URBAN GREEN AREAS – ISSUES AND ANSWERS FOR SUISTAINABLE DEVELOPMENT (CASE STUDY IN ROMANIA)

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Abstract

The current situation of urban areas from Romania shows a natural environment with increased risk for health of residents due to the low level of green growth resulted from lack of integrated management of green spaces in relation to the other components of sustainable development.

Urban evolution in the last 40 years has been characterized by an extensive industrial development and intensive residential development paving the way for an unstructured extension and poor urban landscaping. On this poorly planned urban development was felt a progressive green space crisis and landscaped recreational areas.

Regarding the management of the green areas in this general context, the urban areas will have to suggest for the future a series of ample projects in order to increase the surfaces, but also the quality of the green spaces, having an effect on the environmental quality but also projects of accomplishing certain areas of pleasure and leisure in frame of certain efficient environment strategies, all of these having a positive role on the health status of the population.

Keywords: *green areas, development, green cities, urban.*

JEL Classification: *Q2, Q5, R5, M1, O2*

1. Introduction

The current situation of urban areas from Romania shows a natural environment with increased risk for health of residents due to the low level of green growth resulted from lack of integrated management of green spaces in relation to the other components of sustainable development.

The fields of sustainable development in urban areas we consider them: urban planning, management of green spaces and air quality, waste reduction and management, water quality, energy efficiency, clean and efficient transportation.

Within the strategic management of green areas and spaces aiming an improving air quality a priority role is occupied by methodology and the system to obtain the necessary informations for decision-making. In this context, monitoring of existing green areas is the cornerstone, which should provide the necessary informations. Correlated with this monitoring it is necessary to achieve data operational system for air quality monitoring that consists of fixed monitoring points in automatic and real-time mode for the main pollutants in the air. Air quality management will be closely connected with the management of green areas under the coordination of a specialized department within municipalities.

It is known that the society or social system represents a dependent part of the mother-nature (ecosystem) with a minor impact upon the human existence and conscience. (mazilu, 2009)

The information owned by the Ministry of the Environment about the green surface of the towns in Romania shows that, in the last 25 years, their trend followed a descendent line. From almost 22.000 hectares, as they were in 1990, the green surface decreased with about 2.000 hectares. The most important decrease passed in the big cities where during the last 25 years the green spaces were reduced with about 30%. For example, Bucharest was the most affected, registering a decrease with about 50%, from 34 million square metres of space, as they were in 1990, to only 17 million square metres (ionascu, 2003).

The average towns, having a population of maximum 100.000 inhabitants and having a pronounced industrial role, have also problems regarding the surface of the green spaces. This is due to the forced development during 1960-1990 when the evolution of the constructed space increased with an average of about 60%. Here there are towns like Targu-Jiu, Alexandria, Turnu Măgurele Piatra Neamţ, Petroşani, Călăraşi that did not care about the green spaces.

In exchange, the small towns in the hill and field areas are localities where people enjoy a lot of green, according to the data of the Ministry of Environment. In their top, there is Vişeul de Sus (county of Maramureş), Gătaia (county of Timiş) and Bragadiru (county of Ilfov), where every inhabitant has some hundreds of square metres of green

space: Vişeul de Sus, Maramureş - 443 sqm/inhabitant; Gătaia, Timiş - 359,13 sqm/inhabitant; Bragadiru, Ilfov - 226 sqm/inhabitant; Baia de Aramă, Mehedinţi - 197,53 sqm/inhabitant; Ocna Sibiului, Sibiu - 181 sqm/inhabitant.

The surface stipulated by the World Health Organization (WHO) for any planet inhabitant is of 50 square metres per inhabitant (between 40 and 60 sqm/ inhabitant). Romania accessed this norm only on paper, more specifically in the Report on the Environmental State in Romania, the real average actually reaching only 18 sqm/inhabitant. The small surface is not the only problem of the green spaces in Romania. The other big problem is the inadequate state of many of the parks and public gardens in the country. In cities such as Târgu-Mureş, Constanţa, Cluj-Napoca, Iaşi or Bucureşti, most of the green spaces were transformed in commercial areas.

Neither the European localities achieve the WHO exigencies, the continental average being of about 25 sqm/inhabitant[1]. In the European top, there is Austria with sqm/inhabitant, followed by Netherlands and Belgium, having equal points - 65 sqm/inhabitant. The average in Hungary is of 30 sqm/inhabitant, and Malta and Cyprus have 35mp/inhabitant (baycan-levent and nijkamp, 2009).

