

THE MORPHO-STRUCTURE OF ARAD CITY AND CURRENT PROBLEMS OF URBAN DEVELOPMENT

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La morphostructure de la ville d'Arad et les problèmes actuels du développement urbain. La morphostructure urbaine actuelle de la ville d'Arad, résultat de son évolution historique, est relativement claire. Au centre de l'agglomération urbaine se trouve la cité, autour de laquelle gravitent les autres quartiers comme sous-systèmes urbains, au nord et au sud de la rivière Mureș. Dû à leur développement indépendant, ceux-ci présentent des caractéristiques distinctes, tant fonctionnelles que d'image, ce qui confère au système urbain un caractère polynucléaire. Cette décentralisation permet aussi une décentralisation fonctionnelle du noyau central. Simultanément, il existe aussi la tendance de dissolution de ces noyaux, alors que la texture urbaine devient relativement unitaire. Le rôle principal dans la consolidation et l'organisation de l'agglomération urbaine revient au réseau d'artères de circulation, établi dans un système radiaire pendant les périodes antérieures. La nécessité de répondre à des fonctions différentes a déterminé la parution de types distinctes de morphologie urbaine. Quoiqu'ils varient d'un district à l'autre dans le même quartier, toutefois les étapes évolutives de l'agglomération urbaine ont indiqué l'existence de quatre types morphologiques principaux. La physionomie spécifique de la ville d'Arad est marquée justement par l'interpénétration (parfois contrastée) de types morpho-structuraux distinctes.

ECONOMIC, SOCIAL AND POLITICAL CONTEXTS OF THE URBAN EVOLUTION

In a paragraph dedicated to the city, Daniel Payot (2001, p. 37) makes a remarkable analogy between the complexity of the relations established within a city and a text "which has been woven out of a multitude of singular threads" and which still remains "legible, meaning understandable, allowing routes or segments of sense to be traced in it, so that, probably, no single segment succeeds in defining the whole". In this respect, the city cannot be understood but as a complex whole, "for it is not a homogeneous unit susceptible to present itself in an absolute way from its origin and in its exhaustive significances and in the integrality of its history, being more likely the simultaneous meeting place of all evolutions that have been taking place in it".

Reviewing the economic, social and political facts that have played an important part in the development of the city has an obvious relevance in grasping the essential links between the physical and the human space, in deciphering the trajectories traced at a certain moment in the city's evolution by a social or political event. The economic, social and political complex that emerges in a city also leaves its mark upon the urban physiognomy, generating different directions occurring in certain situations in the development of the city.

For example, the commercial function of Arad, essential in the genesis of the city (due to its special location at a crossroads and to its status as a trade center) came second in the 19th century, being replaced by the industrial function. In fact, the emergence of Arad's industry is not based on the classical principles of location (near the centers of raw materials exploitation, or in areas with a qualified labour force), but mainly on political decision. For example the economic interests of the Austrian Empire, which had to modernize this area in order to make it profitable economically. For the machine-building industry, largely developed in Arad during the 19th century, the raw materials were

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brought from rather a short distance (Reșița or Hunedoara), and the qualified workforce was employed from among German, Czech, Slovak or other colonists. But the industrial function of the city, which would grow all along the 20th century, caused a certain type of representation regarding its status and functional role. During the socialist period, the industrial concentration in Arad reached 83.3% of the Arad County industry, affecting post-1989 economic restructuring (Ianoș, Tălângă, 1994, p. 39). However, this situation might have a positive impact on the urban space in that the desolated industrial areas (some placed near the city centre) could be a source of building space in the future. As a matter of fact, significant agricultural activities and some pretty large agricultural areas found in Arad represents another opportunity for the real estate sector and the future development of the city.

Arad's condition as an important railway junction has largely influenced the way in which city planning has been conceived. Recent proposals suggest moving the railway outside the city. The railway and the rail bridge to Aradu Nou have recently stirred discord between the Regional Railway Department of Timișoara and the Local City Council. When the rail bridge over the River Mureș was under restoration, the authorities came up with the idea of having it placed somewhere else and have the railway from Aradu Nou (that crosses Micălaca district) moved outside the city. Eventually, for financial reasons and the bridge and the railway have remained in place. However, this issue has resuscitated old animosities against Timișoara and triggered a competition between the two urban centres. On the other hand, it is also true that many Western cities gave up this kind of very expensive operations. In the end, the railway may play a positive role in structuring the urban space.

