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THE CURRENT PROBLEMS OF URBAN DEVELOPMENT IN CLUJ METROPOLITAN AREA

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ABSTRACT. The Cluj Metropolitan Area is located in Cluj County, the north-western development region of Romania. The strategic option of polycentric territorial development was adopted on the basis of the principles outlined in the NDP (National Development Plan)- on spatial development at regional level. This involves supporting development processes within urban growth pole. The associative structure at the Cluj Metropolitan Area (CMA) was formed at the end of 2008, continuing the efforts to establish a metropolitan area with economic specificity, initiated by Cluj County Council in 2006. Communes included in Cluj Metropolitan Area are also part of different micro-regional associations with relatively homogeneous characteristics. These associations were formed at the initiative of city halls and they have legal personality.

Key words: *Cluj Metropolitan Area, peri-urban refuge, urban space, rural space, development strategy.*

INTRODUCTION

The city of the future must be an intelligent one, mostly named smart city, whose development is based on the exploitation of intellectual capital towards education/self-education, innovation and economic development among environment-friendly sectors of activity.

More specifically, municipal development should be based on high quality drinking water resources, appropriate waste management, improved air quality and appropriate hazard and risk management in order to maintain a clean and safe living environment. Thus, new challenges and associated problems emerged: the adaptation of transport infrastructure, sewerage and water supply, green spaces, sanitation.

The urban growth pole Cluj-Napoca cannot cope alone with these ambitions, because it needs vital geographic space. This space is taken from the surrounding rural areas. Thus, in the project Cluj Metropolitan Area (CMA), 17 municipalities joined; creating an area of over 1600 sq. Km in which the activities associated with the big city can take place.

The Cluj metropolitan area is thus ten times larger than the administrative structure of Cluj-Napoca, although the population is only 80,000 inhabitants (table 1). But the benefits of a surplus geographic space are more important because companies are easily finding investment location in the rural area (Baciu et al, 2010).

Urban-rural space - mutual benefits

The Cluj-Napoca urban growth pole includes the Cluj-Napoca municipality and the following administrative territorial units (within Cluj County): Aiton, Apahida, Baciu, Bonţida, Borşa, Căianu, Chinteni, Ciurila, Cojocna, Feleacu, Floresti, Petreştii de Jos, Tureni and Vultureni, with their localities included in their administrative territory. This is the core of Cluj Metropolitan Area – *Zona Metropolitană Cluj*. From the urban and economic development point of view, this area lays within a 30 km area around Cluj-Napoca, an optimal distance for the development of peri-urban space.

Regarding urban planning and economic development, this area is extremely heterogeneous. We have well-developed communes with urban aspect, such as Floresti, Baciu or Apahida, but also communes with a deep rural aspect, remaining at a deep rural level, such as Borșa, Vultureni, Petrești de Jos (Baciu, 2013). For instance, nowadays Floreşti looks like an atypical village, characterized by visible urban footprints copied from the city in close proximity. A first visual aspect describes a peripheral urban landscape, or rather urbanized (Baciu et al., 2012, 2015). We are talking about a dynamic periphery, which gained the nickname of the most populous commune in

Romania. Between the 1992 census and the 2011 census it had a population growth of over 350% - from 6,088 to 21,832 inhabitants, instead of the urban service of Floreşti stresses that these figures are outdated statistics from censuses and population reached over 30,000 inhabitants (table 1).

Table 1. *The distribution of population and administrative areas in CMA*

	2011 (inh.)	2015 (inh.)	Administrative area (sq.km)	Density (inh./sq.km)
Cluj-Napoca	309,136	322,108	179,56	1,793
Floreşti	21,832	24,941	61	358
CMA	392,000	410,000	1,625	255

Regional decision-makers have defined so-called *functional clusters* of communes in the desire to select the most important economic features of rural areas. These clusters highlight the role and contribution of these communes in the Metropolitan Area of Cluj (figure 1) and they are distributed in two circular concentric metropolitan rings.

