# Transportation Planning and Balanced Growth in Romania

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## Introduction

In this paper I argue that promoting balanced growth and minimizing regional disparities in Romania is a precondition for the stability of the national system, that would increase its capability to successfully integrate in the European Union. I illustrate this argument with a research study that bridges ongoing policy initiatives in regional development and towards the improvement of Romanian transport network. In that I assume on one hand the certainty of European spatial integration, and on the other hand the fact that enhancement of physical accessibility at local level has a direct positive impact on economic development.

At present the topic of this paper is particularly relevant first due to the current policy window for Romanian development from the perspective of European Union enlargement (e.g. 2007 accession). As a matter of fact I claim that thorough understanding of the existing conditions at national level must precede the definition of realistic goals for regional development, which may complement broader goals at continental level. Second, contemporary scenarios of collaborative planning (i.e. Forester 1999, 2003) provide the framework for assessment of common objectives in harmony with a shared discourse. This paper acquires procedural significance by advocating the promotion of competition (or better co-opetition) in addition to cohesion policies. Third, there are regional disparities in Romania. According to the second assumption of this study, further development of the road network could stimulate economic activities that have the potential to alleviate existent disparities. I identify priority areas for intervention in the direction of accessibility improvement, based on a multi-criteria analysis of future development prospects, with the main focus on transport networks in Romania.

Nevertheless, besides the creation of spatial connections through the improvement of infrastructure, in this current context it is significant to focus on the organizational partnerships facilitated by the planning process of transport networks. The horizon of such partnerships potentially extends beyond the physical manifestation of the transport network (Castells, 2000; Graham & Marvin, 2001; Apostol, 2004). In my view, transport projects are alleged reasons for collaboration between public and private stakeholders at local and global/European level. So one of the priority recommendations of this paper for planning authorities in Romania is the preparation of organizational frameworks for collaborative partnerships. Although that may sound obvious, it proves to be one of the main aspects that currently obstruct the application of an integrated vision of regional development to planning of inter-regional transport networks.[1]

## Regional Disparities in Romania

At the beginning of the 1990s, the change of political regimes in the Eastern European countries brought about an unprecedented opening to the world of their economic, social and political structures, due in part to trends of the ongoing process of globalisation. One of the consequences of this global exposure is the facilitation of comparative perspectives on their organizational systems that imply inherent tensions therein the state of being open to differences. Within the framework of conceiving a more integrated Europe, however, the comparison of similarities and differences of organizational systems in former communist countries with those of Western European countries appears particularly pertinent.

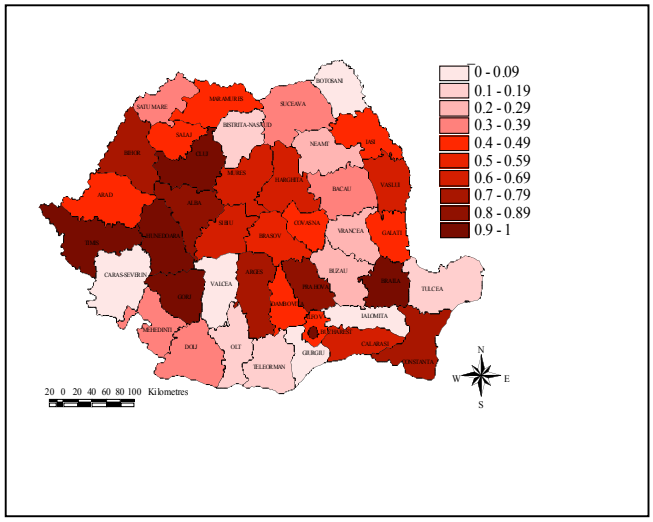
Romania is a country of 22.2 million inhabitants (UN, 2005) located on the Lower Danube, north of the Balkan Peninsula, and bordering on the Black Sea (see Figure 1). According to the World Bank in 2003 the gross

[1] According to interviews with Ing. Viorica Niculescu, and Arch. Serban Nadejde, URBANPROIECT R.A. National Institute for Research and Development in Urban and Spatial Planning (1999)

national income per capita was US$ 2,310. After a decade of political precariousness, the eighth administration after the fall of Ceausescu in 1989 seem to be capable to structure a long-term vision for the country's future. Fortunately, the inflation is falling and the gross domestic product (GDP) is rising and forecasted to rise by over four percent per annum (2003). Almost half of Romania's GDP comes from Bucharest (46%), the Capital City, although its population accounts for the tenth of country's total population, or 3 million inhabitants if we include the outlying areas (2003).

