

REINVENTING THE POST-INDUSTRIAL VOIDS IN THE BALKANS 'GRAND PAYSAGE' – TRANSFORMATIONS OF BROWNFIELDS IN SLOVENIA

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ABSTRACT IN ENGLISH

The remaking of post-industrial large areas, such as ports, landfills or factories, involve substantial alterations of the land. They are mostly based on pragmatic principles of rebuilding and transformation. How can the European 'Grand Paysage' become an instrument of memory whilst open to changes and inventions? Brownfields (BF) – vacant, idle and toxic voids – could be monitored and treated through thermal satellite imaging and urban landscape recovery strategies. The European Landscape Convention (Florence, 2000) is a prospective design instrument to guide regenerative strategies in European brownfields like Barcelona expo-parks or Zollverein in Essen. This paper will reflect on alternative design concepts, processes and visions in deteriorated brownfields of Ljubljana and Koper, Slovenia. The core design strategy will be to 'protect the destruction' by renewing the sites while preserving their uniqueness of structures and forms.

Keywords: Industrial Landscape, Land Remediation, Ecological Urban Design, Programmatic Infills

PONOVNO OSMIŠLJAVANJE INDUSTRIJSKIH NEAKTIVNIH PROSTORA BALKANSKOG 'VELIKOG PREDELA' – TRANSFORMACIJE BRAUNFILDA U SLOVENIJI

REZIME

Preoblikovanje velikih post-industrijskih područja poput luka, deponija ili proizvodnih postrojenja, uključuje suštinske promene u sklopu zemljišta, uglavnom zasnovane na pragmatičnim principima obnove i transformacije. Kako evropski "Veliki predeo" postaje instrument sećanja, istovremeno otvoren za promene i osmišljavanje? Braunfildi (BF) – slobodne, neaktivne i toksične praznine – mogu se nagledati i tretirati kroz termovizijsko satelitsko snimanje i strategije oporavka urbanog predela. Evropska konvencija o predelu (Firenca, 2000) je mogući projektantski instrument za vođenje strategija regeneracije evropskih braunfilda kao što su luka u Barseloni ili Zolviren u Esenu. U radu se daje osvrt na alternativne projektantske koncepte, procese i vizije u zapuštenim braunfildima u gradu Kopar i Ljubljani, u Sloveniji. Osnovna projektantska strategija zasnivaće se na 'zaštiti od uništenja' obnavljanjem lokacija, uz istovremeno očuvanje posebnosti struktura i formi.

Ključne riječi: Industrijski predeo, remedijacija zemljišta, ekološki urbani dizajn, ponovno stvaranje

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1. INTRODUCTION

Post-industrial large areas such as obsolete infrastructural ports and industries could be reactivated with radical urban-climatic strategies. The recycling of these Post-industrial spaces, which reveal spatial, constructional and environmental pathologies could contribute and stimulate the regeneration with a new type of harmonisation in degraded lands into socio-productive and ecological landscapes. New recovering strategies should be found for the post-economic crisis at the European landscape's level also in accordance with a better understanding of the threat that the environment poses to health (European Environment and Health Strategy [CEC 2003]). The European Landscape Convention – organ that promotes the protection, management and planning of European landscapes and organises European co-operation on landscape issues [1] – is a formidable design instrument to support integrated regenerative strategies in brownfields (BF) or large vacant sites. Spain and Germany have led some of the most relevant examples of post-industrial landscape design in Europe few decades ago by setting precedents that have been followed in other regions across Europe. A comparative case study of Zollverein in Essen (UNESCO listed site) and Barcelona (port and industrial exhibitions) was broadly debated in the past conference called 'Post-Industrial Transformations' [2].

Zollverein in Essen, Germany: Park and Creative Industry

As part of the IBA Emscher Park project, this landscape intervention extended along an industrial coal-mining wasteland with high-polluted soils. The recovery method was to reinterpret and restore the abandoned site. After its closure, the once largest hard coal mine in Europe has developed into a lively and internationally recognised hub for art, culture and the creative industry [3]. This new park was converted from an ecological disaster into a contemporary '*urban attractor*'.

Barcelona, Spain: Industrial Exhibitions

Techno-parks (as World Fairs) demonstrate novel visions of urban and technological achievements. However how can we protect and transform the modern urban space of World Fair as resilient urban voids? The urban legacy of the World Fairs in Barcelona during 1888 and 1929 needed a dynamic definition that envision future uses and mediate between preservation and development of contemporary urban parks. These post-event parks are still the key '*urban catalysts*' in the current processes of urban development along derelict areas.

