



Feasibility Study for Phase III of the bmb+f – U.S. EPA Bilateral Working Group On Redevelopment of Contaminated Sites

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Prepared by:

PROBIOTEC GmbH

Consulting für Umwelt- und Biotechnik

Authors: Dipl.-Geol. Kai Steffens

Dipl.-Ing. Miriam Vieten

Schillingsstraße 333
D-52355 Düren-Gürzenich

phone (+49) 24 21 / 69 09 - 46
FAX (+49) 24 21 / 69 09 - 61
E-Mail steffens@probiotec.de

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Geschäftsführer:
Dipl.-Ing. Hans-Jürgen Schwefer
Dipl.-Ing. Horst Weyer

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Table of Contents

0	Preface	3
0.1	Disclaimer.....	3
0.2	Acknowledgements	3
1	Background	4
2	Goal and Approach	5
3	List of Information Sources and Rationale for their Selection.....	7
4	Opinions About Site Redevelopment and its Status.....	9
5	Refined List of Issues, Feasible Goals, and Measures of Success.....	13
5.1	Obstacles	13
5.2	Principle Solutions and Principle Needs.....	14
5.3	Structure of Joint R&D under Phase III	16
5.4	Suggested Short-List of Issues the Feasibility Study should Consider.....	18
6	Proposed Work Plans and Estimates of Feasibility and Effort Required....	20
7	Future Direction	33
8	Appendix 1: List of Interviewpartners	34
9	Appendix 2: Bibliography of Resources.....	36
10	Appendix 3: Long List of Issues developed and discussed during the Feasibility Study	38
11	Appendix 4: “Areas of Interest from the Municipal Point of View” compiled by DIFU	45

0 Preface

0.1 Disclaimer

The preparation of this study was based on a clear definition of the task provided by the bmb+f. Nonetheless reflects the content not necessarily the viewpoint of the German Federal Ministry of Education and Research (bmb+f) or the German Government.

All interview partners, who are listed in Appendix 1 were interviewed as individuals, not as official representatives of their companies or institutions. Therefore the information, claims, and opinions stated do not necessarily reflect the official viewpoint of the company or institution.

The information, claims and opinions contained in this study, were interpreted, combined, and where necessary, summarized by the authors. Therefore the authors are responsible for the content of the study and the manner in which the content is presented.

0.2 Acknowledgements

The authors wish to express their special thanks to all interview partners listed in Appendix 1 who supported the preparation of the study by investing their time to provide ideas, opinions, and comments.

The input of facts and ideas provided by the U.S. partners in the Bilateral Working Group is gratefully acknowledged, especially the support of Annette Gatchett of the U.S. Environmental Protection Agency (EPA) and of Roger Argus of Tetra Tech EM Inc. (Tetra Tech) was of key importance.

The facilitation and moderation of the workshop by Dr. Frank Claus, Institut für Kommunikation und Umweltplanung GmbH (IKU) has contributed substantially to the study and is gratefully acknowledged. Further input to this feasibility study was taken from a municipal survey done by the Deutsches Institut für Urbanistik (DIfU).

The Bilateral Working Group program manager Vera Rabelt of the German Federal Environmental Agency (Umweltbundesamt [UBA]) and Dr. Jürgen Heidborn of the German Federal Ministry of Education and Research (bmb+f) were responsible for this study. Their support and the cooperation was the foundation for the work on this study.

1 Background

The redevelopment of vacant contaminated or suspected contaminated sites is considered to be an important element of sustainability in land-use.

The present situation of development and redevelopment of land in Germany is characterized by large numbers of vacant sites, which are frequently suspected of being contaminated or are proven to be contaminated. At the same time, consumption of undeveloped land for new development is at a rate of approximately 120 hectares per day. This demand for land use and the side effects of urban sprawl are in contrast to the model of sustainability.

Environmental and political requirements are the driving forces for sustainable land use. However, a number of obstacles hinder site redevelopment and require an approach that integrates economical, ecological, social, and institutional aspects. Integration of these factors should be the main focus when developing innovative tools to improve and accelerate the process of site redevelopment. In this sense, organizational and communicational aspects of redevelopment projects are of high importance. The cooperation and successful interaction of the stakeholders is considered one of the key success-factors.

The following tasks are considered to be of key importance for the success of redevelopment of sites (HOLZWARTH 1999):

- Initiate remedial activities where necessary
- Bring sites back to beneficial use by the municipal communities, industry, and businesses and create jobs.
- Establish fitness for use and sustainable development of abandoned, idled, or underused industrial and commercial facilities (brownfields)
- Develop integrative methods by combining environmental and spatial planning
- Create new tax incentives and revenue streams to promote economic interest
- Optimize infrastructure and social integration

The bmb+f – U.S. EPA cooperation is considered to be a suitable tool for joint work in this field. The cooperation is introduced in the next section in conjunction with the goal and approach of this study.

2 Goal and Approach

The bmb+f – U.S. EPA Bilateral Agreement on Remediation of Contaminated Sites is a joint research and development (R&D) activity that began in 1990. In late summer of 2000, the second phase of the agreement was finalized and first meetings were held to determine the focus of the third phase.

As a result of the interest in the issue of redevelopment of vacant land (see section 1), bmb+f and U.S. EPA have agreed to focus on this issue for Phase III of their ongoing cooperation.

In order to identify areas of common interest and to collect as much information as possible about these areas, the partners agreed to each prepare a feasibility studies. In addition to the collection of information, a workshop of experts shall facilitate the shaping of goals and the preparation of a working concept for the future of the agreement. The German workshop was scheduled for October 26, 2000 in Berlin. The U.S. workshop is scheduled for the first week of February 2001.

The **goal of the feasibility studies** in the U.S. and in Germany is identical:

“Develop a list of ‘areas of common interest’ in site redevelopment to foster acceptance of feasible goals and a workplan for Phase III”

‘Areas of common interest’ were defined as: “Issues in which the weaknesses of one partner match the strengths of the other“ or “the need for solutions on both sides and joint creation of solutions.“

In Germany, site cleanup and redevelopment are generally the responsibility of the federal states (Bundesländer). The municipalities are responsible for urban planning (Art. 28 Sec. 2 of the German Constitution). Therefore bmb+f asked the authors of this study to contact state regulators and municipalities and to interview members of the staff to identify their needs for tools and solutions. Furthermore, the municipal aspects are subject to an additional study (DIFU 2000).

Special emphasis is laid upon the involvement of the Federal Ministry of the Environment, Nature Conservation and Nuclear Safety as well as the Ministry for Traffic and Construction to foster acceptance and generate support for the study.

The following should be achieved for Phase III:

- The stakeholders, especially the various authorities should be tied in as efficiently as possible
- Management, cooperation, and communication should be tailored and appropriate
- Achievable goals should be defined, work plans developed, and budgets planned.

While preparing the study, information and opinions should be collected from the stakeholders. The key question should be the components needed to promote suitable redevelopment of land. The interviewed stakeholders should understand that bmb+f has acknowledged the problem and that the Bilateral Agreement is a method to address the problem without interfering with or compromising the stakeholders. The key planning issue in the study is to find a way for participants (agencies and stakeholders) to cooperatively and efficiently work.

By task-definition, the feasibility studies should be straightforward, strategic, and last less than 6 months. Decisions on the goals, the participating groups, and the work plan of Phase III were originally scheduled to be made in the year 2000 but are now delayed until April 2001.

