
FUNCTIONAL BARRIERS IN IASI URBAN AREA

Teodora Mădălina PAFTALĂ

Faculty of Geography, Al. I. Cuza University, Bld. Carol I, nr. 20 A, Iași, Romania
paftala_madalina@yahoo.com

Nicoleta Monica BUZATU

Faculty of Geography, Al. I. Cuza University, Bld. Carol I, nr. 20 A, Iași, Romania
mustateamonica@yahoo.com

Abstract

The forced industrialisation of cities resulted in the construction of giant sites in outlying areas. December 1989 triggered the decline of industrial activities, which could not be sustained any longer. Gradually, industrial halls have been abandoned, turning into ghosts of past glory, „black spots” that visually pollute the city’s image. The article highlights the tendency of these abandoned spaces to become true functional barriers. Occupying large spaces, the former industrial units are a barrier to communication (moving obstacle) and for the development of certain areas. Perceived as dangerous places, with a low security level, the problem of abandoned areas would be a subject for the territorial marketing strategies. In this regard, putting into value the results of a field survey, the article studies the perception of the urban brownfields, applied for Iași as a case study.

Keywords: industrial zone, functional barrier, communication, perception, image.

1. INTRODUCTION

Functional barrier concept is relatively new in geographical science and it was taken from the sociological sciences. The term barrier is explained as an obstacle, an obstacle to achieving a working (DEX, 1998); functional means that concerns a function (Sillamy, 2009). Functionality ensures the viability of a geographic area. Achieving this criterion gives uniqueness and homogeneity to individual functional areas. Therefore, based on the two classical definitions for the two component terms, we can say that the functional barrier is an obstacle to communication/ inter-urban flows. Barriers can also be interpreted as discontinuities between different functional areas of the city: between cultural and industrial area, between the industrial and residential, between the residential and commercial, etc. In this article, we will refer only to abandoned industrial areas that appear like functional barriers in the corpus of the postmodern Romanian cities. Urban space can be defined as the sum of all types of spaces between the buildings of a city (Radoslav, 2000).

Urbanization of the Romanian space was the ambition of the communist system. The brutality of the solutions offered by the Communists forced the deployment from the rural past, but with the price of

unbalancing all urban structures, resulting the creation of a false modern society. Massive urbanization of all cities and towns was accompanied by the deployment of the giant industrial platforms, considering that industrialization is synonymous with economic development (Luca, 2009). Accelerated industrialization has been accompanied by programs of the territorial distribution of production units, which led to rural population concentration in cities artificially stimulated (Groza, 1998), impoverishing the village and crowding the city. These actions have caused a change in the actual urban landscape (the emergence of large industrial platforms, working-class neighborhoods), but also in the social and cultural landscape, the immigrants bringing along with them family traditions, social and cultural types of living, a social behavior. In this regard, it is very suitable the Romanian proverb „Old habits die hard” (the conversion of peasant title into townsman has not meant a change of mentality and behavior).

The socialist urban policy generated true „urban tumors” (Ianos, 2004), as a result of excessive intervention following the utopist ideology of socialism according to which the city should be created by the formula (blocks + industry + workers) / territory = progress. With the industry and the rationalization of agricultural land as a development priority, the great ensembles of buildings came to be built quite close to each other, in haste and without adequate social facilities be provided immediately. Cities „have acquired a flat landscape, the pattern of concrete shuttering blocks endlessly repeating in the whole urban area” (Gheorghilas, 2004). The tribute paid to industrialization was expensive: the limitation of green spaces, demolition of religious buildings or historical monument-building.

Pre-revolutionary urban landscapes were characterized by monotony and similarity. Civic Center was partially or totally overlaid over historic center, building being approved in the obvious disagreement with the all surrounding or in the immediate vicinity, have been installed large industrial platforms which concentrate a large number of population, which determined the construction of workers' quarters in the immediate proximity, the green spaces that delimited the city (forests, orchards, vineyards) began to disappear or be reduced by extension of the habitat. This trend also continued after 1989, with more strength, whole acres of extravilan space being transformed in urban area, for construction of houses, notably individual ones. The 1989 moment has led to a functional blockage, the loss of commodity market causing the collapse of industrial production and, implicitly the closure of industrial mammoth, the landscape is now presenting under the form of huge abandoned halls, or used for other purposes (wholesale sites, points of sale of construction materials, car washes, etc.).