The common design strategy of both chosen examples was to '*protect the destruction*' [4] by renewing the site while preserving their uniqueness of structures and forms (masses and voids) with new ecologies. The applied design strategies were twofold: (1) remaking each site by revealing the memory and (2) reinventing the context.

1.1. BROWNFIELDS VS. DEGRADED AREAS

And what are the facts and figures in Slovenian brownfields? The Slovenian settlement system is characterised by a disproportionately large number of settlements and built-up areas in relation to the number of inhabitants and area (20,273 km). At the end of 2011, there were in total 6,030 settlements [5], where settlements with less than 100 inhabitants prevailed (2,872 settlements [or 47.7 %] with a total of 6.6% of 2,056,878 inhabitants). There are 93 small and medium sized towns [6: 277], which are supporting polycentric urban development.

The first detailed research on BF issues in Slovenia was made by Koželj [7: 11]: "Degradation of an urban area is a process in which land, sites, buildings and facilities become less useful or lower in quality. The extreme level of devaluation process is the state in which an urban area is despoiled and damaged to the extent that it is impossible to restore its use or to revive an activity there without previously carrying out reclamation and reconstruction." 35 sites were investigated in detail, with well-defined evaluation criteria. The next extensive research was undertaken within the Target Research Project (V1-1088): Sustainable rehabilitation of environmental burdens as a sustainable development potential for Slovenia [8]: "In 2011 we recorded 194 brownfield sites (BS) in a total of 979 ha. BS presents in 82 municipalities; the largest one is in the Municipality of Lendava, i.e. the area of the refinery at Lendava (72 ha). There are as much as 49 BS that exceed 5 ha, of which 28 are industrial sites." All the data were entered in the Geopedia system. Within both baseline researches, the authors found that the problem is also the lack of a uniform definition of degraded areas/brownfields, as well as the terminology in the field. According to the proposal of the new Dictionary of Urban Planning Terms [9], the most appropriate term in Slovene is '*razvrednotena območja*', ('*razvrednoteno*' means devalued), while '*degradirana območja*' is used as a synonym; '*brownfield site*', '*degraded area*', '*derelict area*' are English equivalents.

Upon studying the relevant literature and analysing several official EU reports, the main definition, which was introduced in the Slovenian terminology within the EU project Cobraman [10], is the definition of the EU project Cabernet [11]: "*Brownfields are sites that have been affected by the former uses of the site and surrounding land; are derelict or underused; have real or perceived contamination problems; are mainly in developed urban areas and require intervention to bring them back to beneficial use.*"

By considering the latter definition, a new question merges. Can contemporary urban approaches of recognising spatial rules help us to (1) establish new methods of implementing spatial trajectories; (2) enable sustainable recovery of the selected areas; and (3) design ambitious landscape and climatic-based spatial game plans of combining both individual and systemic interventions?

2. METHODOLOGY FOR THE EVALUATION OF BROWNFIELD: 'MASSES' VS. 'VOIDS'

In reflecting on the meanings of paradigmatic European Post-industrial landscapes, we can perceive that new types of landscape are emerging in large-scale as a result of multiple interventions linked with different categories of BF based on the ratio '*mass*' and '*void*'. They are manifested throughout various processes of programmatic urban re-cycling and economical reactivation via redevelopment, regeneration, revitalization or renewal. Coonop and Nash [12] suggest that a resilient, bio-diverse, adaptable, and local and climate-driven recovery scheme is the initial step to increase the resilience and sustainability capacities of any city.

This study articulates elements of identification, inventory and evaluation [7, 8 and 10] of BF with landscape and environmental design strategies with the following research methods of climatic and urban analysis:

- a. Thermal satellite imaging. It encompasses complex digital simulations such as: Esri, DigitalGlobe, GeoEye, I-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, Swisstopo and the GIS User Community. Global Land Survey (GLS) sets from Landsat images (5ETM+, 2011, code 191/028. Date and time: 23.8.2011 at 9:40 am). GLS permits the study of landscape change including land use change, deforestation/reforestation, urbanisation, disaster assessment and water level change with the observation of '*Urban Heat Island*' (UHI).
- b. Analysis on the level of regional development of urban sprawls (Corine 2000 and Natura 2000 data).
- c. Open source climatic data: Climate Consultant 5.5³; Energy Plus; and Weather Data and bioclimatic charts.
- d. Simulations of urban landscape scenarios with interconnecting different types of BF '*masses*' vs. '*voids*' and climatic design recommendations.