The target group for the study is solely the decision makers for Phase III (including U.S. EPA and bmb+f/PT AWAS). The following five fields were covered during interviews and the literature search:

- Economy/Funding/Marketing
- Insurance/Liability
- Environmental
- Urban Planning/Social Aspects
- Communication

The general process of the feasibility study is “funnel-shaped”. A large number of opinions are collected and considered, to identify chances for and obstacles to site redevelopment. The obstacles are taken into consideration to derive the long list of issues, which is narrowed down to a short list. The decision makers select one or more of the short listed issues for joint work in future international collaboration.

3 List of Information Sources and Rationale for their Selection

Interview partners were, in conjunction with the mission of the study, selected from the following groups:

- federal, state, district, and municipal governments and administrative units, in this order, are the responsible bodies for frame conditions, spatial planning, remedial actions, and urban development.
- all other groups of stakeholders (see below), but within these groups:
 - “visible“ and “invisible“ people
 - regulators and project-staff
 - well-known and “unknown“ people
 - big cities, smaller towns, and counties
 - “rich/powerful and poor/powerless“
 - West and East of Germany

Appendix 1 comprises the list of interview partners.

The aim was **not** to take a representative random sample. The selection of the interview partners began with people the authors knew already and the selection escalated forward. The authors decided to look in depth at geographical, economical, and technical areas, where the interviews generated ideas that seemed to be of value for the study.

All interview partners participated as individuals, not as official representatives of their companies or institutions. Therefore, the information and opinions do not necessarily reflect the official viewpoint of the company or institution.

Another source of information and other input for the study was a questionnaire was developed, sent out to German city-administrations, and evaluated by the Deutsches Institut für Urbanistik (DIFU). The results are compiled in a list enclosed in this study as Appendix 4.

The use of the term “stakeholders in the redevelopment process” in the study includes the following groups and parties:

- Site owners and potentially responsible parties
- Cities, municipalities, counties, and tribes
- Developers
- Investors
- Banks
- Regulators
- Residents and Neighborhoods
- Politicians and political parties
- Consultants
- Lawyers
- Insurers
- Redevelopment Agencies
- Nongovernment agencies (NGOs)
- Universities
- The press
- States
- Chambers of commerce

4 Opinions About Site Redevelopment and its Status

Discussions about the issue of site redevelopment frequently use differing terms. This section highlights the authors ideas about the status of site redevelopment in the big picture of sustainability, in order to give the reader a view of the interrelation definitions and ideas used in this study. This statement is a suggestion by the authors of this study and shall be modified, developed further by the technical community.

Agenda 21, the result of the 1992 United Nations conference in Rio de Janeiro demonstrates the commitment of the signing countries to develop a global strategy for sustainable development. At the 1997 United Nations conference in New York, all signing nations agreed to finalize their national strategy in 2002. The German strategy preparation began in January 2000.

The development of the strategy requires policy integration (consideration of environmental policy goals in other political fields) as well as comprehensive participation of stakeholders. The strategy is considered to be of special importance for environmental problems, which are difficult to recognize because of their slowly developing but long-term effects. The development of natural land (land consumption) and the climate change caused by the greenhouse effect are examples for this kind of slow but severe changes.

In /SRU 2000/ soil protection is considered to be a vital part of environmental protection. Natural soil functions are affected significantly by:

- development of natural land (“land consumption”),
- input of nutrients and pollutants,
- erosion, and
- contamination

Official German inventories include approximately 325,000 civil and 10,000 military sites suspected to be contaminated. Up to 1998 the federal states claimed, that approximately 53,000 sites investigations or risk assessments were in progress or have been done.

Today, in Germany about 129 hectares (300 acres) are developed per day. The long-term requirement is that this development should be reduced to 30 hectares in 2020. Nonetheless to establish sustainability in the long-term, the growth must be reduced to zero.

Based upon the Agenda 21 process, the following hierarchy can be developed. The position of the issue “redevelopment of abandoned sites“ is marked in the following statement:

Level 1:

The **national strategic approach** to sustainable development must cover multiple fields, including ***soil protection*** and ***sustainable urban development***.

Level 2:

The ***strategy for soil protection*** must include e. g. the *development/covering of natural land* (land consumption), the input of nutrients and pollutants, erosion, and compaction

Level 3:

The strategy to minimize *development/covering of natural land* needs to be developed and must comprise strategies for:

- detachment of land use from economical growth
- strengthening the use of already developed areas/densification
- improved combination of residential and working functions (to reduce the demand for traffic space)
- **redevelopment of sites instead of using suburban or rural areas (greenfields) for development**

Additionally

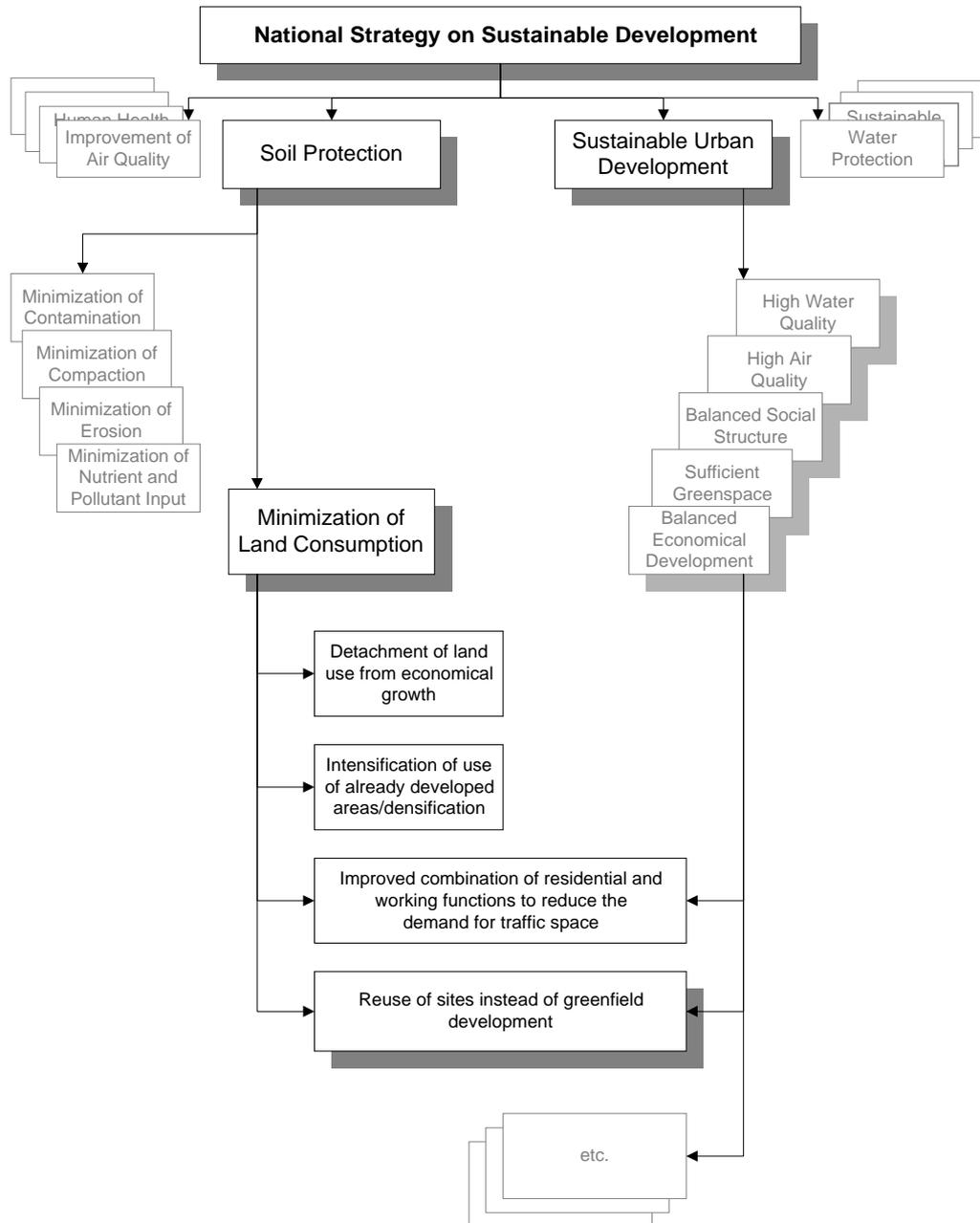
- the extent of covering natural land with buildings or pavement should be reduced in developed areas, and
- areas of considerable less ecological value should be prioritized for development

