

INTERDISCIPLINARY METHODOLOGICAL APPROACH TO THE PROCESS OF BROWNFIELD REVITALISATION OF TRADITIONAL INDUSTRIAL AREAS

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Abstract

Interdisciplinary methodological approach to the process of brownfield revitalisation of traditional industrial areas

Traditional industrial regions in the South-East Europe (SEE) represent an underexplored economic value. Revitalisation is delayed and hindered because of legal, financial, environmental and image problems. This weakens competitive investment position for cities and for SEE as a European region.

This paper aims at presenting interdisciplinary methodological approach used in a brownfield revitalisation research project. The research work methodology applies the endogenous approach ("bottom up") on a basis of newly defined land use category of brownfields by the local community. Geography science enjoys an advantage of complexity of understanding spatial issues. This enables geographers to coordinate and harmonize interests between the owners, stakeholders, legislation and human resources. In addition to geographical areas (economic, traffic, demographic, environmental and regional geography) directly involved in the project applicative research, this also includes collaboration of architects, lawyers and economists.

The form of applicative research work presented is being developed within the international Revitalisation of Traditional Industrial Areas in South-East Europe (ReTInA) project. The project is funded in the context of the SEE European Transnational Cooperation Programme 2009/12, involving ten partners from seven countries. The main result of the project will be the new methodology and tools to boost brownfield revitalisation in the municipalities and in old industrial areas of SEE region.

Key words

Applied geography, interdisciplinary methodological approach, endogenous approach, practice tools, brownfield revitalisation

1. Introduction

The process of industrial change has resulted in the creation of so-called "brownfield" across Europe. Brownfields can be understood as sites that: "have been affected by the former uses of the sites and surrounding lands; are derelict and underused; may have real or perceived contamination problems; are mainly in developed urban area; and require intervention to bring them back to beneficial use" (NET 1).

In almost all European countries recognize that the presence of brownfields is a complex problem that goes far beyond single economic, environmental or urban and social concerns and that need some political and methodological solution. These sites present particular challenges to national and regional policymakers, including the remediation of hazards to human beings, groundwater and ecosystems. But there is also a need to facilitate the reintegration of rehabilitated sites into the property market and to ensure that they can be brought back into new economic uses.

Many problems facing industrialized cities and regions are interlinked and exacerbate one another. The decline of industrial value-added, loss of image and self-esteem, the exodus of qualified and young strata of population, the financial overtaxing of the public purse for the maintenance of huge infrastructural legacies and the implementation of decontamination measures, and, finally, increasing social disintegration and a lack of economic perspectives combine to form a complex set of problems that are not amenable to simple solutions and traditional remedies. Specific, historically grounded factors to which many of the CEE States are subject make finding solutions even more difficult, with the upshot that a direct transplantation of strategies is out of the question in most cases (NET 2).

Over the past decades the "brownfield" issue was a particular topic of discussion in the traditional industrial regions of Europe. Countries such as the UK, France, Germany and Belgium are particularly affected by derelict land and also most European cities as well as in peripheral locations. De-industrialization processes in Western Europe and the shock of transformation in Central and East European (CEE) countries have savaged many industrial places on the continent. Communities of former economic heartlands have often become notorious for bankrupt companies, massive unemployment, derelict factories and decrepit infrastructure (Domanski 2000). This wide range of different circumstances and conditions means that different strategies and programmes will be needed to support redevelopment.

In the Central-East European area revitalization is delayed and hindered because of legal, financial, organizational and image problems. It weakens competitive investment position for the cities and for CEE as a whole. Built and expanded around the requirements of a command economy, CEE cities now have to respond to market economy challenges. Dormitory town have to make place for entertainment and retail venues amongst the population with higher incomes and a higher appetite for spending. Polluting industries in inner cities have to make place for cleaner office buildings in an economy that is rapidly shifting from industrial production to services. The pressures of suburban development have to be countered with effective reuse of derelict and underused sites in inner cities, while minimizing greenfield development and reducing sprawl for more environmental sustainable cities (Ionescu-Heroiu 2010). Suburbanization has its morphological, functional and

socio-demographic dimensions and belongs to the complex transformation processes and to the most visible changes on the face of cities (Ptáček, Szczyrba 2007).

