

## UNCLEAR PERSPECTIVES FOR A SPECIFIC INTRA-URBAN SPACE: VĂCĂREȘTI LAKE AREA (BUCHAREST CITY)

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**Abstract.** Urban space is heterogeneous, made up of numerous subspaces, which provide a „personality” to the respective city by way of their structural and functional integration. Our analysis focuses on the evolution of an intra-urban spatial structure whose specificity is the result of at least two factors: a) it is an island of abandoned space in the midst of a huge built-up area and b) it is a source of conflict because, after changing its initial destination, the new purpose remains undefined. This intra-urban space is defined by the borders of “Văcărești lake”, inside the city of Bucharest. Our research focused on the comparative analysis of cartographic documents and a project drafted over the past four decades, on the use of GIS technology and on form-based surveys so as to identify the population’s expectations as far as the future of that space is concerned. The results lead to the conclusion that the natural reconstruction of an urban space, previously landscaped as a lake (in the wake of prior demolition work) and then abandoned, is not possible without incurring huge expenses. Those costs are determined by the need to resolve land-ownership conflicts, and by the need to avoid conflicts brought about by the decision-makers’ “laissez-faire” attitude to the development of a spontaneous ecosystem at the center of an urban sprawl. The natural construction of an ecosystem under the limitations enforced by landscaping as a concrete-floored lake, without any major interventions, is a complicated and conflict-generating process. These concern the right to a healthy environment, to urban esthetics of an invigorating nature.

**Key words:** urban demolished district, land use conflicts, urban natural reserve, Bucharest city

### 1. INTRODUCTION

Urbanization is a complex process that, in the past few years, has brought about the conversion of land at an accelerated rate (Petrisor et al., 2010; Le Roux et al., 2014; Johnson et al., 2014; Salvati, 2014; Goldblatt & Omer, 2014). The course of land conversion should be drawn while taking into account the environmental impact on the urban territory, as it may generate numerous conflicts over the use of land (Ianos et al., 2012; Tudor et al., 2014). Frequently, the conservation of urban habitats conflicts with socio-economic policies and with urban expansion. Urbanization determines the fragmentation of the natural habitats (Bonthoux et al., 2014), but it may also create new habitats, such as those on abandoned tracts of land, or those linked to waste storage, by way of new environments that help the conservation

and even the growth of biodiversity in urban spaces. Sometimes, when human pressure relents significantly, as a result of the absence of public administration involvement, there occurs a natural regeneration of the environment. Non-intervention raises the problem of abandoned land, which acts as a challenge in the process of transformation of abandoned land into productive spaces. These abandoned tracts of land generate numerous environmental problems, as in numerous situations they turn into spaces for the improper storage of urban waste (Langegger, 2014). The study of these sites may provide the basic elements for identification of the bio-physical and esthetic evolution of cities, so as to select what is desirable and adequate in the cities’ later evolution (Foster, 2014).

This remains an unresolved question, and a question linked to the importance of this type of spaces

as hosts for life forms of genuine interest to the preservation of biodiversity. The European Union and the United Nations' strategies concerning the integration of biodiversity as a distinct variable into the equation of urban planning serve to generate specific policies of a multiple-scaled nature. Hence, the clear distinction concerning the significance of species for urban development processes (Kantsa et al., 2013).

An increasingly large number of cities face the aftermath of economic reorganization and various environmental problems caused by abandoned sites, whose reuse represents a priority for local administrations and for planners. According to Northam (1971), abandoned tracts of land are divided into three categories: remnant parcels, reserve parcels and TOADS (temporarily obsolete, abandoned or derelict sites). Tracts of land in the above-mentioned categories have high reclamation potential, even if distinct from one to the next. Their reclamation is necessary because vacant land offers a negative image, both esthetically and functionally (Németh & Langhorst, 2014). The standard solutions to the problem of vacant land are connected to the real opportunities of giving them other destinations: economic, political, social or environmental objectives. Such investments can be secured by means of private funding or public-private partnerships and they have the capacity of ensuring a higher quality of the urban environment. Numerous specialists suggest various ways of reusing abandoned land, such as public parks, community gardens (Foo et al., 2014) or, in a more general approach, their transformation into the new "urban green" (Kremer et al., 2013; Langegger, 2014; Nassauer & Raskin, 2014), which means new functionality elements, in addition to the esthetics elements.

