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BROWNFIELDS IN URBAN STRUCTURE

Introduction

The mining industry developed in Donetsk and Makiivka has determined the functional and planning structure of their town-building systems. The latter have been developing under enormous transformation of the natural landscape through location of industrial productions within urban territories. The urban lands occupied by the industrial building make up over 20% of total urban territory of the city or 33% of all built-up lands. Donetsk and Makiivka are the cities where deindustrialization is the main reason for shrinking. As a result, there are non-operating enterprises in these cities what causes worsening of sanitary-hygienic situation on the nearest housing space and recreational territories and creates the conditions for forming separated architectural-planning structures of the city. So-called "brownfields" is result from changing patterns of industry and development in many regions. The loss of the industry, the resulting unemployment and the reluctance of new investors to take on the technical problems and liabilities associated with brownfield sites, affect the economic prosperity of the region, particularly in urban locations. Municipalities are often unable to revitalise brownfield from within their own resources, and their city centres and environs remain degraded and under-utilised. In common usage brownfields refer to previously developed land or derelict, encompassing a range of sites in terms of size and location.

There are many definitions of the term "brownfields" (Tab. 1).

The problems connected with disturbance of the ecological, social and town-building processes are discussed in the native literature [5 — 12]. The researches point out the so-called "derelict lands" which are the damaged, polluted or out of economic turnover territories because of an anthropogenic and technogenic impact. Their size and location have a great influence on formation of the functional and planning structure of the city. Derelict lands are the lands which have been spoiled or are occupied by rubbish heaps, scrap-heaps, precipitation tanks, slag-heaps, spoil banks, aggregates quarries, industrial wastes (including metallurgical), as well as the flooded and derelict lands which can be used for town building only after their recovering and re-cultivation.

City authorities in Ukraine face the problems of territorial character which have been accumulated during the last years; they include worsening of the ecological situation, transport

problems, territorial difficulties in the development, inharmonic perception of the architectural look. Moreover, these problems have sharpened much in the present situation. At the same time, understanding of this problem at national level is absent, approaches to management of development of such territories are not defined.

Background

There are over 200 large polluted and cluttered up land zones, 46 spoil heaps, 14 non-operating mines on the territory of Donetsk. Makiivka has over 100 waste dumps, 9 closed mines. 19 mines are to be liquidated in Donetsk and Makiivka. Soil on the territory and near the industrial entities includes 26 dangerous chemical elements, among them are mercury, lead, cynic, chromium as well as nitrates, nitrites and chlorides. There is a rising tendency in derelict lands, the share of annually re-cultivated lands does not exceed 1-2 % of total derelict lands in the city [9].

In Donetsk and Makiivka the most typical derelict lands are waste piles. According to the statistical data available, there are 138 waste piles on Donetsk territory (tab. 2).

138 waste-rock territories occupy about 1000 ha (2,6%) of total urban territory. Taking into account that all the waste piles have a sanitary protection zone in the size up to 500 m, losses of lands suitable for town building are much greater.

Policy Cycle

The problems concerning management of brownfields arise periodically as the proposals to use these lands are offered. Mostly, the discussion of the above problems is initiated by the state enterprise "Ukruglerestructurizatia", because city authorities have less influence on solution of problems of lands occupied by waste piles as compared with the influence of state bodies, business entities, which wish to start their activities on these territories, and representatives of the Ministry of Emergency Situations in the case of downfalls, flooding, collapses. This is explained partly by the fact that the city does not have sufficient financial resources.

Solution of problems concerning handling with waste piles is duties of their owners (those who have them on balance) or the state enterprise "Ukruglerestructurizatia" that is the liquidator of coal mines. The mines that operate on Donetsk territory has only 34 waste piles on their balance, the rest 104 waste piles are not on balance at all, they are really unowned.