Brownfield sites present particular challenges to national and regional policy makers in terms how to improve European global competitiveness in sustainable way in CEE region. In this respect successful brownfield redevelopment policies and strategies need quality research recommendations in setting and meeting public policy objectives and improving practice.

Geographers at the University of Maribor participate in Transnational Cooperation Programme in the project *Revitalization of Traditional Industrial Areas in South-East Europe* (ReTinA). Expanding the scientific knowledge base and developing a clear understanding of the socio-economical, legislative, environmental and spatial dimension that impact on brownfield revitalization are important aspects of our future research programme. The added value of multi-stakeholder and multidisciplinary approaches in research programmes is already demonstrated in other regional projects.

Maribor (Slovenia) is one of tenth partners on the ReTinA project. The partners cities are located in or near urban areas and are subjects to revitalization schemes. Regional case studies include industrial areas in Athens (Greece), Komotini (Greece), Ferrara (Italy) and Iași (Romania), contaminated sites in Galați (Romania), Fidenza (Italy), Csepel, municipality of Budapest, 21st District (Hungary), brownfields in traditional heavy industrial centers in Pernik (Bulgaria) and Košice (Slovakia). Also city of Maribor is an old industrial city with three old industrial zones, which we would like to help to revive. Brownfields are often of great social and economic importance to a city or region because of its strategic location and economic value. The massive decline in industrial jobs in metallic and textile industries at the ending of the 1980s and especially in the period of transition, created a need for wider structural change in industry. In this regions economic disadvantage, making government intervention indispensable, as it could not be expected that the property market itself would solve the underlying environmental, social and economic problems.

2. Objectives of the project Revitalization of Traditional Industrial Areas in South-East Europe (ReTinA)

Regarding the redevelopment and revitalisation of traditional industrial areas, the spatial strategy at the EU-level, as well as the spatial legislation system at national level provide the basis for strategic and planning documents at regional and local level. On the contrary, to the EU- environmental policies, there is no EU-legal framework for physical planning. In the framework of the enforcement of sustainable development, diverse strategic documents promote the need for analysing and redeveloping abandoned industrial sites. At EU-level, the main strategic document is the European Spatial Development Perspectives - ESDP (1999), aiming at the provision of general guidelines and objectives to be integrated in national documents, where promoting, recycling and restructuring of underused, abandoned or derelict urban sites represent the most explored issues. Parallel, several specific documents, such as the Territorial Agenda (2007) and the Leipzig Charter on Sustainable Cities (2007), shall be integrated in national, regional, and

local urban development policies. Additionally, diverse EC-programmes and initiatives explore the aspects of new territorial action planning to be promoted and co-financed in practice. On the other hand, the EU has overtaken an emerging role in environmental issues, focusing on traditional elements, and less on Brownfield's' redevelopment. However, several EU-networks have incorporated the remediation and redevelopment of brownfield sites as the main issue of redevelopment programmes and actions (UM a, 2010).

The review of national approaches for the redevelopment of brownfields in Europe made quite clear that the problem is clearly identified in many countries and action has been taken. However, such action may not always be based on a national strategy but rather relates to single or regional efforts to cope with the problem. Taking a broad view across Europe, there is a general need for development of effective support systems for programme management for urban brownfield regeneration. It is however unlikely that a single model for the European Union would be sufficient.

In this context, ReTinA project define the main objective how to ensure growth, competitiveness and quality employment in the areas by preparing a series of concrete revitalization and investments plans to catalyze revitalization while contributing to a quality urban environment.

A specific objective for the ReTinA project is to develop an innovative Brownfield Revitalization Method (BRM). The jointly developed approach in ReTinA relates directly to the project and programmes (a.o. INTERREG and URBAN). It focuses on two crucial aspects of successful sustainable brownfield revitalization: integrated master planning and stakeholder engagement. Via development of ten regional case studies on revitalization in the partners' areas of SEE Europe, the common BRM which focuses on integrated master planning and stakeholder engagement will be shaped, tested and finalized.