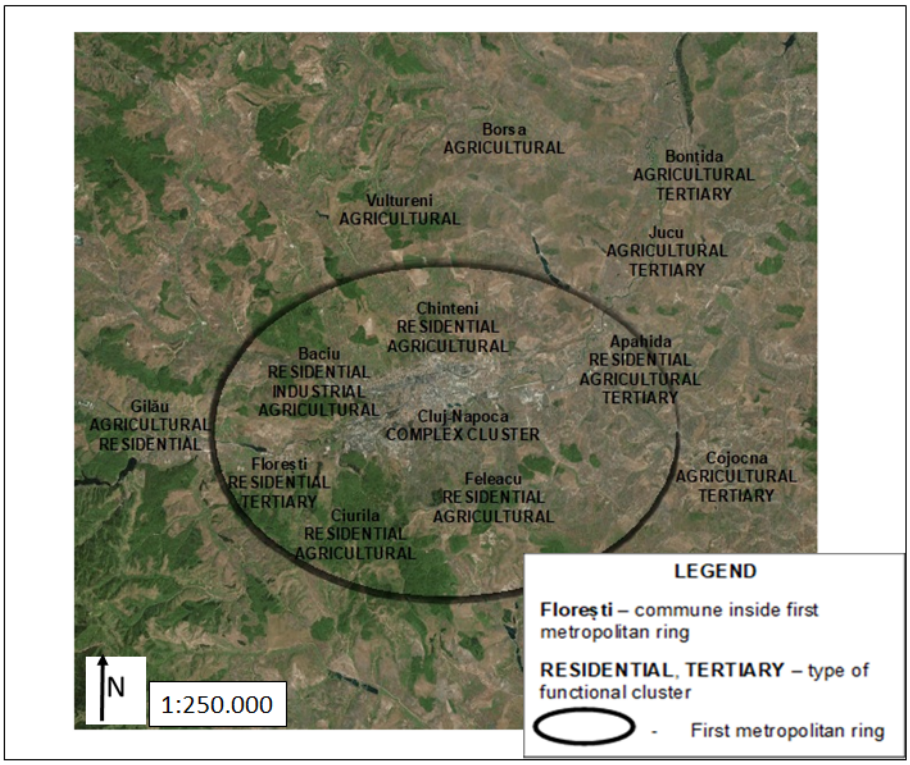

Fig. 1. *Functional clusters inside the first metropolitan ring*

The closest metropolitan ring is predominantly residential; that is so-called peri-urban refuge or urban bedroom, and the second ring is predominantly agricultural, with attractive investment spaces. The rural areas of the first metropolitan ring are evolving as peri-urban refuges, where real estate investments flourish. The agricultural lands have been abandoned and have gradually passed to the state of built-up areas. This process took place in two phases: 1996-2008 and 2014 to the present. Urban periphery has become dynamic and has begun to attract the population with medium and upper class income from great city in proximity or new employers from other regions of country.

The city of Cluj-Napoca and the analyzed peri-urban space have the following characteristics:

- Capability to support differentiated population growth among localities through taking surpluses from the big city and directing it to the localities;
- The city of Cluj-Napoca has the capability to take over a number of functions of the capital for a national decentralization. That could be done in the management of education (conceptually discussed at European level, we can apply for other metropolitan areas, e.g. Braşov to take the role of touristic center);
- A wide range of extremities supports the viability of an extensive development of the CMA: Transylvanian Plain, Someşan Plateau and the Apuseni Mountains, having a high capacity of material resources providers;
- Convergence of roads, railways, utility bridges and roads communication;
- The tradition of Cluj, along its history, to function as a center processing the resources in the area;
- Tradition of important administrative, cultural, and educational center;
- The important commercial function of the city; the importance of the regional business center function, the banking center, the IT industry center, which has led to the development of smart-city and green-city concepts;
- Also important, the function of the major center of the cultural and spiritual life of Transylvania.

