



## Teaching Brownfield Regeneration in Romania

**Nicolas Samson, Dragos Ciolacu, Mircea Grogorosvhi, Olivia Cristina Rusu**

Technical University „Gh.Asachi” Iasi (Romania)

[centrum\\_multimedia@yahoo.fr](mailto:centrum_multimedia@yahoo.fr)

### Abstract

*This paper presents an experience of good practice in the field of educational transnational cooperation. Initiated by a consortium of universities in Central and Eastern Europe, the LdV project Browntrans is designed to define and search innovative solutions for teaching and training the issue of derelict industrial areas. Romania has an extensive and diverse industrial heritage that doesn't receive the attention it deserves. Neglected at the best, if not destroyed to build new buildings, these areas define urban identity generated in a historical moment and their extinction will damage the industrial architecture. It seems impossible to enhance the industrial heritage because of a set of unfavorable decisions: unnecessary locations, inadequate materials and execution, unsustainable industries. There remains only a source of recyclable materials and the real estate land. The olden industrial myth collapses together with its symbols. This architecture, as it is, has no dignity. Timeless, it simply disappears in thin air. But the ruins of an ideological utopia are the main ingredients of an endless transition. Conversion is the best option for ancient industrial architecture. In an attempt to revive old buildings, historic preservation meets the urban renewal for a sustainable development. Urban planning needs to deal with four big groups of interests, which represent the shaping forces of the built environment. These are: interests of the state administrative entity, local interests – the actions of these communities, interests of individuals and businesses - action beneficiaries - and the interests of both construction and arrangements. This paper examines social, cultural, legal and financial issues of Romanian Brownfield, to approach topics of engineering education, organization of educational paths and tracks defined didactic ways of teaching formal and non formal Brownfields to students in architecture, urban planning and civil engineering. An innovative feature is the use of NICT, e-learning and suitable procedures to foster the establishment of skills in treating regeneration of abandoned industrial areas. Technical University of Iasi has begun to offer e-Learning courses in this field, and uses generic models for the modified features related to its needs. Our e-learning modules of Brownfield are used as a complement to face training or tutored learning (BL). Our trainings contain text, static images and dynamic sharing of documents. The project Browntrans will offer adapted products for two international intensive one day seminars in Bulgaria (April 2013) and Romania (September 2013).*

### 1. Content

Even if large decommissioned industrial sites emerged especially after the Second World War, their bringing into public awareness became acute in Central and Eastern Europe after the fall of the Berlin Wall. The disintegration of a utopian political system facilitated Brownfield expansion of large economic complexes that in one way or another produced added value and fed millions of people. The transition from a centralized economy to a free market economy introduced in Eastern Europe countries a number of similar challenges and violent changes both in terms of values as well as of lifestyle. These variations have induced significant fluctuations within industry, agriculture, armed forces, transportation and institutions, having serious echoes in the use of land and urban space. A new progress was generated by the development of new services, information and knowledge based on creative industries, involving changes in people's needs concerning the urban lifestyle. But these changes have also involved a bigger "waste" of previously built land, which caused an extensive suburbanization, a massive "Brownfield-isation" and an inadequate use, generating large spaces of deserted land. Summarily, Brownfields represent industrial areas affected by former uses of both the site and neighboring lands, often abandoned and underused, with the real contamination problems. They are located mainly in developed urban areas and require intervention to be brought back to beneficial use [1]. This intervention concerns the beneficial use that they may be assigned as well as finding solutions to local economic development. It



goes without saying that this can be achieved only by assimilating and developing skills and abilities at a local level, boosting thus the formation of appropriate policies and priorities at local and national levels, targeting an audience of professionals of Civil engineering and urban planning, real estate developers, operators and technicians, as well as people working in local government.