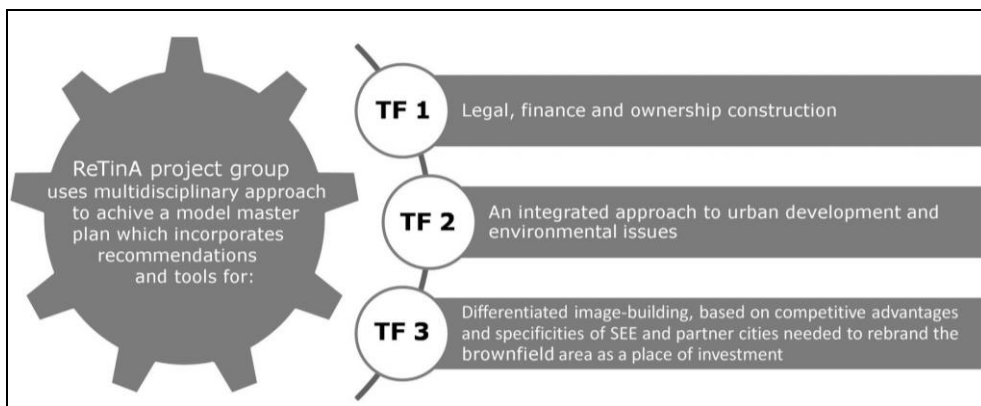


Fig. 1: Multidisciplinary approach to achieve a model master plan (UM a, 2010).

The process of brownfield re-development as an essential component of sustainable urban regeneration is an exceeding complex matter. It issues related to the overall context of urban development and planning with socio-economic implications and finally to the project' implications onto sustainability (NET 3). Research work has a main role in setting and meeting public policy objectives and improving practice

(NET 4). Expanding the scientific knowledge base and developing a clear understanding of the economic or societal dimensions that impact on brownfield regeneration are important aspects of any future research agenda.

The process of brownfield regeneration involves numerous stakeholders at various stages of the process. The process of regeneration is affected by local, national and European drivers and barriers. We would like jointly develop a method for multi stakeholder engagement. The method will lead to a process management tool for stakeholder engagement (TSE). It defines and tests a methodology for stakeholder engagement. Engage stake- and shareholders from »offers and demand« side as early as the brownfield-analysis phase to get necessary support for a consensus-based, business-focused but not business-controlled long term development. The method will lead to the TSE and ten regional brownfield revitalization plans and investment programmes.

The exchange of national problem solving experience can also inform EU policy initiatives on the urban environment. This helps to create instruments that empower European cities working in a global market while still maintaining the important aspects of subsidiarity.

3. Methodological Approach

Retina methodology follows the same cross-sectorial approach that is reflected in the programme and in the Commission Communication on 'Cohesion Policy and Cities'.

The principal methodological approach of ReTInA is to analyze and evaluate current practice in brownfield re-development via a practical regional case studies (UM a 2009). Regional case study (RCS) (UM b 2009) provide a lot of information concerning the specific needs, weaknesses and existing tools that are used in brownfield regeneration activities. A confrontation of the result of these RCS's allows the project to identify a common approach to be discussed in three thematic taskforces which results in a Brownfield Revitalization Method. Each Task Force (TF) covers one field of interest for the project:

TF 1 - Legal Framework

TF 2 - Urban planning and environment

TF 3 - Imaging and branding

Within each Taskforce a Transnational Case Studies (TCS) will be carried out focused on an intensified development and transfer of know how. Within the taskforces a system of peer reviews and benchmarks was established, too.

Task Force TF1: Legal Framework

- Selection of sample of legal entity to serve as public private partnership model
 - Selection of a body for coordination of the revitalisation process in each area.
- Selection of sample of method of financing the above legal entity's activities.
 - Selection of sources for revitalisation process.
- Projection of both to the less developed Brownfield and testing of feasibility.