Fig. 1: Topographic map of Romania & neighbouring countries (aboutromania.com)


Fig. 2: Administrative organization & distribution of 1995 evaluated values of GDP/capita (Apostol,1999; p.71)




In 1999 I carried out with the Institute of Regional Development Planning at the University of Stuttgart a quantitative research study at national level that was the basis of my Master's Dissertation in Infrastructure Planning. In the analysis of socio-economic indicators we compared, for instance, Romanian national indicators with the German national value of the indicator for the year 1996[2]. In this comparative study, the lowest observed values refer to housing indicators that are less than 50% of German national average. For example the average living floor space per capita built in the year 1996 in Romania is only 10% of the German federal average for the same year, and the total Romanian living floor space per capita is just 30% of the German, which in average is 36 sq. m per inhabitant. Besides a different family structure and lifestyle, this situation shows a serious lack of housing in Romania. In terms of health and education indicators most of the Romanian indicators represent only 50% of the German equivalent indicator (e.g. physicians per 1000 inhabitants, university students' share of total population in education, or working places per total population). That is as well the situation of the density of transportation infrastructure, which does not take into account the network quality though, and of the average Romanian population density that is 95 inh/sq.km, as compared to the German average density is 229 inh/sq.km.

A relatively similar situation for Romanian and German indicators is observed for the distribution of employment in agriculture, secondary and tertiary sectors. This group includes also health infrastructure indicators in terms of number of beds and number of hospitals per 1000 inhabitants (more than 90% of German national average). But again there is no reference to the quality of service in these indicators. As one relevant indicator we observed in the correlation of accessibility improvement and economic growth is the number of hospital beds per 1000 inhabitants. The lack of service quality evaluation is one of the main reasons why we could not interpret the correlation, besides that they seemingly vary.

As a result of this investigation it was considered to be unrealistic to reference Romanian county conditions to any form of European/German standards. Disparities occurring in Romania have to be judged with reference to levels existing in Romania. In order to determine differences in regional development, we performed a quantitative study that uses, as data reduction and classification method, cluster analysis of a large set of social and economic indicators at the county level.

[2] According to Romanian Statistical Yearbook and Statistical Yearbook for the Federal Republic of Germany, 1997

## Cluster Analysis

We have selected the county as the spatial research unit for the regional development study. Romania's administrative organization divides the national territory in 42 counties. The county, as the basic spatial administrative unit, can be assimilated into what in the European Union nomenclature of spatial statistical units (NUTS) is mentioned as the third level or the sub-regional level of individual states. A county is composed of the administrative territories of the towns and communes. Bucharest Municipality has the administrative status of a county with a population density of 9,000 inh/sq.km. The suburban areas that surround the capital compose Ilfov County, with a population density of 175 inh/sq.km (double the national average). Together they cover a third of the median county area (Romanian Statistical Yearbook, 1997). The other 40 counties have generally been constituted according to geographical conditions and are based upon the traditional economic, social and cultural, ethnic, commercial and administrative relationships between their human settlements. The overall size range of counties according to land area or population size is illustrated in the following table:

Table I: County size range excluding Bucharest (Apostol, 1999; p.22)

| County size | Name | Areas | Name | Population size (1996) |
|---|---|---|---|---|
| Minimum | Ilfov | 1,593 sq. km | Covasna | 231,900 inhabitants |
| Median | Neamt | 5,896 sq. km | Teleorman | 470,280 inhabitants |
| Maximum | Timis | 8,697 sq. km | Prahova | 868,100 inhabitants |

