

Rising from ruins: from derelict spaces to sustainable landscapes – the Portuguese case

Luís Loures, Frederico Meireles, Laura Costa and Ana Loures

Abstract— The legacy of derelict, obsolete, and often abandoned post-industrial structures and sites we face today in our landscapes is, arguably the result of human current and former uses of land. One way or another, the present situation, enabled by technological innovation and structural economic change, is founded in human (ab)use of limited and valuable resource, and on his increasing ability to affect large landscapes. Though it is widely recognized that the reclamation of post-industrial landscapes constitutes an important strategy towards city development, it is normally acknowledged that redevelopment projects are generally associated to multidimensional objectives based somehow on a twist of sociocultural, economic and environmental issues. By assessing a set of 18 redevelopment proposals/projects where it is possible to identify the relevance of each of them to the different sustainability dimensions and therefore to urban development, this paper aims to point out the relevance of these projects to achieve sustainable urban environments considering the aforementioned levels. The analyses of the case studies presented in this article enabled us to conclude that even if post-industrial landscapes are commonly experienced negatively, as fragmented and incoherent because it is difficult to conceive a legible whole, the redevelopment of post-industrial facilities may enable a sense of spatial enlargement, with high degree of complexity and with diverse ecological and social benefits, contributing to local redevelopment, reason why they should be viewed as a resource and its recovery as an opportunity.

Keywords— Urban development, Post-industrial landscapes, Redevelopment process.

I. INTRODUCTION

THE need for greater environmental protection coupled with the appearance of several postindustrial derelict areas and the increasing public awareness to the necessity to reclaim degraded landscapes provide great challenges not only for landscape architects and reclamation professionals but also for planners, natural resource managers and policy makers. Though this problem encompasses numerous categories of manufacturing infrastructure all over the world, this paper will

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focus only on urban postindustrial sites, where reclamation - redevelopment processes play an important role in city redevelopment throughout the creation of multifunctional sites able to fulfill peoples needs at different levels, while contributing to urban sustainability. Additionally, though it is widely recognized that the reclamation of postindustrial landscapes constitutes an important strategy towards city's development, it is normally acknowledged that redevelopment projects are generally associated to multidimensional objectives based somehow on a twist of sociocultural, economic and environmental issues. The legacy of derelict, idled, obsolete, and often abandoned post-industrial structures and sites we face today in our landscapes is, arguably the result of human current and former uses of land. One way or another, the present situation, enabled by technological innovation and structural economic change, is founded in human (ab)use of this limited and valuable resource, and in his increasing ability to affect large landscapes. *“As the world moved from agriculture to industry, a mechanist view of the universe began to supplant the idea of an organic nature. A desire for “progress” and faith in technology implied that the earth was a place to extract resources and its “complementary” idea: that the earth could absorb anything humankind asked of it”* [1].

Though, changes in society's values began in the 1960s enabled a different view, according to which the former production and consumption patterns were no longer acceptable. As these landscapes become economically disadvantaged, environmentally degraded and socially distressed, several planners, designers and urban developers started to react to decline, both by looking for answers to the social and economic problems caused by the growing wastelands [2] and by developing new methods to transform them, considering that the issues facing postindustrial land transformation today are multidimensional, including sociocultural, environmental and economic and aspects.

In fact, as it was mentioned before, it is increasingly acknowledged that previously developed land (e.g. postindustrial landscapes) constitute an undervalued asset towards urban redevelopment. As mentioned by Loures [3] this idea is supported by the six key challenges for producing a sustainable built environment presented by the European Council for Construction Research, Development and Innovation [4]: urban sprawl; redeveloping industrial sites; regenerating brownfield sites; sustainable construction; green space, and regenerating distressed neighborhoods.

Somehow, all these principles may be directly or indirectly connected with postindustrial land transformation processes. However, even if it is argued by several authors that investing in the redevelopment of existing sites may be preferable to developing new areas [5], [6], [7], [8], [9], [10], [11], [12], and that several redevelopment/land transformation programs (as it is the case of PRAUD (Program for the Reclamation of Derelict Urban Areas) and POLIS (Program for Urban Requalification and Environmental Valorization of Cities) in Portugal; SUPER - Sustainable Urban Planning and Economic Redevelopment and CABERNET (Concerted Action on Brownfield and Economic Regeneration Network) in Europe; and CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act), commonly known as Superfund [13] from EPA, and AHP - Affordable Housing Program - Brownfields Initiative in North America) provide decision-making tools that help optimize the profits and costs of redeveloped sites reducing political conflicts, economic barriers and environmental problems, it is still hard to assess such options scientifically, and to demonstrate that one is better than another, at least at design, conception and programmatic levels [3].

