

# SOME ASPECTS OF TRANSPORTS SYSTEM AND SPATIAL DEVELOPMENT IN ROMANIA

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**ABSTRACT.** This study is trying to make a difference between the spatial approach, which is oriented to the morphological and structural aspects of the development of the natural and built environment - in relation with some visions of this dynamics on long term on an European level - and the territorial planning approach of on local, regional, national and European levels, from which accrue the development policies and programs. From this point of view, the study is making an analysis of the situation of Romania and the spatial implications of it's adhesion to the European Union.

**REZUMAT.** În acest studiu se încearcă stabilirea diferențelor dintre abordarea spațială, orientată către aspectele structurale ale amenajării mediului natural și a celui construit - în relație cu unele viziuni privind dinamica pe termen lung la nivel european - și abordarea planingului la nivel european local, regional și național, care stă la baza politicilor și programelor de dezvoltare. Se analizează situația României și implicațiile spațiale ale aderării sale la UE.

**Key-words:** spatial development, cohesion, competitiveness, transports, Romania.

**Cuvinte cheie:** dezvoltare spațială, coeziune, competitivitate, transporturi, România.

## 1. REQUIREMENTS

The study started with the examination of the implications induced by the adoption of the poly-centricity principle (ESPON, 1.1.3/2004, 1.1.1/2005), like a condition for increasing the territorial cohesion in EU, preliminary request for acceding to an economic sustainable development and for implementing the economic and social cohesion (European Commission, 2007).

We choose a spatial approach in which the morphological aspects of the settlements, infrastructure for transports and the communication networks configuration (based on accessibility) are part of the European environment. Obviously, this general level is synthesizing the actual status and the perspectives of the Lisbon - Gothenburg Strategy for increasing the cohesion and competitiveness and it can offer new perspectives downstream to the territorial planning studies in relation with those for transport.

## 2. ROMANIA IN THE EUROPEAN CONTEXT

The establishment of the poly-centricity level of the national settlements networks was based on criteria like: *dimension* (the balanced distribution, considered as dimension of the settlements network), *localization* (the uniform territorial distribution), and *connectivity* (a good

accessibility, regarding to the territory which is polarised by the main cities of the network).

From among the Central and Eastern European countries, it is considered as being the most poly-centric countries Slovenia (which has a high score for all the three named criteria), Poland (with a balanced distribution as dimension) and the less poly-centric from this category is Hungary. Romania is included in the middle category, together with Italy and Switzerland; obviously, an artificial situation resulted from an analysis based only on indicators, without taking into consideration the balanced geographical distribution of the settlements with more than 300,000 inhabitants and, in the same time, by omitting 7 cities which are totalizing over 300,000 urban inhabitants.

The situation of Romania, both that is presented in the Atlas which describes the territorial structure of the EU 25 + Romania and Bulgaria (previously elaborated than the adhesion of these last two countries) + Switzerland and Norway (ESPON, 2006), and the second one that is described in the fourth Report regarding to the economic, social and territorial cohesion (European Commission, 2007) is like that:

– a decrease of the population of – 6.7% in 2005, up to 1990 – which is under the deficit from Estonia, Latvia and Bulgaria but over that of the Czech Republic, Lithuania and Hungary;

– a very low value of GDP per capita (it will take more than 15 years before will reach a GDP per head of 75% of the EU-27 average);

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– a raised rate of unemployment on long term, such as Bulgaria, Poland, Slovakia, Greece, Baltic Countries, South of Italy and North of Germany;

– the existence of some regions situated under the unemployment average – such as some regions from Ireland, Great Britain, Spain, Italy, Hungary and Czech Republic;

– an economic sense or specialization of an European peripheral type (agriculture, fishing, building, light industry, tourism) such as some regions of countries located either in the Eastern extremity – Latvia, Lithuania, Poland, Greece, or in the Western side – Spain, Portugal;

– a rate of labour force usage about 58% from the whole potential, that means lesser than the aim indicator of 70%, established by the Lisbon Strategy, but more than the same indicator in Poland and Italy (*there is not comprised the effect induced by the migration for labour, after the adhesion of Romania to the EU*);

