

Industrial Landscape Expansion and Evolution in Bucharest's District 4

Delia Adriana MIREA^{1*}, Gabriel VÂNĂU², Mihăiță Iulian NICULAE², Cornelia DINCĂ⁴

¹ University of Bucharest, Faculty of Geography, Simion Mehedinți Doctoral School – Nature and Sustainable development

² University of Bucharest, Faculty of Geography, Center for Environmental Research and Impact Studies (CCMESI)

³ Carpatian-Danubian Center for Geocology (CCDG)

* Corresponding author, e-mail: delia.mirea@yahoo.com

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Abstract

New urban and environment policies were drafted after 1990 for Bucharest as the Romanian capital city adapts from planned to market economy and reintegrates itself into the European community. As these policies are not from the start fully effective or take time to implement, large areas inside the city, corresponding to former industrial parks, enter a long process of decay. Residential development is making a heavy presence both inside and around the city. As a consequence of these phenomena, the urban and **industrial landscape** changes dramatically. The study assesses the industrial landscape evolution over time and space in District 4 of Bucharest using available maps for 1900–2010, GIS and field observation forms. Three distinct periods were delimited: 1900–1945 with incipient industrial activity, 1946–1990 when large industrial parks were developed and 1989 – present time, with deindustrialisation and land use change. Environmental problems related to industrial areas decay need to be addressed as the residential area is expanding and neighbours or replaces former industrial sites.

Keywords: *urban landscape, industrial landscape, industrial platform, residential expansion, Bucharest, Romania*

Rezumat. Expansiunea și evoluția peisajului industrial în cadrul sectorului 4 al municipiului București

Municipiul București, sub impactul noilor politici de după 1990, înregistrează o tranziție de la o economie de piață centralizată la una descentralizată, cu implicații numeroase la nivelul tuturor componentelor de mediu. Ca urmare a acestor transformări economice și politice, peisajul urban, și în special cel industrial, a înregistrat un evident recul structural și funcțional. Analiza întreprinsă de noi are drept scop evaluarea dinamicii spațio-temporale a *peisajului industrial* din cadrul sectorului 4 al municipiului București, pornind de la hărțile istorice disponibile pentru perioada 1900-2010. Cercetările întreprinse cu ajutorul metodelor și tehnicilor G.I.S. la care se adaugă completarea fișelor de observație, reflectă la nivelul anilor 1900-2010 existența a trei perioade distincte: 1900-1945, cu un peisaj industrial incipient, 1945-1989, cu un peisaj industrial de tip platformă (Progresu, Berceni, IMGB etc.), și 1989 - prezent. După 1989, destructurarea unor întreprinderi și în mod deosebit a platformelor industriale a condus la fragmentarea până la dispariție a peisajului industrial. Remanența problemelor de mediu, amplificarea lor în raport cu schimbarea funcțiilor unor cartiere și extinderea necontrolată a rezidențialului, sunt doar câteva aspecte care ar trebui să se constituie în priorități ale programelor de dezvoltare urbană la nivelul sectorului 4 al municipiului București.

Cuvinte-cheie: *peisaj urban, peisaj industrial, platformă industrială, expansiune rezidențială, București, România*

Introduction

Bucharest was before 1989 the single most important industrial centre in Romania, surpassing

by far every other town. The industrialisation process, started around 1877 and continued with significant stages marked by the years 1912, 1936, 1952 and 1965, generated large industrial areas and a new type of landscape – *industrial landscape*.

The concept of *industrial landscape* evolved over the years but kept as the underlying notion the relation with the activity that generated it. Before 1989, the industrial landscape was considered in a functionalist view as the space for industrial production (Herbst C., 1971; Herbst C. et. al., 1997 etc.). Today, the industrial landscape is seen as an important land cover and a resource in the urban environments, a target for the urban rehabilitation projects and also container of historical memory (Pătroescu M., Popescu C., 1994, Popescu C. et. al., 1997, Căndea M. et. al., 2001, 2006, Marc, A., 2005, Fontana G.L., 1997 Fontana G.L. et al, 2005, Cepoiu Al., 2008, Dincă C., 2008, Chelcea L., 2008, Nae M., Turnock D., 2011, Toledo Declaration, 2010 etc.).

The year 1989, critical for the industrial landscape, marks the beginning of an era with radical changes throughout the entire urban environment of Bucharest. Switching from a centralised to a market economy meant profound economic, social and environmental changes. During the communist era, there were created very large industrial areas, mostly by expanding former smaller ones. The size was economically justified as the market for their products was sustained by state demand. These industrial areas were in fact true "inner cities", having all the necessary endowments for the employees and their families: medical units, food serving facilities, recreational spaces, sport courts, kindergartens etc. Also, housing was provided nearby in cheap, fast to build and large capacity buildings. After 1989, the industrial areas underwent important changes (personnel layoffs and downsizing, privatization, retrocession) and in time were completely modified to serve other uses, mostly logistics and commerce.