In European Union countries the authorities require that the minimum surface accepted is of 16 square meters of green space per capita. The norms in force on Romania talk about a necessary of minimum 26 square meters of greenery per person, which will be achieved by 2013. However, there are still restrictions on the allocation of land for future parks or green areas in the neighborhoods.

The lifestyle based on consumption is generating the urban expansion. The urban expansions are caused by the change of lifestyles and consumption, as well as by the tolerant strategies, but not necessarily by the population growth. (beaujeu-garnier, 1987)

We need an action plan to address the two causes of intensive urban development expansion model: the consumption more than the standard needs of living and the tolerant policies of the design and spatial planning (urban planning) .

In this context, many authors argue for improving legislation and taxation on the urban environment. The urban policy will have to play an important role in the promotion and prevention of the aggressive urban sprawl and maintaining a balanced intensive development complemented by extensive development of certain areas. (ionascu, 2003)

2. Issues of urban green spaces

Issues concerning urban green spaces are of two kinds, those related to the quantity and also the quality of improuvements related to these green areas.

The current situation of urban land it shows an almost absolute preponderance of construction land amid a massive market demand for such type of land. Land market is in large development and will achieve in the next 10 years a degree of maturity, which will cause serious damages to the lands with a green areas potential.

In order to prevent the damage of the environment and of the life quality, in the general list of the urban fields we will have to identify especially these green fields in order to be put under a local protection.

The main categories of green areas from the construction perimeter can be: Green spaces with unlimited access; Public green spaces and of specialized usage; Recreation areas; Sports complexes; Green spaces with limited access from the interior of some institutions; Areas planted in private yards - individuals should be advised to plant species characteristic of our area in arranging the gardens.

Many authors in the field of urban planning (campbell, 1996; morancho, 2003; kongjian, 2007) consider that the existent situation on these types of green land with development potential for recreation and leisure uses is unsatisfactory from the following points of view:

- Deficit of green space.
- Uneven distribution of green spaces. There are neighborhoods with a lack of green spaces. It is necessary that we keep the existent green areas but also that we create new green areas and recreation parks.
- Numerous areas with green spaces or that have a green potential development have been transformed in constructed areas. It is compulsory a strict settlement of the constructions from the green spaces, from the areas that have a potential of being arranged as green areas or as recreation and leisure spaces.
- In the autumn –winter period there is no sufficient perennial vegetation having as result desolate landscapes during these seasons. So it appears necessary the development of the spaces full with evergreen vegetation (southern or Nordic origin), especially trees on the sidewalks, green curtains that separate the streets from the sidewalks.
- Green areas are not perfectly integrated in the natural circuits and in the ecosystems specific to the areas. It requires the protection and extension of biodiversity in poultry and small animals that may inhabit the green zone (e.g.: for small birds by setting up nests, feeders, notices);
- There is no coherent long term plan and an official policy on green spaces and biodiversity protection. An operating plan is required to include active measures to preserve existing green areas correlated with active measures

1 According to the information from the Ministry of Environment

pro biodiversity, but also encourages the creation, necessarily, of new green areas and parks to meet anti-pollution and recreational roles with an emphasis on ecological criteria in relation with the aesthetic.

▪ There is little awareness campaigns and programs regarding the critical situation of the localities and their future development in the absence of adequate green spaces as number, surface and quality of the arrangement. The environmental education and information should be directed to owners of land which have a tendency to obsessive exploitation of constructed space.

The future of Cities, through the present realities, can be imagined as a way to one of the following urban development variants:

1) The Gray City - with neutral architecture and industry-specific characteristic of western European cities in areas with energy profile;

2) The Red City - with residential development through individual dwellings and an occupancy rate of the land very high functioning as zonal polarization center;

3) Blue City – with commercial and financial development as a regional center having many buildings with glass surface and with associated shade color;

4) Green Town – with integrated residential development also many green spaces and orientation towards commercial activities and service facilities and vocation of multiregional urban center.

3. Answers for the sustainable development of urban green areas

Regarding the management of the green areas in this general context, the urban areas will have to suggest for the future a series of ample projects in order to increase the surfaces, but also the quality of the green spaces, having an effect on the environmental quality but also projects of accomplishing certain areas of pleasure and leisure in frame of certain efficient environment strategies, all of these having a positive role on the health status of the population.

A vision of integrated development of urban areas thus becomes a development model with a pronounced degree of balance between residential areas, industrial areas, commercial and service areas and landscaped green areas, balance that ensure the medium and long-term development.