Thus, **site redevelopment** is considered to be one element of the strategy to minimize *development/covering of natural land*, which again is considered to be one element of the ***strategy for soil protection***.

The expected benefits of **site redevelopment** are as follows:

- Minimization of land consumption
- Improvement of ecological quality of sites
- Economical benefit for neighborhoods and other areas
- Diminish social blight of areas
- Traffic reduction
- Reduction of traffic space demand
- Improvement of the inner city living conditions (e. g. cleanliness, safety)

The following figure illustrates the position of **site redevelopment** in relation to the strategy of soil protection. In addition, the figure indicates that **site redevelopment** is considered to be a vital part of sustainable urban development. Site redevelopment includes a numerous functions intended to have benefits which are relevant to sustainable urban development.



The discussion of the key influencing factors for redevelopment of abandoned sites in Germany focuses on the interaction of spatial planning and economic development. SRU 1996 states that the “regions“ must be the basic administrative bodies of spatial planning in order to overcome the competition between the municipalities or cities. Spatial planning must be combined with the elements of regional-management in order to control spatial structural development. There is a strong need to shift from the enforcing of environmental policy which tries to correct and dominate the trends of the market, towards a combination of the political and economical forces.

Considering the background of the discussion in Germany, it seems important to mention here, that the *U.S. Brownfields Economical Redevelopment Initiative* is not an Environmental Program. The motivation for Brownfield-Redevelopment is economically dominated. It encompasses the idea that the return of economical activities to the inner cities will cause an increase of income in low-income neighborhoods and will thus improve the social structure, the safety, and the well being of these neighborhoods.

Another factor of sustainable development is the reduction of urban sprawl. Urban sprawl results in the growing need for establishing and maintaining large infrastructure systems. The respective costs are considered to be high, especially if the costs for safety and social support are considered. The costs for safety and social support may have to be carried for neighborhoods that are blighted by being economically abandoned.

The interviews in the course of this study reveal that in the eastern states of Germany, the combination of economical redevelopment of sites with social effects more of a focus of interest, than it is in the western states. An exception may be the Ruhr and Saar area, where the structural shift away from the “heavy industries of the past“ has been a policy since the 1960's. The breakdown of the economy in the eastern federal states after the German unification has resulted in a similar situation, characterized by a combined economical and social decline and the need for investments on previously developed land.

In general it can be stated, that attractive sites that represent a high resale value are redeveloped without any problems, because the revenue when the site is sold can cover demolishing, remediation, and other costs. In other cases where costs are higher or are foreseen to be higher than the resale value, other incentives such as funding or grants are needed. This fundamental rule has been commonplace in Germany's technical community since the environmental question became an issue.

5 Refined List of Issues, Feasible Goals, and Measures of Success

In the course of the preparation of the Feasibility Study, work began with a review of obstacles to site redevelopment. The obstacles are well documented, therefore the Feasibility Study focuses an evaluation of common characteristics of these obstacles rather than compiling another “complete” obstacles-list. To give the reader an understanding, the more general obstacles are provided in subsection 5.1.

During the interviews, opinions of site redevelopment practitioners were collected and compiled in the long-list (see Appendix 3). During the workshop, more ideas on the technical communities needs were collected and first thoughts were developed, including how the working program could be tailored and which working instruments should be used. Subsection 5.2 gives a brief overview on the latter ideas. Based on the workshop results and further discussions of the working team, the long-list has been narrowed down to a refined list (short-list) of issues, given later in this section.

5.1 Obstacles

The goal of reusing abandoned sites instead of greenfield development is frequently hindered by the following common obstacles in random order:

- lack of strategic land management planning (in regions)
- market conditions (low demand)
- economical problem: the differing land value regulates the competition of greenfields and brownfields;
- lack of communication (internally [project teams] and externally [the public])
- fear of liability for contamination already present on the site
- poor quality of project management (resulting in: public concern and time pressure which both drive the costs up)
- ecological problem: negative image
- mental problem: different acceptance of re-used land
- deficit site investigations cause conflicts contractors vs. clients and seller vs. purchaser
- legal and financial fragmentation (lack of integration)
- “independent information“ is hard to find and expensive for potential investors
- fragmentation within the authorities (lack of integration)

- an excess of people/parties in the project
- insufficient competence in regulatory authorities
- time constraints

The list of obstacles mentioned above can be found in many literature sources and therefore does not need to be emphasized in deeper detail. However, there were other obstacles mentioned during the interviews, which are “newly defined obstacles“ that have not been of highly visible. Examples are:

- Not enough political pressure to redevelop sites instead of developing greenfields.
- Preference of site redevelopment is not a publicly discussed issue in (West) Germany.
- Lack of predictable benefits and well-documented success stories hinders political activities towards site redevelopment. (*“Why should a local politician positively pick up this issue ?”*)
- Sites remediated with private companies money are expected to be maintained better in the future (strengthening of the sense of responsibility).
- International Accounting Standards require evaluation of environment-related risks during financial audits. This instrument presently does not seem to work well.
- Bankers and Venture Capitalists do not understand the issue and studies on redevelopment. Studies and plans are written in technical not financial language, and discussions are frequently terminated, when the word “contamination” is used.

5.2 Principle Solutions and Principle Needs

Principle Solutions

It is widely known and common knowledge in the technical community that the following principle solutions for impediments are needed for an effective redevelopment policy and strategy:

- Creativity and vision
- Public subsidy, direct or indirect
- Land use planning controls
- Professional project management (e.g. regeneration agencies to focus activities)

-
- Integration of redevelopment with transportation, environmental, and social policies
 - Scientific and technological understanding
 - Proactive participation of stakeholders

The principle solutions above are well known and documented in a large number of studies and workshop-documentations.

During this study the interview partners frequently (i. e. by more than 3 people) stated the following as necessary to smoothen and speed up site redevelopment:

- A strong expression of the political goal to redevelopment sites instead of greenfield development.
- Public campaigns for redevelopment to strengthen the visibility of the problem.
- A legal and funding/granting system which strengthens the sense of responsibility of the site users.
- Full and adequate implementation of rules for financial and technical auditing, requiring regular updates of the risk-status (including environment-related risks).
- Models and tools to predict and present the overall benefit, especially the social benefit, in a way which is suitable for public campaigns.
- Publication of success stories (definition of success is needed)

Principle Needs

The following common R&D needs were identified prior to this study e. g. in the International BMU workshop in Duisburg 2000 and can be named well known:

- Documentation of demonstration projects and technology transfer
- Risk Management / Evaluation protocols and decision support tools
- Risk communication / training
- Implementation of R&D project results
- Financial evaluation models (methodology of predictive models)
- Integrated management processes
- Elements and processes of regional management processes

-
- Guidance for stakeholders
 - Success measurement factors (economical/social/ecological criteria)
 - Site characterization tools
 - Long-term effectiveness of remedial containments
 - Long-term maintenance and monitoring tools
 - Identify conflicts in legal or regulatory requirements

For the Feasibility Study, it was concluded that the issues of interest should reflect as many obstacles, principle solutions, and principle needs as possible.