Education and training concerns for Brownfield regeneration have long been of interest in our universities, mainly within the Faculties of Civil Engineering and Architecture. Taking place punctually according to the approved academic curriculum, they are followed today by the European transfer of innovation projects: LEPOB and BRIBAST [2], CABERNET, LUDA and CIRCUSE. The general idea was to address the need for training on Brownfields regeneration in the national language, and using NICT as a vehicle to educate and inform. To this end, a new consortium of universities was outlined aiming at transferring the knowledge and educational experience already developed by LEPOB and BRIBAST projects, updated and completed by their particular circumstances and recent trends in industrial Brownfield revitalization. The consortium of the new project [3] consists of three universities (STU in Bratislava, Ostrava VSB, Technical University of Iasi), an NGO (IURS Prague), Bulgarian Development Agency in Sofia and two professional chambers from Slovakia. The main result of this project is to accelerate the formation of urban development skills. This will be achieved by offering know-how and experience in regeneration of brownfields for practicing professionals, administration staff and students who will one day play a role in the regeneration of industrial brownfields. The project will promote training of teachers able to explain aspects of this multi-disciplinary issue in order to support economic environmental and social development in the benefit of the whole society [4].

The main objective of the educational approach of Browntrans LdV know-how transfer of innovation is the need for communities' administration and professionals from the educational system to acknowledge the Brownfield issue. Even today, after almost 40 years of explaining the need for sustainable rehabilitation of Brownfields, the perception issues of Brownfield begin to move from the supervision phase of contamination, to the need of using the abandoned urban land [5] and of improving authorities' skills [6], in the frame of the internal development of urban areas, including recycling approaches and development of the sustainable use of urban land.

Educational approach of Brownfields issues started once with the knowledge of results and outputs of Bribast projects for the Baltic States. Curriculum courses about Brownfields various chances of regeneration were initiated by the Faculty of Architecture and Civil Engineering of Technical University Iași. Browntrans training comprised three stages: a). Awareness of the problem based on existing published material, b). Use of new materials produced in the project Browntrans; c). Development of new learning materials: course on Brownfield regeneration and ongoing case studies; Teaching English and French for specific purposes, using Brownfields resources.

Significant chapters treated on the following topics: to present brownfield lessons from Romania, to provide experience in Brownfield regeneration in CZ, SK, LT, to teach multilingual vocabulary and concepts for specific purposes on Brownfield. For the first two chapters, we used existing documents and experiences from the Lepob project, namely: environmental issues in brownfield redevelopment, economic, technical, physical and managerial aspects, important role of social and cultural factors for the success of a regeneration project. It is obvious that most Brownfields include particular sites that are in various stages of their life cycle and places projected to various uses. The main chapters of this first approach have thus considered: definition of brownfields under economic crisis and market conditions, brownfield classification, chances of being reused, identifying new activities and brownfield cost-effectiveness, regeneration costs. From the Brownfield Handbook for Baltic countries, we have selected some chapters have appeared to have contact with Brownfield issues in Romania, namely: Planning and Development, Technical and Environmental Aspects, Real Estate and Finance, Legal and Liability Aspects, Social Issues and Participation. Based on the debates on these chapters, we made a first version of a multilingual glossary on Brownfields issues [7] subsequently reiterated in the volume Cross-disciplinary Glossary, focused on the issue of brownfield regeneration. In the process of revitalizing brownfields, people and communities need not only to adapt, expect and set objectives as part of the area redevelopment, but also to improve the learning of new skills and abilities. This learning process is designed to generate new long-term benefits for the community. Mutual interactions, continuous and permanent lessons on urban renewal, the feedback coming from different backgrounds, social and political consensus-building and decision-making balance could be important elements of collective learning. The main task is to ensure both the feasibility of the solution adopted for various target groups



and the sustainability of the regeneration phenomenon and of the control mechanisms. Direct and complete feedback and an ongoing monitoring of teaching activities are of great importance. A lot of measures and steps in Brownfield regeneration are of the greatest importance, because of their irreversible aspect. It is necessary to anticipate upcoming social and spatial development, to estimate risks, possible nodal points that are to be overcome, to discover hidden resources and to use them in a friendly, open and honest way. One of the main goals of this practice-based learning is to promote innovative behavioral models. A community based on innovative behavior will probably be better equipped to unknown future risks and destabilization. This has recently shown that outside intervention is not always the most effective tool when the community is unable to learn how to prevent threatening factors.