2. THE METAMORPHOSIS OF INDUSTRIAL AREA

Urban industrialization took a great extent during the socialist political system. Scrupulously pursuing the slogan „harmonious development of all areas of the country” and the idea according to which the progress of society is based on industrialization (in particular, by putting in the place heavy industry branches), cities have suffered drastic changes, total or partial, of functional areas. Cities, as one pillar in the organization of space, have undergone a fast economical structure (Ianos 2004, Nallathiga, 2010, Radut, 2009).

Defining the concept of industrial area

According to the ideas of the time, for most cities (especially for small and medium-sized cities) the industry was the principal factor for training and development (cities benefiting by services besides industry), the size, general structure of cities and quality of life of inhabitants being directly determinate of degree of industrial development. It also believes that the phenomena of urban construction and reconstruction depend on the location of industrial facilities, latter occupying large areas in the buildable area. If during the beginning of industrialization (1950), most of industrial units were placed isolated from each other, with the second wave of industrialization (1970), due to large investments provided in the industrialization plan of R.S. Romania, these objectives are concentrated on platforms for optimum use of land.

Industrial zones, also called industrial sites, production areas or industrial complexes, are territorial units composed of several enterprises mutual related on the cooperation line in the technological process of production or in the solving of transport, utilities, facilities and other joint activities (Lăzărescu, 1977).

Industrial areas were characterized by variety, each area having common features with the others but also certain characteristics, on which they could be grouped into different categories according to different criteria: the importance of the area (of national or local interest), length of the area (existing industrial areas or new areas), specific units of the area (industrial areas of predominantly industrial units, storage areas, mixed areas) nature of technological process of the predominant units in the area (mining, energy, metallurgy, chemical, etc.) position of the area within the city or towards it (industrial area located inside the residential areas, on the outskirts of residential areas, outside the city).

With the emergence of these giant industrial platforms, location of economic objectives becomes mandatory in these areas. Organization and systematization of industrial sites and the design and achievement of the investment objectives has been regulated by State Council Decree 70/1975 (Lăzărescu, 1977).

The image of pre-revolutionary industrial areas

Industrial sites included several manufacturing sectors, housed in a chain of different sizes halls. In addition to the plants themselves, there were spaces for maintenance and repairs, departments for equipments and special devices.

The first larger industrial units appear in Iași starting with the 20th century. During the interwar period the city's industrial profile was predominantly textile-alimentary (Lupu, 1940). During the socialist period the place of numerous small industrial enterprises is taken by the first industrial areas, composed of state enterprises with a high capacity of production, modern equipment and large number of employees. The most representative factories, integrated work centers and enterprises of that period are: the "Nicolina" Mechanical Factory, the Metallurgical Factory (1963), the "Moldoplast" Factory processing plastic masses (1963), "Moldova" Knitwear Factory, "Victoria" Factory weaving artificial silk (1969), the central heating-and-power plant (1964), „Unirea” Oil Plant (1968), the milling and bread manufacture Plant (1968), the Antibiotics Plant (1955). The textile plants comprised approximately 12,000 employees, followed by the Nicolina Mechanical Plants and the Metallurgical Factory each with 2,000-3,000 employees. (Șandru, 1972). It is noted the location of large companies in the southeastern sector of the city where is emerging one of the most important industrial areas. Outside the industrial area are individualized the textile plants in Copou and Tătărași, the Antibiotics Plant, the Brewery Plant or the Cigarette Plant. During communism small, less profitable, factories merged, thereby reducing the dispersion of industrial enterprises in the city.

In the chemical industry the most representative enterprises are Synthetic Fiber Plant Terom and. The first of these is a large industrial unit that became after 1970 the largest industrial enterprise in the entire county, according the value of production. Antibiotics plant has experienced a constant progress showed by building new pavilions and their continuous upgrading.

Textile and confections industry knows a significant development along with specific equipment modernization (equipping tissues department with automatic weaving looms), so after 1970 „Țesătura” Weaving Plant becomes the largest enterprise in the county according to the number of employees.

Mechanical industry is represented by "Nicolina" plant, which was originally a railway repair shop. Between 1966-1970 the "Nicolina" plants entered into a process of readjustment and modernization.

The formation of a compact industrial platform in the peripheral area of Iași, was the result of the investments concentration in several large enterprises, and had as development premises the existence of a developed system of transportation, energy supply, water and gas. The industrial area from the

south-eastern part of the city was optimally positioned, providing accessibility and being located linearly along with residential neighborhoods.