5.3 Structure of Joint R&D under Phase III

In order to develop a suitable structure for the identified relevant issues, the following working levels are suggested:

Working Levels:

During the interviews, in the resulting long-list of issues, as well as in the workshop it became apparent, that in Germany there is a need for activities in three different levels of complexity:

The strategic level (with mainly national activities and international exchange through an “international window”): A council of BRAINS in Germany should focus the general and wholistic approach to site redevelopment, targeting to define and to balance the framework for establishing sustainability in German land management.

The project level (with national teams exchanging/sharing information through the “international door”): German stakeholders-cooperations should focus on specific requirements of site-redevelopment in project organization and communication. Targeting to 1. review and study the partner countries projects (*what do we learn ?*) and 2. create projects in their own city/county

The tools level It is subdivided into “General Issues, GI” (with national teams exchanging/sharing information through the “international door”) and Specific Focus Areas, SFA” (international working teams in a common “international office”): Redevelopment experts should focus the development of instruments to solve economical, ecological, social, and institutional problems in single-disciplinary or interdisciplinary international work.

Working Fields:

Projects in general are the sum of numerous economical, ecological, social, and institutional aspects and its interrelations. Aspects such as the regional and the local setting, financing tools, zoning requirements, etc, characterize projects in site redevelopment.

The strategic level must consider the whole, all kinds of projects, all characteristics.

The project level should focus on the sum of the characteristics in a small number of projects and thus highlight the view towards the process of site redevelopment.

The tools level should focus on a small number of characteristics in a large number of projects and focus the instruments to allow for or to encourage site redevelopment.

Linkages between the levels:

In Germany, the three levels should be linked by a steering group and should be interconnected as follows: The levels

- can/should request guidance from the “higher levels”: e.g. definition of goals, input for work, ideas and strategies for publication of results.
- have to provide guidance to the “lower levels”.
- have to deliver results to all.

Sustainability:

The overall goal is to establish sustainability. Four columns represent sustainability: ecological, economical, social, and institutional. The following shall ensure, that the work proposed below is contributing to sustainability:

- interlinked planning of work
- provisions for wholistic strategic guidance
- interdisciplinary working teams
- multi-dimensional work and documentation

Tools for the Joint Work:

The following list of instruments was mainly compiled during the German workshop. The joint R&D work should use these instruments to work on the issues listed below. It should be decided between the partners, which instruments are suitable for the work on

the particular issues. The work plans in section 6 consists of suggestions for the use of the instruments.

- Work in international teams
- Emphasize difficult cases, versus studying of showcase projects.
- Documentation of successes and lessons-learned
- Identification of proven tools
- Selection and studying of actual project experiences in Germany and USA
- Exchange of municipal expert-teams
- Process-oriented analyses covering the life of projects from the problem to the solution(s)

It should be stressed that not only the highly visible showcase projects but also small projects, comprised of innovative ideas (e. g. for project management, communication, financing, remedial approaches) should be studied under Phase III.

5.4 Suggested Short-List of Issues the Feasibility Study should Consider

The following short-list of issues should be discussed between the partners in order to select the issues for the Phase III.

In the following, the three levels mentioned above (Strategic, Project, and Tools level) are underlain with project ideas, which consist of ideas and intentions discussed in the long-list and the work-shop respectively. There is one project suggested for the strategic level, one project suggested for the project level, and a number of projects is suggested for the tools level. In the tools level, the projects are subdivided into “Specific Focus Areas (SFA)” and “General Issues for Information Sharing (GI)”. The GI group consists of issues which will be handled in different ways in each of the partner countries. Joint work therefore focuses on information exchange and potential joint work-shops. Whereas SFA includes specific tools and techniques that can be jointly developed and demonstrated under Phase III. Below, the suggested projects are numbered and entitled in a manner that corresponds to the numbering and entitling system in the U.S. Feasibility Study. The U.S. study uses numbers such as “GI-1” whereas the German study uses letters such as “GI-AA”. Issues and project ideas that correspond to the respective ideas in the U.S. study are noted in the following.

Suggested Short-List of Issues	
Level and its Characteristics	Number and Title of the Project
<p>The Strategic Level: Work mainly to be done nationally, minor exchange with U.S. experts upon request through the “international window”. Wholistic approach. The big picture. The frame for sustainability in German land management.</p>	<p>STRATEGY-AA Title: Development of a National Strategy on Site Redevelopment</p>
<p>The Project Level: Work to be done nationally in Germany and the U.S., exchange with U.S. project practitioners through the “international door”. Studies the entire “life” of a limited number of projects. It focuses the process-oriented view. It emphasizes the exchange of experiences, ideas, and personnel on the (municipal) practitioners level.</p>	<p>PROJECT-AA Title: Initiate stakeholders cooperations and conduct redevelopment projects.</p>
<p>The tools level for Specific Focus Areas (SFA): Work to be done by international teams with “on-line” exchange and joint work in the “international office”. A limited number of technical facets and characteristics are studied in a larger number of projects. The tools-oriented view. Exchange of ideas and joint development of new tools.</p>	<p>SFA-AA (corresponding to SFA-1) Title: Redevelopment Business and Management Plans</p> <p>SFA-BB Title: Optimization of Long-term Treatment Systems</p> <p>SFA-CC (corresponding to SFA-4) Title: Community Outreach Guides</p> <p>SFA-DD Title: Project Organization and Communication Guide</p> <p>SFA-EE Title: Demonstration of Innovative Site Investigation Technologies</p> <p>SFA-FF Title: PPP - Experiences and Establishment of Competence Center</p>
<p>The tools level for General Issues (GI): Work to be done in Germany and the U.S., exchange with U.S. project practitioners through the “international door”. Single aspects of site redevelopment are studied to provide underlying knowledge, ideas and evaluations for the national strategy. Exchange of experiences and ideas on the experts level.</p>	<p>GI-AA (corresponding to GI-1) Title: Financing and Tax Issues</p> <p>GI-BB (corresponding to GI-2) Title: Releases of Liability</p> <p>GI-CC Title: Marketing of the Redevelopment Issue in General</p> <p>GI-DD (corresponds to parts of SFA-1) Title: Land Management and Regional and Municipal Strategies</p>

Initial ideas for working programs for the projects mentioned above are listed in Section 6, along with more information on the suggested content of the projects, ideas for the participants, and the effort expected are described.

6 Proposed Work Plans and Estimates of Feasibility and Effort Required

The following ideas for the working program of the Phase III of the Bilateral Working Group have been developed based on the relevant issues listed in section 5. During the development of the working program, joint brainstorming was done and discussions were conducted with the authors of the U.S. Feasibility Study mainly via the teleconferences and e-mailing back and forth. This way was chosen to meet the requirement of matching work-planning in the German feasibility study and its American counterpart respectively.