The integration of abandoned land, as a result

of the abandonment of certain water management projects, into the overall structure of a big city is a genuine challenge for local and even for central authorities. Wetland management is a very important issue being related with economic, social, environment, health, infrastructure, and several other sectors. In a number of countries, wetland and water management have been integrated, with the necessary differentiations, in a productive way over centuries (Varis et al., 2014). Nowadays, the management of water resources and wetlands is a priority, meant to fulfill the needs of the population and a new quality of the environment (Grigg, 2014).

In order to illustrate the problems raised by abandoned spaces and the effects they have on the environment, the Văcărești Lake site in the city of Bucharest was chosen as a case study (Fig. 1).

By way of this case study, we introduce a fourth category of abandoned land, the result of radical change in the initial use of the land, under the pretense of public utility work (in centralized regimes). The change of political regime brought about the abandon of the initial project and, subsequently, to previous owners' challenging the new destinations assigned to the land. These are abandoned sites in the sense of their uncertain land-ownership rights status. At the same time, there is a visibly mounting pressure to convert the site into a protected natural urban reserve. Obviously, urban parks in general are perceived as means for improving the microclimates inside big cities (Cohen et al., 2014). These are heterogeneous, complex and adaptable spatial systems, but they need the services of internal and external ecosystems in order to ensure their sustainability (Wu, 2014). From this point of view, protected urban areas and urban parks have a special role, especially when they are located outside cities.

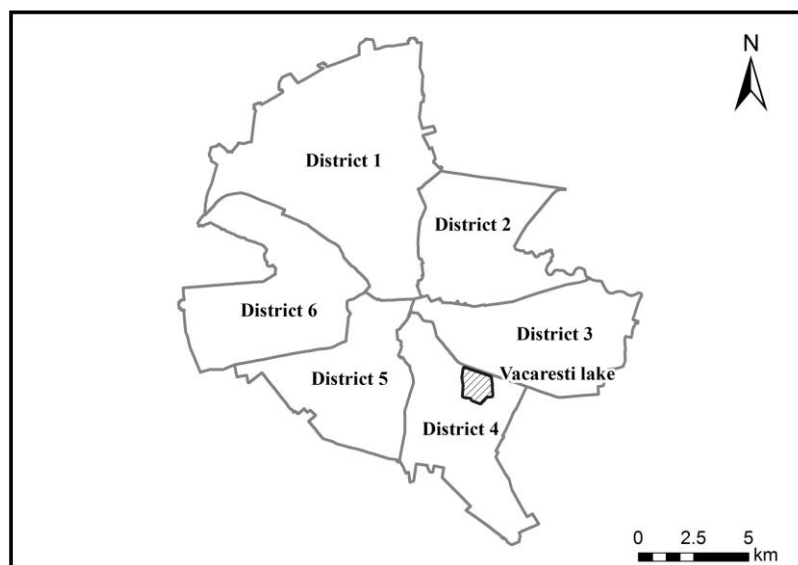


Figure 1. Geographical location of the Văcărești reservoir.