Other examples are the training and education of local people through non-formal or informal courses or programs adapted for local residents, as well as supporting local employment through "on the job" training. Other creative solutions could address specific issues of appropriate local employment or of working with existing local groups and agencies with expertise, by offering entrepreneurial skills.

Brownfields is essentially a transfer of innovation project. This means that new educational and / or administrative structures of the states that have recently joined the EU have to learn from the experiences in Brownfields regeneration of other countries. Consider Czech lessons drawn from their experience. Here Brownfield regeneration is largely seen as a technical, environmental or even economic process, while neglecting cultural and social dimensions. Today, culture is one of the driving forces of regeneration process through artistic activities, similar to the active involvement of citizens in the process of regeneration, interesting not only in terms of architecture. Lessons that may be useful are shown in both the Handbook and the Teaching Manual. From Romania there are lessons to be drawn that regard the preservation of industrial sites as witness-museums. Here, common in urban regeneration strategy was to attract "creative industries" to develop urban areas in decline. In the best cases, they are used responsibly, being restored and converted into residential areas, shopping malls and office spaces, kindergartens, clubs, theaters, cinemas and restaurants. The cultural purpose of disused factories can focus around three solutions: *civic hall*, *monument* and *museum*. The first type is the most flexible and provides integration of cultural energy and curiosity of a wider and different public, with highly diverse cultural and aesthetic interests. Civic Hall provides tools for interpreting the history of the industrial building. The second type of use is the monument, which is applied to industrial artifacts for which it is difficult to find a commercial position: ovens, technological equipment used during the production process, industrial tanks, etc. Some monuments are still kept alive through decrepit technologic installations only for educational purposes. The third cultural destination refers to the museum. Industry and industrial culture have been exposed in museums of science and technology, but recently, since the early 70s, these have been exposed as eco-museums within museums of science and technology. In this case, unlike outdoor museums, buildings are not removed from their original sites.

A special chapter of the innovation transfer activity presents case studies in Brownfields regeneration. An experience of best practices such as the redevelopment of former Czech barracks can stand as a model for municipalities in Romania, where lack of political will makes huge military bases to be today in decay, instead of being taken over by municipalities and revitalized in the benefit of the citizens. It is also true that here most municipalities lack experience and expertise regarding the potential development and exploitation of opportunities that former military lands, and not only, may offer. NITC may facilitate the opportunity to use digital platforms with online resources regarding case studies and examples of good practice from partner countries, as a premise to optimize both awareness on this issue and Brownfield content delivery, by developing interactive products.

## 2. Conclusions

The problem to be faced now is to maintain current interest on the information in environmental, legal, financial support, socio-cultural and technical domains in order to ensure the quality of the training. A hybrid employment of young architects and construction engineers to train them according to local resources through education at the working place can help to contextualize the strategies suggested in the partnership, to harmonize mutual trainings and resources. One solution in order to retrieve and involve stakeholders and local administrators can be the use of the MOOC format (Massive Open Online Course) which involves proposal of what is to be taught and of how it is to be done, by using a facilitator, documentation and a time planning. MOOC interconnects resources and persons, each person being able



to produce personal new resources on regeneration. The need for progress in this field demands the design of innovative content to facilitate communication and manage change. A solution may be the hybridization of *blended learning* in order to improve communication skills between stakeholders, private and public bodies using online tools. Interactive portals of Browntrans *blended learning* foster self learning and online access to all training steps of all the stages of Brownfield regeneration.

Teaching Brownfield in Iasi Technical University can be summarized as follows: there is concern to suggest an e-Learning course for Brownfield regeneration using generic models based on the curricular specifications in architecture and civil engineering. Our e-Learning modules take into account the analyze from Lessons to Learn from Browntrans LdV know-how TOI used complementarily to mentoring and training (BL), with the participation of local stakeholders and of administration. The backbone of Brownfield teaching consists of the Handbook texts and images, the Teachers' Manual to which we add recent images from case studies and official documents. All modules are distributed freely on the Internet.

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