Urban evolution in the last 40 years has been characterized by an extensive industrial development and intensive residential development paving the way for an unstructured extension and poor urban landscaping. On this poorly planned urban development was felt a progressive green space crisis and landscaped recreational areas like parks and gardens. Urban redevelopment will have to start from a well-defined strategy regarding the development of green spaces and recreational and leisure areas in the city, within each their development area. This strategy will be subordinated to the overall vision of urban balanced development on medium and long term.

By means of a sustainable strategy it can set the priorities for achieving the main goal of urban sustainable that of creating green cities using what might be called green zone management (caspersen and others, 2006). Based on the issues that we have identified in most cities in Romania these priorities could be set as follows:

a. Developing an integrated network of parks and public gardens

Inside the urban areas urgent actions should be taken to increase green spaces as large landscaped parks and gardens in addition to managing smaller green spaces like square type sites, in order to speak of modernization and rehabilitation of natural heritage for the benefit of the public. At the present moment the vast majority of cities have only one public garden. Most of these public gardens have already very long existence they occurring in a period in which urban space anthropization was not excessive one.

The natural environment within cities and gradually narrowed so that in the future are few prospects of finding sufficiently extensive areas of land for such facilities like parks or public gardens. However, in urban areas we have identified five types of spaces with the potential for conversion into green areas like parks and gardens:

1. Compact areas of land owned by municipalities in new residential areas, areas from which are made the current concessions for residential contructions;

2. Areas in the meadows, swamps and lakes along the rivers that are outside the buil-up areas;

3. Industrial or commercial type areas resulting from the decommissioning of existing economic objectives in urban areas;

4. Privately owned surfaces in all areas of urban development that can be donated to the public domain or includen in public-private partnership;

5. Outside the city areas that have potentially fitting as green areas and recreational and leisure activities and it can be arranged before the start of residential and economic development of the area.

In this way it can improve environmental indicators, such as number and surface of areas landscaped as parks and public gardens; the number of people benefiting from direct recreation facilities and leisure through these parks and gardens; economic and residential land compared to the parks surfaces.

Also the effects of urban life quality will be numerous by increasing the number of parks by balancing the use of residential, industrial commercial with green areas; creating new poles of intra-urban concentration; increasing the comfort of living in new districts; creating the image of postindustrial cities or long term planned development of the city.

b. Maintaining and developing existing green areas as recreational areas

Without having a certain thematic arrangement in most urban areas, the green areas types and forms are not highly diversified in terms of lanscaping. Natural urban environment is subject to constant degradation as a result of some influence factors. The causes of degradation are of two types: expansion of residential areas in the green areas and degradation of green spaces.

25 years in Romania has been extensively characterized by the degradation of green spaces, the maintenance and landscaping investments began to be more consistent after 2004. Maintaining green space is still quite expensive action, requiring diversified measures to support this, including:

- Management contracts with private partners;;
- Increasing income by renting facilities for commercial activities in these green spaces;
- Increasing income by renting facilities for commercial activities in these green spaces;

Lanscaping of green areas is deficient in terms of ensuring their role as recreation and leisure areas. Considering that the arrangement would be directed to these facilities, the volume of city administration revenues from the management of parks would be much higher and would allow future funding arrangements. Maintain a groomed natural environment raises the comfort a life standards of the population and has a positive impact on public health. The cities will have to become not only green cities but also through this to provide additional value to the lives of residents by increasing recreational and leisure role of these spaces.

Another issue of landscaped green areas currently represents the opportunities for expand it in the immediate vicinity spaces. Opportunities for expansion are generally low and should be long term followed. Being placed in areas with relatively high land demand these lands remains very high price. In this situation, the only way a municipality to acquire new land for expansion is by donation or joint venture participation, between City Hall and individuals for development projects.

Active policy of maintenance and development of green areas and their transformation including as recreational areas will allow: the emergence of new green areas in urban ecological system, increasing the number of private partners involved in the rehabilitation of green spaces; increasing the value of green spaces rehabilitation projects; generating benefits from the exploitation of green areas for tourism and leisure.

c. Landscaping wetland and existing degraded lands

Because the cities have followed an extensive development, the urban territory began to include numerous river meadow and marsh land, most of them remaining public property. These lands with lakes and swamps are usually in an advanced state of decay being totally undeveloped. This damaging situation must be stopped and meadow type public land must be rehabilitated for the residents and potential tourist visitors. The advantage is that these lands have no residential or industrial potential, without real estate market demand for them. In these circumstances they can be transformed into new spaces like parks and gardens and may benefit from the presence of lakes, water reservoirs or wells. The potential of these areas must be individually assessed and subsequently included in General Urbanism Plan. This action will generate increasing diversity of green area structure in urban space, as well as the parks development and aquatic and meadows spaces revitalization. If they are in marginal areas of the city there will be possible to create recreational areas with lakes, forests or meadows specific landscape or it can create new parks.