Nevertheless, all over the world, several regions and countries have begun to embrace the notion that postindustrial landscapes offer unique opportunities to the creation of multifunctional landscapes, viewing their value to society in a broad sense. Recognizing that more than ecological and environmental reclamation opportunities these sites embodied alternative social, cultural and economic values [14]. In fact, development of creative cultural and recreational amenities and the improvement of the image of the city through landscape transformations is increasingly acknowledge [3, 15]. These new trends are evident not only in specialized literature [16], [17], [18], [19], [20], [21], [22], [23], [24], [25], [26], but also in several international design competitions promoted to transform large scaled postindustrial sites all over the world. Downsview Park, located at a derelict military air base in Toronto and Fresh Kills reclamation project, the world's largest landfill on Staten Island, New York, represent not only these tendencies but also landscape reclamation practices applied to postindustrial sites in North America [18].

In Europe, Parc de la Villete design competition held in 1982 - according to Turner [27] "*the twentieth century's most important park design competition*" – created a momentum for the beginning and dissemination of large scale land transformation projects; proving this is the IBA (International Building Exhibition) in which various Architects, Landscape Architects, Urban Planners, and Environmental Engineers got together with numerous other specialists and worked for ten years in the Ruhr Valley – Germany, exploring innovative possibilities, programs, functions and uses for postindustrial landscape transformation projects [28], [29]. Those competitions showed that perceptions concerning what might constitute land transformation and redevelopment has changed towards environmentally cognizant sensibilities and contributions from a broad array of specialists [30] because more than greening, it is necessary to create condition that enable economic development and attract people to those spaces [3].

II. METHODOLOGICAL FRAMEWORK

Recognizing that any attempt to understand/define "*good urban design*" must embody the principles of sustainable development, the present research is based in a methodological approach (fig.1) that considers building design, landscape design and urban design as part of the same process, which constitutes the only way to deliver a more integrated, more skilled and more effective analysis of a specific design process [3]. In this regard the developed analysis is based in the verification of the presence of specific aspects in the design strategy used on the analyzed projects, considering the integration of specific criteria, put forward by Loures et al. [31] as is the case of: (i) protect and conserve quality landscapes, while enhancing natural and historic/heritage resources; (ii) develop a clear redevelopment vision and strategy; (iii) enable resilience, considering the ability to be long lasting and adaptable to new uses; and (iv) show the ability to promote biodiversity, to create good places for people, and to aid economic development.

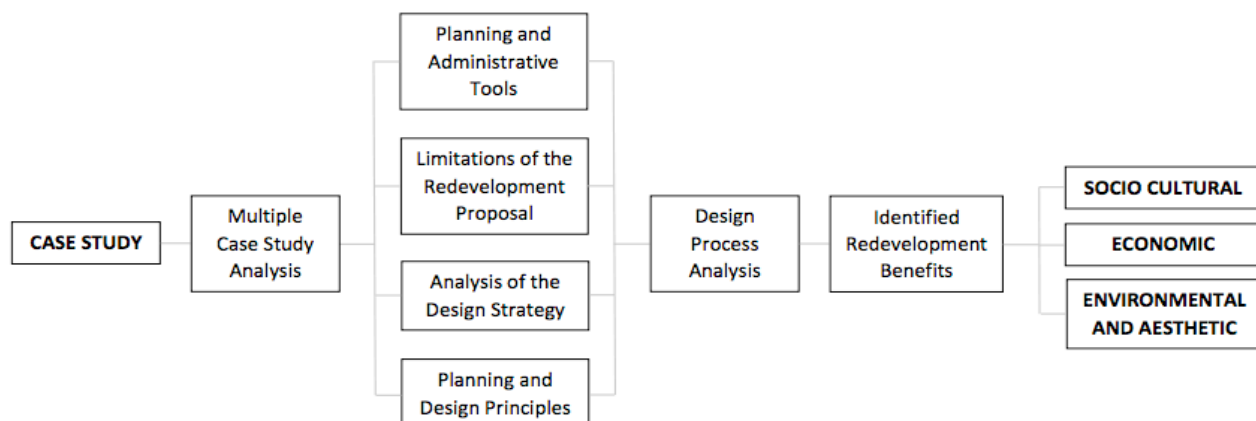



Fig. 2 – Methodological approach.