Cluster analysis is used as data reduction method for describing spatial distributions and for the classification of counties. The centre of every county was considered its capital town. Bucharest is an independent county having its own central place, while the centre of Ilfov County (the region around Bucharest) is also Bucharest's central business district. The database was built up for the above-mentioned counties from the sources of information available in spring 1999 when we carried out the analysis. It should be mentioned that the published statistical information at the county level was poor and not always relevant. The first task was to construct a numerical description of the regional development conditions, and then to create comparable indicators. We have distributed the multi-criteria analysis according to aspects of economic situation, infrastructure conditions and accessibility to main nodes of the transport network. The socio-economic indicators used for the analysis are calculated from the "territorial" data of Romanian Statistical Yearbook 1997 containing information for the year 1996. The demographic information is based on the 1992 census, updated in July 1996. The fact that the methodology used for collecting and processing information is the same all over Romania ensures the compatibility of the county data. Accessibility indicators were selected from the time travel matrix, which I developed within this research project as a part of the transport network study.

The resulting database consists of 55 vectors providing information for inter-county comparison. They are classified in three groups according to their potential to characterize a) socio-economic b) infrastructure, and c) transportation situation. The socio-economic group comprises general demographic indicators, available in the publication of the National Commission for Statistics, as well as employment and other economic indicators. Infrastructure indicators included those aspects relevant for the analysis related to housing, healthcare, and education, water and energy (natural gas) supply. Transportation infrastructure indicators consisted of density and quality of rail and road networks, as well as accessibility indicators for eleven important nodes defined by this study. Important network nodes are considered the capital city (Bucharest), the principal border crossings to western Europe (Timisoara, Arad, Oradea), the principal border crossing to northern Europe (Suceava), the present Danube crossing towards the Balkan Peninsula (Giurgiu), the main ports on the Danube (Galati) and to the Black Sea (Constanta), as well as three important economic poles (Iasi, Brasov and Cluj) - refer to Figure 1.

## Economy Analysis

In order to provide the background for future improvement of transportation infrastructure guided by regional policies, first we carried out an economic analysis. Sixteen indicators were used in the classification of the 42 counties into four clusters with respect to economic conditions. Constanta, Timis, and Bucharest form the best represented group, which shows low negative characteristics for the share of population employed in agriculture and industry, as well as for small and medium enterprises in the secondary sector. Traditionally more open to foreign exchanges, these three constituent counties benefit of better development indicators than other regions, and they have a relatively advanced service economy. They suggest a regional development axis Timis-Bucharest-Constanta. In the second best cluster are most of the Transylvanian counties, with predominant low but positive characteristics. The third group includes counties with different structures, but of slight deviation from the national averages. They are industrial counties based on branches presently in decline that show a high negative value of employed population in the tertiary sector. Unfortunately, one of the characteristics of industrialization in Romania was the lack of supporting services in the industrial areas. Also the southern counties are former mining regions that were profoundly affected by the economic restructuring crisis. The worst

represented cluster in terms of economic development comprises mostly southern and eastern border counties, and their economy is based either on agriculture or on industrial production that requires additional investments for modernization (e.g. wood, textiles, food industry). In addition to that, the present structural disparities are the result of communist policies that concentrated large population in counties economically run by huge industrial sites that were big energy and raw materials consumers, and completely unsustainable. Their collapse affected an important part of the active population, as they provided the only source of economic activity in densely populated regions (see Figure 3).