In fact, the history of Arad records many projects of rebuilding, remodeling or even having the city moved elsewhere. Beginning with the imigration' of the city from its ancient site near Glogovăț (12th century) and continuing with Maria Teresa's plans to move it in "the plain of Zimand", up to the 20th-century plan of "building a new centre" based on "the new socialist-city type", all these projects make up the history of Arad's urban "utopias". According to architectural projects this centre had in the foreground a large square for people's meetings and it was conceived to be placed on the site of the present historical centre (Gheorghiu, 2002, p. 124). However, such utopian approaches did have a certain impact upon the social organism.

The urban ambient, largely conceived based on architectural models alien to the Romanians, on the balanced weight of the two ethnic groups (Romanians and Hungarians) which have been living here for a long period of time, and the importance of the city in the struggle for the national emancipation of the Romanians, are apparently unconnected elements. However, sometimes they do determine a certain social responses to some political involving related to the urban space. An example is the issue of locating the Statue of Liberty, commemorating the 13 Hungarian generals executed in Arad at the end of the 1848-1849 Revolution. The initiative to restore the statue, which had stood in the midst of Avram Iancu Square until 1925, belongs to the Hungarian community. The number associated to the 13 generals, which corresponds (accidentally?) to the 13 provinces of "Saint Stephen's Hungary" (Greater Hungary), and the claim for the former location, which has a symbolic name for the Romanian community, were the main objections raised against the Hungarians' initiative. In this context, an identity mark associated with it has distinctively different connotations for the two communities and relates to the city's symbols – always passing through the filter of collective imaginarieness. We believe that the solution found is the right one. The new monumental space, called "The Reconciliation Park", is Pompierilor Square, where both the Statue of Liberty and Romanian replica referring to the 1848 Revolution, stands all the chances of becoming the most representative monumental space in the city and its important identity mark.

Speaking of identity symbols representative for Arad urban space, one cannot overlook the issue of the limit traced (or not!) by the River Mureș between the two historical regions: Banat and Crișana. The issue is important because the identity assumed by the inhabitants of a city may influence its evolution. In this respect, things cannot be irrevocably cleared up. As four districts of Arad are located south of the Mureș and ten north of it, it is fairly difficult to assert that some are located in Banat, and

the others in Crişana. One may rather conclude that Arad city lies in a transition or transient space between the two historical regions, with the River Mureş being the very axis which has been attracting a multitude of settlements on either bank (Rusu, 2000, p. 120).

CURRENT URBAN MORPHOLOGY

The present-day urban morpho-structure, the outcome of a historical evolution, is relatively clear. In the middle of the urban space there is a *linear central core* (Revoluţiei Boulevard), surrounded by the other districts, acting as urban cores themselves, which gravitate around it: Aradu Nou, Subcetate, Sânnicolau Mic and Mureşel south of the Mureş and Centru, Drăgăşani, Pârneava, Gai, Bujac, Aurel Vlaicu, Grădişte, Micălaca, Poltura and Şega, north of the river. Because of their independent development, these districts have distinct features, both functionally and aesthetically, granting the urban system a *polycentric* character. This decentralization allows for the functional decongestion of the central core. At the same time, there is a tendency towards dissolving the above-mentioned centres, and create a relative unitary urban texture. The main role in coagulating and organizing the urban agglomeration belongs to the network of thoroughfares, *radially* built even in previous periods (Fig. 1).