Every important change in the political and economic background can be acknowledged in the urban landscape as these changes determine transformations of function and physiognomy in the concerned areas. The former industrial units are still present in the city through the specific architecture and elements that relate to their functions. Some of these industrial units were given a new purpose and were rehabilitated/ restored, but most of them went into an uncontrolled process of degradation. After the continuous increase of the industrial surface inside the city, we can observe nowadays a reduction of these areas and of the landscape associated with them. As this process is not perceived, studied and managed, some industrial

units representative from historical, architectural, technical perspectives are in danger of being destroyed. In Bucharest's District 4 such units are Bucharest Slaughterhouse (1870), Gr. Alexandrescu Tannery (1885, in the communist era Bourul or Dâmbovița Company), Filaret Power Plant (1908), Arta Grafică (1921) or IMGB (Bucharest Heavy Machinery Enterprise, 1963).

The relict industrial areas are a consequence of the present economic conditions and of the stricter environmental standards imposed after Romania joined the E.U. in 2007, leading to the decline of the industrial activity, but this should not mean complete abandonment and destruction of the industrial artefacts, some containing important elements of local identity. The abandonment is not a durable solution and leads to further environmental problems (remnant pollution, uncontrolled waste deposits, inefficient land use), social problems (insecurity due to proximity to residential neighbourhoods, "sick buildings" phenomenon) and economic problems (unused spaces, unprofitable industrial units, poor productivity, incompliance with the environmental and sanitary regulations).

All these issues require intelligent solutions based on the principles of sustainable and comprehensive urban development in order to achieve eco-efficiency, social cohesion and improved quality of life. Adequate industrial conversion has to be the premise for sustainable urban regeneration, meeting three of Toledo Declaration's principles (Toledo Declaration, 2010). Land recycling must be implemented to prevent unnecessary transformation of natural and green areas into built environment and to conserve the existing natural capital. In this respect, the European Union has numerous successful examples.

The study aims at a spatial and temporal analysis of the industrial landscape dynamics in Bucharest's District 4, based on historical city maps, but it also makes an inventory of the industrial units in order to highlight examples and features of industrial conversion.

Study area

District 4 is situated in the south of Bucharest municipality, with District 3 as neighbour at north and east, District 5 at west and Ilfov County at south (Fig. 1). According to Decree no. 284 / July 31, 1979, District 4 is bounded by Splaiul Unirii Boulevard in the north, north-east and east, by the City's Ring

Road in the south and by Giurgiu Boulevard in the west. Bucharest's District 4 has a surface of **3400 ha** (14% of Bucharest's surface) and concentrates **15.4%** of Bucharest's population (Bucharest Statistical Yearbook, 2009).

Bucharest urban landscape underwent important aesthetic and functional transformations in his existence. Before 1840, the city displayed a well delimited central area, with complex functions (administrative, handcraft, commercial, residential) surrounded by a peripheral area, predominantly residential (Majuru, A., 2003). The first industrial areas in District 4 went into existence in the interwar period: along the Dâmbovița River, outlined in 1866-1900, and the Filaret Hill area appearing in 1867-1883, serviced by the Filaret Train Station, the first station built in Bucharest (1869) (Fig. 1).

Around 1920, Bucharest presented a more complex central area (administrative, handcraft and commercial and cultural), a predominantly residential intermediate area and a residential, industrial and agricultural peripheral area.

In the next period, after 1920, the industry became an important economic activity and the industry covered urban space increases, especially in the intermediate area and the peripheral area. The process is accompanied by the extension of residential neighbourhoods and associated services, population and inhabitant's density growth and increased demand of electricity and water. All these were further reflected into the environment quality and urban landscape physiognomy (Fig. 1).

The most profound changes took place in 1950-1989, including: large increase of industrial areas surface (with 66.22% in a period of 12 years – 1977-1989), "bedroom communities" construction, with collective dwellings (mostly 7, 10, up to 12 floors – Berceni, Giurgiu, Apărătorii Patriei, Olteniței), environment degradation through the increasing presence of pollutant industrial sources and activity (Fig. 1).

