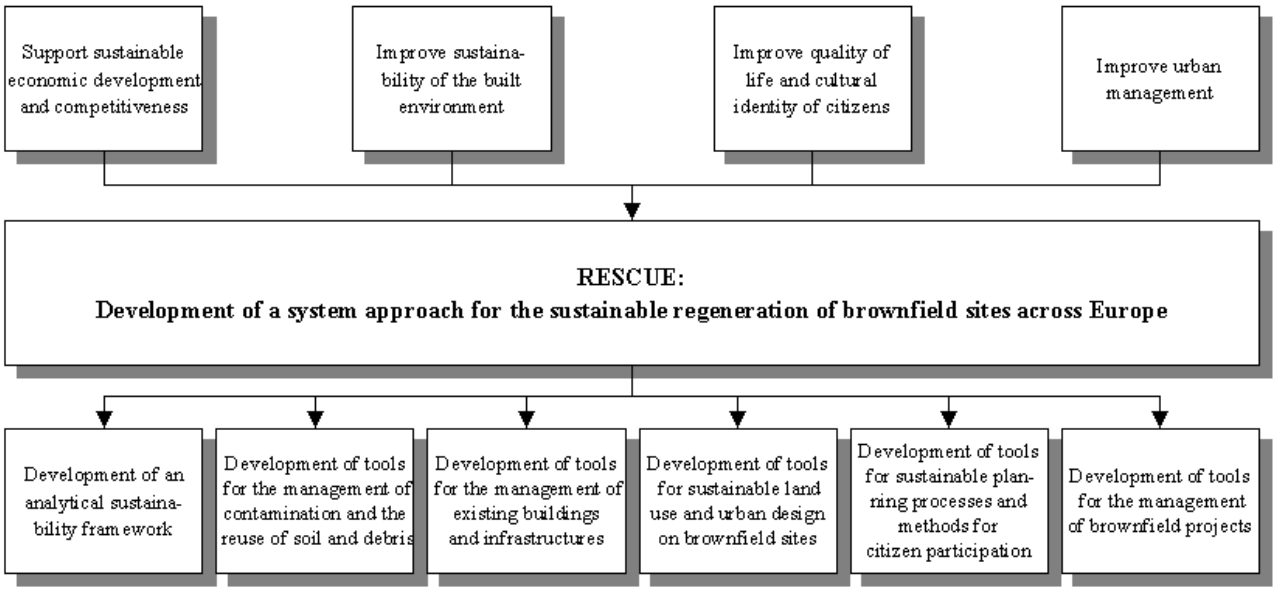
Scientific/technical objectives and innovation

Overall objectives of RESCUE

The City of Tomorrow must be built on the City of Today. Since the cities of today contain much brownfield land, the main objective of RESCUE is to develop and test a systematic holistic approach to the sustainable regeneration of urban brownfields across Europe. By means of this, RESCUE desires to support economic development and competitiveness, improve the sustainability of the built environment, increase the cultural identity and quality of life of citizens, and improve urban management. To meet these overall goals, RESCUE aims to develop cost-effective tools and strategies for the sustainable reclamation of contaminated land to be used by stakeholders, land planners, consultants and public authorities. The following picture illustrates the objectives of RESCUE:



Detailed objectives of RESCUE

The underlying principle for the entire project is the development of a precise definition of sustainability in terms of criteria and indicators related to urban planning and brownfield regeneration. In this context, the first scientific objective of RESCUE is the derivation of **criteria for the sustainability of brownfield redevelopment including: cost reduction for contaminated soil remediation, cost effective recycling procedures of building material, ecologically sensitive disposal systems, densification in the use of urban space, content and function of green and public spaces.** These criteria will be the general baseline for the development of **tools for decision making** on the different acting levels of brownfield regeneration projects. The tools to be developed will be divided into **engineering, planning and management functions** and then will be further incorporated into the desired holistic system approach.

Engineering functions are considered as 'hard functions' in terms of concrete building measures related to brownfield redevelopment projects. They encompass:

- tools for the use of brownfields including construction applications;
- tools for soil management and contamination treatment;
- criteria for the maintenance and/or the dismantling of redundant buildings and installations;
- tools for cost minimisation concerning the maintenance, modernisation and replacement of infrastructures; and

- tools to reduce the use of primary raw material and to increase the recycling rate of construction related waste, soils and process residues.