The authors of this study have stated some further recommendations to bmb+f on project priorities for consideration during the phase III decision making. The working program is still subject to internal discussions and discussion between BMBF and U.S.EPA.

Feasibility Study Work Plan	
The strategic level	
No.: "STRATEGY-AA"	Title: Development of a National Strategy on Site Redevelopment
<p>Background:</p> <p>It is considered to be an important step towards sustainable land management to reduce the rate of green field development. Political support for site recycling on national, state, regional/district, county, and local level is desperately needed and must be strengthened by incorporation of site recycling into a politically accepted wholistic planning concept: a national strategy on site recycling and sustainable management of (developed) land in Germany. Land management is considered to be a highly complex issue which is affecting and is affected by a wide variety of needs, requirements, and merits of the society.</p>	
<p>Approach:</p> <p>During the development of the strategy, interdisciplinary work must be ensured from the first moment on. A biased approach by emphasizing or suppressing particular aspects or columns of sustainability should be avoided by any means. A phased approach is therefore the preferred and suggested solution: Phase 1 should cover the development of the procedures and tools for true interdisciplinary work and Phase 2 should be the compilation of the basic-data and preparation of the strategy. A compilation and review of the state-of-the-art is desperately needed as well as transformation knowledge allowing to identify instruments in other technical or non-technical fields which could and should be beneficially used in site redevelopment. The goal should be to identify fields of activities and priorities of action. A first static grid could be to analyze obstacles to site redevelopment, the current status, and solutions and to connect them with the four columns of sustainability. Furthermore an interconnection and subdivision in problem areas must be done to identify resulting thematic patterns.</p>	
<p>Tasks:</p> <ol style="list-style-type: none"> 1 Development of a systematic scheme for the development (and later on: the up-dating) of the strategy 2 Selection of the working group and the scientific committee for the strategy 3 Scientific compilation and evaluation of the enormous amount of material and knowledge in nature-, society-, and economical sciences 4 Identification and systemization of obstacles, status, and solutions in problem areas and interlinking of the areas 5 Interlinking with the basic reasons 6 Identification of corner-stones of working fields 7 Preparation of discussion paper (for the political discussion) <p>Parallel activities:</p> <ol style="list-style-type: none"> 8 Work on general issues, such as e. g. GI identified below 9 Work on specific topics or tools, such as SFAs identified below 10 Strengthening of the availability of knowledge, by focusing the evaluation of R+D results. 	
<p>Deliverables:</p> <p>to be determined</p>	
<p>Participants:</p> <p>Interdisciplinary Council chaired by a speaker/coordinator, research and documentation work to be done by consultants or other assignees</p>	
<p>Duration:</p> <p>Initial phase (1): 6 months for development of working approach, Main phase: 2 years</p>	
<p>Time and expense:</p> <p>6 months of working time + 10.000 € travel for each participant of the council, 1,5 years of working time + 20.000 € travel for the speaker, consultant: <i>time and expense to be determined</i></p>	

Feasibility Study Work Plan	
The Project Level	
No.: "PROJECTS AA"	Title: Initiate stakeholders cooperations and conduct redevelopment projects.
<p>Background:</p> <p>Besides a large number of successfully redeveloped sites, there is a large number of sites still suffering redevelopment or even investigation because they are not economically attractive. Public funding can solve this problem only on a limited number of sites due to restrictions of public budgets. Therefore innovative ways to initiate projects and to mobilize stake-holders inputs are needed. Innovative ways need visions, creativity, work, and exchange.</p> <p>Frequently, projects are suffering from organizational and communicational deficits. Stakeholders cooperations must be properly set up to overcome these obstacles. Communication and project organization are the prerequisites to achieve an open, creative, and powerful dialog between the stake-holders. Innovative urban planning meeting the citizens needs requires new ways of participation.</p>	
<p>Approach:</p> <p>Initiate model projects of stakeholders cooperations and provide resources to allow for accompanying R+D. Main focus of the activity should be to develop models and plans for practical site redevelopments. R+D funding should be invested to allow for innovative ways of project planning and participation. Funding should not be terminated after the development of the plans, but should allow an evaluation during the realization phase of the projects.</p> <p>The bmb+f – EPA cooperation should be "international door" for this nationally based program. It should be used as a platform for "stakeholders / local practitioners" to conduct the discussion with their international counterparts. The approach would comprise a more process-oriented view upon site redevelopment by studying projects. The main focus would be the question, how initial obstacles can be overcome and how daily problems in the projects can be solved efficiently. Other main issues are: analysis of stake-holders structure and interests, innovative planning procedures</p>	
<p>Tasks:</p> <ol style="list-style-type: none"> 1. select target issues and related project participants in actual redevelopment projects 2. discuss the working program with the counterparts in the U.S. 3. develop a scheme how to exchange information on experience 4. develop a scheme for effective personnel exchange 5. organize and conduct exchange of personnel 6. be open to site visits of U.S. experts in Germany 7. compile information on the results of the R+D aspect of the activity 8. exchange reports and review the 4 compilation reports from the U.S. 9. conduct joint workshops on issues of special interest 10. develop a publication concept for Germany write a "lessons-learnt-report" for Germany and specify topic areas which need further work 11. publish report and serve as a contact for other German practitioners 	
<p>Deliverables:</p> <p>Project reports and fact sheets, final report of activity,</p>	
<p>Participants:</p> <p>"local practitioners" from communities which are "poor/low price/average/random" but willing and open. Daily work should be done by an "organizer/writer/travelagent" who organizes and "drives" the project.</p>	
<p>Duration:</p> <p>3-4 years</p>	
<p>Time and expense:</p> <p>R+D cost of the redevelopment projects under the program: to be determined</p> <p>U.S./German activities: 3 months (in average) of working time + 10.000 € travel money for each person in the exchange-of-personnel-program for each participant, 2-3 years of working time + 20.000 € travel for the organizer/writer/travelagent</p>	

Feasibility Study Work Plan	
The Tools Level	
No.: SFA-AA (corresponding to SFA-1)	Title: Redevelopment Business and Management Plans
<p>Background: In decision making on redevelopment of sites there is a desperate need for a tool for risk and chance management. A tool to identify, quantify and communicate the benefit of site redevelopment is considered to be one of the main key factors for political support and during the search for the best alternative.</p>	
<p>Approach: Approach: (Problem/Obstacle/Solution): The economical (and other) benefits of site recycling projects must be made predictable. The business plan should integrate and analyze planning ideas, economic analyses, environmental design and remediation strategies. Regulations for the various steps of decision making in redevelopment projects should be created by developing a structure for "growing documentation".</p>	
<p>Tasks:</p> <ul style="list-style-type: none"> • identify, study, evaluate existing instruments in the partners country in a large number of projects • document conclusions on the applicability and/or its prerequisites • joint development of new tool • focus issues: <ul style="list-style-type: none"> ○ Determination of interests ○ Requirements and Formats for Business Plans (readable and understandable for everyone, modular, focusing potentials, considering time aspects) ○ valuation procedure for formerly used sites, ○ market analysis for the reuse ○ cost benefit analysis ○ cost-financing calculation ○ Financial Risk Management Report ○ data-room/warehouse concepts • Prepare guidance draft • Test approach in case studies • Discuss draft with stakeholders and decision makers • Issue guidance documents 	
<p>Deliverables: Final report including guidance document and example case studies</p>	
<p>Participants: integrated team of economical, ecological, social/communication practitioners</p>	
<p>Duration: 3 years</p>	
<p>Time and expense: (3+3+1) year of working time (medium price-level) + 40.000 € travel costs</p>	