– a very low index of informational society (making exception the West Region, which has a low index), like Latvia, Lithuania and some regions of Spain, Portugal, Poland, Slovakia Bulgaria, Greece and Hungary);

– a raised weight of the labour force occupied in agriculture (it is a great challenge regarding reform and reorganization of the agricultural sector), like just some Eastern regions from Poland;

– a low accessibility – Romania, Greece and Bulgaria being somehow isolated from the rest of the Europe regarding the business travelling (the one-day travels are possible only between Athens and Bucharest);

– the lowest usage of phone mobiles, in 2005, (47/100 inhabitants) in comparison with the European average (90/100 inhabitants), Romania being on the last place, after Latvia and Poland (66/100 inhabitants);

– placed in the last group of countries with low access to Internet, beside Ireland, Greece, Poland and Bulgaria;

– placed, together with Lithuania and Slovakia, in the last group, like potential given by the straight spatial correlation between weight of labour force in the cultural and creative occupations, the value of GDP and the importance of C&D;

– the existing of the natural area of Carpathian Mountains (but omitting the Danube Delta Biosphere Reservation);

– a raised frequency of ample floods, between 1987 and 2002 in the N-W of Romania, in the East of France, in the middle and South of Germany and in the East of England (ESPON 2006).

After the whole analytical and prospective process achieved by ESPON between 2002 and 2006 or after

the moment when the stage was complete, appeared new challenges regarding: climate changes, the power crisis and food surety problems.

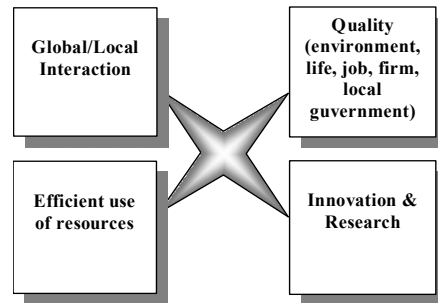


Fig. 1. Lisbon / Gothenburg Strategy (ESPON.3.3/2004).

We can note, also, the increasing of the adaptability in the short time to the new situation induced by the adhesion to the EU of the countries which became members in 2004.

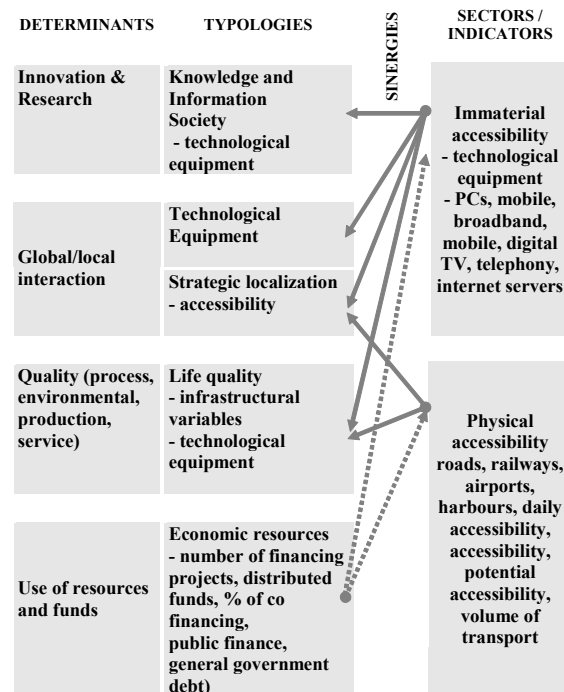


Fig. 2. Extract from "Synergy Tree" of indicators (ESPON, 3.3/2004).

The new Report IV regarding the economic and social cohesion comes to reinforce the stipulation of the 16-th article from the EU Convention, namely that to obtain a good economic, territorial and social cohesion it is important to have a good access to economic services of general interest. (the European Commission, 2007).

