of influence and distinctive socio-economic dynamics and positions on innovation cycles. Such a typology could be useful for defining potentially efficient nodes in a polycentric territorial development programme. It has to rely on a wider information than the one which have been considered until now for including in the process not only the largest European cities but also medium-sized and smaller towns.

The existence of an already strong and dynamic urban centre is an indispensable condition for the success of any policy of regional development. It is however not a sufficient condition for a real integration of a whole region to global economy, as long as this main centre is not fully connected with others, as well with towns and rural zones in the same area. We have then studied patterns of rural and urban settlements, trying to locate possible towns networks and identifying different local conditions for developing partnership between urban and rural areas.

#### **4 Diversity of regional rural/urban patterns**

Reflections on possible developments of new partnerships between urban and rural areas, as summarised in part 2.1 of this report and documented on case studies in part 2.3, must be considered in the full variety of local and regional situations throughout Europe. For a good assessment of rural-urban partnership possibilities, it would be necessary to rely on precise information about flows of all kind (good, persons, capital, information) which are structuring the local and regional subsystems. As it was said before, comparable information is not available yet at the European level and the collection and harmonisation of existing national sources would have taken more than one year. However, as the geographical distribution of flows is very often influenced by and reflected in territorial structures, descriptions can be proposed with selected structural indicators considered as proxy for interactional variables. As an example, a simple map of distances between European urban areas is enough for revealing the well-known diversity of settlement patterns in three broad types, heterogeneous in the western part, very dense along the Rhine valley, and more regularly distributed in the Eastern part (figure 5).

It is known from the theory of settlement systems that the spatial pattern of settlements, as defined by indicators of size, spacing, and contrasts in settlement sizes, widely reflects the state of interactions between them. A precise typology of specific types of spatial patterns of settlements systems would require a full and accurate description of precise location and size of each settlement. As such an information system is not yet available, the working group has agreed upon a first approach which gives an approximate view of what could be done. A regional typology of rural-urban patterns has been prepared by the French group (see Annex 8). Detailed information about location and population size of more than 5000 urban settlements was taken from the Geopolis data base (Moriconi-Ebrard, 1994) and analysed in the framework of NUTS3 regions together with information on rural populations aggregated at that level. Countries of Eastern Europe as well as Europe of 15 have been considered. A typology of European regions, including 728 regions at NUTS3 level has been carried out. Seven “indicators of rural-urban

spatial pattern of settlement” have been submitted to cluster analysis to classify territories (urbanisation rate, rural and urban densities, average spacing between towns of 10 000 inhabitants and more, index of inequalities in town size, primacy index, size class of the main center). Spatial smoothing techniques have been used for providing a series of maps which can define more or less generalised patterns for different scales of analysis. The main result identifies five broad types of territories (figure 6):

1. Regions dominated by a large metropolis
2. Polycentric regions with high urban and rural densities
3. Polycentric regions with high urban densities
4. Networks of medium and small towns
5. Remote rural areas

Such a typology gives a general view of rural-urban settlement patterns at European scale. The methodology could be applied on more detailed information, for example NUTS5 region and satellite images from EEA, in order to capture spatial pattern in sparsely populated regions of Europe. A “zoom” on a more detailed approach of the rural settlement system in peripheral regions has been provided for Finland (see Annex 9).

Another methodology was applied by the German group (see Annex 10) for identifying potential zones for rural-urban partnerships. The basis of this typology are NUTS 3 regions. These are categorized in several stages, using two basic types of variables. The mutual accessibility of regions measured by minutes travel time between the administrative centres was a first criterion. An ACCESS matrix file created by the BBR containing the distances between all NUTS 3 regions provided the source. A second criterion was the number of inhabitants of the largest city of a region based on a NUTS 5 database of 1991. The resulting map appears on figure 7.

A third approach was an attempt to categorise the various dynamics of rural areas. A map was drawn for Italy by R. Camagni and data collection has started for extending it to other countries. It gives a classification of rural areas according to their economic sustainability and urban pressure levels (see Annex 11).

Finally, the lack of comparable data at the European level is a key barrier to production of a meaningful territorial typology which focuses on the complex interrelationships within territories and in particular the urban-rural relationships. Especially, there is an urgent need for collecting information relative to flows corresponding to various relationships (in hinterlands which may have a larger range than those of commuting, for access to urban services and opportunities, for access to leisure areas, on a weekly or monthly basis).