Fig. 3: Economic Situation in Romania in 1996

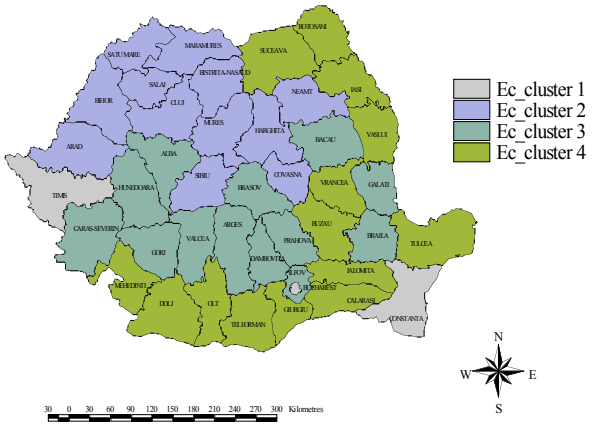
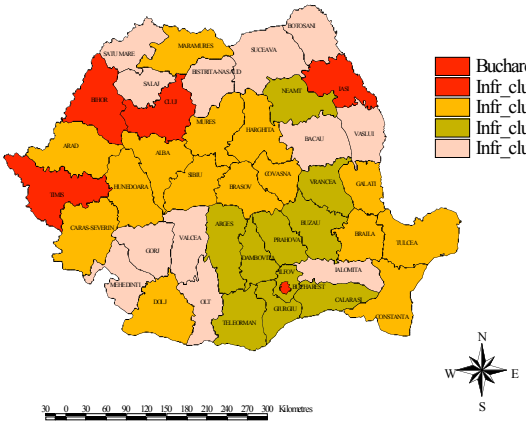



Fig. 4: Infrastructure Situation in Romania in 1996




## Infrastructure Analysis

In order to analyse in detail the disparities in terms of infrastructure development, we broke down three distinctive categories: social, technical and transportation aspects. Bucharest was eliminated from the analysis of technical and transportation infrastructure due to its urban structure. The aggregate result shows that the infrastructure is underdeveloped in the southern and northeastern regions, and relatively better developed in the western and central regions, and the counties bordering the Black Sea.

The counties with satisfactory economic characteristics, such as those that have as centres former capitals of the historic provinces (e.g. Iasi, Cluj, Constanta) show also better infrastructure indicators. That is a reflection of communist planning practices based on centralized policies. In particular, the counties located in close proximity to Bucharest have an economy based on agriculture and low infrastructure facilities. Their inhabitants commute to Bucharest for better social facilities and services. The central and western Romanian regions show better urbanization rate (i.e. good health and education indicators), as compared to southern and eastern border regions.

As a result of the analysis of infrastructure development at national level we can see that agricultural counties are grouped together. They have a high rate of population living in rural areas with low level of technical infrastructure. Most of them have high unemployment rate and poverty has acquired a permanent character. At the same time, mining regions (e.g. Maramures and Gorj) and locations of former big industrial sites (e.g. Galati, Braila, Constanta), which caused in the past work immigration from rural areas, show negative values for health indicators, but better for education. Presently, these areas have high rate of unemployment and their population lives under the relative poverty threshold. From the foregoing reasons, the extreme north and east border counties have to receive special priority for improvement. Moreover, counties that have mostly a peripheral location are grouped in the fourth cluster of the economic analysis, and this explains that the communist solution to implant large industrial sites in the less developed regions did not take into consideration the lack of local resources, and it was not combined with construction of infrastructure. In the absence of comprehensive approaches to development, at present these counties show even more difficult problems than in the past.