In this regard, in order to understand and evaluate the complex relationship between postindustrial landscape redevelopment and urban sustainability (considering the three sustainability pillars), a set of redevelopment projects that represented specific examples of multifunctional redevelopment as catalyst for urban regeneration and economic development was selected, and their impact on sociocultural, economic and environmental aspects assessed. For each project a specific evaluation and description form was created (fig. 2) in which it was possible to highlight the most relevant facts of every single redevelopment proposal and the main impacts it had to the different sustainability dimensions.

Alcântara Rio - Lisbon, Portugal

Design team - Frederico Valsassina Arquitectos Lda and PROAP

Brief description - The former 1,76 hectares block, in which the União Factory was located, underwent a urban redevelopment that reconverted this industrial area into a housing and office block. The strategy developed for this area considered two levels: the urban design level, which took into consideration the strategic location of the site, and its integration with the surroundings, developing an independent but interconnected set of paved and green areas, which established a separation between public and semi-public space; and the architectural level, which intended both to create a new identity and, to respect not only the value of the old structure, considered an important element of industrial heritage, but also the unique constructive character of the city.



Used sources | Further reading

Costa, J., 2003. A Nova Arquitectura Pós-Industrial. *Arquitetura e Vida*, 40: 56-63.

David, A., 2007. *Urban Voids, Lisbon Architecture Triennale*. Trienal de Arquitectura de Lisboa 2007 and Caleidoscópio, Lisboa and Casal de Cambra.

Goula, M. (Ed.), 2003. *Only With Nature*. COAC, Barcelona.

Nunes, J., 2002. *Seis Projectos de Paisagem*. Saúde Press, Lisboa.

Fig. 2 – Example of one of the components from the Project evaluation/description form.

For this purpose, 18 case studies were selected for analysis, using objective criteria according to the pre-established methodological framework. These case studies were divided into three groups, considering their significance for urban sustainability at sociocultural, environmental and economic levels. Besides the aforementioned criteria the ability to protect and protect and/or highlight industrial heritage was also assessed, since it is considered an important cultural objective of postindustrial redevelopment, which is inherently sustainable, considering it encourages the positive re-use of

redundant buildings that are part of our industrial and commercial heritage. Conservation was, in fact, considered a very important aspect for postindustrial redevelopment, considering the information put forward by several international studies that highlight postindustrial redevelopment capability to raise local environment quality, preserve local distinctiveness, attract visitors and new business, and maintain *genius loci*.

Considering the overall objective of this research qualitative and quantitative data regarding the assessed case studies was collected considering both form, dimension of the areas attributed to the different uses, implemented functions, and its influence to achieve sustainability considering at the same level the social, economic and ecological aspects. Additionally, the collected information was also used in order to define the importance of the analyzed case studies to the urban structure they integrate.

III. CASE STUDIES ANALYSIS AND RESULTS

Considering the afore-presented methodology the selection of study areas constitutes an essential component of the research, representing an important aspect to the accomplishment of the present study. In this regard, the selection of “best-practice” case studies (as well as the definition of a practical case study area) considered a set of predefined parameters. Regarding the selection of “*best practice*” case studies, the process is anchored in the collection and analysis of as much postindustrial land transformation projects as was possible within the boundaries set by schedule and economic constraints.

In this sense, throughout the investigation as many post-industrial land transformation case studies as possible were identified. After identifying the project, it was necessary first to address the availability of data and to verify the possibility to access, collect and use that data. If the necessary information is available, and the case study considered relevant for the research, considering the characteristics of the project and the objectives of the research, the project was addressed.

In order to keep the review manageable, analysis was limited in several ways. First, the research focused only post-industrial land transformation projects in which pre-design goals/objectives, were clearly established. Second, the selected projects should obey to a set of selection principles that included:

- transferability and/or contextual relevance to the study area (postindustrial land transformation) considering not only the specific principles and frameworks of the design strategy used in the redevelopment process, but also size, social diversity, cultural relevance and impact of the project;
- the direct analysis of the case study, so that the inferential ideas and conclusions presented during description and analysis, regarding not only the design strategy adopted, but also the presented solutions, the construction options, the program, and specially the planning and design principles used, could be precise and effectively confirmed;

- project implementation - the project should be implemented or partially implemented (several times the design solutions presented, even in international competitions, tend to be increasingly iconographic and sometimes arguably unsustainable);

- site visits - the site of the project should be visited during the analysis of the case study, whenever possible more than once, in order to analyze the way the space functions and how people use it, performing some formal interviews with the users;

Considering these principles and even if there is an inevitable value judgement in any process to ascertain relative importance, the established method was considered to bring a degree of objectivity and transparency to the assessment, enabling the selection of the cases that respond better to research objectives.