The image of post-revolutionary industrial areas

December 1989, ended with transition from socialist economy to capitalist economy, led to an unprecedented collapse of industrial activities, changing the landscape (Voiculescu, 2009). The main causes of the industrial activity reduction were reduced flexibility of these industries mammoth, production dependence on C.A.E.R market, development of external trade through specialized state firms (the so-called „centrals from Ministry of National Economy”), the impossibility of ensuring raw material (due uninspired localization in the territory), low competitiveness of products at international level.

Gradually, most of factories and enterprises were closed pending privatization promised but never fulfilled. Most of the time the term and the process of "privatization" has been replaced with „liquidation”. A multitude of factors have led to falling of the areas once bustling by employees: disinterest, inability of local authorities, the lack of vision. The restructuring phenomenon, the privatization, actually meant the abandonment of the initial localizations that are reused in part for storage or trading.

Transition of time has left its mark on buildings-witnesses of the glorious past of R.S. Romania. Nature has begun to reclaim territories the plaster began falling, sheet iron to rust, the windows to break, forming a distressing framework, scary though. Once workers bustled, huge halls (those who are still standing) are now abandoned, forgotten, turning into ruins without tourist or historical importance. These can be considered a real problem for the city urban image. The ruins characterize, especially, peripheral areas of the city (industrial landscape). Physical decline of the structures can lead to visual pollution of the area. Broken windows, flaking paint and shattered walls produce a strong negative visual effect on the viewer, an effect enhanced by the location of a new building nearby, well cared for.

„Iesătura” plant, that had the largest number of employees in the county around 1970, is now almost completely demolished. Once the location of the clothing, it will become a commercial center, an important part of the factory halls being already on the ground. Therefore, the industrial area, former production center, will become a consumption center.

From the great industrial giants set imposed into the landscape in the south-east of town, the former synthetic fiber and yarn plant - Terom, plastic products plant – Moldoplast, galvanized pipes plant - Tepro, were left today only rusty irons, broken windows, inducing any townsman a state of desolation. Iași City has been affected of de-industrialization process, achieved by reducing the number of units,

industrial enterprises and labor. Among the most affected areas were those occupied by the heavy industry.

3. BROWNFIELDS PERCEPTION AND IMAGE

Research Methodology

In order to assess the perception of individuals over abandoned industrial spaces we used field survey based on questionnaire. The questionnaire applied includes two parts: one relating to the goal itself and a second part which allows the knowledge of social determinants.

The questionnaire is composed of nine open and closed questions, structured so as to identify the perceptions, sensations, feelings, opinions vis-à-vis the brownfields, which combined to outline an image of these places.

The investigation took place from February to March 2011 on a sample of 158 subjects, through the questionnaire applied face to face and by posting it on the website <https://spreadsheets.google.com>.

There were questioned 52 males (33%) and 106 females (67%) aged over 18, residing in the city of Iași (130) or in other localities, urban or rural (28), most of in Moldova.

TABLE 1 - SAMPLE STRUCTURE

Age	Number	Education Level	Number	Profession	Number
18 – 25	113	Elementary school	0	High skilled professions	44
26 – 35	22	Hygh-school	51	Office employees	5
36 – 45	12	University	91	Workers	10
46 – over 60	11	Postgraduate	16	Students	92
				Unemployed	7

In order to express cartographical the results, has been used Wordle program. Wordle is a software for processing qualitative data, on-line, which has the ability to "cartography" words. The word font size is determined by the number of occurrences, as the word occurs more often in the processed text, the prominent he is.

Interpretation of the questionnaire results - townsmen perception on brownfields

Analysis of responses (Figure 1) shows that majority respondents perceive brownfields as weak valorized spaces (10%), unattractive (9%), being in an advanced state of degradation (ruins - 11%), useless in the stage there are (8%), creating a distressing picture in the urban area (6%). Negative image of these areas (8%) defines a strongly repulsive space, to which the individual displays a

topofobe attitude, with repercussions on territorial mobility (trying to avoid areas where industrial buildings are located), the prices of land and buildings, the investors interest.

These spaces are also a factor of disequilibrium (2%), an element of rupture/ barrier (4%) in the continuity of urban space. The security level felt in these areas is low, given that abandoned industrial halls occupy large areas within certain neighborhoods.