## Results of the Regional Development Analysis

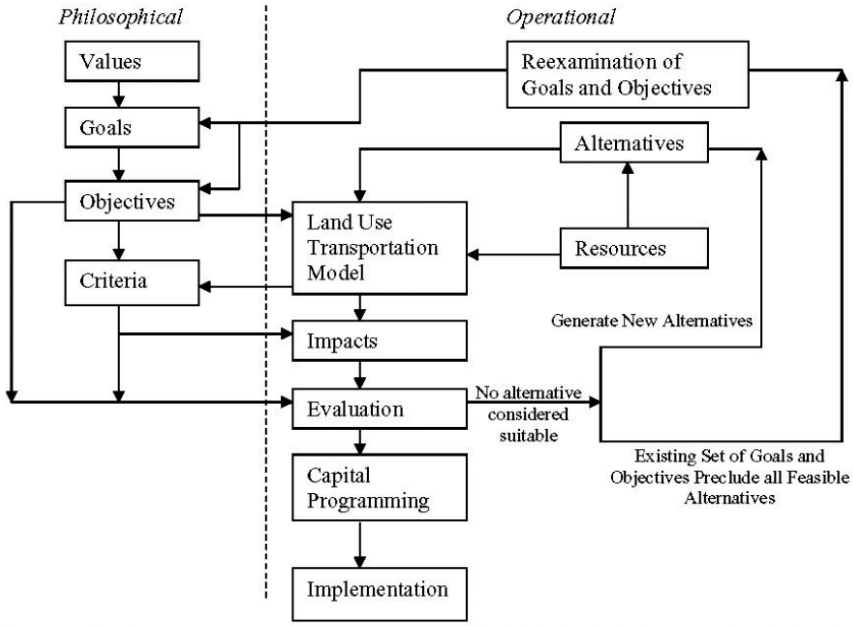
The purpose of a regional planning effort is to accelerate the rate of economic, social and cultural change at the national level, but also to resolve a series of spatial and regional problems, which have been generated by the historical mode and process of growth itself. Regional disparities exist in Romania and they will increase severely, without planning actions oriented towards balanced growth leading to western European standards. Presently Romania faces a difficult situation. The restart of the economy through conversion and modernization of all the economic sectors needs measures that include difficult social efforts. In addition to these facts comes the improbable perspective of substantial foreign investments, due to a relative insecurity with respect to stability of the newly implemented institutions: financial/banking and legalistic western framework. The crisis period will

be long and certainly will concern all Romania's regions. The combination between the increase of the regional disparities regarding employment and the effects on the decline of the living standard gives a very important spatial dimension to the social consequences of transition. In addition, assuming that there is a mutual relationship between spatial development and political inputs, I argue that efforts towards formulations of coherent political initiatives are capable to stimulate spatial balanced growth. In this case, the question of citizen participation both at the political and spatial level becomes crucial.

## Transportation Planning

I claim that stability at national level could be reached by means of politically coordinated democratic formulation of visions, as well as of collaborative and more inclusive planning practices -- which reflects also the spirit of the European Spatial Development Perspective (Potsdam 1999). In light of the cultural turn in social sciences, I convert this analytic narrative into a call for development of both bottom up (local) and top down (national) visions that would situate Romania within newly defined European identity(ies). In terms of planning at the national level, the National Physical Development Plan is the main instrument that has a guiding character. NPDP is an ongoing elaboration of strategic governmental field programs for the entire country, and its stipulations constitute compulsory elements to be taken into account in the implementation stage. For cooperation purposes at socio-economic and service level, there are other instruments like the Inter-city or Inter-communal Physical Development Plan, which take into account stipulations of plans at higher level in the spatial scale hierarchy, for instance in the NPDP or in the County Physical Development Plan. Since 1996 when NPDP's first section "Communications - Transportation Network Development" acquired legal status, this is the main instrument for transportation planning at national level (ESTIA, 1998). Previous studies of planning initiatives in Romania proved that there is an absence of action based on commonly agreed principles for development. It is important for shaping an integrated planning system, to promote cooperation between the central public administration bodies. Moreover, in order to implement strategies for transport network development, there are regional, county, city and community level organizations that must establish collaborative mechanisms, in complementarity to national institutions. And together with all these formal institutional arrangements, there is a need for coordination within the larger European region. To achieve that in the space of networks, transportation planning in particular must focus more on the philosophical aspects of strategic planning, as shown in the following diagram:

Fig. 5: Structure of strategic planning (Wright et al., 1998; p.190)




## European Initiatives

Transportation Infrastructure Needs Assessment (TINA) is a program based on elements of the transport network of the eastern European accession candidate countries proposed by the transport council and the transport ministers of the associated countries in September 1995. The program aims to identify the network components for a future trans-European transport network. The European Commission established TINA secretariat in Vienna, financed through the PHARE Multi-country Transport Program. In 1998 the secretariat elaborated a

specific study using data collected by various ministries and other authorities in the eleven candidate countries with contributions from the European Commission, Directorate General VII (for transport).