Still, given that the proposed methodological framework comprises the analysis of multiple-case studies, it is essential to have a protocol for all studies [32]. In this sense and according to Francis (2001) a typical protocol should integrate several sections, from which we may highlight an overview of the case study project; field procedures; case study questions; and a specific and pre-established guide for the case study report.

Considering this information, for each case study several aspects were investigated and analysed, including location; design team; project typology and use; size; brief description of the project background/history; significance and uniqueness of the project; goals; program and design strategy; lessons learned and project limitations. After the analysis of each of the selected case studies, following the aforementioned protocol the influence of the redevelopment proposal in each of the sustainable development pillars/dimension was heuristically assessed, using an approach similar to the one proposed by Lang (1994) in order to identify normative theories in urban planning [33].

Taking into consideration the various sources of data and information regarding the eighteen analyzed case studies and the impact they had on each of the urban sustainability pillars (environmental, social and economic) – table 1 (some of them had a specific impact on more than one pillar), their significance and benefits to urban development at different levels were identified and briefly described.

Table 1 – Analyzed case studies – and their impact on urban sustainability

Name	Design Team	Former Use	Location	Sociocultural	Economic	Environmental
Alcântara Rio	Fred. Valsassina Arq + PROAP	Soap Factory	Lisbon, Portugal		✓	
Área Mineira de Aljustrel	EDM – Emp. de Des. Mineiro, SA	Mining	Aljustrel, Portugal			✓
Auditório Municipal	António Meireles and Vibeiras	Canning Factory	Olhão, Portugal	✓	✓	
Boca do Rio Resort	Architect Fernando Raposo	Canning Factory	Lagoa, Portugal		✓	
Braga Municipal Stadium	Souto Moura Arq. Lda + Daniel Monteiro	Quarry	Braga, Portugal	✓	✓	✓
Casa dos Cubos	Embaixada Arquitectura	Storage Warehouse	Tomar, Portugal	✓		
Convento das Bernardas	Souto Moura Arquitectos Lda	Canning Factory	Tavira, Portugal		✓	
Fábrica da Baleia	R. Pinto & I. Robalo Architects	Whaling Factory	Lajes do Pico, Portugal	✓		
Jardim de Santa Luzia	Topiáris	Sugar Factory	Funchal, Portugal	✓		✓
Marina Lofts & Apartments - A Fábrica	NLA - Nuno Leónidas Arquitectos	Brick Factory	Lagos, Portugal	✓	✓	
Museu de Portimão	José Cid & Isabel Aires, Lda	Canning Factory	Portimão, Portugal	✓		
Parque Tejo-Trancão	PROAP + Hargreaves Associates	Industrial Waterfront	Lisbon, Portugal	✓	✓	✓
Parque Oriente	Tirone Nunes Arquitectura, Lda	Industrial Block	Lisbon, Portugal		✓	
Parque Urbano de Santa Iria da Azóia	Biodesign	Landfill	Santa Iria da Azóia, Portugal	✓		✓
Pavilhão do Arade	Miguel Arruda Arquitectos Associados	Canning Factory	Lagoa, Portugal		✓	
Quimiparque	RISCO + Juan Busquets BAU	Industrial District	Barreiro, Portugal		✓	✓
Requalificação da Zona Industrial do Bom João	Parque Expo	Industrial Waterfront	Faro, Portugal		✓	
Requalificação Urbana da Lisnave	Richard Rogers	Industrial Waterfront	Almada, Portugal		✓	✓

IV. DISCUSSION AND CONCLUSIONS

The analysis of the presented case studies showed that the redevelopment of postindustrial areas might promote sustainability, reducing negative environmental impacts, and fomenting economic prosperity, social inclusion, multifunctionality and a better quality of life. In fact, even derelict and degraded industrial areas can be created with a new spirit and can be made worth living by keeping visible the spirit of existing site, by applying design strategies that contribute to economic prosperity, social cohesion and environmental quality. As shown in table 2 the analysis of the selected case studies made clear that there are several benefits arising from post-industrial redevelopment. Moreover, if one assesses simultaneously table 1 and table 2 it is possible to identify several projects that present multiple benefits, i.e. benefits at different sustainability pillars.

context, reinforcing the sense of place and local distinctiveness;

-Reusing previously developed sites or unused buildings, ensuring more compact development that enhances accessibility, affordability, and conviviality;

-Promoting the continuity of multifunctional spaces associated with industrial buildings and street frontages; and

-Ensuring that proposed redevelopment approaches create places that have variety and choice through a mixture of different uses, functions and activities.