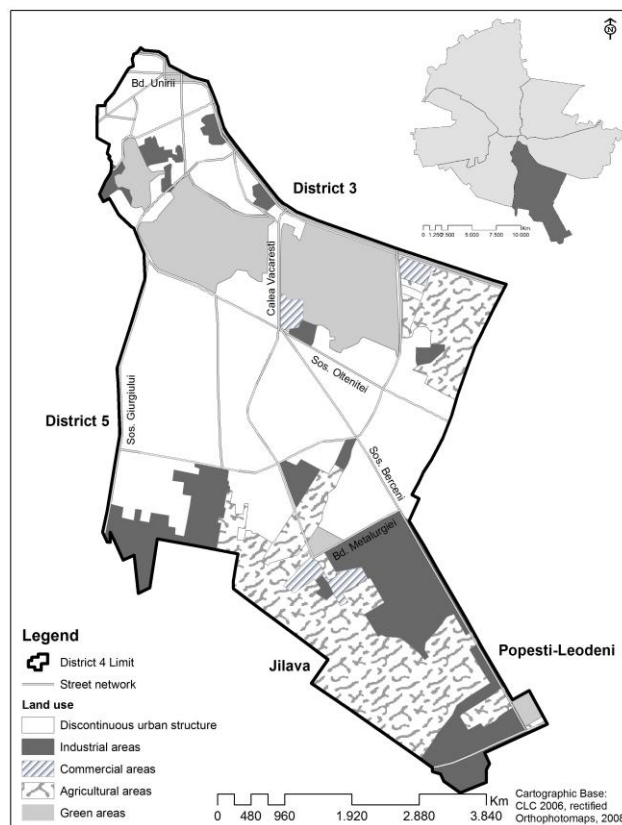


Fig. 1: Location of the study area inside Bucharest and urban landscape

The historical maps analysis for the period 1842-2010 shows that District 4 developed to the south of Bucharest's historical centre, incorporating old neighbourhoods and villages located on Cotroceni Field – Berceni (Dincă, C., 2008). Its territorial expansion was done simultaneously with the population growth and development of agricultural and commercial and crafting activities, later adding industry.

The year 1989 marked the beginning of an era of restructuring, reorganization and conversion of industrial units, and also the development of new real estate projects in the southern and south-eastern part of the District.

Given the industrialisation policies and their effects, one can distinguish four stages of evolution, corresponding to four industrial landscape types:

- **Artisanry and manufacturing production stage or paleo – industrial stage** (Mirea D., 2011), an "ancient industrial stage", characterized by handcraft and manufacturing workshops, located in the city centre and along the axis formed by the Dâmbovița River, having a small number of workers. The first factories appeared due to public utility improvements and policies pushing towards industrial development,

ensuring transition to the further industrialisation stage (*E. Wolff Workshop, Gr. Alexandrescu Tannery, C. Costamagna Tannery, Bags Factory etc.*).

- **Capitalist industrialization stage** meant the development of the existing industrial units and new units opening. From this period we must emphasize the following industrial units within District 4: *Hestper Enterprise (former E. Wolff Workshop), Dâmbovița Enterprise (Gr. Alexandrescu Tannery), Cotton Enterprise, Adesgo Enterprise, Filaret Power Plant etc.*
- **Modern industrialization stage (1945-1989)**, when typical industrial landscape is generated under the impact of industrialisation policies during the socialist period. Following the “city within a city” model and directly correlated to the development of new residential spaces, the industrial surface increases and Bucharest becomes an important industrial centre and a major labour polarizing point. The industrial landscape is clearly outlined and delimited in the urban tissue and several subtypes are to be distinguished depending on activity. For example, in District 4 there had been developed the following industrial platforms: *Berceni, Progresuand IMGB.*
- **Post-industrialization stage** (after 1989) is directly correlated with international trends (lifestyle change, economic restructuring, globalization), economic and real estate crisis, new standards of environmental, urban planning and heritage legislation (Mirea D., 2011). The typical industrial landscape before 1989 becomes a landscape in transformation afterwards, having different functions and physiognomies. Basically, we are witnessing today unprecedented changes in the urban environment, requiring detailed research and planning for medium and long term, in accordance with the principles of sustainable development and heritage elements conservation.

As a result of these industrialisation stages, District 4 had a maximum industrial area of **451.3 ha** in 1989, reduced today to **374.5 ha**. There can be outlined 7 industrial areas, heterogeneous in terms of activity – *Filaret Area (1868 - 1920), the Dâmbovița River axis (1850 - 1870), Oltenița Area (1950 - 1960), Progresul Area (1950 - 1980), IMGB Area (1960),*

Berceni Area (1960) and Apărătorii Patriei Area (1960 - 1970)

Methodology

Landscape is defined as “a territory portion as perceived by man and whose characteristics are resulting from the action and interaction of natural and / or human factors” (451/2002 Law) and can be analysed and reconstructed through the retrospective mapping method.

Retrospective mapping method involves the use of maps from different periods of time, preferably at the same scale in order to observe the evolution in time of an item, a phenomenon or of the overall landscape. This is a highly useful method in the landscape analyses, but there must be taken into account the errors caused by: different scale representation and design techniques, different representation elements techniques, item generalization, interpretation errors.

