

IMPLICATIONS AND INTERPRETATIONS OF CORRIDOR AND AXIS DEVELOPMENT

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Key words: development corridors, development axes, urban sprawl, linear spatial development, urban concentration, spatial disparities

Abstract. The subject of corridor and axis development as linear spatial development pattern is a very controversial one. While some see it as a valuable economic development tool at regional level, others associate it with problems like congestion, landscape fragmentation, increasing dependency of private car use, land waste, pollution, or suburbanization. At national level, the territorial development strategy seems to support corridor and axis formation, while the strategy for sustainable transportation expresses the concern about some of the possible negative consequences of this type of development trend. This article examines different points of view regarding corridor and axis development which are present in the literature as well as in the European and national spatial strategies and attempts to emphasize the main opportunities and risks entailed by these spatial development patterns.

Introduction

Compact cities, preservation of open spaces, reduction of private car dependency and a spatial structure that encourages the use of public transportation are some of the main European spatial development objectives.

„Urban concentration” has been considered a basic principle for combating the current spatial development trends: urban sprawl, ribbon development along the main transportation routes.

Corridor and axes development patterns are therefore seen as antagonistic to the compact urban forms that represent the sustainable spatial design recommended by European spatial policies.

At the same time, a development corridor is supposed to have an influence on the spatial disparities by shaping investment decisions (Chapman et al., 2003).

Albrechts and Tasan-Kok (2009) showed that the terms ‘corridor’ and ‘axis development’ carry a variety of meanings that relate to the functions (urbanization, ecological, transportation and economic development corridors), views (geographers, ecologists, spatial policy planners, transport engineers, economists)

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and scale (from global to local). According to these two authors, corridor and axis development have in common spatial linearity as a major feature and they refer to the same types of development. The difference between them would be, according to the same authors, that corridors refer to patterns of spatial development at macro-scale, whereas axis development refers to micro-scale continuity, namely, concentration of urban functions along a linear pattern.

At European level, for example, Euro-corridors are seen as “the backbone” of the Trans-European-Networks (TENs), whereas at regional level, the significance of corridors is more closely related to the urbanization processes (Vries, J. de and Priemus, H., 2003).

Within the project CORRIDESIGN², Ipenburg et al. (2000) examined the divergent points of view and showed that there are at least two ways to look at (mega)corridors. Thus, for those who expressed a positive view about the development corridor, this is seen a tool for regional development, while for those sharing a negative perception, the corridor is looked upon as a threat to the quality of life (Ipenburg, 2001).

In the document concerning European Regional Planning Strategy prepared for the European Conference of Ministers Responsible for Regional Planning (CEMAT, 1992), Nicholas Momper showed as well that the influence of metropolitan areas and the main development axes can be negative or positive. It is negative if it leads to urban concentration of development potential, which, instead of being distributed throughout all the hierarchical levels of the structure, it is higher within metropolitan areas and around the main development axes. They become positive when performing highly qualified and specialized functions, in the exchange of goods and services between rural and urban areas and between developed and declining regions.

According to the same document, the main development axes might have the following functions:

- intensification of goods and services exchange between metropolitan areas (liaison functions);
- improving the accessibility between regions (functional organization);

² The project CORRIDESIGN investigated the development of the megacorridors in the north-western part of Europe. Seven megacorridors have been identified: 1) Randstad - Flemish Diamond; 2) Randstad - RheinRuhr; 3) RheinRuhr - Flemish Diamond; 4) Flemish Diamond - Lille; 5) Lille - Paris; 6) Lille - London; 7) London - West Midlands. CORRIDESIGN have analyzed if and to what extent the process towards the network society is linked, from the spatial point of view, with the transnational megacorridors or with the bundles of infrastructure between big urban regions in north-western Europe. Important questions in CORRIDESIGN were: what type of development corridor should be stimulated, slowed down or forbidden?; where should corridors be developed and why there?; should the increase of the spatial coherence be followed by institutional coherence? And, if so, which public and private bodies should be involved?

- stimulating urban development of the urban centers and development axes in order to promote the linear extension of the metropolitan areas (functional concentration) and to reinforce and guide development potential to the junctions situated along the development axes (development functions);

- protection and preservation of the open spaces between development axes (protection functions).

We will further examine some of these positive and negative perceptions on corridor and axes development.

1. Negative perceptions on corridor and axes development

This point of view is determined by the problems with which corridors and axes are being associated with: congestion, urban sprawl, ribbon development along the transport routes and landscape fragmentation.