- Conduction of revitalisation process.
- Testing of feasibility of model to the Brownfield.
 - Measurement of results for verification of effectiveness of chosen activity.
- Correction of eventual deviations.
 - Action plan.

TF1 – 1 Legal:

- a) overview of legal framework on entities of public law and private law (competences of authorities regarding public-private partnerships),
- b) setting up of horizontal cooperation between local public stakeholders (harmonization of local policies regarding Brownfields),
- c) setting up of vertical cooperation between state and regional and local level (harmonization of state policy with local policies regarding Brownfields),
- d) decision on establishment of a legal body of public law/private law to steer activities (proposals for legal forms of public-public partnership bodies (combination of horizontal and vertical cooperation of public stakeholders)),
- e) presentation of model to case studies,
- f) decision on best model of public-public partnership for investment in conditions for public-private partnerships,
- g) invitation of private stakeholders (establishment of interest in partnership with public bodies),
- h) proposal of legal entity of public-private partnership at each location (concession/private company with public management/private company with private management and public supervision/private company with private management and supervision),
- i) decision on best model of public-private partnership for projects of revitalisation of Brownfields.

TF1 – 2 Finance:

- a) setting up of an overview of optional sources of finances for investment in infrastructure for set up legal entity (depending on existing programmes on European, national, regional and local level),
- b) establishment of eligibility criteria regarding optional sources of finances,
- c) proposal of sources of finances and support in decision making on them,
- d) support for legal entity to apply for funding (established public private partnership entity).

TF1 – 3 Ownership:

- a) analysis of ownership structure within Brownfield,
- b) setting up a structure of public ownership (traffic, communal infrastructure, space for rent) and private ownership (offices, factories) and decision on ratio of both,
- c) regulation of open questions regarding ownership (if needed) by established public-private partnership entity.

Task Force TF2: Urban planning and environment

- Selection of sample of urban spatial planning for Brownfield.
- Selection of sample of environmental protection programme.

- Projection of selected model to Brownfield to be developed.
- Testing of feasibility of chosen model.
- Correction of deviations.

TF2 - 1 Urban planning:

- a) site characterization,
- b) definition of limits between Brownfield area and surrounding land,
- c) analysis of needs for connections (train, street, air) of Brownfield to next economic area – needs analysis regarding infrastructure,
- d) overview of existing programmes for urbanisation of each case study brownfield – as starting point for setting up of urbanisation goals,
- f) sustainable economic and land use planning,
- g) urban green space development,
- h) restoration, land revitalization and reuse projects,
- i) establishment of feasibility study of urbanisation in dependence of programmes (foreseen sources),
- j) action plan for funding of urbanisation goals.

TF2 - 2 Environment:

- a) analysis of existing environmental threats:
 - information on the general types of contaminants likely to be present at brownfields sites,
 - an understanding of common industrial processes formerly used at brownfields sites and the general relationship between such processes and potential releases of contaminants to the environment,
- b) overview of methods and technologies of protection of the environment depending on the type and extent of pollution, we can choose innovative or established technologies, (proposal: eco-remediation),
- c) independent evaluation of the cost and performance associated with innovative hazardous waste treatment, monitoring, and measurement technologies,
- d) technology efficacy evaluation (bench, pilot, and full-scale),
- e) setting up a proposal for eco-remediation in Brownfield (when deciding between innovative and established technologies or between treatment and containment technologies, or other options, brownfields stakeholders should consider the specific needs of the individual site and stakeholders. It is also important that brownfield decision makers consider both the current effects of the selected technology approach and its future effects on potential development of the site),
- f) promotion of this proposal to stakeholders,
- g) action plan for achievement of co-natural Brownfield.

Task Force TF3: Imaging and branding

- Selection of sample trademark/marketing strategy of developed Brownfield.
- Projection of sample trademark to Brownfield to be developed.
- Testing of feasibility of selected sample.
- Correction of deviations.