An extract from the «synergy tree» of indicators allows to explain the trajectory taken by different connections established between accessibility – physical and/or immaterial one – and all other (four) domains which are determinant in development.

### 3. CAUSES AND IMPLICATIONS OF ROMANIA CURRENT SPATIAL CHARACTERISTICS

The spatial characteristics of Romania, which determine nuances in the interpretation of some general principles accepted at European level, are given by:

–*the geopolitical context:* (a) Romania is placed on the Eastern boundary of the EU and in the NE extremity of CADSES Region; (b) after 1945, Romania lost, like Poland and other countries placed around the Baltic Sea, the shortest and traditional commercial connection between the Baltic Sea and the Black Sea; (c) the effects of the policy assessed after 1945, for isolating Romania from the Moldavian Republic – USSR, which had as results low investments and the underdevelopment of the transports sector on the Eastern boundary of our country. OPPORTUNITIES: Romania is in the position to develop itself and play like a relay connecting E-W and N-S of the EU, to support for Poland which proposed to make functional again the trans-continental corridor between the ports Gdansk and Galati/Constanta; making-up and developing continental and inter-continental “gates”/“fly over”/“ports”. RISKS: fastening into a peripheral state of fact and perpetuation of the current underdevelopment, especially in our N-E Region, being considered the most impoverished region of the EU;

– *the geographical condition:* (a) the bio-geographical scale and diversity of the territory; (b) having inside the country the Carpathian Arch (910 km.), with heights (max. 2.533 m) which doesn't allow a regular habitation; (c) the existence of the Danube course which permits the access of sea-ships till Galati-Braila, of the Danube Delta and of the seacoast. OPPORTUNITIES: the diversity of geographical landscapes and of the natural potential; RISKS: underestimating the navigable course of the Danube till the port of Galati (for over 30.000 tone/dw. cargo); maintaining the current underdevelopment of the limitrophe areas to the Danube course, in absence of a real accessibility (it is missing a “Danube expressway” alike that one existing on the southern side of the river); the appearance of a medium density, lesser than the real one, taking into consideration the length of Carpathian Arch in the middle of the country; compromising the tourist's roads situated in valuable natural landscape (Tihuta Path,

Bicaz Path) by adjustments to the hard transcontinental traffic; the insufficiency of protective measures and the lack of caution during the last anthropogenic interventions in the Danube Delta; the risk to loose the seaside places of the Black Sea.

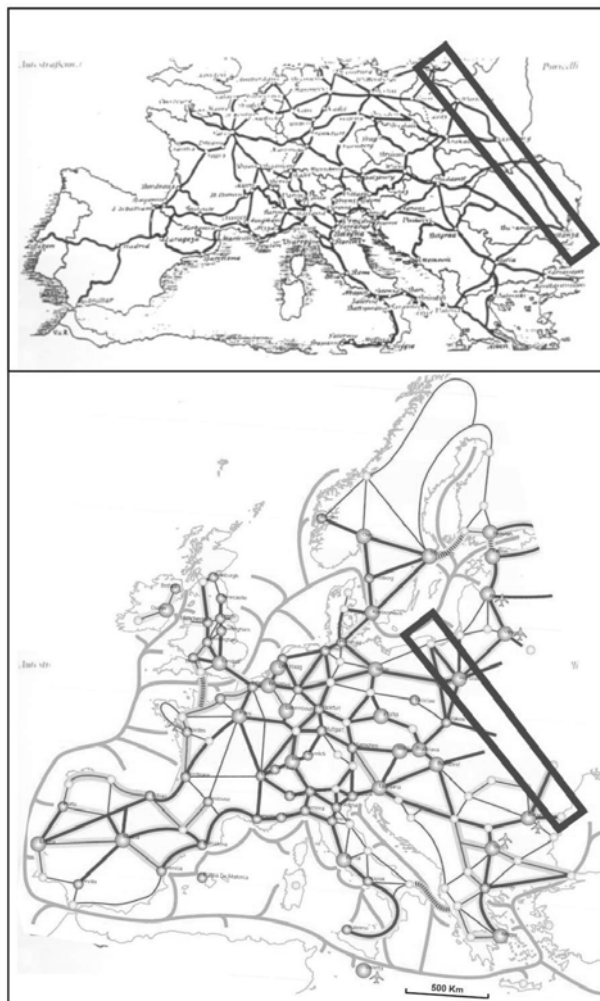


Fig. 3. Comparative maps:

A – highways proposals 1934-1937 (Niemayer, R. 1937);  
B – TEN-TINA corridors (ESPON, 1.2.1/2004).