In addition, this type of development pattern is being considered to lead to the reduction or even to the suppression of the economic investments in the inner cities, and it can thus be a threat to the vitality of the cities. This interpretation is strongly present in Holland, Flanders (northern Belgium), Germany and Great Britain (Ipenburg, 2000).

Peter Hall (2002) summarizes some of the criticism of these types of development: waste of land, uncontrolled use of natural resources, pollution, increased cost of living resulting from the dependency on private cars, suburbanization.

Many spatial planners reject the idea of ribbon development, wishing instead to concentrate the development in the existing urban centers, or, in cases that cannot be avoided, in new urban centers.

Unplanned urban sprawl based on a street system has always been rejected by urban planners. First, planners were against the occupation of rural areas with urban functions. Later – the last decades of the 20th century – the fragmentation of landscapes and destruction of green infrastructures became the main reasons for rejecting this model. Studies of different cities have concluded that 1850 represents a peak regarding densities and urban agglomerations (Hohenberg and Hollen Lees, 1995, p. 303).

Subsequently, most European cities have sprawled quickly towards their surrounding rural areas, including along the main roads, followed by a speculative development of the lands in the nearby areas. Technological innovations have made this sprawl possible, initially through the emergence of electric trams and trains, and then with the internal combustion engine and with private cars. Although personal automobile led to decentralization in all possible fragmentation patterns, a certain concentration can be seen at a larger scale (Priemus and Zonneveld, 2003).

The industrial cities of the 19th century had a relatively compact shape, which made them easy to distinguish from the rural areas and from other cities (Albrechts and Tasan-Kok, 2009).

The dynamics of cities during the 20th century resulted in decentralized trends, economic growth, and numerical growth of the population outside the cities beginning with the 1960s. The decentralization process has been supported by economic changes and by the explosion of personal mobility and the emergence of new lifestyles.

Many planners consider that compact cities with an optimal density should replace the urban sprawl as the dominant future development pattern. From this point of view, corridors and axes have been criticized as being associated with the decentralization of urban functions (*ibid.*).

Urban sprawl has also been seen as a problem in the European Spatial Development Perspective (ESDP): “uncontrolled growth results in increased levels of private transport, increases the energy consumption; makes infrastructure and services more costly; and has negative effects on the quality of the countryside and the environment” (European Commission, 1999, p. 281).

The Strategy for Sustainable Transportation in Romania also draws attention upon some of the direct consequences of the development of the residential and commercial areas and of the extension of the urban space along the national roads. In this regard, the document points that the integration of the national roads in the urban street network for tens of kilometers affects the exploitation and safety parameters of the national roads. Also, the document shows that the access to the west, east and south European corridors is being limited by the low travel capacity and by the reduced quality of some infrastructure transport elements, perturbing the free circulation of goods and people and diminishing the international freight and passengers traffic that crosses Romania (Strategy for sustainable transportation for the period 2007-2013 and 2020, 2030, p.12)

Momper (1992) considers that metropolitan areas and the main development axes could bring about the following negative effects:

- growth of the disparities between rural areas and local centers leading to intensification of the drift from the land by an absorption effect;
- more acute shortages of the infrastructure facilities in the rural areas, resulting in additional transport costs;
- increased exchange of goods and services on the main axes between the main conurbations to the detriment of the rural areas;
- disorganization and destruction of rural areas by the construction of high-speed roads between major urban centers.

2. Positive perceptions of corridor and axis development

The second interpretation of corridors has a positive connotation, corridors being seen as opportunities for economic development.

Well developed and carefully selected nodes along the corridors might support economic development that in other circumstances would not take place.

Those using these positive interpretations seek to avoid the ‘pomp and tunnel’ effects that appear in the regions that host the infrastructure, but do not benefit from it (Graham and Marvin, 2001). This point of view is dominant in the North of France and in Walloon region (South Belgium) (Ipenburg et al., 2001).

According to Momper (1992), development axes might have the following positive effects on the rural and urban development:

- stimulus for the development of the entire territorial structure through the priority development centers situated on development axes;
- gradual reduction of the infrastructure imbalances and other shortages;
- connection of rural areas, especially in peripheral regions, by stimulating the exchanges of goods and services on long distances, eradicating the shortcomings in the transport infrastructure;
- improvement in the access to rural areas of industrial products necessary for agriculture and the transport of the agricultural products to urban areas;
- increased entrepreneurial attractiveness in the rural areas;
- improved access to recreation and relaxation areas for the inhabitants in the urban environments and equal access for the inhabitants of rural areas to the services provided by big urban areas;
- encouragement of decentralization within highly concentrated areas for their benefit as well as for that of the rural areas.