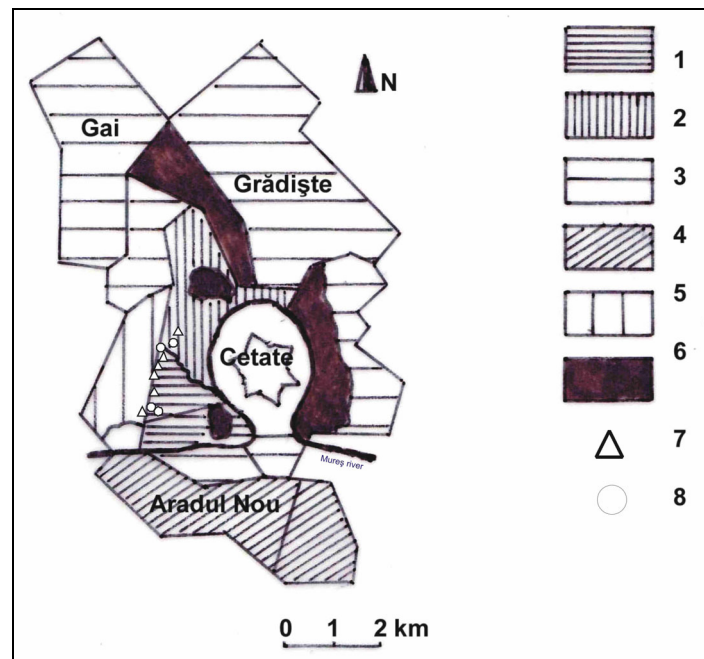


Fig. 1 – Main types of buildings in the city of Arad.

1, one-two-storey buildings specific to shopping-artisanal center (18th-19th centuries); 2, one-three-storey-buildings with continuous street fronts (19th century); 3, houses with a rural aspects in peripheral districts; 4, wagon-type Swabian houses; 5, villas from the inter-war period; 6, blocks-of- flats quarters and districts (1950-to date); 7, architectural monuments (18th-19th centuries); 8, contemporary monumental buildings (1950-to date).

The *linear* central core lies in the immediate neighbourhood of the Mureş loop. The main avenue of the central area (Revoluţiei Boulevard), oriented from north to south, concentrates the majority of the city's political, administrative and cultural institutions. Farther on, is Drăgăşani district, conceived mainly during the 18th and 19th centuries, having a chaotic street texture; it represents the oldest part of the central area. The central avenue is limited to the north and south by two rectangular squares.

Avram Iancu Square, remarkable for its architectural composition, represents a passage between the central avenue and Drăgășani district. The position of the Theatre contributes to the success of the urban composition of the square fronts. It takes part both in defining a side of the square and in setting up a beautiful end of perspective of Revoluției Boulevard. Podgoriei Square lies at the northern end of the central avenue. It is a point of convergence for the roads coming from Oradea, Deva and Nădlac, and is valued for the new Romanian Orthodox Cathedral, and represents the other end of perspective of the central thoroughfare.

The necessity for satisfying different functions has determined the emergence of distinct types of urban morphology. Although these are quite different from district to district, and even within the areas of one and the same district, yet the evolution stages of the urban agglomeration have marked the existence of *four main morphological types*.

1) The type conceived in the 18th century and the first half of the 19th century is dominant in Drăgășani district, namely relatively narrow streets without vegetation, one-or-two-storey buildings forming continuous street fronts. On the outskirts of the other historical districts, there still exists a number of ground-floor buildings, the street having a narrow front and a rural aspect, dating from the same period of time.

2) The morphological type specific to the second half of the 19th century and the beginning of the 20th century, is represented by many-storey buildings that in most cases form continuous fronts, stands out compactly in the central area of the city and scattered within all its historical areas.

3) The districts consisting mainly of houses and gardens, dating from the first half of the 20th century and especially from the inter-war period, are Șega, Poltura, Grădiște and Mureșel; the houses are sometimes placed in the middle of the courtyard and are no more than two-storey high. Towards the outskirts, this morphological type often looks half-rural, including large plots with rather isolated gardens and houses, and lacking the public utilities associated with urban comfort.

4) The fourth morphological type is represented by buildings from the communist period, basically many-storey residential units, social and cultural structures, and modern production units. They form either large districts (Micălaca, Aurel Vlaicu, etc.), or lie isolated within the historical urban texture (streets such as Banu Mărăcine and Ștefan cel Mare, areas like Faleză Sud-Alfa, Confecții, the perimeter close to the railway station, etc.).

The specific physiognomy of Arad city is shaped precisely by the relations between the four main morpho-structural types. A contrasting relation is visible especially where the socialist blocks-of-flats adjoin the historical areas. Yet, the central area has remained relatively unitary from the point of view of composition (although the buildings present many different architectural styles) and it might become a true architectural reserve of the 18th and 19th centuries. However, these historical areas require big restoration projects. Although they have already begun, being implemented in the case of some symbolic buildings (the Administrative Palace, the Palace of Culture), the situation is not at all satisfactory, for instance in Drăgășani district. It should be remembered that restoration practices recommend interventions upon entire areas, and not just upon the architecture of certain representative buildings. Restoration should also have in view the city planner's outlook in order to adjust the urban texture, the product of obsolete functions, to the present-day urban functions, capitalizing on the distinct expressiveness of these structures.