A second area of work for the future development of green areas and recreational and leisure urban areas is to introduce degraded and undeveloped lands into the "green" city circuit. Being located somewhat outside of the intensive development of the city, the potential of these areas lies in large landscaping possibilities for recreation or leisure. he actions must target investments to protect the land to landslides and restoring vegetation in areas where it has been destroyed by cutting. Also the measures must cover construction restrictions in and around the area and the prohibition of industrial development but encouraging the development of non-polluting entrepreneurship like commerce and leisure services. Developing new public gardens in this type of area depends on two elements:

- The purchase of land in public ownership or development of a public-private partnership;
- Land improvements to eliminate the danger of landslides.

Outside these areas can be also identified other smaller lands that can be arranged as green squares or mini-parks inside the residential areas.

Marshland and degraded land conversion into the green areas brings many advantages: integration by landscaping of degraded areas; inclusion of land sloping into the urban green system; stopping the phenomenon of stealing land from natural circuits; and green city image.

d. Vegetation curtains development on street alignments

Cities have a highly fragmented structure highlighted by the length of streets.As such, asphalt coated surfaces are very large in total urbanized area causing negative repercussions at the level of health of the population.

This reality is often complemented by curtains lack of forest vegetation along the road network, both along major circulation axes on urban area and at the level of access roads in residential areas. On one hand, even in the presence of trees along the sidewalks, they are not the type of perennial vegetation, and green vegetation is only in spring and summer seasons. The rest of the time their role is not met, even taking into account only the reduction of chemical pollution and noise. On the other hand the avenues and streets aesthetic could be affected, with pretty bleak landscapes.

The quick solution to solve the problem is given by planting vegetation type conifers along the street network that have continuous vegetative period with high growth rate, and at the same time these can be already planted in their maturity.This solution can be achieved starting from the main boulevards, continuing with the main streets and in the third stage on neighborhood streets and parking areas.

Vegetation development measures in the area of street network will result in: reducing chemical and noise pollution; aesthetic improuving on main boulevards; developing balanced arboreal vegetation in residential neighborhoods; and civic involvement in arranging the street of residence.

e. Urban natural heritage protection

The vast majority of cities do not at all exploit for leisure activities the rivers on which they are located, despite the fact they can be arranged to form a complex of green spaces and water areas that can be used for people recreation. Instead of these urban recreational green areas the rivers are most often considered areas without public and scenic interest and at the same time they have a high level of pollution.The establishment of a green axis along the rivers may be possible by establishing a rehabilitation and landscaping plan with river embankments along their entire length from the entry to the exit from urban space. All economic activities that can be found along riverbeds will need to be ecologically rehabilitated and renovated or moved to other industrial areas.

Forests outside the cities, quite stretched around many cities, they may be of long term interest in connection with urban development.Even if the city is one with limited green areas and there is no great prospects for expansion of such surfaces in theirs central areas, in the suburbs greening level can be very high and some green spaces may be of forestry. Arranging these forest areas will allow balanced territorial development with urban forest strips around the city.They must be managed effectively for tourism and leisure, without admission of pollution or degradation.

By integrating riverbeds usually central, and woodland generally peripheral, it can create a central green areas on rivers and a balanced forest system in the suburbs along with suburbs opening to leisure and recreation.

4. Conclusions

The urban redevelopment will have to start from a well defined strategy in the development of green spaces and recreational and leisure areas from the territory of cities, at the level of each developed area. This strategy will have to be subordinated to the general vision of the short and long term urban balanced development.

In order to do this will have to be developed a service, even specialized department to manage these activities and to become directly involved in various partnerships with the private sector.

Based on the development of an effective organizational system we will be able to develop and approve the action plan for green areas and even establish a Revaluation program of green areas for recreation and leisure facilities.

Based on this formalization there will be developed and implemented pilot projects for the development and operation of green areas. It is important to select a database of potential investors in projects to develop green areas. Investors will be encouraged to participate in these projects through opportunities offered for partnership exploitation of these areas.

In addition, municipalities in partnership with NGOs and various institutions, donors, businesses, can organize various activities and information and civic education campaigns for the population to become more aware and responsive to problems of urban spatial planning.

It is necessary even to create Consultative Councils, locally, regarding problems of 'green' development, council which will monitor and evaluate the quality of actions taken by municipal authorities in the field.

Also the community involvement is needed in the management of green spaces in order not to develop their practice of withdrawing from public property.

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