Compared to other natural urban reserves (Trzyna, 2014) located on the edges of major urban sprawls (one exception is the London Wetland Centre), using the initial natural ecosystems, Văcărești lake has a singular position and history. Initially, the area was a residential space for one-family dwellings, on the outskirts, which has come to be integrated into the city and ended up at the center of the city. This residential borough was demolished in the late 1980s, to make room for the construction of a hydraulic engineering project, completed to 90% by the time of the collapse of the communist regime. Since that time, the entire area has been abandoned. Its large surface and the local weather conditions favored the birth of a mixed ecosystem, which allowed the insertion of vegetation and wildlife that boosted local biodiversity. Under these conditions, there arises the natural question: What destination should be assigned to this intra-urban site? For a convinced environmental activist, the answer is a simple one, leading to the status of natural urban reserve or protected urban area. For an urban planner or a human geographer, the answer would be a rather negative one. The arguments: on the one hand, it means a pseudo-growth of biodiversity (these are common vegetation and wildlife species), and on the other hand this type of site, left on its own, would mean a source of pollution, an environment favoring the emergence and diffusion of diseases by way of insects, a permanent source of conflicts between the authorities and the population in the neighboring areas, who tends to perceive the area as a rather insalubrious site. As some researchers pointed out, there is a multitude of opinions in such situations when it comes to assessing the man-nature balance (Simić et al., 2014). In order to better preserve urban environmental values, there should be a joining of efforts between scientists, decision-makers and environmental activists (Marzluff & Rodewald, 2008). The conclusions of our research lead to the idea of putting this site to best use as a recreational source for the population, with landscaping typical for an urban park, including compartmentalization and the construction of a leisure lake.

## 2.METHODOLOGY

Analysis work done on the uncertain outlooks of the integration of the Văcărești Lake into the urban fabric of Bucharest was grounded into the comparative study of the cartographic documents and aerial photographs, in field research and in polling the population about the future of the site. Structurally and functionally this area is part of the abandoned urban sites category. It is a typical wasteland

landscape, characterized by abandoned land with spontaneous vegetation (Bonthoux et al., 2014).

The initial assumption was that this area is part of the category of natural urban reserves. In practical urbanism work and specialized studies there is no precedent concerning the manner a large-scale area, located at the heart of a large urban center and born as a result of forced demolition work, transformed itself into a natural reserve. The signals coming from the media and from certain state officials converge to preserving its current status as an abandoned site and converting it into a natural reserve.

As part of the efforts to validate this assumption, a situation analysis of the “Văcărești Lake” was undertaken and the population was polled about the outlooks for the lake’s evolution into a natural reserve. In order to identify the inhabitants’ expectations, 102 questionnaires were distributed (in person) and 12 interviews were taken with various specialists (75% of them in the field of urbanism and architecture).

## 3.RESULTS AND DISCUSSIONS

Văcărești Lake was built in the South-Eastern part of the capital, bordered by the Văcărești boulevard on the West, Oltenitei boulevard on the south, Vitan-Barzesti boulevard on the East and the Dâmbovița Quays on the North. Its premises are defined on three sides (the Southern section consists in the edge of the Dâmbovița river terrace, which has been extensively modified, including the addition of a concrete slab floor) by a dam ranging from 10 to 20 meters in height. On the outer side, the dam is covered by grass and totally unkempt, and the inner side ensures containment of the planned lake, by means of specific installations. The dam’s inner slope is covered in concrete (a total of circa 20 ha), resulting in a high albedo and creating a microclimate with summertime temperatures at least 1-1.5 degrees higher. This area, whose lowest sections are located at least 5 meters below the Dâmbovița river level, takes the form of an oversized basin, creating a genuine urban “enclave”.

### 3.1. „Văcărești Area” – recent contradictory dynamics

Construction of the Văcărești reservoir was justified as a necessary action. On the one hand, the Dâmbovița river, which flows through the city of Bucharest from the North-West to the South-East, spanning a total 22 km, had caused numerous problems in the past (floods, swampland), and on the other hand the reservoir was meant to regulate the river flow rate, as the river became navigable after

leaving Bucharest. The first actions to counter the effects of the flooding were taken during the reign of prince Alexandru Ioan Cuza, when a project to canalize the Dâmbovița was created; it was completed in 1880. During the communist regime large-scale hydraulic engineering work was conducted, and the river course was modified, as well as its confluences with the Arges and the Ciorogarla. Thus, the Dâmbovița was canalized on a section upriver of the city of Bucharest, with a distributary branching off from the river and heading South (that is the Ciorogarla river), with the purpose of taking over the excess water and lowering the rivers' flow rate downstream. At the same time, the Morii Lake was built at the point of the river's entry into Bucharest, meant to protect the city and in particular the subway line sections located alongside the river.