## **5 Conclusion and further research**

Trying to map the trends in regional polycentric development and new urban-rural partnership throughout Europe is a meaningful exercise. For the first time a lot of information has been collected and confronted inside the working group, which also has agreed on major research issues for the future.

Until now comparison of urban dynamics had been mainly between large cities, we have extended it to territories, and identified several ways of typifying the regional rural/urban contexts.

The concept of polycentricity has been clarified in its different meanings according to various geographical scales. The desirability for a polycentric urban development at regional level has to take into account the persistence of a strongly hierarchical structure of the European urban system (however much less hierarchised than the North American one). The discussion about the hierarchy of city size is enriched by considering that usually population size gives a proxy for the relative position of a city in an urban hierarchy but is not the unique criteria; the actual weight of cities within the European urban system may vary according to the level of specialisation they have in international functions, or innovative technologies level, or other criteria giving them a higher probability of having influence in city networks (through long distance connections) or development potential (through rapidly growing activities). What is not clear yet is if a network of newly interconnected cities can meet the same level of complexity in activities and international impact that a monocentric urban area of the same size. However, network of towns can certainly improve the quality and diversity of access to services and opportunities for a resident population by sharing the investments in infrastructures and amenities (within a one hour range of access).

Many towns and cities can act for their surrounding environment as potential development centers for global regions of integrated development at different geographical scales. There is a need of case studies for documenting the question of rural/urban partnerships inside such regions because the available information on this very innovative topic cannot yet cover fully the European territory.

However it is clear that different policies must be applied according to the regional structure of settlement systems. The relations between rural and urban areas are not of the same nature in regions which are dominated by a large metropolis and in regions where a more balanced network of medium-sized towns is scattered in rural areas. In the first case, a higher attractivity may be expected but imbalances in negotiating power have to be compensated for insuring a wider spread of development in the region and a control of pressures upon the environment ; in the latter, co-operation issues have to be carefully discussed and selected for identifying specific targets where network effects can compensate for the limited attractivity of each isolated centre. It is a major contribution of the working group to have identified and mapped under comparable criteria the diversity of European regions respective to this problem. However, this work has to be extended towards finer scales of analysis for providing more operational tools.

The lack of disaggregate data on rural and urban areas, defined on the basis of up to date information, poses a major problem for European researchers, policy makers, and industry. Carrying out a study based on comparable boundary definitions, using functional criteria, is therefore central to the future work of the network. There is a strong need for developing an information system on rural and urban areas inside the ORATE system, which should be provided by the member states (on basis compatible with the GIS at Eurostat and EEA), and use a common definition of European Functional Urban Area (precise specifications could be checked in a first stage, allowing for pragmatic compromises where needed, for instance when already well defined local market zones are identified by a national statistical system). This information system should rely on as fine as possible building blocks (NUTS5 level for administrative units, pixels of Corinne Land Cover) in order to develop a shared GIS for further comparative research. This would allow to extend the definitions and analysis to smaller city-regions to include the dynamic

smaller cities and towns and should be completed by an extended analysis of basic data to include a more comprehensive range of socio-economic variables.

## **Annex : Detailed contributions of the working group**

**Annex 1 Review of comparative studies on the networks of European towns and cities**

**Annex 2 Synthesis of existing classifications**

**Annex 3 Perttu Vartiainen, Janne Antikainen : Framing the Urban Network in Finland – the Urban Network Study 1998<sup>1</sup>**

**Annex 4 A typology of functional regions in Sweden**

**Annex 5 Christian Matthiessen**

**Annex 6 and 7 Sergio Conti, Carlo Salone (et alii) EU-Polis, Contribution to typologies of cities and rural-urban partnership**

**Annex 8 Pumain D. Mathian H. Rozenblat C. A Regional Typology of Rural-urban patterns.**

**Annex 9 Pentti Malinen: Rural area Typology in Finland**

**Annex 10 Andreas Strade, Karl Peter Schön, Types of Urban-Rural Regional Settings**

**Annex 11 R. Camagni**

---

<sup>1</sup> This article summarises the guidelines and results of the *Urban Network Study 1998* (Vartiainen & Antikainen 1998). It adopts an urban system point of view, complementing the aspect of the quality of life indicators rising from local level.