Planning functions are considered as 'soft functions' focussing on spatial and socio-economic effects that can be achieved by the regeneration of brownfield sites. They are desired to set the requirements for implementing brownfield projects, meeting the principles of sustainable development.
They encompass

- encouraging sustainable land re-use,
- ensuring sustainable urban design,
- implementing sustainable planning processes and methods for citizen participation, and
- adopting methods for the management of brownfield projects.

Management functions are considered as the link between engineering and planning functions, integrating the often contrasting aims and approaches of these different disciplines to achieve a smooth, cost-effective and low-risk realisation of brownfield projects. In this respect RESCUE will

- develop organisational structures for a sustainable project management,
- develop qualification criteria for project managers, and
- develop specific tools for the management of brownfield projects.

The envisaged engineering, planning and management tools will help to

- promote cost effectiveness, affordability and sustainability at all stages of the of the regeneration process,
- optimise the use of resources (including water, materials, energy and land),
- minimise the production of pollutants (including waste, noise and dust), and
- reduce the cost for the rehabilitation of decontaminated sites by at least 20%.

To ensure community wide adoption of the tools developed, a Stakeholder & Validation Team set up by the German Environmental Agency (UBA) will act as an advisory board to monitor the progress of RESCUE, ensuring that its results meet European user requirements. By means of this, a wider **international, stakeholder orientated validity check** will be made in recognition of the international dimension of the results. Once the feasibility of the tools has been tested and proved, they will be suitable for use as a general European background for the **development of tools for prioritisation procedures and options for the allocation of funds (EFRE, URBAN, ISPA).**

RESCUE aims at the development of a holistic system approach for sustainable regeneration of urban brownfields in Europe. This system approach will include decision making tools that can be used as part of a methodological framework. Considering the overall nature of brownfield regeneration and the comprehensive approach of RESCUE, the objectives of the project can be generally summarised as follows:

1. *To drive down the cost for:*

- bringing land back into beneficial use by industry and the community;
- environmental remediation and recovery.

2. *To enhance regional economic development through the:*

- creation of jobs;
- creation of cultural identity by means of citizen participation;
- creation of tax incentives and revenue streams;
- optimisation of infrastructure.

3. *To enhance ecological regeneration by:*

- reducing the consumption of natural resources;
- site preparation for construction purposes (demolition of buildings, soil remediation);
- recovery and re-use of demolition and construction materials;
- environmental upgrading and ecological improvement of former industrial sites through brownfield redevelopment and environmentally adequate spatial planning.

Innovation

The process of industrial change has resulted in the creation of so-called „brownfields“ across Europe, particularly in urban areas. 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. The management of the increasing amount of derelict land in inner city locations is one of the most important issues on the agendas of today's urban planners and property related private stakeholders. Taking into account the ongoing consumption of open space for housing, retailing and industry, it is recognised that a sustainably built environment cannot be achieved without re-integrating derelict land into the property markets and encouraging development back to central urban locations. The state of the art of how to cope with this problem in general ("best practice") has not yet been established.

In the traditional industrial regions of industrialised countries like the United Kingdom, France (Lorraine, Nord-Pas de Calais), Germany (Northrhein-Westphalia) and Belgium, this led to governments creating comprehensive strategies and programs for derelict land reclamation and economic revitalisation. Since the beginning of the 1980s, initiatives have been particularly developed in the UK, France and Germany which favour a regional derelict land policy and create specific derelict land recycling programs. These initiatives were triggered, on the one hand by increasing awareness of the negative economic and ecological effects of the derelict sites, and on the other by the recognition of the positive development potential for such sites. Regional, national and European funding was provided to initiate derelict land recycling programs in traditionally industrial areas - projects effectively being funded by the tax-payer. As it was clear from the beginning that immense financial resources would be required for a long period of time to overcome the scale of the problems, funds had to be concentrated on "pump-priming" initiatives, which would have the effect of promoting subsequent private sector investment. However, despite these efforts there is still a lack of verifiable tools on how to perform best practice in brownfield redevelopment. Recent work on this issue identified a number of unsolved issues in current approaches. Reports released by the expert group on the Urban Environment for DG Environment of the European Commission, "Towards more sustainable land use"(Draft Interim Report June 2000 and Report November 2000) identified (among others):