During the communist period was taken the initiative to construct the "Văcărești Lake reservoir", a site designed to be part of the flood-defense hydraulic-engineering system of the city of Bucharest, alongside the Morii Lake. To make room for the construction of the reservoir, the Văcărești borough (predominantly made up of individual dwellings) and the monastery of the same name were demolished, in the name of public interest. The owners of the homes and the associated tracts of land were each given an apartment, and they were promised the payment of indemnities later on. During the interwar years, the borough was known as one of the main suppliers of vegetables for the Bucharest market, which explains the low ratio of buildings inside the area (Fig. 2).

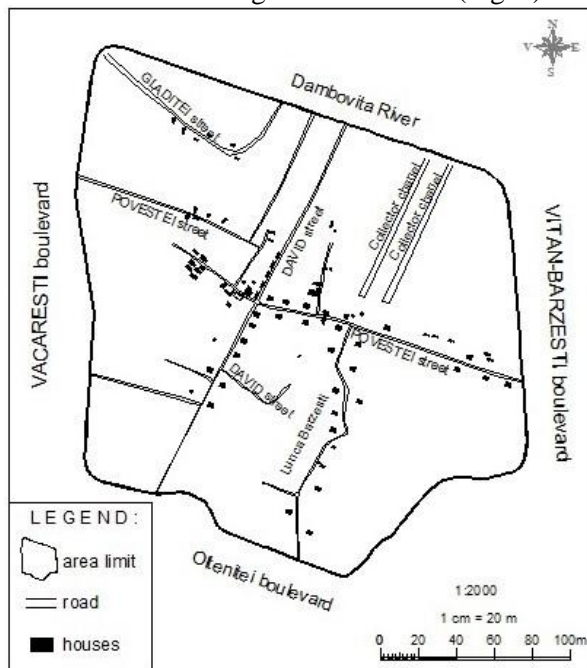


Figure 2. Structure of the urban territory before the construction of the Văcărești reservoir (processed data from the 1974 zoning plan of Bucharest city).

The status of this area remained uncertain until 2002, when the "Apele Romane RA" National Authority (that is the Arges-Vedea Water Department, the Ilfov-Bucharest Water-Administration unit) was designed administrator of the Văcărești Lake reservoir land (HG nr. 481/16.05.2002). As a result of the public authorities' lack of initiative concerning management of the Văcărești reservoir, the decision was made to auction the respective tract of land, so as to allow for private investments. Subsequently, after holding the auction, a lease contract was signed on January 23, 2003, by S.C. Royal Romanian Corporation S.A. and the Water and Environment Ministry, after publication of the Particulars of Sale for leasing the assets that make up investment site "Văcărești Lake reservoir" with a view to building and managing a sports cultural complex. The reservoir's land amounts to circa 184 ha in all, part of the state's public domain; the land had been definitively removed from the agricultural and civil circuit, in the wake of expropriation as stipulated by legal regulations, by way of the public-interest clause. The duration of the lease was set at 49 years. The lease contract stipulated the lease-holder's paying a sum of money as royalties starting with the fourth year after the contract was signed. The contract stipulated a period of 12 months for work to modify the asset leased so as to allow the construction work on the entire sports cultural complex to begin. The structure of the sports cultural complex was designed to include: an international five-star hotel, a horse-racing course and its annexes, a golf course and the associated club, the construction of a residential villa borough (Fig. 3).

Despite these efforts, the project to convert the reservoir into a sports cultural complex never reached completion. Starting with 2004 the heirs of the former owners of homes and land previously located on the reservoir site took action to regain control of the property. These conflicts over property have not yet been resolved in court.

### 3.2. Current state of the "Văcărești Lake"

The situation analysis conducted was meant to pinpoint the main structures of the manner of land use and to assess the environmental potential of supporting the development of vegetal associations. Depending on the diversity and type of associations, one may speak of a habitat best suited for various animal species.