Feasibility Study Work Plan	
The Tools Level	
No.: SFA-BB	Title: Optimization of Long-term Treatment Systems
<p>Background: A large portion (85%) of remediations is done with conventional technologies (e.g. groundwater pump+treat and SVE). Optimization of these technologies is considered to comprise a large potential for cost savings which are of special importance in the cases of "long-term groundwater treatment".</p>	
<p>Approach: The social and technical obstacles which are hindering optimization should be compiled and analyzed . For the specification of treatment- and remedial goals and benchmarking, data are needed which could be compiled by collecting experiences for the clean-ups. The U.S. EPA is developing a screening tool for optimization of treatment systems. A national data base could provide experiences for decision making and design in groundwater remediation.</p>	
<p>Tasks:</p> <ul style="list-style-type: none"> • identify, study, evaluate existing instruments in the partners country in a large number of projects • document conclusions on the applicability and/or its prerequisites • joint development of new a tool for optimization • focus issues: <ul style="list-style-type: none"> ○ Determination of interests ○ Requirements of regulators ○ valuation procedure for formerly used sites, ○ special emphasis on communication aspects of optimization ○ cost benefit analysis ○ data-room/warehouse concepts • Prepare guidance draft • Test approach in case studies • Discuss draft with regulators and other decision makers • Issue guidance documents 	
<p>Deliverables: Final report including guidance document and example case studies</p>	
<p>Participants: integrated team of economical, ecological, social/communication practitioners</p>	
<p>Duration: 2 years</p>	
<p>Time and expense: (2+1+0,5) year of working time (medium price-level) + 40.000 € travel costs</p>	

Feasibility Study Work Plan	
The Tools Level	
No.: SFA-CC (corresponding to SFA-4)	Title: Community Outreach Guides
<p>Background: Today in Germany, public interest in the issue of site redevelopment is only low. It is assumed to be a problem to attract interest and to create visibility. Strategies and experiences for public involvement in early project phases are needed to promote smooth risk communication. Public participation in the planning phase must result in a conscious way of talking and handling risk.</p>	
<p>Approach: Experiences and practice oriented approaches must be made available.</p>	
<p>Tasks:</p> <ul style="list-style-type: none"> • identify, study, evaluate existing instruments in the partners country in a large number of projects • study success stories and lessons learnt focusing the use of the instruments in “average/non-high-visibility-projects” • document conclusions on the applicability and/or its prerequisites • focus issues: <ul style="list-style-type: none"> ○ Determination of public and/or stakeholders interests ○ Requirements and Formats for Public Outreach Plans (readable and understandable for everyone, modular, focusing potentials) • Prepare guidance draft • Test approach in case studies • Discuss draft with stakeholders and decision makers • Issue guidance documents 	
<p>Deliverables: Final report including guidance document and example case studies</p>	
<p>Participants: integrated team of redevelopment and social/communication practitioners</p>	
<p>Duration: 2 years</p>	
<p>Time and expense: (2+2) year of working time (medium price-level)+ 40.000 € travel</p>	

Feasibility Study Work Plan	
The Tools Level	
No.: SFA-DD	Title: Project Organization and Communication Guide
<p>Background: Projects of site redevelopment are complex and long-lasting. Frequently, they are subject to a number of changes, affecting e. g. the frame conditions, project goals, and staffing. The practice would benefit from the documentation of best practice examples of community project communication and management and its key functions.</p>	
<p>Approach: Experiences and practice oriented approaches must be made available.</p>	
<p>Tasks:</p> <ul style="list-style-type: none"> • identify, study, evaluate the instruments in the partners country in a large number of projects • study success stories and lessons learnt focusing the use of the instruments in "average/non-high-visibility-projects" • document conclusions on the applicability and/or its prerequisites • focus areas and key questions: <ul style="list-style-type: none"> ○ Determination of interests ○ Specific characteristics of authorities, responsibilities, chances for coupling of permitting procedures ○ creation of a sense of project responsibility in authorities ○ identify and develop key elements of controlling and reviews of project progress (which cover more than cost and time controlling) ○ what special project culture is needed in redevelopment projects (it must reflect uncertainties, must be flexible etc.) ○ how to establish regular review-loops of the project organization in order to create a "learning organization" in the project ? ○ suitable and target oriented communication especially between planners (e.g. development-, construction, landscape-, and remedial planners) is necessary. ○ Study key elements and document examples + guidance ○ Requirements and Formats for organizational handbooks (readable and understandable for everyone, modular, flexible) • Prepare guidance draft • Test approach in case studies • Discuss draft with project staff and decision makers • Issue guidance documents 	
<p>Deliverables: Final report including guidance document and example case studies</p>	
<p>Participants: integrated team of redevelopment project managers from public institutions and from private companies</p>	
<p>Duration: 2 years</p>	
<p>Time and expense: (2+2) year of working time + 50.000 € travel</p>	

Feasibility Study Work Plan	
The Tools Level	
No.: SFA-EE	Title: Demonstration of Innovative Site Investigation Technologies
<p>Background: Site characterization is needed to remove the stigma and „the unknown“ which is lowering the attractiveness of fallow industrial land and thus is hindering the redevelopment of sites. New technologies and performance data are needed to increase the number of characterized sites drastically. If sites shall be restored to their original quality, this quality must be known and documented. Estimates of volumes of contaminated soil are still the most important factor influencing planning uncertainties in site remediation or business plans on redevelopment, respectively.</p>	
<p>Approach: Proven and emerging site characterization technologies in the U.S. and in Germany should be screened to identify promising technologies. These technologies should be demonstrated in a coordinated approach either in the U.S or in Germany. The work-plan of the Bilateral Phase II would be the example for this approach. The joint demonstrations should be carried out using the SITE- and the DETAD-protocols for QA/QC, respectively.</p>	
<p>Tasks:</p> <ul style="list-style-type: none"> • identify, study, and evaluate proven and emerging site characterization technologies • select 4 technologies in each country • development demonstration plans for 8 technologies using DETAD / SITE • conduct demonstrations (4 in Germany, 4 in the USA) • Prepare draft and final reports 	
<p>Deliverables: 8 Final reports</p>	
<p>Participants: team of technical experts</p>	
<p>Duration: 3 years</p>	
<p>Time and expense: 2 * 3 years of working time (medium price-level) + 40.000 € travel costs</p>	

Feasibility Study Work Plan	
The Tools Level	
No.: SFA-FF	Title: PPP: Experiences and Establishment of a Public Competence Center
<p>Background: At present there is a growing interest of e.g. construction companies in fallow (contaminated) sites in Germany. Municipal owners are confronted with the need for the decision to sell, to team or to do the redevelopment themselves. The decision making should be supported by the evaluation of the benefit (economically, ecologically, and socially). There is a lack of criteria, standards and a systematic and usable instrument – and experience.</p>	
<p>Approach: Analyze and document the experiences with PPP in general and with revolving loan funds and tax credits in this respect in particular.</p>	
<p>Tasks:</p> <ul style="list-style-type: none"> • identify, study, evaluate the experiences in the partners country in a large number of projects • document conclusions on the applicability and/or its prerequisites • focus issues: <ul style="list-style-type: none"> ○ experiences of communities ○ chances to set up a national competence center for communities which are considering PPP ○ financing options for such a competence center ○ identification of suitable calculation basics and tools for communities • Prepare and issue guidance documents 	
<p>Deliverables: Final report including guidance document</p>	
<p>Participants: integrated team of economical/administrative and legal practitioners</p>	
<p>Duration: 2 years</p>	
<p>Time and expense: (1+0.5+0.5) year of working time (one year high price-level, one year medium price level) + 40.000 € travel</p>	