A priority task is to modernize various buildings, including the blocks-of-flats, but updating works may sometimes radically alter the architecture of a structure. Noteworthy, especially after 1990, preference has almost exclusively been given to the individual dwelling type. The "villa" syndrome has reached also the periphery of Arad, but the architecture of these structures is alien to the traditional type of city dwellings. Such changes may in the end challenge what is called the city's personality.

PROBLEMS OF URBAN PLANNING

The build-up area of the city covers 4,618 ha. All the outlying districts, isolated from the central core, had been fully integrated in the urban area until 1950, when Aradu Nou and Sânnicolau Mic districts were eventually attached. Because different isolated territories have been added to the build-up area in the course of centuries, one can notice, on the one hand, a large area where the urban texture has obvious continuity, comprising the city center and the districts of Drăgășani, Pârneava, Grădiște, Șega and Poltura, and on the other hand, there are districts such as Bujac, Gai, Aradu Nou, Subcetate, Sânnicolau Mic, and Micălaca, which are somehow isolated from the central core.

It is obvious that a homogeneous and ordered urban structure provides an equal share of services within the territory. It is thus a rational provision, to cover the urban space, in every aspect: transport, energy supply, sewage networks, etc. Nevertheless, the multinuclear character of the city and functional decentralization, which have developed throughout its history, are essential features once urban functions have become increasingly more complex.

The way in which the present structure functions suggests that completing the current radial-shaped thoroughfares, linking the peripheral districts with the central core, with other thoroughfares, and connecting the peripheral districts with each other is imperative. These connecting thoroughfares should have either tangent or similar routes to several imaginary circles, with the fortress in their center. A first step to this end is to build an outer ring in the northern half of the city, linking Gai, Grădiște and Micălaca districts at their ends. However, this thoroughfare is meant to shift the intense traffic from Deva and Oradea to Nădlac customs-point, from the city center. The high traffic from Timișoara is still an issue, because it crosses the city center since no shortcut ring has been built as yet. The completion of the outer ring in the southern part of the city has a distinctive significance in increasing the city's geometrical coherence and assuring a fluent connection with its neighbouring Timișoara. It is also true that finishing of this ring needs bigger financial resources, it including the building of a new bridge over the Mureș River. However, facilitating relevant economic flows to Arad and giving the city a modern road infrastructure would bring important benefits.

Solutions of detail should observe the city's tradition which suggests the adoption of ordered units, with well-defined composition axes in space, large thoroughfares bordered by green areas. The ends of perspective, the crossroads and the inflexion areas are marked by representative architectural buildings. A rational approach to the location of residential units in the neighbourhood of historical units is highly recommendable. There are several achievements in this field, an example being the railway station area (Gării district, Fig. 2). There one may see a junction between the old and the new realized by neutral buildings, which take over elements of the existing composition and ensure a graphical continuity with the present. However, in most cases, *the integration by contrast*, often annoying, neglects the sentimental component of the historical formation of the city. The alignment of buildings on streets, the precise construction of urban images, and the homogeneity of the cornice are compositional aspects that have nothing to do with the principles of open urban planning, including green areas and dynamic images, specific to the new structures built over the last four deca One of the major drawbacks in coagulating the urban agglomeration into a unitary system is the railway running through the city from north to south, and separating more than two thirds of its in the west from less than one third in the east. That is why, ever since the end of World War II, projects kept proposing the removal of the railway and the railway station and their reconstruction eastwards, outside the city (Gheorghiu, 2002, p. 124). The main railway station of the city is not located on the shortest route from Deva to Timișoara via Arad. Therefore, most passenger trains on this route stop only in Aradu Nou railway station in order to avoid the time-consuming operations in Arad's main railway station.

Apart from it, the railway crosses residential units in Aradu Nou and especially Micălaca districts, producing perceptible noise pollution. Unfortunately, the experience of several cities in the developed countries indicates that operations to remove the railways outside the city are very costly and, for the time being, the local government cannot afford it. The solution for the noise-affected districts would be to use phonic curtains or screens, systems that have proved their efficiency in many countries around the world.