Fig. 6: TINA 1998

TINA program assumes that:

- the network should be in line with the criteria laid down in the European Union guidelines for the development of the trans-European networks (Trans-European Networks, Luxembourg, 1995),
- the technical standards of the future infrastructure should ensure consistency between the capacity of network components and their expected traffic,
- the time horizon for network achievement: 2015, and
- the cost of the network should be consistent with realistic forecasts of financial resources, so that the average annual costs should not exceed 1.5% of each country's annual GDP over the period up to 2015.

Fig. 7: European Motorways Network (Niemeyer 1937)

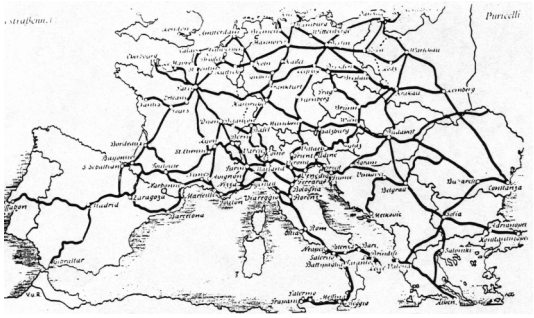


Fig. 8: TRACECA 1997

In 1997 in Helsinki a similar initiative was taken that resulted in the project "TRAnsport Corridors Europe Caucasus Asia" that established priority transport corridors in Central and Eastern Europe (see Fig. 8). The acknowledged pan-European corridors that pass through Romania are:

Corridor No. 4 Berlin-Prague-Vienna-Budapest-Arad/Timisoara-Bucharest-Constanta/Thessaloniki/Istanbul
Corridor No. 9 Helsinki-Moscow-Kiev-Iasi-Bucharest-Alexandroupolis
Corridor No. 7 links the North Sea and the Black Sea, and follows the route of the navigable Danube together with the Rhine-Main-Danube Canal (inaugurated in 1992) and the Danube-Black Sea Canal (opened for traffic in 1984).

Almost a century ago, major commercial routes crossed Romania, linking Western Europe to the Black Sea and to the Middle East, and the Baltic Sea area to the Balkan Peninsula and to the Mediterranean basin. It is obvious that the 1937 Map of European Motorways Network (Niemeyer) illustrates a relatively equal distribution of motorways density on the European continent, as compared to the Trans-European Network according to the 1998 TINA (Vienna). According to the 1937 plan, two main connecting motorways were planed to cross Romania: 1) the route connecting the ports of the Baltic Sea (Gdansk) with those of the Black Sea (Constanta), and 2) the route connecting the Atlantic (Le Havre) with the Black Sea (Constanta), or the Aegean Sea (Thessaloniki/Istanbul). At present, these corridors have materialized only as European E-roads. In 1997, ten priority pan-European transport corridors have been assessed in Central and Eastern Europe. However, the Baltic Sea - Black Sea connection (from Poland to Romania) does not appear as part of any of the European transport plans (TRACECA 1997, Fig. 8, or TINA 1998, Fig. 6), and it seems to me as a priority corridor to be defined within the region among the interested parties (e.g. Poland, Ukraine, and Romania).

Since 1993, financing of transport projects in Romania became legal through a series of laws, and hence in 1995 started the first phase of the Rehabilitation Programme. The strategy of road network rehabilitation and modernization provides for both types of work. The rehabilitation work is performed together with improvement of technical parameters to permit an increase in traffic speed, and at the same time to decrease the road wear, to

improve traffic safety and also to enhance road capacity. The Road Financing and Rehabilitation Programme has grants from international financing institutions as the International Bank for Reconstruction and Development, European Bank for Reconstruction and Development, European Investment Bank and PHARE Programme, and from the Romanian government. According to the 1997 Romanian Road Infrastructure Report, seventy percent out of the total amount of investment (estimated as US$ 405 million) came from international financing institutions, and the rest from the Romanian government. However, only in the first two years of this programme higher increase in prices than those considered in the calculation of the exchange rate required the provision of US$ 35 million extra financing from the state budget in order to complete the first phase of the project.