In the regional policy exists a strong belief that the increase of the connectivity level stimulates the performance of the regions that were left behind.

The European Spatial Development Perspective (ESDP) is an organized spatial policy integrated at transnational level. The development of a polycentric urban system and a new urban-rural relationship is one of the objectives of the development strategy of the ESDP that considers the concept of corridor as an instrument of reconciling growth, competitiveness and sustainable development. ESDP offers a geographical image of the European economic space – a polycentric urban system, linked through integrated communication corridors (Albrechts and Tazan-Kok, 2009). ESDP addresses the issue of corridors (Euro corridors) both in the sense of bundles of infrastructures and development corridors.

In the document, Euro corridors are being considered to strengthen the spatial cohesion of the EU and to represent an essential instrument of spatial development in supporting the cooperation between cities: “the spatial concept of Euro corridors can establish connections between the sectoral policies, such as transport,

infrastructure, economic development, urbanization and environment. In the development perspective for Euro corridors, it should be clearly indicated in which areas the growth of activities can be clustered and which areas have to be protected as open space. There are a great number of potential corridors in the EU. Some corridors are already well-developed. In other regions such corridors have to be developed and connected with the existing ones. Important missing links and secondary networks should be established (ESDP, 1999, p. 164).

According to the National Strategy for Sustainable Development, the objective regarding spatial planning for the year 2020 is “the constitution at regional level in accordance with the spatial development strategies of the polycentric system of functional urban areas (urban agglomerations) and of the urbanization corridors along the European transport axes (network polycentricity)” (National Strategy for Sustainable Development of Romania Horizons 2013-2020-2030, (2008), p. 128).

Warnish and Verster (2005) point out that the concentration of development initiatives along a transport route determines the emergence of the development corridors. The authors consider logical the intensification, diversification and concentration of land uses and economic activities in areas where most infrastructure and transport services (roads and railways) are available, not only because they require massive capital investment for an efficient functioning, but also because this kind of investments need an intensive use of the lands to recover the investments costs.

Traffic and infrastructure do not only derive from the economic and social processes, but they also determine these functions (Priemus and Zonneveld, 2003).

Population flows induce the manifestation of a consumption demand in the transit and halting areas. Such a request stimulates numerous traditional activities, being able in certain conditions to spur the economic development of the entire region. Flows of tourists and passengers bring an additional request in the local markets for the food products and for numerous other commercial activities.

Along the transport axes, relay cities come to develop accommodation, tourist and catering activities (Pottier, 1963).

An improved or a new transport infrastructure can determine the increase of the rural population and the augmenting of the diffusion effects of additional employment opportunities in the rural areas or in their surroundings (Guangqing Chi et al., 2006).

The probability for industries and companies to move here increases as a result of better transportation conditions, which means new job opportunities.

Under this scenario, the road infrastructure not only contributes to maintaining the residents who would otherwise seek to relocate for a job, but it will also attract people from other places.

The development of the road infrastructure generates new jobs in the services sector, such as gas stations, service stations, retail centers like strip malls, restaurants and motels.