For the analysis of District 4, 16 cartographic and photogrammetric representations were chosen, relevant in terms of representation and industrial landscape transformation, respectively: *Boroczyn City Plan – 1852; Southern Romania Map – 1864; D. Pappasoglu City Plans – 1871-1875; Cerkez City Plan – 1890; Delattre City Plan – 1893; Bucharest City Map – 1898; Bucharest City Map – 1900; Bucharest City Map – 1911; Bucharest City Map – 1914; Bucharest City Map – 1923; Bucharest Municipality Map – 1947; Cadastral Plans – 1975-1990; Topographic Maps – 1977-1978; General Urban Plan – 2001; Orthophotomaps – 2008 and Bucharest City Map – 2010.*

District 4 industrial landscape dynamics was surveyed over **158 years**, respectively for the period 1852 – 2010, using these documents and GIS techniques. The industrial landscape dynamics represents an indicator of socio-economic development, economic system changing, new production techniques insertion, post-communist involution of industrial platforms and activity profile change.

Historical maps analysis was completed by conducting inventory data sheets for each industrial unit, with a total of **40** data sheets. The observation sheet includes 8 sections (location, industrial unit description, identification data, historical landmarks, industrial landscape description, conservation status, industrial landscape,

environment state) and is accompanied by graphics and maps from different historical periods.

Discussions

Analysing the historical maps available for the period 1850 - 1880, three functional areas of the District's initial landscape were observed: the centre, with mixed activities (commercial, administrative, cultural, residential, crafting) and the old neighbourhood type periphery (Majuru, 2003), predominantly residential, accompanied by large vegetables and wine plantations serving the Capital. Following the model described above, the first statistically mentioned industrial units were concentrated in the central area (Unirii Area – Bakery A. Müller - 1850, Meat and sausage factory I. Abele – 1862, Sparkling water factory C. Porumbaru – 1868, Bags factory S. Schwarz – 1883). All these are units servicing the Capital's needs (predominantly food factories) and they generated a landscape with craft and manufacturing workshops. Because of their reduced size, they were not represented on the city plans of that time. In order to cartographically represent the industrial units of that period on the present District 4 territory (Fig. 2) and show the pre-war industrial landscape ("ancient industrial stage", before 1918), the Industrial Investigation of 1901-1902 was relevant.

For the period 1901-1902, Bucharest District 4 had twenty industrial units, heterogeneous in terms of production (food industry – 2 units, alcoholic and soft drinks industry – 1 unit, textile industry – 1 unit, footwear and leather products industry – 7 units etc.).

The map analysis outlines three industrial areas (Fig. 2), respectively:

- **Unirii Area** – various industrial units (Sparkling water factory, C. Porumbaru – 1868, Church Printings (Typography) – 1882, Buttons factory M. Efraim -1895, Agricultural machinery repairing shop, S. H. Brandwein – 1898), relocated later due to the centre's functions conversion (the city centre achieved predominantly administrative and commercial functions).
- **Filaret Area** – outlined in 1868-1900; it concentrates four industrial units specialized in metal industry (three units, Ironworks E. Wolff – 1883, Cometul Factory, A. Solomon – 1887, La metallurgie roumaine - 1898) and energy industry

(one unit, Filaret Gas Factory – 1868, later Filaret Power plant - 1908).