The adoption of complex legal structures, that proves to be temporally and financially costly, and the instability of Romanian currency, have been among the main hindering factors in the restructuring and rehabilitation processes. These are some of the inherent effects of the uniform implementation of western free market economy throughout the world. Nevertheless, besides global influences, there are also endogenous forces that originate in regional particularities, such as historical evolution, geographical location, or past communist development policies.

# Conclusions

In light of the potential accession of Romania to the European Union, in this paper I focus my interest in spatial planning on the emerging efforts towards shaping regional coherence and the unification of Europe. Although it is largely agreed that globalisation turns spatial distances irrelevant, this study assumes that at local level physical accessibility, by road connections in this case, has a direct positive impact on economic development. In proving the correlation between economic development and spatial accessibility I have performed multivariate regression analysis of relevant social and economic indicators recorded between 1990 and 1996 in the 42 Romanian counties. I recommend to prioritise the two extreme identified situations: a) the development of the most advantageous axis Arad/Timis-Bucharest-Constanta that will become an economic driver that will be capable to stimulate future growth, and b) to redistribute the outcomes of economic development towards the improvement of current unfavourable conditions of peripheral southern and eastern Romanian counties. In other words that means the concentration of policies for regional development on two main directions, on one hand the West-East axis as an integrator at larger European level, and on the other hand the local development of border regions that would integrate the country within its micro-regional level (e.g. within the Balkans). There is a particular focus on the motorway connection between the Baltic Sea (Gdansk, Poland) and the Black Sea (Constanta, Romania), as well as on the Lower Danube cross-links. Moreover, in order to fully benefit of the geopolitical location of the country, I argue that Romanian policies for improvement of its transportation network have to be inspired by best practices in better developed systems, while at the same time have to evaluate the maximum induced change that the system can tolerate without causing negative reactions (e.g. environmental distress or misbalance of social and economic policies). Although our attempt to prove an increase in the gross domestic product per capita on the basis of better transportation infrastructure failed, that could be assumed based on the experience of western systems.

In the conclusions of the 1999 study I expressed my belief that the road infrastructure might evolve in the forthcoming years, and such studies are part of an ongoing process rather than a onetime activity. At all levels of the analysis there are next steps to be taken, and is necessary to collaborate in shaping planning requirements to meet future needs. Continued, complementary, bottom-up analyses by those at the core of the regional and national transportation policy bodies are needed. I recommend they would be complemented by the promotion of a collaborative environment that is structured according to principles of equal opportunity and integration into the larger networks. That means to promote inclusion of all stakeholders at local and international level, in order to supplement specialist knowledge and to consider competition as a certification of quality. There are lessons to be learned from best practices of organizations such as Romanian Social Development Fund that has experience in working with small communities and disadvantaged groups. Their expertise could be implemented in inter-county as well cross-border cooperation for improvement of transport network.

In the 5$^{th}$ Economic Forum of the Regions of Europe in July 1998 in Bucharest particular attention was paid to the development of border regions and their integration into national and trans-national transport and communications networks. Their development should be planned from the angle of co-operation between bordering regions within the framework of permanent trans-frontier cooperation structures. Also this year in May at the South Eastern Europe's Cooperation Summit (SEECP) meeting, the Romanian Premier declared that the following period of time's most important goal is to transform the regional cooperation process into a common action platform for preparing entire region's European accession, and he emphasized the necessity to unify regional countries' efforts in order to re-launch a regional agenda in accordance with local realities and real needs: "Romania's strategic vision regarding South Eastern Europe's evolution is connected to European

Union's policy which offers a generous perspective both for the Western Balkans and for their Eastern neighbours" (Popescu Tariceanu, 2005).

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# Additional Information

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