Feasibility Study Work Plan	
The Tools Level	
No.: GI-AA (corresponding to GI-1)	Title: Financing and Tax Issues
Background: The public financing and granting system should not counteract but should drive and promote the ecological improvement process of site recycling. This is true for the direct financing (e. g. granting of Greenfield development) of the "indirect financing" via e. g. tax credits. A revision of the public financing tools is needed and financial incentives for environmentally sound management should be created. Experiences should be discussed internationally.	
Approach: Study examples in each country, in which financial granting and tax incentives have shown to be key factors for success. Analyze examples which are suffering from the corresponding obstacles. Exchange information (and conduct workshop).	
Tasks: <ul style="list-style-type: none"> • identify, study, evaluate the instruments in the partners country in a large number of projects • document conclusions on the applicability and/or its prerequisites • possible: prepare an international workshop • special issues <ul style="list-style-type: none"> ○ Public granting instruments ○ Tax increments/incentives ○ Investment incentives ○ Taxes for „Greenfield-Development“ ○ Funding Programs ○ Creation of a trust fund to cover (parts) of any liability loads ○ • Issue national report which reflects the ideas considered during the international cooperation. 	
Deliverables: write-up of facts and conclusions for workshop preparation, final report	
Participants: financing + tax experts, regulators	
Duration: 1 year	
Time and expense: 1 year of working time + 20.000 € travel for the financing + tax expert (half high price-level and half medium price-level), expenses for the workshop participants (estimated: 15.000 €) Work on this general issue is assumed to be closely connected to the development of the national strategy (see "STRATEGY" above)	

Feasibility Study Work Plan	
The Tools Level	
No.: GI-BB (corresponding to GI-2)	Title: Releases of Liability
<p>Background: One of the main obstacles hindering clean-up of sites is the uncertainty (“the risk”) of the new site owner, the developer, the lender, or the investor being liable for contaminations posing threats which are detected on the site at a later time. Exchange of experiences with instruments like “No-further-remediation-letters” or “Public-private-contracts” and the conclusions from this exchange is considered to be important to enhance investor interests.</p>	
<p>Approach: Check of existing and development of new models for liability release. What information and regulations are needed? Definition of site contaminations and cleanup targets in public-private contracts or in an official urban/regional development plans. What has to be defined? who has to be involved? Study examples in each country, in which liability agreements have shown to be key factors for success. Analyze examples which are suffering from the corresponding obstacles. Exchange information (and conduct workshop).</p>	
<p>Tasks:</p> <ul style="list-style-type: none"> • identify, study, evaluate the instruments in the partners country in a large number of projects • document conclusions on the applicability and/or its prerequisites • possible: prepare an international workshop • special issues <ul style="list-style-type: none"> ○ Nationspecific liability aspects ○ Liability releases by contracts ○ Experiences with liability releases ○ Municipal/district decision making aspects regarding the issue • Issue national report 	
<p>Deliverables: write-up of facts and conclusions for workshop preparation, final report</p>	
<p>Participants: lawyer, regulators</p>	
<p>Duration: 1 year</p>	
<p>Time and expense: 1 year of working time + 20.000 € travel for the lawyer (half high-price-level, half medium price-level), expenses for the workshop participants (estimated to be 15.000 €). Work on this general issue is assumed to be closely connected to the development of the national strategy (see “STRATEGY” above)</p>	

Feasibility Study Work Plan	
The Tools Level	
No.: GI-CC	Title: Marketing of the Redevelopment Issue in General
<p>Background: Today, sustainable land management is not an issue of public interest in Germany. The public is usually not alarmed, if Greenfield is developed instead of site redeveloped. Marketing of the issue is a basic prerequisite to force key actors to work with the issue even if there is no acute project-related reason.</p>	
<p>Approach: (Problem/Obstacle/Solution): Study examples in each country, in which liability agreements have shown to be key factors for success. Analyze examples which are suffering from the corresponding obstacles. Exchange information (and conduct workshop).</p>	
<p>Tasks:</p> <ul style="list-style-type: none"> • identify, study, evaluate the instruments in the partners country in a large number of projects • document conclusions on the applicability and/or its prerequisites • possible: prepare an international workshop • special issues <ul style="list-style-type: none"> ○ analyze the “Brownfields Initiative” successes and lessons learnt, study the success of making it a public issue ○ how to initiate stakeholders cooperations ○ marketing of the issue ○ how to implement the role of the preventive soil protection • Issue national report 	
<p>Deliverables: write-up of facts and conclusions for workshop preparation, final report</p>	
<p>Participants: Public Outreach Expert, and “strategic political” person</p>	
<p>Duration: 2 years</p>	
<p>Time and expense: 2 years of working time (each) + 20.000 € travel (each) for the team members, expenses for the workshop participants (estimated to amount to 15.000 €) Work on this general issue is assumed to be closely connected to the development of the national strategy (see “STRATEGY” above).</p>	

Feasibility Study Work Plan	
The Tools Level	
No.: GI-DD (corresponds to parts of SFA-1)	Title: Land Management and Regional and Municipal Strategies
<p>Background: Redevelopment and remedial goals are mostly not implemented in development plans. Land management and Brownfield Redevelopment are lacking a common integrative approach and linkage. As planning competences for land use and urban development are with the municipalities, municipal strategies play a key role in order to promote Brownfield Redevelopment as a tool for sustainable planning and revitalization of inner city areas targeting preservation of open spaces. Strategies and approaches are needed which consider the interdependences between urban planning, project management, public private partnership, authority-engineering, promoting the economy and improving marketing for Brownfield Redevelopment in the cities. Strategies also have to be developed to implement redevelopment and its benefits for the cities in planning practice and in the minds of local politicians. Against the background of strong municipal competition there's still a strong need to strengthen regional approaches to reduce further development of open greenfield spaces and to focus on redevelopment of derelict land. The BBR (Federal Agency of Construction) has recently launched an R+D project focusing the aspects of regional planning in this field.</p>	
<p>Approach: Good and proven strategies and approaches fostering Brownfield Redevelopment in practical projects of urban development should be identified and exchanged. Communication lines and a common platform for the exchange of good municipal approaches integrating land management and Brownfield redevelopment should be established. With regard to the regional approach the results of a current BBR R+D project should be integrated.</p>	
<p>Tasks:</p> <ul style="list-style-type: none"> • Study, identify and evaluate strategies, approaches and instruments on the municipal and regional level in both countries • Share ideas, information and experience between practitioners • Document and distribute good practice along suitable transatlantic communication lines (e.g. common workshops, Internet-platform) • special issues to be analyzed <ul style="list-style-type: none"> ○ strategies in U.S. and German cities combining planning, remediating, marketing and management ○ strategies and models of PPP in the cities ○ integrative approaches combining land use and public transport issues ○ strategies, approaches and visions for Brownfield Redevelopment in economically poor cities and regions; ○ approaches and ways to revitalize huge Brownfield areas and affected city quarters ○ organizational and procedural chances of promoting Redevelopment in the cities ○ improvement of regional land-use management ○ use of site inventories which are matched contamination maps and environmental quality goals as one planning-instrument to assess the development potentials of the sites ○ how to prevent sites from being contaminated AND/OR abandoned ? What can be done during the time, when the site is still in use. How to fill the gap between shut down of activities (end of authority supervision) and the management of the fallow land (start of the next supervision or action)? 	
<p>Deliverables: Documentation in a report and distribution via Internet-platform; workshop documentations.</p>	
<p>Participants: To be found by issuing requests for proposals (Info exchange between practitioners organized, coordinated, and facilitated by external expert)</p>	
<p>Duration: 2-3 years</p>	
<p>Time and expense: 2-3 month of working time + 3.000 € travel per practitioner / project; 1-2 years of working time + 20.000 € travel for the coordinating contractor (medium price-level)</p>	

7 Future Direction

In February 2001 U.S. EPA will conduct a workshop for selected contaminated site redevelopment practitioners to obtain their views and comments and to enable the U.S. side to further refine and select the issues and work plans for issues to be addressed during Phase III.