A combination of methods applied in existing BF systems in Slovenia is explained through a deeper relationship between the built (*mass*) and unbuilt environments (*void*). This survey was focused on two levels that are referred to climatic, landscape and urban elements of recovery strategies. Afterwards this study explored the concealed duality between mass/void and visual/thermal aspects of the chosen urban lands. The comparative case studies are the urban tissues of Ljubljana and Koper.

2.1. CASE STUDY OF LJUBLJANA

The City of Ljubljana is the largest urban area in Slovenia; 13.87% of total Slovenian population, i.e. 285,857 inhabitants, resides in the Municipality of Ljubljana (MOL)

3 Climate Consultant 5.5 (Build 4), May 15, 2014. Refer to: <http://www.energy-design-tools.aud.ucla.edu/>

[12]. According to the Strategic Plan [13] and the Implementation of Spatial Plan for MOL, one of the basic development objectives is the restoration of BF. Koželj [6] and Bugar [14] identified several sites and also degraded lands (Figure 1).

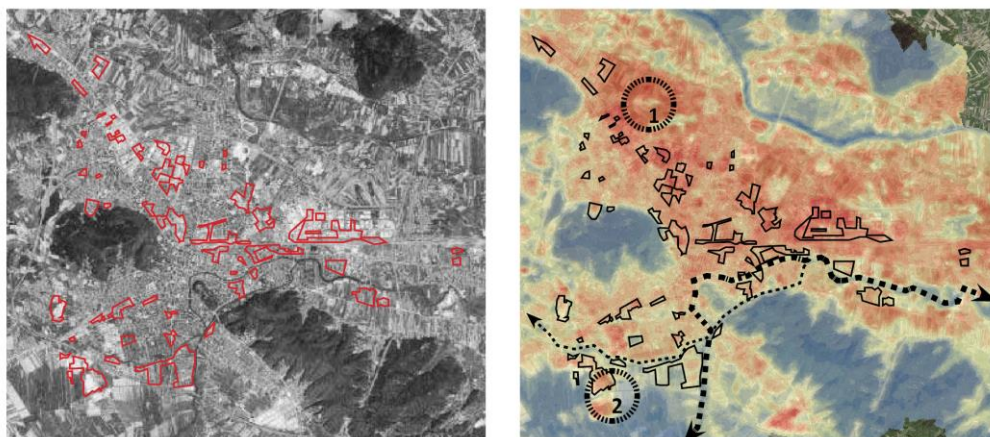





Figure 1. LJUBLJANA – brownfields (BF, left). Ljubljana thermal map, areas of BF, landscape axe (right), 2014 (Archiv: Konjar,  BF including all areas [7 – 1998; 8 – 2012].  Soil pollution (examples; high UHI).  Landscape axe.



Figure 1.1. Ljubljana, Stegne, agricultural land_1 [15].



Figure 1.2. Ljubljana, Tobačna factory – today Tobačna 'city'_2 [16].

Figure 1. LJUBLJANA – brownfields (BF).

In the last 15 years many issues were raised regarding the land management of degraded BF, and, indeed, several implementing measures were adopted. Without a strategic vision such as *'protect the destruction'*, *'densification'* or programmatic *'infill re-development'* and confronting economic crisis, a new spatial manifestation of degraded sites have emerged, which can be classified as *'unfinished'* under-construction sites what we coined *'voids in transit'*, along with the scape of private investments; tearing down of historical urban figures (e.g.: cases of Tobačna, Kolizej, Pletenina). As Bugar [14] points out, the deteriorated areas of a city are valuable urban development areas, where the City of Ljubljana should challenge itself and enforce public interest in order to reinvent beyond the speculative logic of the market.

2.2. CASE STUDY OF KOPER

The City of Koper is the largest urban structure in the Mediterranean part of Slovenia; today it is occupied by only 1.25% of total Slovenian population, i.e.

25,775 inhabitants [12]. Nowadays, many studies on land management of BF (Figure 2) were drawn up, with an emphasis on the inclusion of degraded buildings and sites into green landscape interventions in large-scale areas, such as the Tomos factory and the port of Koper. However, these recovery ideas are disconnected and mostly not yet incorporated in a major strategic planning. Sadly the current vision of Koper is based on ‘*megalomaniac urban visions*’ supported by unrealised tall buildings, pseudo-Middle East artificial islands and futuristic landmarks. During the documentation and recording phase of this survey we identified existing open areas that surround the historical town of Koper, which are filled by large parking areas.