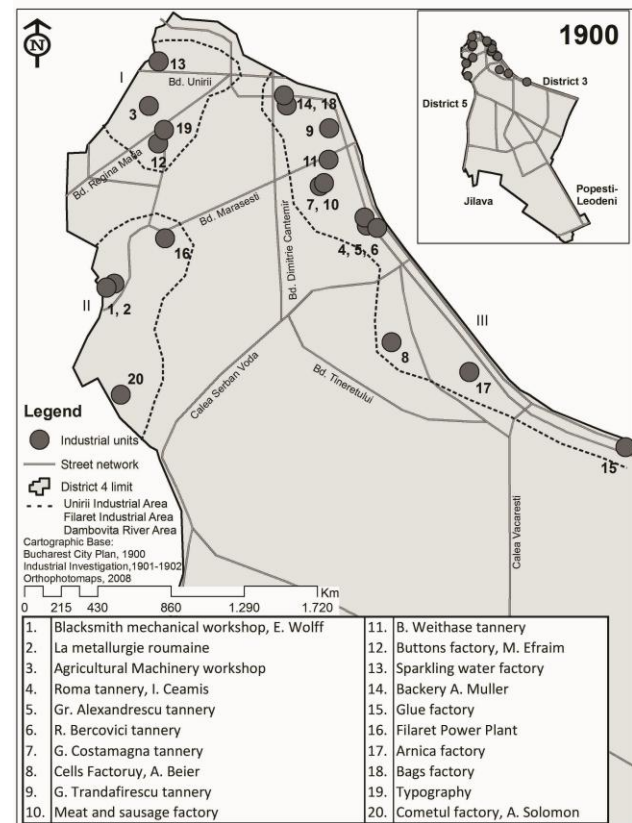


Fig. 2: Industrial landscape location and extension in District 4 - 1900

- **The Dâmbovița River Area** – developed along the river axis, concentrated twelve industrial units, various in terms of activity. The area was characterised by tanneries presence and their specific industrial landscape, as given the concentration of a great number of units specialised in footwear and leather products industry (Roma tannery, I. Ceamis, Gr. Alexandrescu tannery, R. Bercovici tannery, G. Costamagna tannery, G. Trandafirescu tannery etc.).

In terms of mapping, most industrial units were not represented on the city plans, probably due to the reduced occupied surface and low level detail of the achieved plans. However, some industrial units, perhaps considered of public utility, are mentioned on the city plans beginning with 1871 - 1875 (Pappasoglu City Plan, 1871-1875, Cerchez City Plan, 1890, Delattre City Plan, 1893, Bucharest City Plan, 1898), as it is the case of Filaret Gas Factory and Bucharest Slaughterhouse units.

Analysing the industrial units location correlated with their specific activity and the city administrative limit at that time, one can observe the

peripheral location of pollutant units (Ironworks E. Wolff, Cometul Factory, A. Solomon, La metallurgie roumaine, Filaret Gas Factory and Bucharest Slaughterhouse). These units were also dependent on the railway transport (metal industry), water and land resources (food industry - Bucharest Slaughterhouse).

In terms of building appearance, there is a great concern for details and building appearance as observed for the industrial units preserved from that period: Hesper Factory, Bourul Factory (Gr. Alexandrescu tannery), Filaret Power Plant, Bucharest Slaughterhouse.

Beginning with 1911, in order to complete the "ancient industrial stage" description (Fig. 3), there were added quantitative data to qualitative data obtained through historical and cartographic materials analysis. Based on the 1911 City Plan and using GIS techniques, there resulted that the industrial surface covered 15.5 ha, representing 0.45% of the present District 4 surface. The determined surface figure is relative because of the plan's cartographic representation technique. The city plan detail level is low, as there are represented only 6 out of 20 industrial units identified during the Industrial Investigation 1901-1902 (Fig. 3).

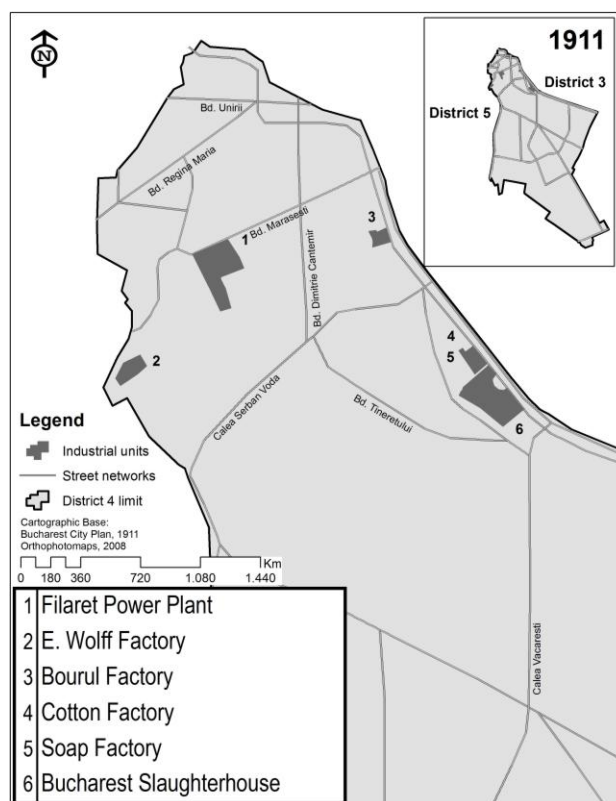


Fig. 3: Industrial landscape location and extension in District 4 - 1911

Industrial units mapped on the 1911 City Plan are representative units of that time and for the entire Bucharest industry and real urban landmarks. These are: Filaret Power Plant, Bucharest's second power plant, after Grozăvești Power Plant, E. Wolff Factory, Bourul Leather Company, industrial unit achieved by merging three tanneries (Gr. Alexandrescu, Roma, I. Ceamis and R. Bercovici tanneries), Cotton factory, Soap factory and Bucharest Slaughterhouse. As a consequence of the policies destined to encourage the industrial activity, all industrial units were reorganized, enlarged and modernized, making them locally and regionally competitive.

The city Plan of 1923 brings out 11 industrial units (Figure 4) with a total area of 17.1 ha, with 1.6 ha more than their surface based on 1911 City Plan.