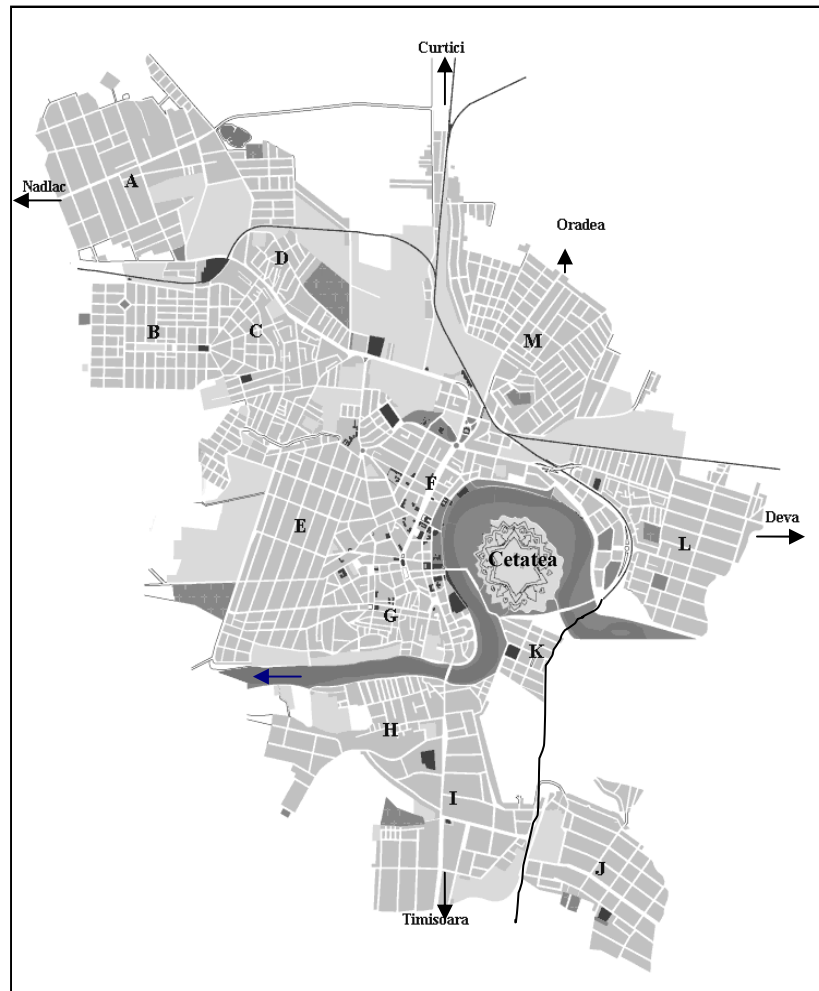


Fig. 2 – Current plan of Arad city.

Districts: A-Gai; B-Bujac; C-Șega; D-Poltura; E-Pârnea; F-Centru; G-Drăgășani; H-Mureșel; I-Aradu Nou; J-Sânnicolau Mic; K-Subcetate; L-Micălaca; M-Grădiște.

The railway of east Arad may have a restrictive role, but it may also play a part in the future evolution of the city. The areas now used by the railway may well represent an attractive construction site as the build-up area is expected to become more densely populated.

Arad has one of the lowest population densities in Romania. In 1974, it was referred to as “the most extended city of the country, apart from Bucharest” (Cucu, 1974, p. 283), with a raw density of 5.2 inhabitants/ha. Several factors had contributed to this situation: the relatively large uninhabited space in the meander area of the Mureș River, the high number of half-rural districts added to the city in a relatively short period of time, and Arad’s large agricultural area (12,500 ha in 1970).

Table 1

Population density in the cities of Romania (2005) (by administrative area)

City	Population density (inh./ha)
Baia Mare	5.91
Arad	6.48
Satu Mare	7.66
Cluj-Napoca	17.71
Timișoara	24.57
Constanța	24.86
Iași	34.17
Craiova	37.17
Ploiești	39.90
Bacău	40.64
Pitești	41.36
București	80.94

Source: *www.insse.ro*

In 2004 although the population density increased (6.48 inhabitants/ha raw density and 37.4 inhabitants/ha net density, see Table 1), yet it still is one of the lowest among Romania's cities. Density distribution by district is of the core-periphery type (Table 2, Fig. 3). The highest values (over 50 inh./ha) are found in the ring-like area surrounding the meander of the River Mureș. Highest values (in Aurel Vlaicu district) are registered somehow outside the above-mentioned area, because of the blocks-of-flats built there. The peripheral districts have extremely low density values, because of the suburban individual dwellings, where agricultural land prevail in-between the houses.