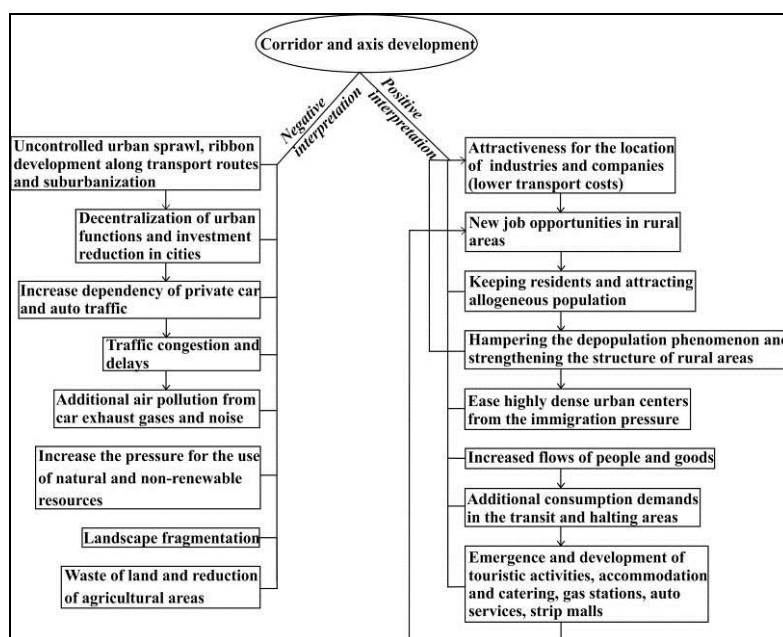


Fig.1 – Positive and negative perceptions on corridor and axes development

Rural areas that are away from the influence of an urban center could become new growth centers as a consequence of the emergence and centralization of new services and could develop specialized production.

Priemus and Zonneveld (2003) argue that the passage areas for large passengers and freight transport volumes are attractive for companies, especially for those that operate in distribution and logistics.

This would eventually lead to urbanization in the places situated between the existing urban centers, beginning with a ribbon development, and then creating new urban growth poles.

The same point of view seems to be shared by the territorial development vision of the Strategic Concept of the Spatial Development Strategy Romania 2030. In this document, connecting Romania to the European poles and development corridors is one of the main spatial guidelines. The document highlights in this regard the need for balanced structuring and for the development of urban networks through formation, consolidation and balanced distribution of

development poles. This goal can be achieved, *inter alia*, by developing and diversifying the relations between urban centers, supported by the configuration of development axes in relation to major transport routes.

The main positive and negative perceptions associated to corridor and axis development are being synthesized in the figure below.

3. Alternative concepts

Landscape preservation and concentration of development are generally seen as strategies to combat urban sprawl, and to reduce the economic drain and the auto mobility, whereas the intersections of the infrastructure axes are being perceived as key nodes for regional development (Ipenburg et al., 2001).

Different concepts have been proposed to symbolize more sustainable urban forms. The concept of “bead” is often mentioned in strategic spatial planning to avoid this type of development (Chapman et al., 2003). This concept can be described in spatial terms as a sequence of compact settlements connected by a high quality public transport axis and is seen as way of reconciling the potentially conflicting objectives to strive towards a more compact urban form, to have a range of residential densities and access to green space (Chapman, D., Pratt, D., Larkham, P., Dickins, I., 2003).

Chapman et al. (2003) propose a new term to replace the term corridor, namely “armature”, with the meaning of supporting framework. According to the authors, the advantages of using this concept come from the fact that armature can be conceptualized as multi-layered and multidimensional, where the infrastructure and flows could be represented as the complex matrix that already exists, rather than confining them to a linear area potentially limited. The interactions between different infrastructural and institutional systems in different nodal points could be rapidly represented in this model. The concept also has the advantage of allowing the territory associated with armature at the local level to vary in terms of urbanization and economic development while functioning coherently at transnational level.

A variety of institutional relations could be related to the armature concept as supporting framework. The concept could also provide a basis for incorporating more essential connections that do not follow linear corridors, such as air links and telecommunication networks. Another advantage is that it provides a multi-layered model with mega-corridors as the “backbone”, along with a framework that can relate development at national, regional and sub-regional level.

Other concepts are proposed to illustrate these dynamic geographic “entities” and which could replace the negative connotations of development corridors and axes: matrix, urban network, polycentricity (Chapman et al., 2003; Zonneveld and Trip, 2003; Albrechts and Tasan-Kok, 2009 *ş.a.*).

Conclusions

The concepts of development corridors and axes are part of a continuing debate on the urbanization patterns and on the spatial urban structures.

Thus, corridors are seen as valuable tools in economic development, but are also associated with the idea of decentralizing the urban functions, with the delays caused by traffic congestion in certain areas, with landscape fragmentation, waste of land, suburbanization, or with additional air pollution caused by the increase of private car use.

We consider that a special attention should be given to the implementation of the national territorial development objectives, so that the endogenous qualities of the areas crossed by important transport infrastructures in terms of economic development opportunities are capitalized, and at the same time the negative aspects such as congestion, uncontrolled urban sprawl along strategic transport routes are avoided, and the environmental problems caused by these type of development are minimized.

Acknowledgements: This work has been supported by the research grant POSDRU/6/1.5/S/24 – “Financial support for doctoral studies on the complexity of nature, environment and human society”, project co-financed by the European Social Fund within the Sectoral Operational Programme for Human Resources Development 2007-2013.

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