Dysfunctions inside the CMA

The decades of unplanned and uncontrolled evolution of a socio-economic important phenomenon of urban development, inevitably leads to two types of dysfunctionalities:

a. The dysfunctions of the spatial planning during the communist period created industrial areas in the middle of city and residential areas with a density too high, space too little between blocks and too many levels, etc. These errors of planning - based on ideology on that time - creates today major road traffic problems, related to public transport, travel time to work, the availability of services and, in general, the quality of life. An example is the Mănăștur district, with nearly 100,000 inhabitants, insufficient big shopping stores, inadequate parking spaces, overall crowding, residential stress.

b. Another type of dysfunctions was created by the lack of urban development planning that began after 1990. This development caused some imbalances and urbanistic errors, as follows:

- degradation of places and peripheral natural spaces;
- an increased motorized drive;
- overstress of local community's budget;
- an overconsumption of natural and rural areas;
- landscape degradation;
- depletion of natural resources (e.g. the removal of soil into new residential areas, ballasts, quarries, which are not later exploited);

Both dysfunctions make their presence within CMA. The lack of basic infrastructure in the peri-urban space, poor connectivity and the permanent threat of a traffic jam in the city occurred in absence in the near future of an auto belt or highway belt.

Correcting dysfunctions

The removing of these errors requires good urban planning supported by political will at decision maker level. In the competition for external funding that will become more and more fierce among the major development areas in the country, the correct development and good use of the urban planning tool could mean the difference between those who attract and those who lose from the population groups (relatively young, educated, dynamic, high income) that are the engine of development.

Thus, in order to remedy the dysfunctions in the urban development, it is aimed at:

- a balance between urban upgrading and controlled urban development through the development of rural space on the one hand and the preservation of natural spaces, on the other hand;
- a diversity of urban functions and social diversity in urban and rural areas;
- an economical and balanced use of natural, urban, peri-urban and natural spaces in rural areas, controlling the need for movement and car traffic;
- conserving the quality of air, water, soil, subsoil, ecosystems, natural and urban landscapes, noise reduction;
- the protection of special urban heritage such as patrimonial buildings, prevention of natural and technological risks.

The attractiveness of an urban area is measured by the number and quality of what is called *poles of excellence*, consisting of the following objectives: presence of great universities; medical centers; research structures; high-tech enterprises; the major cultural, sports, leisure, exhibition facilities; financial markets; the headquarters of large European and international firms; a large volume of economic and financial exchanges; connection to large European and international networks through highways, airport, high-speed rail train.

CONCLUSIONS (as environmental strengths and weaknesses)

CMA covers a quarter of entire area of the Cluj County, which means that the environmental problems are vast and complicated.

Strengths	Weaknesses
Natural landscape	
The presence of various landforms (meadows, depressions, hills, mountains) in balanced proportions that ensure geo-ecological diversity and landscape mosaic; The existence of a climate without excesses and special risks; The presence of water resources with good quality that ensure the long-term consumption needs; Varied land use with important agricultural and forestry suitability;	Areas with geomorphological risks (landslides, slope erosion) (Rosian, 2011); Flood risk in eastern part of CMA; Sewage effect of the air masses in the west-east direction and the occurrence of thermal inversions in the depressions; Deterioration of natural heritage features (protected areas).