Table 1

Definitions of "brownfields"

CABERNET (Concerted Action on Brownfield and Economic Regeneration Network) [1]	Brownfields is sites which: have been affected by former uses of the site or surrounding land; are derelict or underused; are mainly in fully or partly developed urban areas; require intervention to bring them back to beneficial use; may have real or perceived contamination problems.
EPA (U.S. ENVIRONMENTAL PROTECTION AGENCY) [2]	Term "brownfield site" means real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.
HUD (U.S. Department of Housing and Urban Development) [3].	Brownfields ? abandoned, idled or under-used real property where expansion or redevelopment is complicated by the presence or potential presence of environmental contamination.
John Hulewicz, environmental health supervisor in the Elkhart County health department [4].	A brownfield site is an abandoned industrial property with an environmental or safety stigma attached to it.

Table 2

Characteristic of waste piles located on Donetsk territory

	Number	% of total number
Active burning	28	20,3
Active non-burning	4	2,9
Active, total	32	23,2
Inactive burning	25	18,1
Inactive non-burning	81	58,7
Inactive, total	106	76,8
Total	138	100
Burning, total	53	38,4
Non-burning, total	85	61,6
Planted	26	18,8

One of the problems of brownfields management in agglomeration Donetsk-Makiivka is the property right problem. According to the article 8 of the Law of Ukraine "On Waste" [10], waste is the object of property right. In addition, territorial communities are the owners of the waste produced on the communal ownership objects or located on their territory and do not have an owner or the owner of waste is not known (unowned wastes). According to the Resolution of the Cabinet of Ministers of Ukraine "On the Procedure of Identifying and Registering of Unowned Wastes" [11], the bodies of local self-government must create regular working commissions aimed at solution of unowned waste problems, including transfer of the above waste into communal property. The commission of this type was created in 2009, but none of the decisions on transferring waste piles into property of the territorial community was made. The reason is that the profile ministry

(Ministry of Energy and Coal Industry of Ukraine) is not engaged in solution of this problem. City authorities asked many times to provide them assistance in defining the owners of waste piles of already liquidated mines, those which under liquidation or sometimes of operating mines but nobody answered.

City authorities understand that it is necessary to make optimization of technogenic landscapes. The measures should be aimed at their recovering and increasing of productivity, as well as at optimal reconstructing and planning of the technogenic landscapes taking into account all needs of the society. It is also necessary to recover nature-oriented, economic and esthetic value of the natural-technogenic complexes. The purpose of territorial transformation of the industrial districts in cities is to enhance the quality of the whole urban space and, thus, increase the standard of living of

the citizens. The matter is to use the capacities of given territories as much as possible; provide their stable development; raise the competitiveness and develop the social and economic potential. To provide it, the city executive committees have corresponding departments and offices both in Donetsk and Makiivka, including Department for Construction and Perspective Development, Main Administration for Construction and Architecture, Department for Land Resources Management, Capital Construction Administration, Chief Economic Office, Ecological Security Department.

There are no significant funds in the city budgets to provide the efficient management of brownfields. So, the task of city authorities is to find the investors for implementing the projects on cleaning of territories and building of multi-functional complexes; to choose optimal projects which would satisfy the current requirements to the space; to organize and hold auctions; to control whether a new functional purpose of former industrial zones corresponds to the needs of the city itself and general plan.

Despite many difficulties in solution of problems concerning brownfields management, there are some positive examples both in Donetsk and Makiievka. In 2008, utilization of the waste pile in Makiivka was made at the expense of a non-state investor. Now, on this territory one can see a trade centre “METRO Cash&Carry”.

This is a first and only example of effective using of non-operating mines' waste pile in Donbass and in Ukraine on the whole. One can say about re-profiling of the former industrial objects. In 2007, Donetsk City Council adopted the decision on transfer of a land plot under lease on the terms of exploiting existent constructions consisting of the economic and engineering blocks with further building and exploitation of the retail-entertainment centre and many-stored car parking. In 2010, the owners of one ruined enterprise have turned the deserted premises and the nearest waste pile into an exhibition complex of modern art.

In 2009, the stadium Donbass Arena was opened on the territory of Lenin Komsomol Park. The stadium was built on initiative and with direct support of the businessman and people's deputy of the Verkhovna Rada from Donetsk; the stadium is of great importance for running football matches EVRO-2012. After opening of this stadium, the zone of Lenin Komsomol Park was extended much due to liquidation of dust heaps with further planting of the territory. Around the forgotten waste pile the private investor has arranged two mini-football fields, and the communal enterprises have made the road to them.