TF3 - 1 Branding:

- a) outline and explanation of all social concerns involved during the planning and development process, including community planning, land reuse issues, and community revitalization groups,
- b) analysis of existing brand/trademarks in developed Brownfield/case study,
- c) overview of method of development of this brand,
- d) setting up a proposal for establishment of brand,
- e) promotion of this proposal within less developed Brownfield,
- d) action plan for achievement of brand/trademark.

TF3 - 2 Imaging:

- a) redevelopment vision,
- b) the purpose of revitalization is to improve neighborhood environments, and enhance the overall quality of life,
- c) promote individual self-sufficiency through the creation of new, full-time, permanent jobs.

The results of all three Task Forces shall compose the Revitalisation Method of Brownfields. After sorting out all deviations, the remaining will be the most appropriate or the most successful method of Revitalisation of Brownfields (UM a 2010).

4. Regional Case Study

At national level the Ministry of Environment and Spatial Planning (MESP) is the responsible authority for the preparation of spatial and urban plans at all the levels, while the Ministry of Economics is responsible for the preparation of strategic development plans and programmes. The guidelines on renewal and redevelopment represent the substantial part of the sustainability paradigm in all the legislative and strategic documents: Spatial Planning Act (2003, 2007), Spatial Management Policy (2001), and Spatial Development Strategy of Slovenia (2004). The Spatial Planning Act (2007), determining the responsibilities of the state and the municipalities, indicates the rehabilitation of brownfield sites as the objective of spatial planning.

At national level, no thematic strategy on brownfield redevelopment in detail has been adopted yet. As a consequence, there is no legal basis for actions or financial incentives.

At local level, the Municipality Spatial Plan (MSP) is the basic urban planning document, competent for the land use and planning of local importance, while the Urban Plan represents the strategic and operational part of the municipality spatial plan, dealing with areas of comprehensive renewal, among others. In spatial planning system, the state is competent for supervision of the legality of physical planning in municipalities' plans.

Starting in 1995 the new Urban Development Plan for the City Municipality of Maribor was developed in response to the dynamics of economic and social changes in the city. The planned activities focused on the old city core renewal on one side and, on the redevelopment and regeneration of the abandoned areas on the other,

with special regard to the protection of the green belt of the city. As a main instrument, some innovative cooperation and participation methods regarding active incorporating of citizens' participation in planning processes were introduced (Sitar 2008).

In recent years, the Environmental Protection Law (2006) introduced the comprehensive environmental impact assessment in order to integrate the sustainable development principles, at the very beginning of the process of preparing plans, programmes, etc.

Revitalisation of brownfield sites is mentioned in the Development Strategy of Slovenia (UMAR 2005) with an aim of industrial and residential sites development. The task is assigned to so-called »development regions under regional development programmes (at NUTS 3 level), and included in the Operational Programme on Strengthening Regional Development Potentials (OP RR) (Vlada RS 2006).

Accordingly, tenders for structural funds published under this OP RR included »revitalisation of brownfield sites« as one of potential objectives to be attained by eligible investment. However, eligible applicants were municipalities, which mean that Municipality of Maribor should have established construction of the BIZ Tezno as its development priority.

Slow developments at local level urged ZPPCT to look for support at national level. This is why all possible efforts were made in 2009 to include the development (construction) of BIZ Tezno into the Resolution on National Development Projects (hereinafter referred to as the Resolution). The government earmarked some budgetary funds for the period of 2010-2013. A public call to submit applications for the period of 2010-2013 is expected to be released in 2010, for all identified business centres in Slovenia (UM a 2010).

5. Business and Industry Zone Tezno

Economic, technological and social changes are the cause of all functional and structural changes in the area. The deindustrialization process triggered the downfall of traditional industrial branches and employment centres that did not manage to adapt to the structural changes in economy and market globalization.

In industrially degraded areas we witnessed the downfall of classic industry, the closing-down of plants with production activities, and the emergence of high unemployment rate, all of these resulting in depressed and economically stagnant area.

Structural changes of Maribor economy, especially in the processing sectors, during the transition period and during the period of switching to market economy are conveyed in the development of industrial zones. The downfall of large industrial companies of production activities caused the stagnation of industrial zones or a change in their function.