Strengths	Weaknesses
Natural landscape	
Tourist, natural and anthropic heritage (scenic landscapes, historical sites).	
Environmental state	
The presence of urban and metropolitan waste collection system; Large-scale implementation of selective waste collection; Strong awareness and environmental education among young people in the city.	Lack of landfills for waste resulted from construction; Existence of urban pollution sources (due to the increasing of motorized traffic); Maintaining poor traditional practices in rural areas in the management of living space and waste; Lack of ecological education in rural areas; Affecting the trophic chain of some biotic phenomena; Increasing the anthropic pressure on the protected areas; Reducing green spaces in favor of setting economic or public objectives (green space density: under 30 m²/inh.); Somes river eutrophication process, as seen it below: 
Technical infrastructure	
High density of the road network (over 0.40 km/km²); Access to natural gas supply; Access to centralized water supply; Full coverage of the mobile telephony network;	Car traffic with slow connections between peri-urban and Cluj-Napoca; Delays in the modernization of national roads connecting with other counties; The high degree of degradation of some county roads;
Increasing of modern and ecological public transport; The presence of various shopping centers; Top universities; medical centers; research structures; high-tech firms; the major cultural, sports, leisure, exhibition facilities, as part of the regional *poles of excellence;* Increasing the airport's role in passenger transport, which has already reached 2 million passengers per year.	The lack of a viable urban auto-belt, especially for heavy traffic in transit; Delays in the construction of highways.

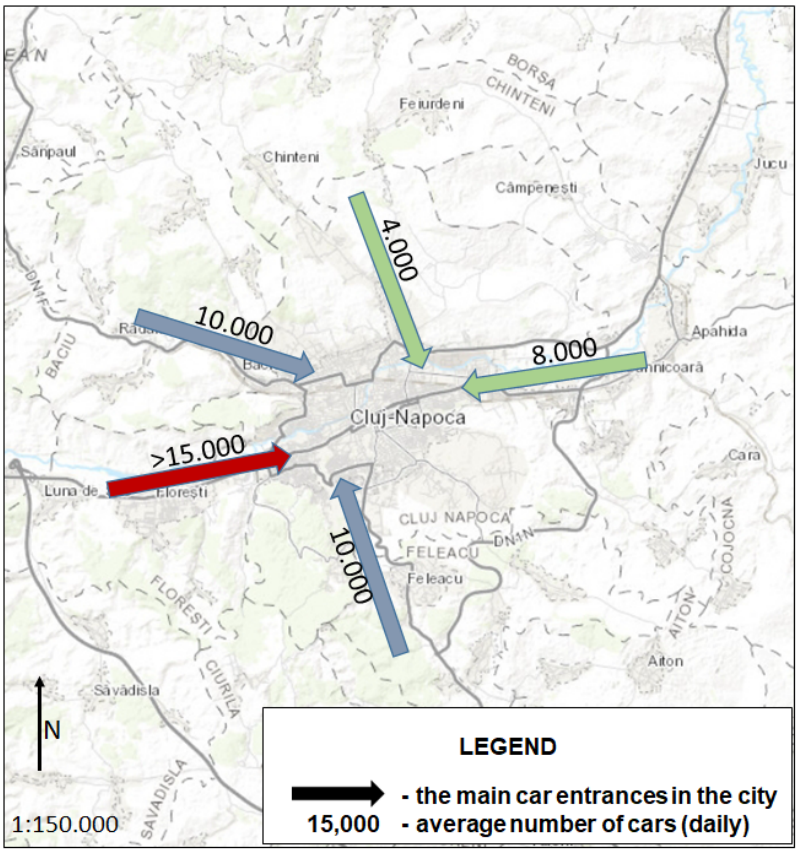

Fig. 2. *The daily road traffic value from CMA to Cluj-Napoca city*

The CMA and Cluj-Napoca city fit to the modern pattern of this new urbanism and they are connected to major modern issues (Dincă and Dumitrică, 2010). The development of the city can only be achieved through the absorption of vital rural space for residential buildings; these newly created spaces attract new inhabitants, who see in the big city an opportunity for personal and professional development. Relative isolation from the city creates the illusion of a quiet residence, but brings daily stress due to difficult mobility to the workplace. Every day, 15,000 cars enter the great city through west, 20,000 from the north, south (figure 2), from promised residential havens to well-paid jobs. This duality is based on a systemic balance called demand and supply.

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