– *the historical evolution:* (a) the achievement of Romania as a modern state, after 1918, offered, till the Second World War, an insufficient period of time to accomplish the internal functional cohesion inside the country and strengthen the traditional transports relations between its' historical regions. RISKS: the insufficiency and fragility of the current trans-Carpathian connections; the risk of fastening the historical deficiencies regarding the internal cohesion of the country, by missing of correlations between the new strategies for regional development.



Fig. 4. Post-TINA proposals - INTERREG III B (2004).

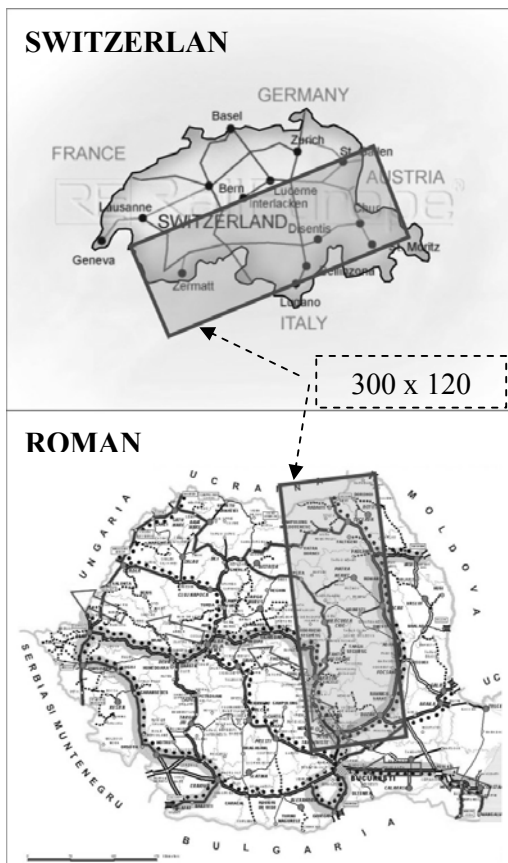


Fig. 5. Comparative maps: railway network in Alps and East-Carpathian Mountains (in Romania there is no pathway on 250 km., instead in Switzerland there are 4 pathways at less then 80 km. distance (UAUIM, 2007).

– *the current level of economic and social development*: (a) a low competitiveness between the main cities of the country; (b) a low weight in the force labour field of population with high degree studies or occupied in research, culture and creative activities (including IT); (c) the delay of the sectorial restructuring process, in general, reflected on the low degree of the urbanization and, also, in the pattern of the admeasurements classes of settlements. **OPPORTUNITIES**: confirmation of the new status of the metropolis admitted in the European network (Bucharest and Timisoara); to support the increment of current metropolis indicators of Constanta and Iasi to an European level (as inter-continental “bridges”) and preparation of another Romanian cities – Brasov, Cluj, Craiova, Galati-Braila, Oradea, Ploiesti – to accede in this category (for supporting polycentricity diffusion in the whole country and at regional level); to develop a new type of relations between urban and rural spaces. **RISKS**: undervaluation of the role plaid by big cities in the development of the urban network at European, national and regional level (as inter-modal transportation nodes, as their potential regarding human capital for C&D, as attraction for international functions, as cultural centres and high quality services, as support factors for the development of small and medium cities); the delay in accepting the importance of the territorial role plaid in the establishment of the metropolitans regions/areas like functional entities in the European territory and, also, an overestimation of the rusticity; omitting the effects of sectorial reorganization on the rural or urban status of the settlements, taking into consideration that the urbanization measure in the EU was, in 2002, 75.7% in relation to Romania – 56.2; underestimating the dynamics of the development in the settlements located to the interface between rural and urban space or with growth potential of non-agricultural activities, besides services for agriculture (from around urban settlements, alongside European, national or counties roads or as centres for services in extended rural areas).