Observations and field research allowed us to identify four distinct sectors inside the basin:

a) the North-Western sector, accounting for

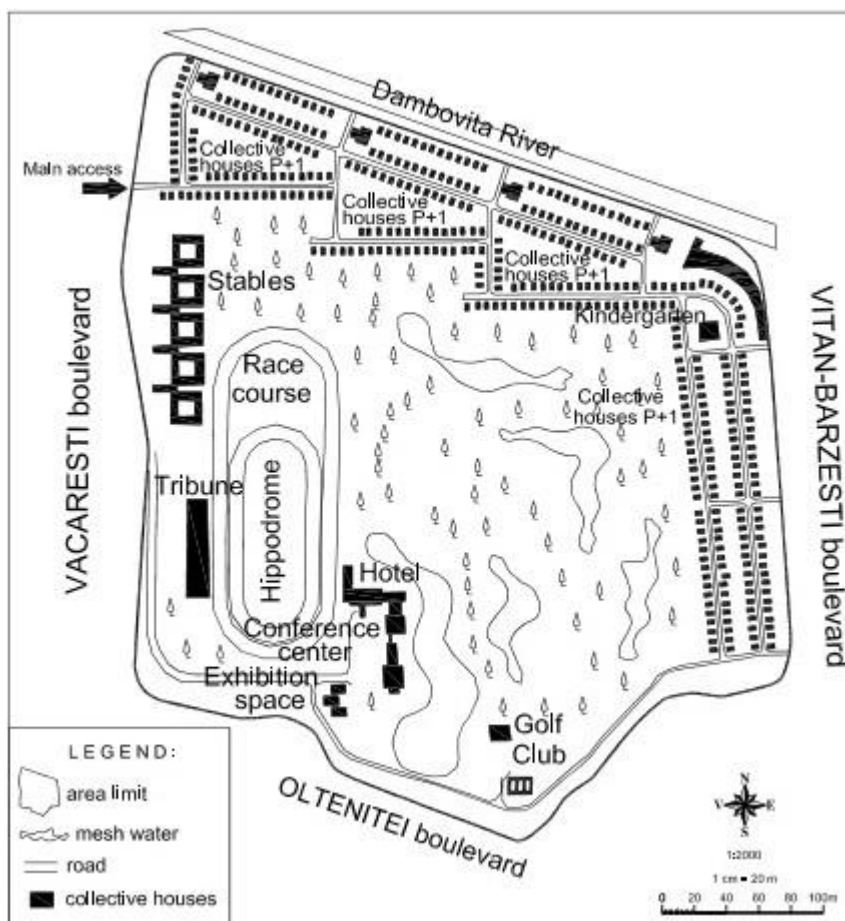


Figure 3. Blueprints of the project to convert the Văcărești reservoir into a sports cultural complex (data modified from the Văcărești zoning plan).

Direct observation revealed that the initial environmental potential has been replaced by an altogether new one, which places certain limitations in the natural evolution of the ecosystems (Ianos et al., 2011). This refers to the destruction of the initial topsoil and the waterproofing, including by means of a concrete layer, of the bottom of the lake basin. Under these conditions, the secondary eco-energies lack the intensity and the structure needed to support an accelerated evolution of the new emerging ecosystems. These will depend on the fluctuation margins of several basic parameters, such as the much higher temperature, the presence of thermal micro-inversions, humidity depending on the limited

amount of water available during the hot season, on the low amount of oxygen dissolved in the water (because of the impossibility to re-circulate the water), etc. Under pressure from various NGOs, the media and state officials desire the transformation of this area into a natural urban reserve, by maintaining the current conditions.

The structure of the terrain as indicated by the research conducted (by means of processing 1:500 and 1: 2000 zoning maps and aerial photo maps) reveals the predominance of unproductive land, followed by swampland and the concrete-covered embankment (Table 1, Fig. 4).