So, the projects like above are financed by the investors who take interest in this or that territory, and the city authorities provide the conditions necessary for implementing the projects and take control within their powers.

Preservation and development of the nature complex as a main component of planning structure, that performs

environment-forming, ecological, recreational and sanitary functions promoting thus stabilization and environmental improvement, ecological safety, creation of conditions favourable for the rest and improvement of people's health, provides a rational use of urban territory, as well as further development of ecosystem, preservation of landscapes, extension of green zones taking into consideration ecologization of city's industrial complex. The General Plan of Donetsk till 2031 within solution of problems concerning regulation and utilization of industrial waste provides the following:

- physical liquidation of waste piles in the central zone of city: Iljicha avenue, microdistrict “Vetka”, Schorsa street, 9-th January street (Gorky mine); in the area “Bakhmutka”;

- extinguishing of burning waste piles (18);

- planting of old (non-burning) waste piles at a height of 50 metres;

- making waste piles having cone cutting not over 50 metres plane;

- planting of non-burning waste piles;

- technological processing of waste piles as a valuable secondary resource;

- sharp increase in dumping of waste piles in developed mining working;

- reducing sizes of waste piles' sanitary protection zone taking into consideration measures taken;

- using of technogenic forms of waste piles' relief for organizing extreme recreation-sporting rest;

- technological processing and liquidation of Donetsk metallurgical plant's slagheaps [12].

Besides, according to the General plan of city Donetsk the territories of existent industrial enterprises are classified into five groups using sanitary and ecological criteria, among them are:

- territories of industrial groups awaiting complex town-building reconstruction and rehabilitation territories according to special projects. This refers to the industrial groups in which the main enterprise is planned to be closed, re-profiled or radically reconstructed because of economic and ecological reasons;

- territories vacated from industrial production.

In total — 13 objects. For the period till 2031 523,3 ha of industrial lands in Donetsk should be vacated. It is 1, 35% of urban territory.

To make effective use of the territories with brownfields, the city authorities should do the following:

- specify the terms and character of reorganization of industrial territories, especially when they are planned to be used in another way, taking into account the engineering infrastructure;

- study carefully the issues connected with evaluation and usage of the socio-cultural potential of industrial buildings and constructions, formation of a “green” zone within the city and solve the problems of socio-economic development of the city in close cooperation;

create systematic conditions for using the land in the most rational way;

establish a register of industrial building territories useful for reconstruction and building of new objects, and provide the access to this information for the potential investors;

use administrative and economic tools (incentives) for attracting the investments in the remote districts of the city;

using administrative and economic tools create such conditions for the owners of non-operating enterprises that they could implement the projects on reconstruction of the territory independently.

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Kuzmenko L. M., Soldak M. O. Brownfields in Urban Structure

The article deals with problems concerning management of industrial city development, one of which is the problems of the so-called “brownfields” on its territory. Approaches to determining brownfields, which are in the world practice, are represented. The necessity of understanding this problem in deciding questions of urban development in Donetsk and Makiivka is grounded. The directions are identified, realization of which will provide effective use of brownfields.

Key words: brownfields, city, development, management.

Кузьменко Л. М., Солдак М. О. Занедбані території в міській структурі

Статтю присвячено проблемам управління розвитком індустріального міста, однією з яких є наявність на цій території так званих „занедбаних територій”. Представлено підходи до визначення занедбаних територій, які наявні у світовій практиці. Обґрунтовано необхідність розуміння цієї проблеми у вирішенні питань міського розвитку Донецька й Макіївки. Визначено напрями, реалізація яких буде сприяти ефективному використанню занедбаних територій.

Ключові слова: занедбані території, місто, розвиток, управління.

Кузьменко Л. М., Солдак М. А. Заброшенные территории в городской структуре

Статья посвящена проблемам управления развитием индустриального города, одной из которых является наличие на его территории так называемых «заброшенных территорий». Представлены подходы к определению заброшенных территорий, существующие в мировой практике. Обоснована необходимость понимания этой проблемы в решении вопросов городского развития Донецка и Макеевки. Определены направления, реализация которых будет способствовать эффективному использованию заброшенных территорий.

Ключевые слова: заброшенные территории, город, развитие, управление.

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