Apart from the industrial units mapped on 1911 City Plan, except the Soap Factory (no information anymore), the following units are represented (Fig. 4): Weith Leather company, later annexed to Bourul unit, T. Sapat Leather company, Wool store, Iron grinding tools factory, Buttons Factory (mapped for the first time on this plan, but mentioned since 1901-1902) and C. Gzell Acid factory, also a unit mapped for the first time on this plan, but there is poor information about it.

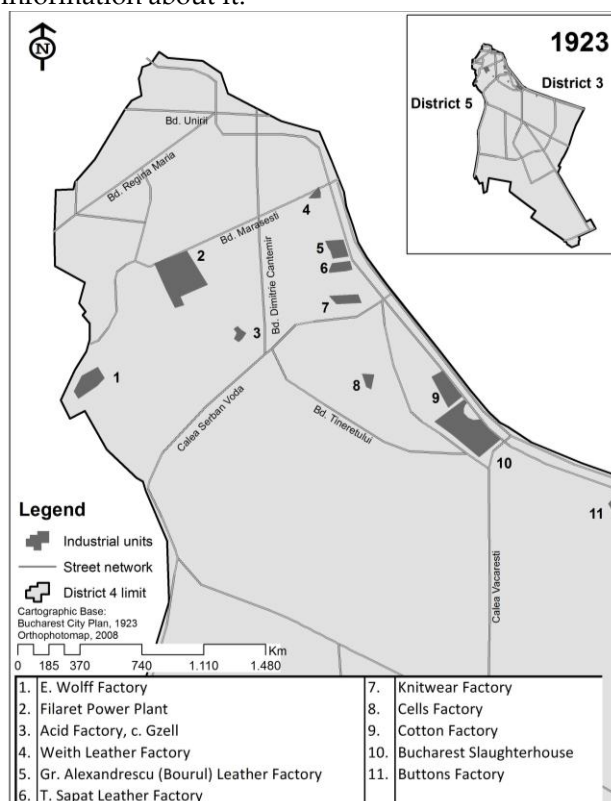


Fig. 4: Industrial landscape location and extension in District 4 - 1923

In terms of the industrial landscape, this stage represents a radical transformation of units and of the overall urban landscape. Based on Bucharest's strengthened political, administrative and economic position after 1918, the city area and inhabitants, number considerable growth and especially on industrialisation policies, old industrial units are developed by merging and reorganizing small units. The industrial landscape takes shape and can be easily outlined due to specific industrial artefacts. At the end of this inter-war industrialisation stage, Bucharest represents a labour attraction pole and an industrialized city, heterogeneous in terms of productive activities.

The next stage, the post-war stage, is one of accelerated industrialization. District 4 and the rest of the city was highly and rapidly heavily industrialized (Fig.5) under the impact of industrialization policies that sought the nationalization of existing industrial units, increasing the industry occupied area, establishment of new units, reorganization of existing ones and growth of productive capacity. The industry occupied area, identified on 1977 city plans, represented 152.4 ha, hence 4.48% of the present District surface, accounting for a 135.3 ha growth of this land use type compared to the previous period (Fig. 5).