- Absence of planning measures to enhance the sustainable redevelopment of brownfield (including the practices of planning gain and offset);
- Barriers to the redevelopment process and lack of mechanisms to rescind these barriers;
- Difficulties in valuing the economic, environmental and social benefits of brownfield re-use;
- Adaptability of urban areas to changes in economic, social and environmental conditions, and especially to ways of maximising the adaptability/flexibility of urban infrastructure.

Their conclusions and recommendations particularly underline the need for the development of best practice procedures in brownfield redevelopment across Europe involving the private sector (especially land developers).

Other networks and groups, such as the research work in the context of the coal and steel producing areas for DGXVI (RETI 1992) and CLARINET (the Contaminated LAnd RehabIlitation NETwork under 5th Framework Key Action Water), have highlighted the need for the consideration of contaminated and brownfield land in a broader context. In particular, the brownfield working group within CLARINET has analysed and evaluated the wider framework of conditions applying to contaminated land reclamation, including economics, national policies and programmes, urban planning, etc. Its report recognises that contaminated land problems go far beyond the issues of groundwater protection and soil remediation and identifies a number of gaps in knowledge and in tools, as well as a lack of co-ordination between disciplines. This latter points highlights the need for professional specialists in the field of European brownfield regeneration, a need that is directly addressed through the creation of PhD studentships within RESCUE's work programme.

On a broader geographical scale OECD's Territorial Development Department undertook a comparative survey on strategies for brownfield redevelopment (OECD 1998). There recommendation underline the main principles of the RESCUE research work:

- OECD Member countries should co-ordinate and make more coherent national and sub-national legislative and policy frameworks for urban, economic and environmental sustainability. Flexibility and clarity in procedural matters by government agencies with respect to issues of liability, standards of remediation and timeframes facilitates development
- Indicators and bench mark criteria should be developed as a matter of course by Member countries.

The focus of the project therefore is to solve the problems and effects of current procedures in urban development throughout Europe:

- breakdown of economics in former industrialised areas enhanced by globalisation and accompanied by European structural policy;
- long term presence of large areas of derelict land in good locations across Europe;
- high cost to develop such sites;
- lack of technologies, tools and methodologies to attract new investors to invest onto such sites;
- high unemployment rate in such areas;
- lack of skilled workforce to assist in regeneration projects;
- adverse effects on urban life;
- social conflicts;
- decline of tax income for the communities;
- development of greenfield sites at the outskirts of the cities with adverse environmental effects.

Specifically, this project will raise the state of the art by **innovation** in the following aspects:

RESCUE will:

- develop indicators and benchmark criteria for sustainable brownfield redevelopment.
- develop operational criteria and management guidelines for implementing the objectives of sustainability in the context of urban regeneration (reduced remediation costs, enhanced environmental merit, settlement patterns for the 'city of tomorrow').
- include a rich variety of stakeholder and member interests through the Stakeholder & Validation Team.
- provide holistic, testable and transferable solutions to the challenge of urban regeneration by simultaneously considering technical, planning and economic issues.

- identify strengths and weaknesses of past national procedures from a European perspective that will be combined to develop a transferable approach for use elsewhere in Europe.
- directly contribute to the current project practice of the "stakeholders" as one key actor for initiatives on brownfields.
- deliver administrative decision making and management tools (checklists, performance indicators, evaluation criteria, examples of best practice...) for the implementation of national, regional and European policies (URBAN / ISPA / FERE).
- bring together research institutions, local and regional administration bodies and experienced stakeholders in an interdisciplinary, solution orientated team.
- address and inform planning and technical disciplines and their professional networks by promoting a future integrated approach on urban redevelopment.
- integrate project management "best practice" into system related solutions.
- generate PhD Studentships through the universities involved thus creating a core of specialist expertise in the field of European brownfield regeneration.
- enable the stakeholder communities to train themselves and become aware of the project findings through the virtual training centre.