Table 1. Structure of land use in the Văcărești Lake area

| Nr. | Land use category | Surface (ha) | Share of each land use category (%) |
|-----|-------------------|--------------|-------------------------------------|
| 1   | Scrubs            | 8.85         | 4,80                                |
| 2   | Concrete slope    | 20.11        | 10.92                               |
| 3   | Unproductive land | 109.45       | 59.41                               |
| 4   | Swamp             | 30.84        | 16.74                               |
| 5   | Meadow            | 13.88        | 7.53                                |
| 6   | Other categories  | 1.11         | 0.60                                |
|     | Total             | 184.24       | 100                                 |

Source: Author's computed data

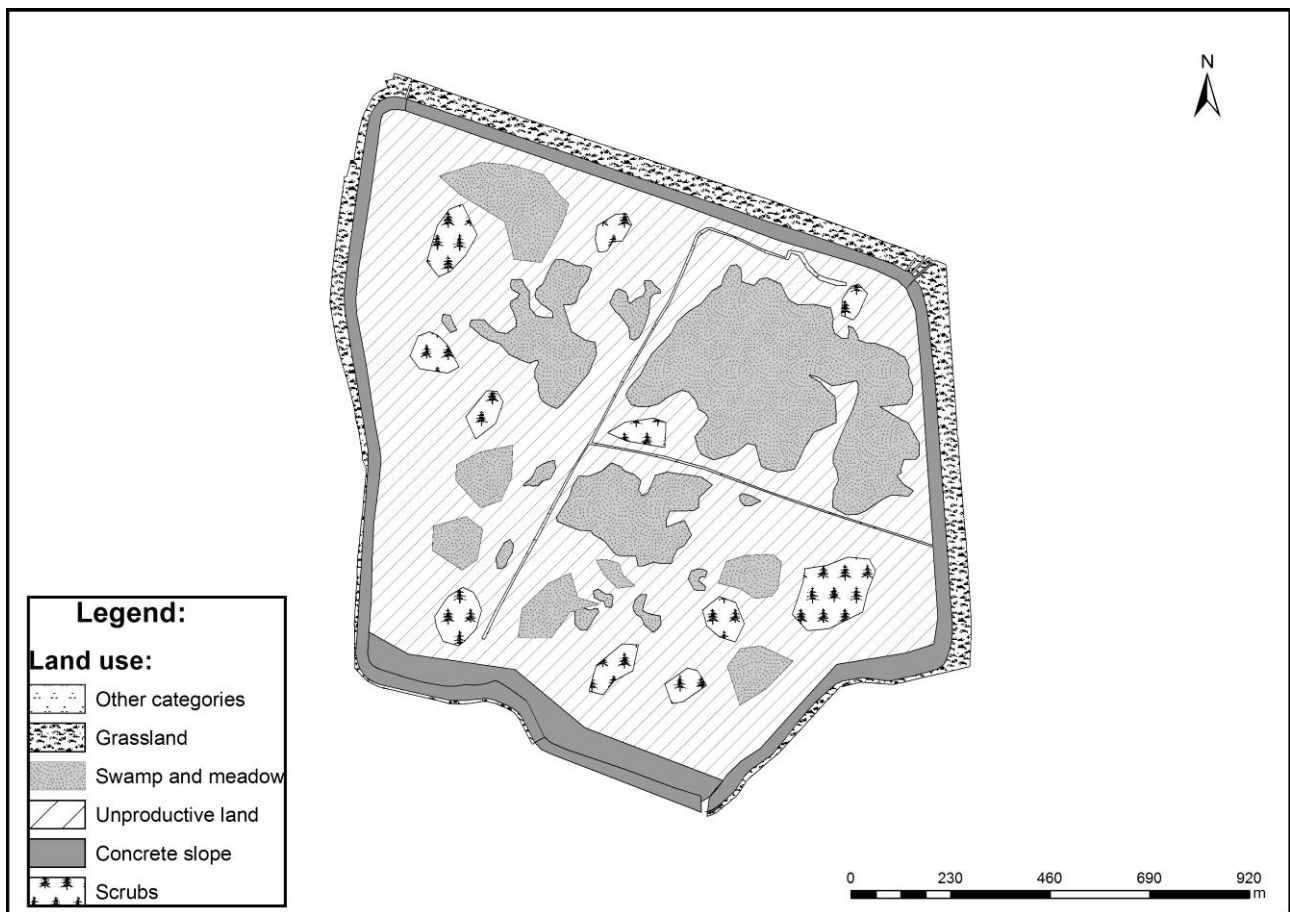


Figure 4. Land use in the area of Văcărești Lake



Figure 5. The North-Western sector of Văcărești Lake

circa 20% of the total surface; mixed terrain, with expanding forest vegetation and with very isolated ponds in the rainy seasons; the sector is very little visited and deemed uninteresting for the population (Fig. 5).

b) the North-Eastern sector, accounting for 26% of the total surface, is located at the lowest

altitude of all. Here are located most ponds, none more than 1 meter deep, formed by accumulation of water from the groundwater and precipitations. Stagnant water in several micro-basins and fluctuation of their volume depending on the season has brought about the growth of typical swamp vegetation in the vicinity, with no single endemic species. The total surface of this wetland stands at 15 hectares at the most. This is the sector most visited by amateur anglers (the interviews taken allowed a count of 15 people, all of them pensioners), who choose this way to spend their spare time (Fig. 6).

c) the South-Eastern sector is the biggest one, covering circa 35% of the total surface. Most of the surface is covered by herbaceous vegetation, with very sparse temporary ponds or clumps of shrub. This sector presents no interest for the population in the area, considering the large volume of solid waste throw on the inside slope of the dam (Fig. 7) and the presence of stray dogs.

d) the South-Western sector seems to be the smallest, amounting to circa 19% of the total surface. It is the highest-elevation ground, with two improvised dwellings, permanently inhabited by at least two families of homeless people. It is an

unfriendly sector, considering the multitude of stray dogs, as well as the presence of groups of young people who take refuge on the upper part of the slope or outside the rim to drink alcohol and take drugs. Although this sector is closest to the residential area, it seems the least friendly of all sectors (Fig. 8).