Old industrial zones were defined as the lowest form of industrial zones. At first, they represented merely a location of industrial companies and production plants of individual industries with no internal technological or logistical connections that would enable better and more rational business operations. They were located in the

vicinity of housing settlements and had no protective greenbelts. Small housing areas have formed inside them where residence quality was inadequate. Environmental standards and principles of humane ecological design were not observed. The actual location of these zones was limiting the spatial expansion of companies and the construction of a linked infrastructural network (Lorber, 2006a).

The industrial zone Tezno was formed in 1941 for the purposes of German military industry. The site selection was determined by the following factors: ideal traffic location, industrial and trade tradition, and the proximity of Fala power plant. In the period from 1941 to 1944, the production in the aircraft parts plant was constantly increasing. The total number of employees was estimated to around 7000.

After World War II, TAM Maribor was established which was the first motor vehicle plant in FLRJ (Federative People's Republic of Yugoslavia) that was manufacturing vehicles following the Czech license named »pionir«. In 1961, the plant was renamed to »Tovarna avtomobilov in motorjev Maribor« and started manufacturing trucks with air cooling engines, following the licence of the Klockner – Humboldt Deutz Company.

In post-war period and until 1985, the vehicle production volume in TAM Maribor was in constant increase. The greatest increase in production happened in the period from 1971 to 1975. From 1981 to 1985, the production was steady and amounted in 9.000 vehicles per year. After 1988, as a reflection of political and economic circumstances, the production volume started to decrease rapidly. In 1990, only 4058 vehicles were manufactured and in 1994 merely 431.

Business and Industry Zone Tezno (BIZ Tezno) was created in 1996 when TAM went bankrupt and thus ended its several years' long agony. After the bankruptcy and in the context of Maribor restructuring programme (MRP), the Development Fund (the predecessor of Slovene Development Corporation – SDC) joined sound cores of the bankrupt company and established fourteen new companies. Since these companies were capitally very weak, they were eager to find new strategic partners and thus ensure their long-term perspective. This was a necessity, for the TAM production programme was technologically obsolete.

SDC and Maribor Municipality then established a consortium which was responsible for the redemption of all TAM assets; the latter took place in 1999. The infrastructure was redeemed as well. The administering was transferred to the BIZ Tezno Institute, which is a non-profit organisation.

Many factors influenced by the location trends have always been important, but the concept of the strategic features is getting more and more critical (Frej 2001). From this point of view, the recognized characteristics of BIZ Tezno will be briefly summarised, among others, as follows (Sitar, Lorber, Šubic-Kovač 2011):

Strengths

- Good geographical location at the crossroad of the main EU transport corridors
- Sufficient building land available, spatial and urban planning documents adopted
- Several successful companies potentially attracted
- Site management in place: provision of energy, assistance to potential investors, promotion.

Weaknesses

- Slow construction of the infrastructure facilities in Site B
- High prices of land; internationally uncompetitive conditions
- The strategic municipality priorities are not focused on economic and urban land management
- Lack of common strategy on attracting investors.

Opportunities

- Public investments in infrastructure (Site B) aiming at international competitiveness
- Scientific and innovation potential at University of Maribor

Threats

- Future national priorities concerning structural funds may not include development of the business sites
- Internationally uncompetitive general business climate in Slovenia performs an obstacle in attracting foreign investments.

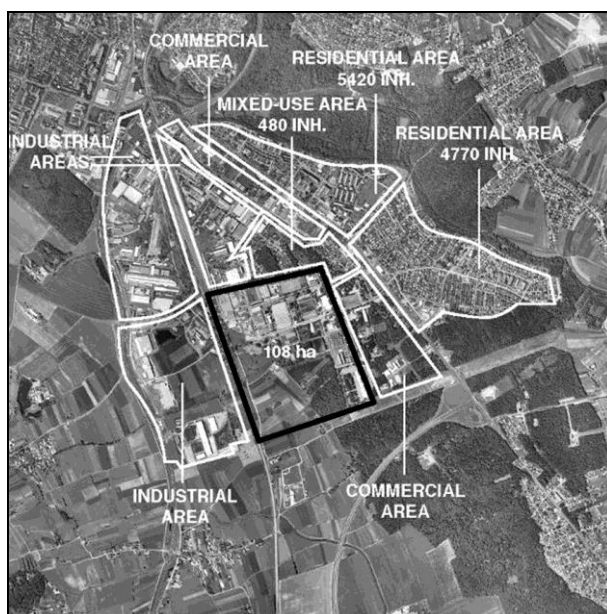


Fig. 2: Urban use and the surrounding areas of BIZ Tezno.