On the other hand, abandoned areas can be the raw material for industrial tourism development (3%), these being testimony of the two waves of industrialization from the communist period. They can also be strenght poles of urban space reconstruction (3%) when the competent authorities shall take measures in this regard. In the last years, investments have facilitated the conversion of these spaces, by setting up commercial spaces belonging to supermarket chains (Carrefour, Kaufland) of residential neighborhoods (Dream Village) and exhibition complexes (Scientific and Technological Park and Park Exhibition Moldova).



FIGURE 1 - THE PERCEPTION ON BROWNFIELD

Ask on the sensations and feelings that cause them abandoned industrial areas, respondents indicated feelings of sadness (18%), disappointment (10%) and regret (8%) (Figure 2) caused by economic decline of these industrial areas and the implied consequences (increase in unemployed, advanced physical and moral wear of the existing fund, presenting typical aspects of insalubrity and discomfort), fear (16%) - the abandonment of buildings has led to turning them into shelters for homeless and stray dogs, these places constituting into real urban stress, repulsion (14%) due to the deplorable state of the former warehouse, specific smells, the accumulation of garbage, but also the invading of old courts and construction by ruderal vegetation. Combined, these characteristics of the brownfields, creates a strong sense of insecurity among individuals (9% of respondents perceive these areas as unsafe), especially

among females, which are more sensitive to the idea of safety. The feeling of insecurity may be caused by the lack of information about this space (taking into account the vast area occupied by it), the more so as the individual has no full control over the place. The regret vis-à-vis the disappearance /crash of the industrial buildings is directly proportional to their former economic and social importance.



FIGURE 2 - THE SENSATIONS THAT BROWNFIELDS INDUCE TO THE RESPONDENTS

In order to complete the information obtained vis-à-vis the perception on the industrial areas, the respondents were asked if they consider abandoned industrial establishments as a barrier to communication (physical and/ or psychological). As can be seen in Figure 3., most people (67%) responded affirmatively to this question, compared to only 25% that gave a negative response and 8% who preferred not to express their opinion in this regard. Analyzing the answers given by each person to all questions, we have seen certain congruence between their perception towards the industrial areas, their feelings and the representation of industrial sites like obstacles. Thus, to industrial sites are assigned negative connotations (abandoned, sad, useless, unaesthetic/ disastrous, with repercussions on the image of the city) by 13% and 11%, 10% of those who answered "yes" to this question. Also, the feelings prevailing among those who see the industry remains as barrier are converging to sadness (20%), fear (18%), repulsion (10%).

As shown in this analysis, industrial remains have an ambiguous location in the economic dynamics of contemporary urban space. Anthropologist Douglas M. (1966) believes that objects placed in ambiguous, difficult to classify in a certain category, are perceived as "out of place" objects. Therefore, industries and the physical remains of abandoned factories, demolished or still partially functional, but which are in an advance state of degradation, are objects that do not totally belong to past (because they are still spatially present as ruins), neither the present (because they've been removed from the production and urban circuit) (Chelcea, 2008). However, researchers have identified five options for the

conversion of redundant industrial buildings: commercial, industrial areas, residential areas, offices, cultural and recreational facilities.

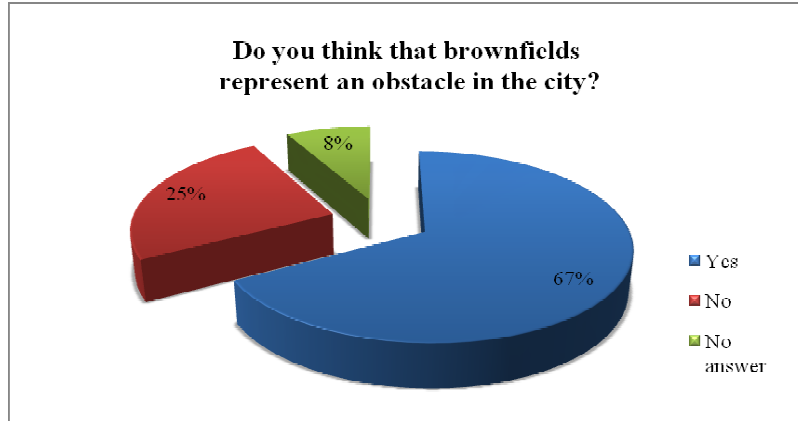


FIGURE 3 - BROWNFIELDS - BARRIER TO COMMUNICATION?