Figure 6. The North -Eastern sector of Văcărești Lake



Figure 7. The South -Eastern sector of Văcărești Lake

Considering the information above, we consider that this area features all the characteristics of an abandoned, although it is assessed at a very high value – an estimated circa 550 million euro. Its conservation in the current state, with a limited capacity of natural regeneration of certain natural ecosystems, in a completely unsuitable setting, may bring about the transition from individual conflicts, centered on ownership-related problems, to

collective conflicts, marked by the continuation of an unhealthy environment, especially in the context of the strong instability of the emerging ecosystems.



Figure 8. The South -Western sector of Văcărești Lake

### 3.3. Outlooks for the “Bucharest’s Own Delta”?

While, from the urban-planning point of view, the area may be deemed valuable for a mixed urban use, combining residential areas with green spaces and water bodies, from the point of view of environmental activists, the area should be assigned exclusively the role of natural reserve. It is apparent that, against the background of passive management, centered on the “laissez-faire” guideline, the site will be considered an abandoned area for decades to come, where nature tries to make a claim and take over this urban niche.

The dialogue between environmental activists and specialists covers only a very small common ground and, moreover, this dialogue is jammed by the former landowners’ claims to their rights, the indemnities they were promised ever since the former political regime. In order to assess the population’s current view of this site and to quantify their opinions of any future development plans, forms were distributed to 102 respondents in four distinct areas around the lake. The structure of the survey respondents in terms of residence indicates that 55% of the interviewees lived in the immediate vicinity of the lake and circa 20% lived in that same borough. 4% lived outside Bucharest. Close to 80% of the interviewees declared that they are very familiar with the Văcărești lake area. Distribution in terms of age indicates a predominance of people aged 50 and older (52%); if one adds the circa 22%

of the population aged 40-50, the conclusion may be reached that response relevance may be deemed good, as the respondents are people experienced enough to be able to formulate judgments on the current state and the outlooks of the site. The ratio of people with higher education exceeds 64%, while people with secondary education amount to 36%.