However, the analyses of the case studies presented in this article enabled us to conclude that even if postindustrial landscapes are commonly experienced negatively, as fragmented and incoherent because it is difficult to conceive a legible whole, the redevelopment of postindustrial facilities may enable a sense of spatial enlargement, with high degree of complexity and with diverse ecological and social benefits, contributing to local redevelopment.

Table 2 - Postindustrial redevelopment benefits to urban sustainability

Sociocultural	Economic	Environmental and aesthetic
Increase sense of belong	Utilize existing infrastructure	Remove contaminants from the environment
Increase pride in community	Reduce urban sprawl – reuse	Create and protect wildlife habitat
Increase in park-land and open space	Reduce infrastructure cost	Increase flora and fauna diversity
Increase quality of life	Increase property values	Increase human environment connections
Encouraging recreation and connectivity	Encourages inner city investments	Create green open space and recreational opportunities
Protect and highlight industrial heritage	Job creation and increased income and investment	Reduce greenfield consumption
Neighborhood revitalization	Increase value of cultural assets	Improved aesthetic quality of urban fabric

Additionally, the analyzed case studies showed that it would be useful to set up a common language among redevelopment interventions performed in different post-industrial landscapes /sites, so that besides increasing visual/aesthetic quality the projects represent an effective public benefit, highlighting the sociocultural and historic relevance of these landscapes for urban sustainability.

This is increasingly relevant because, even if, only a few industrial buildings are of true importance to national and regional heritage, its conservation and reutilization represents an important environmental, economic and socio-cultural advantage, towards the establishment of true sustainable development. In this regard though it is recognized that the presented postindustrial redevelopment project contributed to increase not only landscape quality but also life's quality of local inhabitants, it is arguable that the design solutions developed for this landscape, failed in the application of some best-practice techniques of postindustrial redevelopment, as is the case of:

-Introducing public participation in the redevelopment process, ensuring that the community can play a role in shaping the redevelopment proposals;

-Ensuring that development responds both to site and

Resulting very often from public private partnership (PPP), postindustrial redevelopment projects are generally promoted under the argument that the reutilization of former postindustrial landscapes and/or buildings contribute to improve the quality of life not only at local level but also in the surrounding landscapes, while fostering the maintenance an important part of people's collective memory.

However, as mentioned by Loures et al. [31], even if redeveloping an underused site is generally beneficial, people's needs and desires need to be take into consideration in order to assure that the new development may be a resilient and sustainable one.

In this regard in order to create a successful and sustainable reclamation design it is important to recognize and interpret the historic and cultural significance of the landscape and to understand how *landscape ecology and design can invent alternative forms of relationships between people, place, and cosmos so that landscape architectural projects become more about invention and programs than the merely corrective measures of restoration* [32].