Survey participants were urged to make an effort to reimagining Iași urban space and to express their opinion regarding how it should be reintegrated/ refunctionalized industrial sites. The answers could be summarized into four main categories, shown in Figure 4. Thus, most respondents (47%) indicated as a solution for revitalization, the redevelopment of these areas in the form of residential, commercial, recreational or parking areas. They also have recommended investment for replacing the industrial landscape with a post-industrial one (27%), rehabilitation of buildings (19%), development of these areas as tourist circuits (dark tourism - 4%) as well as demolition of industrial artifacts which unnecessarily occupy large areas (13%).

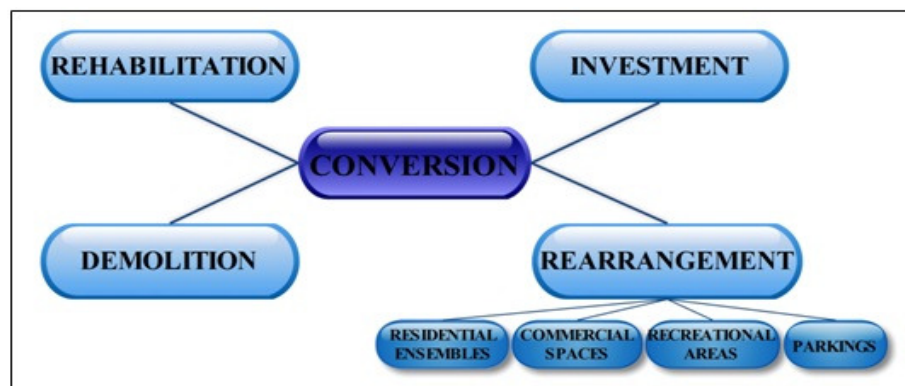


FIGURE 4 - BROWNFIELDS CONVERSION

4. BROWNFIELDS ROLE AS FUNCTIONAL BARRIER

The functional barrier is synonymous with a disturbance occurred in the fundamental relationships between the main structural components (Ianoș, 1996). A major functional barrier can be reflected in a physiognomic split. We can distinguish three phases in the evolution of a functional barrier: of

occurrence (coinciding with the emergence of large industrial sites), of flare (the abandonment of industrial plants) and their integration into the city system (the conversion of industrial plants: partial or total).

The emergences of functional barriers presuppose the existence of general and individual factors. General factors refer to the change of national political ideology, the abrupt change of ownership (individual-collective-individual), the attitude of policy makers, the high degree of country ruralization (in 1948, 76.6% of the population was rural). Among the individual factors we note the original economic profile of the city, its geographic location, its position on the the scale of ranks, its distinction as historical and cultural city. Ignoring the specific conditions in which the Romanian cities appeared and were developed and having in mind the utopian model of socialist city, politicians have taken a series of unfounded judgments, trying to adjust from outside the functioning of certain cities, which they did not know and on which they had only statistical information.

The existence of a barrier within the city does not necessarily mean a regress, but may contribute to the progressive dynamic of the settlement, if it acts consciously and promptly in this regard.

After the manifestation scale of functional barriers we can identify a macrostructure level and a micro level. At macrostructure level, barriers can be caused by the change of the economic profile of a city, the change of national political regime (the communist regime - the industrialization of the territory - the emergence of industrial sites, previously nonexistent: FORTUS - Iasi BJATM - Iasi). At the micro level (for example, in Iași neighborhoods) we can bring for example the existence of industrial units inside the city (the milling and bread manufacture Plant, Zimbru Brewery), the opening of building sites (works at Central Hall passage), the existence of a railway network that runs through the city.

State interventions have failed to fundamentally change the original internal structure of urban centers, this statement referring in particular to large cities. Investment programs have led to the construction of large industrial sites at the periphery, and large habitats. Total or partial cessation of work on these industrial sites, succeeded by the abandonment of these areas, led at their transformation into the shadows/ ghosts of the glorious past which haunts/ jams the image of that settlement.

Why do we compare the brownfields to a barrier/ obstacle? In whose way do they stand? Are two of the questions that make room into the mind of researchers. Occupying large spaces, the former industrial establishments (both embedded in the inner city and the suburbs) represent a barrier to communication and development of certain areas. In a time when we discuss about the living spaces crisis, areas of hundred square meters, with an even better location within the city, are forgotten. On the other hand, these areas affects through the advanced degree of degradation, the city's image (Iași can compete for

the title "city of ruins"). Socially, the abandoned areas are perceived as dangerous places, with a very low level of security in the vicinity of which could shelter the homeless, stray dogs, etc..