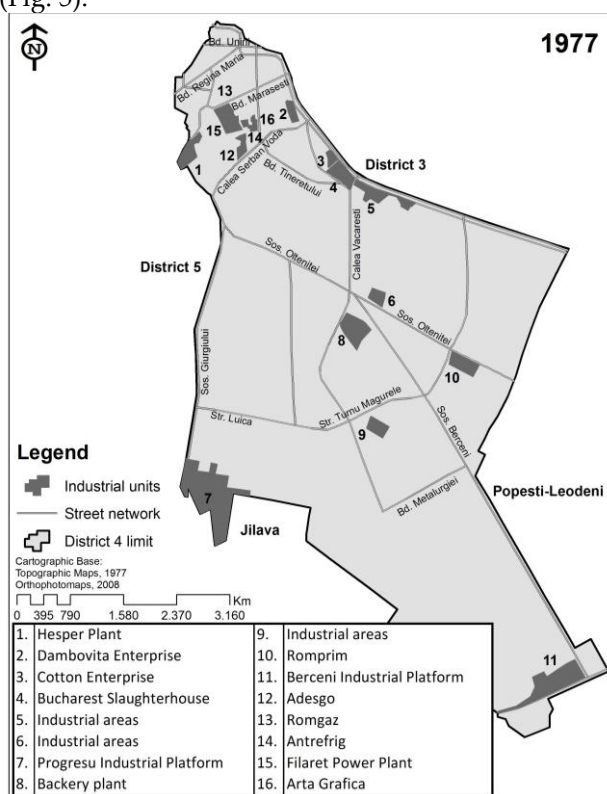


Fig. 5: Industrial landscape location and extension in District 4 - 1977

The Post-war stage represents a period of industrial landscape radical changes, small industrial units being replaced with "industrial giants" and large industrial areas. The new industrial unit was designed so that the employees could take advantage of all facilities (dispensary, dining room, kindergarten, vocational school or college to prepare personnel). Workers were also provided housing, making Bucharest a great labour attraction pole and determining great urbanization and inhabitants' growth. The decision to build Progresul, Berceni and later IMGB industrial platforms determined also the need for "bedroom neighbourhoods" type collective housing (Tineretului, Apărătorii Patriei, Olteniței, Berceni, Constantin Brâncoveanu, Progresul). Increasing residential area meant growth of population needs for food and energy, so there Berceni Bread Factory and Progresul Thermal Power Plant were founded.

As a result of the industrialisation policies, the industry occupied area is at its maximum level in 1989 (Fig. 6), just before the communist regime fall.

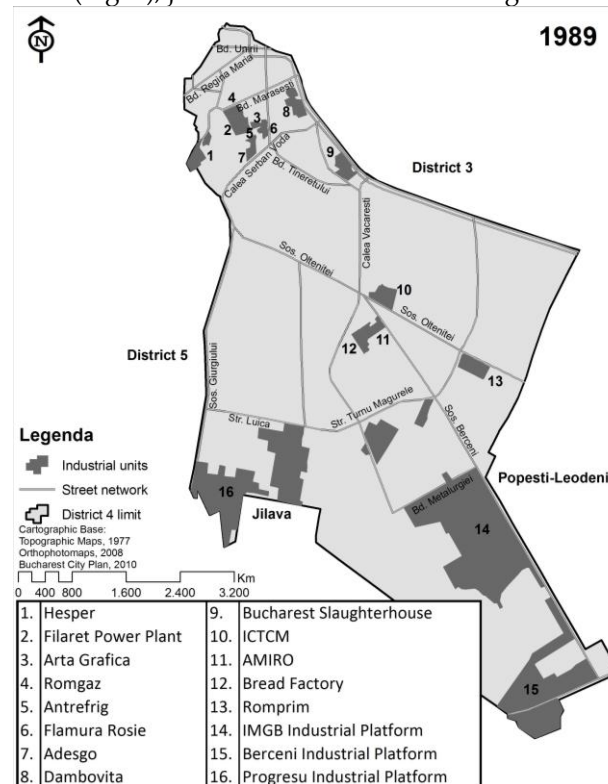


Fig. 6: Industrial landscape location and extension in District 4 - 1989

So, the industry occupies 451.3 ha, with 298.9 ha more than in 1977 and representing 13.27 % of the present District 4 surface. For this period, Graphic art industrial unit (Arta Grafică) occupied the smallest area (1 ha) and the largest one was IMGB

Industrial Platform. The three platforms developed in District 4 had a total area 363.6 ha (IMGB - 168.6 ha, Progresul - 104.6 ha, Berceni - 90.3 ha), representing three industrial giants that concentrated a workforce that ranged from 3.000 to 5.000 people and exerted a major impact on the environment.

As said before, 1989 represents the starting point of some intense changes within the industrial and urban landscape. Analyzing the industrial landscape changes in the area of Bucharest District 4, there were established five landscape types that replaced the relict industrial landscape: abandoned / demolished industrial units, ancient industrial (<1989), new industrial (>1989), reconversion, specific reconversion, through space rentals (Fig. 7).