– *oppositions between various process which have an essential role in increasing cohesion and competitiveness*: (a) a high difference in time between the far perspective of the trans-European corridors and the necessity of attraction of investments at once (especially in the poorest region of European Union – the N-E Region); (b) a high dependence on air transports; (c) the delay in the development perspectives of some Eastern “gates”/“bridges” of the EU; **RISKS**: maintenance, on medium or long term from now, of a low accessibility; non-capitalizing the chance to improve logistic platforms in areas with high potential and, in the same time, depletion of advantageous locations for such functions,

by a functional sub-use; the necessity to develop the airports, in advance beside the current freight and passengers traffic, but with healthy effects at regional scale.

– *another characteristics derive from the side of the information database and from the absence (non-participation) in the studies concerning the Community space, the difficulty in receipting the past-industrialization realities and direction, as results of the spatial evolution of EU countries (territorial and functional metropolitan/urban areas configuration, logistic plat-rms, clusters and so on), the specific of Romania due to the status which includes in a coherent system both the territorial and administrative configuration as the legislation. (so, Romania, as legislation and administrative-territorial configuration belongs to the family in which are included France, Belgium, Spain, Italy, Poland, and Portugal).*

The facts which were presented above are relevant both from a direct as indirect point of view for the spatial characteristics of Romania.

#### 4. THE TRANSPORTS SYSTEM AND THE STRATEGIC CONCEPT OF SPATIAL DEVELOPMENT OF ROMANIA

The contribution, on the one side, at a study of the Polytechnic University – Bucharest regarding the convergence between the territorial improvement and transports configuration (TERITRANS, 2005) and, on the other side, at the study of the National Institute of Research and Development – URBANPROIECT regarding the terms of reference for the national concept of spatial development (UAUIM, 2007) conducted to the deineaion, by a staff of the Research, Designing and Consulting Centre – “Ion Mincu” University of Architecture and Urbanism, of the requirements and objectives of the national concept for spatial development, in which the transports are having one of the structural roles.

The fundamental objective of the spatial development on long term (2025) consists in “the integration of Romania in the EU structure, by assertion of its regional and continental identity, by increasing the spatial cohesion and sustainable development”. Further we are presenting the five strategic objectives for the spatial development of Romania, directly and indirectly involving transports system.

*OBJECTIVE NR 1 - Connection to the European Network of poles and spatial development corridors:*

– A poly-centric and balanced spatial development of the areas with metropolitan functions as Bucharest,

Timisoara and, adding to these, Constanta as terminal of the 4-th Trans-European Corridor and the 7-th – the Danube Corridor;

– Establishment of a poly-centric and balanced system of metropolitan areas, by preparing the access into the metropolis category for another 4 municipalities having more than 300,000 inhabitants (Brasov, Cluj-Napoca, Craiova and Iasi), for two municipalities having more than 100,000 inhabitants (Oradea and Ploiesti) and for the urban system Galati-Braila.

• *Spatial components of the transports system:* the entirety of transport modes in connection with TINA corridors, the terminal of the 4-th corridor, inter-modal connections, communications network ant IT, Danubian ports (river/sea ports).

*OBJECTIVE NR 2 - Reconfiguration and development of the network of urban settlements:*

– Developing the frame of the transportation and telecommunication infrastructure at a national and regional scale, as reinforcement of settlement development;

– Building-up dynamic, attractive and competitiveness cities and regions/urban agglomerations;

– Supporting the urbanization process, from the perspective that Romania, in 2025, will achieve a balance of the urban population of 66.9% in an area system (as part of urban agglomerations of big and medium cities), in a vectorial system (along the main national and European roads) and punctual (new urban centre in full rural areas);

• *Spatial components of the transports system:* the transportation network and transportation inter-modal nodes as reinforcement of the settlements system and as a support for the urbanization.