Table 2

Arad city. Distribution and population density by districts (2005)

No.	District	Population	Area (ha)	Population density (inh./ha)
1.	Centru	39,522	510	77.5
2.	“Drăgășani”	6,370	113	56.4
3.	Pârneava	21,022	383	54.9
4.	Aradul Nou	15,697	553	28.4
5.	Mureșel	1,336	230	5.8
6.	Sânnicolaul Mic	3,805	275	13.8
7.	Aurel Vlaicu (Poltura)	37,769	231	163.5
8.	Șega – Cadaș	5,074	238	21.3
9.	Gai	4,129	444	9.3
10.	Bujac	8,202	205	40.0
11.	Grădiște	14,161	673	21.4
12.	Micălaca	33,229	653	50.9
13.	Subcetate	598	110	5.4

Source: *Pavel, Rusu, 2007, p. 63.*

In order to mitigate this situation, the new residential units of Arad should be organically integrated into the city structure. It would be desirable, if possible, to make utmost use first of the available spaces existing in the built-up area, and build new structures only afterwards. The fact is that the rural environment around the city (including some urban peripheral districts) being confronted with depopulation and underdevelopment, while the new residential promotions are wasting space, derailing the building market and eventually the city as a whole. At about 6 km outside the city, is the so-called “West District” commissioned in 2001. It covers around 30 ha and consists mainly of

individual dwellings. The first projects, made in Italy, glaringly ignored the local conditions and realities (Gheorghiu, 2002, p. 157).

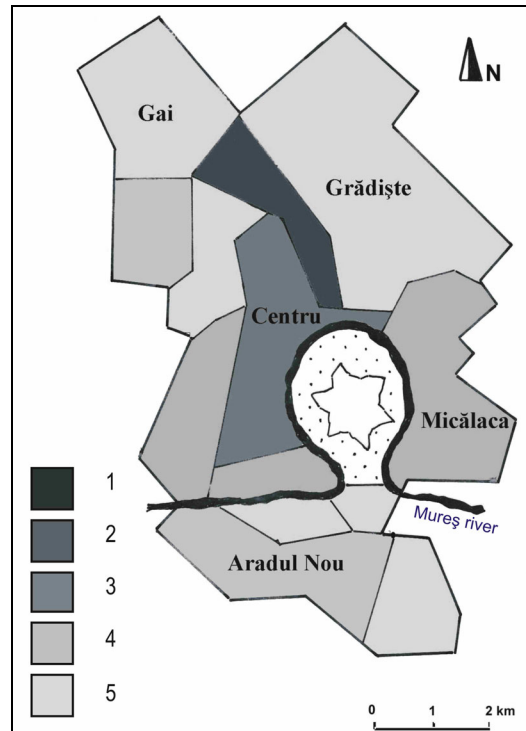


Fig. 3 – Population density in Arad city (2005)(inh./ha).
1. over 100 inh./ha; 2. 75-100; 3. 50-75; 4. 25-50; 5. under 25.

CONCLUSIONS

The current morpho-structure of Arad city, the outcome of its historical evolution, is relatively simple: a central core, around which the other districts gravitate as “urban subsystems”. Because of their independent development, these districts present distinctive features both in terms of function and architecture, giving the urban system a multinuclear character. The specific physiognomy of Arad is shaped exactly by the (sometimes contrasting) mixture of distinct morpho-structural types. Although the central districts still comprise worthy urban buildings, yet in the absence of restoration works, their aesthetical aspect is rather poor.

Urban space organization issues:

- a) the design of several thoroughfares to connect the present districts in a radial manner, in order to provide better links between the urban subsystems which gravitate around the central core;
- b) the completion of the outer ring in the southern part of the city to divert the high traffic from its central area;
- c) the railway crossing Aradu Nou and Micălaca districts is both a restrictive and ordering factor in the organization of the urban space, but for the time being high costs prevent the implementation of projects to remove it from the city;
- d) the location of new residential units, their integration into the urban system and the imperative of saving urban space as there are many districts with very low population density and available building space.

Eventually, the morphological evolution of Arad cannot be taken out of the economic, social and political context of the geographical space it is located in. The future evolution of the city would imply harmonizing it, on the one hand, with *organic development*, which makes the urban process lasting and sustainable, and on the other hand, with *planned development*, which is meant to order, in space and time, the sequences of the city's general development.

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