One set of questions used in the form concerned the conflicts between state institutions and the former and owners. 72.5% of interviewees considered that those conflicts should be resolved before any decision as to the future of the area is to be made. Circa 21% consider that land-ownership-related matters can be resolved after a clear status is assigned to the area, too. Concerning the way to pay indemnities to the former owners, close to 53% consider that the former owners should accept money in compensation for the respective tracts of land, 23.5% think that returning the land would be the best solution and only 8% think that the problem has already been solved by the former regime. The population's attitude to the former regime's abusive practices in dealing with the population seems to be a trenchant one, indicating the society has come of age when it comes to matters connected to individual property.

The second set of questions concerned the population's view on the current state of the Văcărești Lake and its possible status. The general opinion among the interviewees is that Văcărești Lake is an abandoned site (64.7%), circa 10% think it is a delta in the becoming, circa 8% think it is a swamp, and the remaining interviewees would not offer a response. It is interesting to notice the gap between people living nearby and in the respective borough – most of whom think the site is an abandoned site – and people living elsewhere in the city, who deem it a delta or even a lake. In this case, there is to be noticed a strong correlation between the level of information on the area and the accurate judgment on the area.

As far as the future status of the “Văcărești Lake” the responses indicate the dominance of people who consider that that site should be landscaped as a park, for leisure purposes (more than 47%). The next most numerous category - circa 12% - consisted in people who choose preserving the status quo (allowing nature to freely set in), followed by people who consider that the status quo should be preserved while ensuring special protection (11%). Only 6% of respondents were in favor of conversion into a residential borough, and circa 10% in favor of restoring it to its initial destination as a lake for leisure.

The outlooks of the evolution of this site

should also be viewed from the perspective of the harmony of integration into the surrounding area. In the scenario of either complete or partial conversion into a lake, one should take into account achieving structural and functional connectivity between the lake and the surrounding landscape, a topic that has become an important subject for researchers (Boromisza et al., 2014). In any of these scenarios, one should bear in mind that, despite anthropogenic landscaping, the lake may fulfill an important recreational function (David et al., 2012). Assessed from this perspective and taking the line of the lowest maintenance costs, the most natural destination would probably be the initial one – as a lake. Nevertheless, in view of the maintenance of the lake, later on, and the possible problems caused by infiltration and influence on the groundwater, landscaping into an urban park incorporating water bodies would be the most adequate destination. Besides, the most important resources for a city seen as a highly-adaptive and highly-resilient system consist in the urban blue and green spaces (Sander & Zhao, 2014).

#### 4.CONCLUSIONS

The effects of voluntaristic urban-landscaping policies transcend the lifespan of a political system. When the intervention is carried out on a large scale and without any integration into a consistent urban development policy, there occur breaches in the urban landscape, whose alleviation may then take decades or even generations. The integration of abandoned land requires a type of management that would be grounded into a multi-scale analysis that should examine the most profitable destination for the land (Foo et al., 2014).

The current development of the Bucharest urban sprawl involves a rethinking of the solutions for the use of abandoned land. Assigning new uses should target economic growth and ensuring the quality of living against the background of unavoidable climate change. In the process of adapting to a hotter climate, with bigger seasonal fluctuations, with frequent instances of extreme weather, the best solutions are those that should provide the opportunity for permanent monitoring of the changes occurring at territorial nano-scale. Contrary to belief, cities are extremely vulnerable to outbreaks caused by various microbes, bacteria and parasites that find favorable havens inside these pseudo-natural areas inside urban spaces.

The article highlights the caution that should be exerted when acting in instances of reuse of abandoned sites, the result of demolished urban built-up areas. The area analyzed in the case study

represents a site that requires a clear-cut strategy for reintegration into the urban space. Identification of the main steps should be backed by a decision-maker who should push forth the initiatives after the conflict states have subsided, with the caution needed to avoid the breakout of new conflicts because of the improper use of a large tract of land, located at the heart of Bucharest.

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