5. CONCLUSIONS

Adopting incoherent policies at territorial level and the lack of a strong response from the citizens, led in 20 years of transition, to the transformation of urban industrial platforms and units in real urban diseases. perceived as sad areas, unused, sinister, bleak, that causes you fear, outrage, anguish, revolt, regret, former industrial areas are affecting the city's image.

Cities have always been the fundamental poles of economic development, vectors of change and renewal. Iasi city has affirmed in the modern and contemporary period as an important historical, cultural and scientific center, rather than as a large industrial city (the period of socialist industrialization, representing a "golden period" of development as an industrial city). Sustained and extensive industrial development in the context of socialist industrialization (the emergence of new structures on the city map - so-called „industrial areas” surrounded by „bedroom-neighborhoods”, without health, social and cultural services), followed by its decline, during transition, caused by managerial incompetence, lack of adaptability to new market economy, doubled by failed privatization, have led to the emergence of „black spots” on the city map, old industrial „dowry” turning into a real „burden”, the former industrial areas being in an advanced state of degradation (abandoned warehouses, areas overgrown by ruderal plants). The passage of time has only served to highlight the lack of interest of the authorities and the community vis-à-vis those areas, recently adopting solutions to revive some of these areas (the construction of hypermarkets, commercial spaces, conference centers). Although the postfordist economy produces global standardized landscapes, it is desirable despite falling into dereliction and robbing the contemporary industrial areas.

ACKNOWLEDGEMENTS

This work was supported by the the European Social Fund in Romania, under the responsibility of the Managing Authority for the Sectoral Operational Programme for Human Resources Development 2007-2013 [grant POSDRU/CPP 107/DMI 1.5/S/78342]".

REFERENCES

Chelcea, L. (2008). *Bucurestiul postindustrial: memeorie, dezindustrializare și regenerare urbană*, Ed. Polirom, Iași, p. 454.

- DEX (1998). *Dictionarul Explicativ al Limbii Române ediția a II-a*, Ed. Univers Enciclopedic, Bucuresti, p.1192.
- Douglas, M. (1966). *Purity and Danger: An Analysis of Concepts of Pollution and Taboo*, Routledge, London, p. 272.
- Gheorghilas, A. (2004). *Turism urban si turism cultural*, Ed. Credis, Bucuresti
- Groza, O. (1998). *Industrie, systèmes économiques et territoires*, La Découverte, Paris
- Ianos, I. (1996). *Functional disruptions in the internal structure of Romania's towns* în Dvies, R.J. (ed), *Contemporary City Structuring, International Geographical Insights*, Society of South African Geographers, Cape Town, pp. 405-417.
- Ianos, I. (2004). *Dinamica urbană. Aplicații la orașul și sistemul urban românesc*, Ed. Tehnică, București, p. 213.
- Lăzărescu, C. (1977). *Urbanismul în România*, Ed. Tehnică, Bucuresti, p. 223.
- Luca, O. (2009). Urban regeneration process in Romania, *Theoretical and Empirical Researches in Urban Management*, 1(10), pp. 136 – 143.
- Lupu, N. (1940). *Valoarea industrială a orașului Iași*, *Lucrările Societății Geografice „Dimitrie Cantemir”*, vol. 3, Iasi, p. 21.
- Nallathiga, R. (2010). Redevelopment of industrial land in urban areas: opportunities and constraints. a case study of textile mill land redevelopment in Mumbai, *Theoretical and Empirical Researches in Urban Management*, 5 (14), pp. 35 – 46.
- Radoslav, R. (2000). *Identitatea cultural a spațiilor publice în Regional Conference of Geogeaphy: Regionalism and Integration*, ediția a IV-a, Timișoara, 12-14 mai 2000, Ed. Bruman, pp. 97 – 102.
- Radut C. (2009). Geographical Information Systems and the durable construction of urban and rural environments, *Management Research and Practice*, Vol. 1 Issue 1, pp: 68-75
- Sillamy, N. (2009). *Dictionar de psihologie*, Ed. Univers Enciclopedic Gold, București, pp. 336.
- Șandru, I., Băcăuanu, V., Ungureanu, Al. (1972). *Judetul Iasi*, Ed. Academiei Republicii Socialiste România, Bucuresti, p. 155.
- Voiculescu, S. (2009). *The Romanian Post-socialist City: Urban Renewal and Gentrification*, Ed. Universității de Vest, Timișoara, p.183.