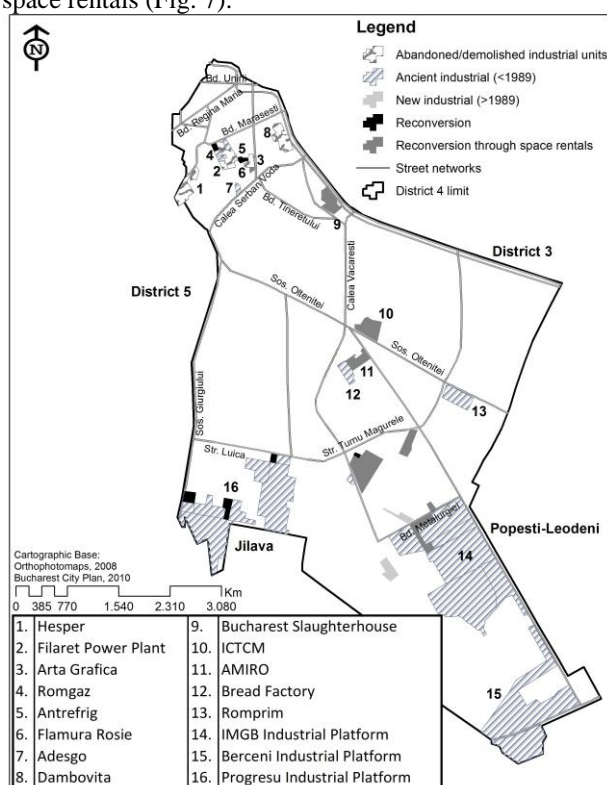


Fig. 7: Type or state of industrial landscape assessed by field research – 2011

The analysis brings out that the ancient industrial units have the highest weight – 80% (Fig. 7), being represented by former industrial sites. These are presently highly destructed, still having productive activities, but at a lower level and with few employees. For example, IMGB Platform has been destructed into nine units starting with 1991 – Strall Techniek Minex, SC UMUC SA, SC General Turbo, FECNE SA etc., and Progresul Industrial Area was shut down, its activity being replaced by five other units.

Specific reconversion took place into most Bucharest industrial units, through space rentals, this type of change accounting for 11% of the total in District 4. A relevant example in this sense is Bucharest Slaughterhouse (1870 - 1872), an industrial plant that needs heritage protection because of its historical, technical and architectural importance. Today it is used as storage and as headquarters for various retailers - this method prevented demolition of the entire unit, but on the long term it contributes to a continuous degradation of buildings.

District 4 abandoned or demolished industrial units represent only 5% of the industry occupied areas, a significantly lower percentage compared to the situation recorded in District 5, where most industrial units are either abandoned or demolished.

District 4 converted industrial units have a low share, only 2%, and are punctually located. This is the case of Arta Grafică, transformed into a services building.

A special feature of District 4 is the appearance of two new industrial units, after 1989, respectively Arta Grafică, relocated from Calea Serban Voda, no. 133 to Metallurgy Blvd., no. 73-75, and Whiteland Logistics Unit (Metallurgy Blvd., no. 132).

Map analysis, 2011, (Fig. 7) reflects that both ancient and new industrial units are concentrated towards the periphery, while abandoned or demolished industrial units and converted units are concentrated in the District central area.

Overall, within the last 158 years, District 4 industrial landscape was in expansion until 1989, with accelerated development of industry occupied area during 1977-1989 (Fig. 5, Fig. 6), and a descending trend afterwards (Fig. 7).

The industrial landscape conversion began slowly in 2005 in District 4 and all around Bucharest. Conversion was mostly industrial to services conversion and industrial to residential conversion.

Conclusion

The industrial landscape dynamics was stressed in accordance with the industrialisation stages, but there was no projection into District 4 housing and population life quality. District 4 industrialisation began in 1850, with the first mentions about industrial units located within this area. Former industrial units were originally developed near the

Dâmbovița River axis and Filaret Train Station nucleus.

District 4 industrialisation process increased during the inter-war and especially the post-war period, causing a radical landscape transformation and accelerated urbanization. Workshops and small factories of local or regional interest were the typical industrial landscape for the period 1900 – 1944. Industrial activities were heterogeneous, being "free" or induced by a growing city needs. For this period, industrial area had a small expansion of only 5.5 ha.

Industry occupied area increased significantly in 1944-1989, by 434.2 ha. The industrial landscape is characterized by the "*city within a city*" industrial unit model. The existing industrial units are enlarged, while new ones are built, "industrial giants" as IMGB industrial platform, Progresul and Berceni.

Substantial increase of District 4 industry occupied area meant also an accelerated urbanization, causing dense residential neighbourhoods and specific infrastructure. The year 1989 was a critical point for the industrial landscape, as profound changes started and were projected into the urban landscape. Industrial units were privatized, most defectively and later being threatened with abandonment / demolition or special reconversion.

Currently, the industrial areas require application of comprehensive policies leading to intelligent reuse of urban space, as these areas are important land resources in the urban tissue (Toledo Declaration, 2010). Industrial spaces reconversion represents the ideal solution for space reuse in line with Toledo Declaration principles, but it is also important how it is done, especially because the policies pursued by authorities do not have as a priority urban artefacts conservation and industrial heritage preservation.

The present analysis outlined that reconversion is directly dependent on industrial site location and dimensions, adding the pollutant retention issues and its urban image reference character. In this sense, projects must consider all these aspects.

Despite the industrial landscape reconversion positive examples, the reconversion process will be also developed in the future based on demolition actions or former buildings poor reuse, due to lack of specialists and knowledge about the value of these sites.

District 4 industrial landscape is characterised by industrial units such as tanneries, Filaret Power Plant, Wolff Plants (Steaua Roșie or Hesper), Bucharest Slaughterhouse and IMGB Industrial Area. This specific industrial landscape is on a degrading trend and will probably collapse, leaving room to environmental conflicts, enhancing and diversifying land use and housing dysfunctions.

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