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REFERENCES

- [1] Krinke, R., 2001. Overview: design practice and manufactured sites. In: Kirkwood, N. (Ed.), *Manufactured Sites: Rethinking the Post-Industrial Landscape*. Taylor & Francis, New York. pp. 125-149.
- [2] Secchi, B., 2007. Section 1: Wasted and Reclaimed Landscapes: Rethinking and Redesigning the Urban Landscape. *Places*, 19(1): 6-11.
- [3] Loures, L., 2011. Planning and design in post-industrial landscapes: East Bank Arade River e Lagoa, case study. Ph.D thesis. Portugal: UAlg.
- [4] European Council for Construction Research, Development and Innovation, 2001. *Building the Future*. Office for Official Publications of the European Communities, Luxembourg.
- [5] Tyman, S., 2008. *Gunpowder Park: A Case Study of Post-Industrial Reinhabitation*. Master Thesis, University of Oregon, Oregon.
- [6] Padiati, K., Wehrmeyer, W. and Chenoweth, J., 2005. Monitoring sustainability of brownfield redevelopment projects - the Redevelopment Assessment Framework. *Land Contamination and Reclamation*, 13(2): 173-183.
- [7] Miller, K., Greenberg, M., Lowrie, K., and Mayer, H., 2001. Brownfields Redevelopment Fights Sprawl. *New Jersey Municipalities*, 78(3): 26-29.
- [8] De Sousa, C., 2000. Brownfield Redevelopment versus Greenfield Development: A Private Sector Perspective on the Costs and Risks Associated with Brownfield Redevelopment in the Greater Toronto Area. *Journal of Environmental Planning and Management*, 43(6): 831-853.
- [9] Bartsch, C. and Anderson, C., 1998. *Matrix of Brownfields Programs by State*. Retrieved April 10, 2007, from <http://www.nemw.org/bfmatrix.htm>
- [10] Simons, R., 1998. *Turning Brownfields into Greenbacks: Redeveloping and Financing Environmentally Contaminated Urban Real Estate*. Urban Land Institute, Washington DC.
- [11] Cairney, T., 1995. *The Re-use of Contaminated Land: A Handbook of Risk Assessment*. John Wiley & Sons, Chichester.
- [12] Environmental Protection Agency (EPA), 1995. *The Brownfields Economic Redevelopment Initiative: Application Guidelines for Demonstration Projects*. Retrieved March 12, 2006, from <http://www.epa.gov/swerospsbf/pilo.htm>
- [13] Environmental Protection Agency (EPA), 2009c. *Superfund*. Retrieved June 12, 2009, from <http://epa.gov/superfund/policy/cercla.htm>
- [14] Doick, K., Sellers, G., Hutchings, T. and Moffat, J., 2006. Brownfield sites turned green: realizing sustainability in urban revival. *WIT Transactions on Ecology and the Environment*, 94: 131-140.
- [15] Beriatos, E. and Gospodini, A., 2004. Globalizing urban landscapes: Athens and the 2004 Olympics. *Cities*, 21(3): 187-202.
- [16] Berger, A., 2006. *Drosscape: Wasting land in urban America*. Princeton Architectural Press, New York.
- [17] Berger, A., 2002. *Reclaiming the American West*. Princeton Architectural Press, New York.
- [18] Waldheim, C. (Ed.), 2006. *The Landscape Urbanism Reader*. Princeton Architectural Press, New York.
- [19] Reed, P. (Ed.), 2005. *Groundwell: Constructing the Contemporary Landscape*. The Museum of Modern Art, New York.
- [20] Greenstein, R. and Eryilmaz, Y. (Eds.), 2004. *Recycling the city: The Use and Reuse of Urban Land*. Lincoln Institute of Land Policy, Cambridge.
- [21] Balcells, C. and Bru, J., 2002. *Alongside: Boundaries, Borders and Frontiers*. Editorial Gustavo Gili, Barcelona.
- [22] Kirkwood, N. (Ed.), 2001a. *Manufactured sites: Rethinking the Post-industrial Landscape*. Taylor and Francis, London and New York.
- [23] Rosell, Q., 2001. *Después de, Rehacer Paisajes*. Editorial Gustavo Gili, Barcelona.
- [24] Corner, J. (Ed.), 1999. *Recovering Landscape*. Princeton Architectural Press, New York.
- [25] Corner, J., 1996. *Taking measures: across the American landscape*. Yale University Press, New Haven.
- [26] Weilacher, U. (Ed.), 1999. *Between Landscape Architecture and Land Art*. Birkhauser Basel, Berlin and Boston.
- [27] Turner, T., 2004. *City as Landscape: A post-modern view of Design and Planning*. Spon Press – Taylor & Francis Group, London and New York.
- [28] Vollmer, M. and Berke, W., 2006. *Ruhr Picturebook. Industrial Heritage – new life in old buildings*. Klartext Verlag, Essen.
- [29] Krinke, R., 2001. Overview: design practice and manufactured sites. In: Kirkwood, N. (Ed.), *Manufactured Sites: Rethinking the Post-Industrial Landscape*. Taylor & Francis, New York. pp. 125-149.
- [30] Burley, J., 2001. *Environmental Design for Reclaiming Surface Mines*. The Edwin Mellen Press, New York.
- [31] Loures, L. and Panagopoulos, T., 2006. Rehabilitation of degraded mountainous villages in Algarve, Portugal. In: Laforteza R. and Sanesi G., (Eds.), *Patterns and processes in forest landscapes: Consequences of human management*. AISF Press, Florence.
- [32] Corner, J., 1996. *Taking measures: across the American landscape*. Yale University Press, New Haven.
- [33] Lang, J., 1994. *Urban Design - The American Experience*. John Wiley & Sons, Inc, New York.
- [34] Francis, M., 2001. A Case Study Method for Landscape Architecture. *Landscape Journal*, 19(2): 15-29.

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