*OBJECTIVE NR 3 - Assertion of the solidarity between urban and rural spaces, appropriate for various territorial categories:*

– The endogenous development of rural spaces, based on diversity and performance (for all those four categories of rural territories: rural areas included inside the urban agglomerations, rural areas included in urbanized areas, interstitial rural areas located between the urbanized corridors, isolated rural areas);

– Promoting the partnerships between cities/urban agglomerations and modern forms of association for rural settlements;

• *Spatial components of the transports system:* the transportation network as a vector of the development in rural spaces.

*OBJECTIVE NR 4 - Strengthening the trans-Carpathian connections as a support of the regional development:*

- Building up a national frame for accomplishing a functional connection between regions;
- Assuring the access to the knowledge infrastructures for a pan-European, national and regional scale;
- Trimming the chances of Romania to be able to attract competitive activities;
- Strengthening the trans-national cooperation in the Carpathians area and Black Sea too;

• *Spatial components of the transports system:* the transportation network and the nodes, including IT, completion and reinforcement of the roads and railways trans-Carpathian connections.

*OBJECTIVE NR 5 - Capitalization of the natural and cultural patrimonies:*

- Making an integrated protection and capitalization of the natural and cultural patrimony.
- Using carefully the forests, the waters supplies, the ground (and soils) and the bio-diversity, taking into consideration of risks induced by the intensification of anthropogenic activities and climate changes.
- Using a creative management of the natural patrimony and cultural landscapes.

• *Spatial components of the transports system:* the transportation network and the nodes, including IT, protected touristic Carpathian paths.

The increasing of physical and immaterial accessibility of all Romanian regions, the reinforcement of the main urban structure and of the new gates, the strengthening the small and medium cities network and the appearance of new urban-rural relations inside a more dynamic urbanization process, all these are morphological and functional shaped by the new paradigm of European integration of Romanian particular environment, network of settlements and transports system.

A balanced spatial development at a larger scale is, in fact, a synonym expression with sustainable development but, in the same time, is a necessity imposed by the new challenges like the shortcut of energy and the greenhouse effect.

## REFERENCES

- [1] ESPON ATLAS (2006), *Mapping the structure of the European territory.*
- [2] ESPON (2004), Project 1.1.3. *Particular effects of enlargement of the EU and beyond on the polycentric spatial tissue with special attention on discontinuities and barrier.*
- [3] ESPON (2004) Project 1.2.1., *Transport services and networks: territorial trends and basic supply of infrastructure for territorial cohesion.*
- [3] ESPON (2004) Project 3.3., – *Territorial Dimension of the Lisbon-Gothenburg strategy*, pag.71.
- [4] ESPON (2005), Project 1.1.1., *Potentials for polycentric development.*
- [5] European Commission (2007), *Territorial Agenda of the European Union, Towards a More Competitive and Sustainable Europe of Diverse Regions.*
- [6] European Union, Regional Policy (2007), *Growing Regions, growing Europe*, Fourth report on economic and social cohesion.
- [7] INTERREG III B (2004); Project: Metropolitan Areas + Integrated Polycentric Land Use and Transportation Policy – Warsaw, 23rd – 24th of September.
- [8] Niemayer, R. (1937), “Die entwicklung der Verkehrslande im Raum Rhein-Mein als Teilaufgabe der Landesplanung” in: *Monatshefte für Baukunst Und Städtebau*, 73-78.
- [9] *TERITRANS (2005)*, Concurrent Interdisciplinary Solutions in Territorial Fitting out and in Configuration of The Transport System, for a Sustainable Development and Increasing Quality of Life.
- [10] “Ion Mincu” University Of Architecture And Urbanism (2007), Requirements And Objectives Of The National Spatial Development Concept In: INCD “Urbanproiect, Defining The National Spatial Development Concept In Correlation With The National Plan For Development 2007 – 2013.

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