Before the global financial and economic crisis occurred in the middle of 2008, the BIZ Tezno management was frequently contacted by potential investors seeking location in the Zone. Actually, during the period of seven years, starting in 2001, the Zone attracted over 150 companies to settle in the area. However, in line with escalation of global negative trends, the demand for land and/or premises in the Zone decreased almost to zero.

We are positive that once the economy stabilises and begins to grow again, the Zone will be sought by potential investors again; particularly so, if the construction

of public infrastructure was supported by EU funds and, consequently, initial cost related to purchase of land and construction of premises would be reduced.

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Summary

The regeneration of European brownfield sites is an essential part of improving European global competitiveness in a sustainable way. A 'brownfield land dimension' is critical to the pursuit and attainment of many aspects of the EU's structural change. Brownfield revitalization is of transnational relevance to South-East Europe. The quality and attractiveness of the urban environment is one of the decisive factors for foreign investment. If SEE wants to position itself at a global investment scale, it must concentrate on solving the brownfield development problem which is more dominant in SEE compared to other EU regions (Auer, Reuveny 2001).

Brownfield sites present particular challenges to local, national and regional policy makers in terms of bringing the land back into beneficial use. In this respect successful brownfield redevelopment policies and strategies need a complete multidisciplinary approach.

Continuity and change are fundamental, intriguing elements of economic and social processes. One of the salient problems concerning local development is the extent to which economic success is an enduring phenomenon and how it is sustained or reproduced in the same places. The development of towns results from the interaction of various external forces, usually operating on a larger geographical scale, and numerous local factors. Thus the vital question is what local conditions facilitate the reproduction of prosperity of communities in the increasingly competitive national and global economy (Domanski 2000).

ReTInA clearly contributes to the community cohesion policy as well as the Lisbon Agenda providing improved growth potential and higher employment to the cities/regions involved while contributing to the Goteborg Agenda (solutions for pollution). Transnational Cooperation Programme in the project *Revitalization of Traditional Industrial Areas in South-East Europe* is coherent with the global objectives of the SEE programme which aims for improvement of territorial, economic and social integration, stability and competitiveness.

The main goal of ReTInA project is create the ReTInA development methodology, which will be focus on legal/finance issues, bottom up multi stakeholder involvement and integrated master planning. With the ReTInA development methodology, we would like to ensure growth, competitiveness and quality employment in the revitalized areas by preparing series of concrete revitalisation and investments plans to catalyse revitalisation while contributing to a quality urban environment. A special task for the project is to commonly figure out an innovative Brownfield Revitalisation Method (BRM) that prove to be transnationally applicable and flexible enough to suit the requirements and peculiarities of different environments and different phase. In order to develop such methodology, information sharing among partners is crucial. A common understanding and use of tools is indispensable, as much as developing a common know-how to be used throughout the implementation phases. Efficient brownfield revitalisation requires a cross sectorial approaches in which innovative strategies lead to awareness of stakeholders. This in turn leads to putting the theme on the agenda of concerned authorities. This will facilitate a more efficient development of new instruments, to tackle the problem in an integrated approach. ReTInA uses these assumptions to develop sustainable solutions for urban renewals

and revitalisation contributing to enhance the management of the brownfield sites, along with the development of sustainable solutions for the future (Lorber 2010).

Brownfield revitalisation is an excellent example where experiences can be transferred between EU regions, notably between western regions where brownfield revitalisation started in the 80's when urban sprawl resulted in inefficient land use and CEE countries that in most cases start with transition.