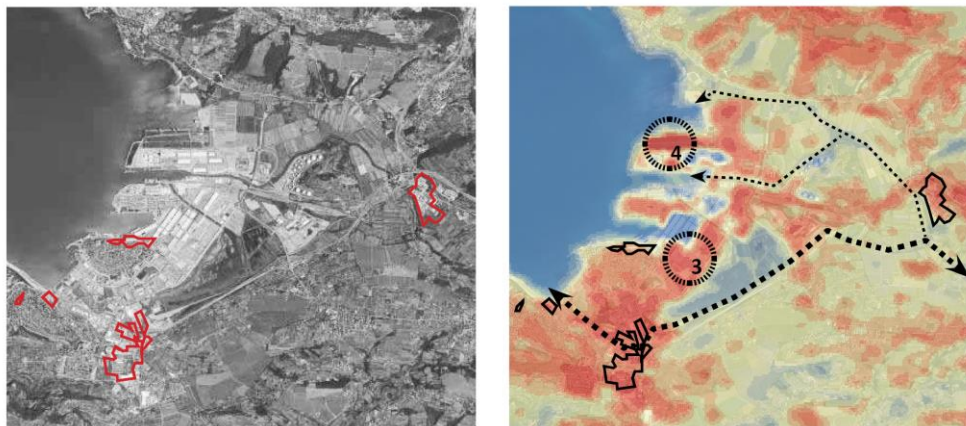


Figure 2. KOPER – brownfields (BF, left). Koper thermal map, areas of BF, landscape axe (right), 2014 (Archiv: Konjar, 2014).

BF including all areas [7 – 1998; 8 – 2012]. Soil pollution (examples; high UHI). Landscape axe.



Figure 2.1. Koper – Finali Trading_3 [17].



Figure 2.2. Koper – Port, open area of coal_4 [18].

Figure 1. KOPER – brownfields (BF).

The survey between the built tissue (*mass*) and open spaces (*voids*), plots and climate parameters -such as temperature, radiation, winds and relative humidity- offers a traumatic portrait of the direct effects of climate change in urban settlements both regional and locally. By surveying the influence of overheating in BS areas, we can distinguish that there exists a special classification that needs to be equally investigated, which is a ‘second belt’, a residual land seemingly used as agrarian land, adjusted to industrial zones with high levels of soil and water degradation and pollution (e.g.: Litostroj factory in Ljubljana). The main results of

the research made were: 1 – BF areas are more detailed explored in Ljubljana; 2 – the methodology [8] from 2012 has excluded the BF problems on a small scale; 3 – with introducing the following research methods of climatic and urban analysis, we re-introduce detailed view, with new data related to BF, with re-including small scales, extended on border locations of BF and to other sites in relation to the identification of BF.

3. REMAKING THE GRAND PAYSAGE

The two cases of cities do not include the scale factor of the BF in Post-industrial landscapes but rather they encompass a fragmented territory, reminiscence of their diverse past. In fact, within this spatial fragmentation, each part reveals its own telling-story and memory where we might experience embedded values and distinctive features, which require a dynamic recovery strategy of integration into large-scale interventions. The appropriate strategy for both Ljubljana and Koper is without doubt related to the water enhancement: *the waterscape condition*, which could be the spine for future public interventions as well as private developments in depolluted open spaces regarding the *Urban Heat Island's* effect. Therefore both the river Ljubljanica (Ljubljana) and the river Rižana (Koper) appear as the crucial context for a long-term rehabilitation of the immediate urban systems supported by infrastructural communicational connectivity between riversides, BF sites and open public spaces. Only with a trans-disciplinary approach they can be rescued, reanimated, redeveloped and thus integrated together.

4. CONCLUSIONS

By studying large-scale BF interventions in the *Balkan's Grand Paysage*, the design strategy of remaking offer the repairing of the *urban mass* and reinventing of new *voids*, through Infrastructural Landscape; Water Management and Ecological Urbanism based on the principles of recycle, reuse, repair and rethink (4R). The system of changes and inventions can provide valuable guidelines to explore participatory and adaptable policy-making; radical urban reinventions; and ecological empowerment.

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