Following the U.S. workshop, the U.S. feasibility study will be revised in preparation for a meeting of the bilateral working group scheduled for April 2001 in Bonn, Germany. During that meeting, the issues and areas of interest for Phase III will be selected and a framework for the future international cooperative work will be established.

8 Appendix 1: List of Interviewpartners

Frau	Altmeyer	Wirtschaftsministerium Sachsen
Frau Dr.	Bantz	Stadt Düsseldorf Umweltamt
Herr	Bayerl	BM Bau
Herr Dr.	Bayerl	LAF Sachsen-Anhalt
Herr	Becker	Commerzbank Mainz
Herr	Bertges	LUA NRW
Herr	Bickel	RP Darmstadt RPU Wiesbaden
Herr	Bieber	BMU
Herr	Biewer	TriWo AG
Herr	Blecher	Bürgerbeteiligungsbüro Stadtallendorf
Herr	Blesken	LEG NRW Aachen
Herr	Boesen	Stadt Konz
Herr	Boldorf	StUBA, Berlin
Frau	Börner	Umweltministerium Sachsen
Frau Dr.	Braun	Stadt Wiesbaden Umweltamt
Herr	Broch	Stadt Düsseldorf Umweltamt
Herr Dr.	Brück	KommunalSysteme Saarbrücken
Herr Prof.	Burmeier	Prof. Burmeier Ingenieurgesellschaft
Herr Dr.	Büttner	Rütgers VFT AG, Castrop
Herr Dr.	Claus	IKU Dortmund
Herr	Dinzen	Gerling AG
Herr Prof. Dr.	Doetsch	RWTH Aachen
Herr Dr.	Dosch	Bundesamt für Bauwesen u. Raumordnung
Herr Dr.	Dreschmann	focon GmbH, Aachen
Herr	Eberhöfer	Wirtschaftsförderung Düsseldorf
Herr	Eggert	SALEG Magdeburg
Herr Dr.	Fehlau	MURL
Herr Dr.	Fischer	Bundesamt für Bauwesen u. Raumordnung
Herr Dr.	Franzius	UBA
Herr	Gembus	SenBauWohn Berlin
Herr Dr.	Gerhold	Zenk Rechtsanwälte, Köln
Herr	Grimski	UBA
Frau	Hammer	Stadt Düren, Umweltamt
Herr	Heidebrecht	Metallgesellschaft VV, Frankfurt
Herr	Heine	OFD Hannover

Frau	Heitfeld-Hagelgans	Bau-Ministerium NRW
Frau	Hinninger	Stadt Wiesbaden
Herr	Hinzen	Büro BKR, Aachen
Herr	Honrath	IKB Bank Düsseldorf
Herr Dr.	Kaulen	BDO DWT AG
Herr	Keil	LAF Sachsen-Anhalt
Herr	Keller	BDO DWT AG
Herr	Kloidt	LEG NRW, Duisburg
Herr	Kumutat	GAB Bayern
Herr	Linne	Stadt Duisburg
Herr	Mannheims	Wirtschaftsförderung Düren Stadt
Herr Dr.	Mehrhoff	AIG Consultants, Essen
Herr Dr.	Meiners	AHU GmbH, Aachen
Herr Dr.	Meschede	Gerling Consulting Group
Herr Dr.	Michels	DECHEMA Frankfurt
Herr Dr.	Nebel	Umweltministerium Sachsen-Anhalt
Herr	Odensaß	LUA NRW
Herr	Poggendorf	Prof. Burmeier Ingenieurgesellschaft
Herr	Rehda	Umweltministerium Sachsen-Anhalt
Herr	Reußner	StUBA, Berlin
Herr Dr.	Rosenbaum	BDO DWT AG
Frau	Schaffranka	LAF Sachsen-Anhalt
Herr	Schneiders	RP D´dorf Raumplanung
Herr	Simsch	DSK AG
Herr	Stuck	Umlandverband Frankfurt
Herr	Suchanek	Viterra AG
Frau	Terfehr	Kanzlei Sondermann, Essen
Frau	Wiele	RP Düsseldorf
Herr Dr.	Wiesenberger	Bau-Ministerium NRW
Herr	Willershausen	RP Düsseldorf
Herr Dr.	Wittenbeck	Carl Zeiss

9 Appendix 2: Bibliography of Resources

Bezeichnung	Name, Titel, Hrsg. o.ä.
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BBR 1997/98	Bundesamt für Bauwesen und Raumordnung: Baulandumfrage 1997/98. Arbeitspapiere Heft 7/1999. Bonn 1999
BBR 1999	Bundesamt für Bauwesen und Raumordnung: Urban Development and Urban Policy in Germany. An Overview. Band 6. Bonn 1999
BMU 1999	Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit. International Workshop on the Recycling of Derelict Land. October 4-6 1999. Tagungsunterlagen. BEW Duisburg 1999
BMUJF 1999	Bundesministerium für Umwelt, Jugend und Familie Österreich: 10 Jahre Altlasten-Sanierungsgesetz und Bayerisch-Österreichischer Altlastentag Schwerpunkt Flächenrecycling. Schriftenreihe des BMUJF Band 29. Wien 1999
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NMI 1997	Northeast Midwest Institute: Brownfields Redevelopment. A Guidebook for Local Governments & Communities. Washington 1997
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SRU 1996	Der Rat von Sachverständigen für Umweltfragen: Konzepte einer dauerhaft-umweltgerechten Nutzung ländlicher Räume. Sondergutachten. 127 S. Stuttgart: Metzler-Poetschel 1996
SRU 2000	Der Rat von Sachverständigen für Umweltfragen: Umweltgutachten 2000. Schritte ins nächste Jahrtausend. Stuttgart: Metzler-Poetschel 2000
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10 Appendix 3: Long List of Issues developed and discussed during the Feasibility Study

The short list documented in section 5 was developed by considering and discussing the following long-list in a workshop.

For reasons of documentation, this chapter contains the long list of issues which was developed based on the interviews with the contacted experts (see appendix 1) and the underlying considerations.

The following list comprises the issues mentioned above and the issues which were raised by the interview partners contacted during the information/opinion collection phase of the study. Most of the issues and the ways they are presented result from different statements made by more than one of the government employees and the practitioners from the private sector interviewed.

The arrangement of the issues in the following table from top to bottom is intended to roughly reflect these orders:

- from the beginning of the redevelopment process to its end
- from fundamental to specific
- from political to practical
- from broad to detailed

The issues identified during the interviews and literature search were subdivided into the following topics:

- Strategy on Site Recycling
- Regional, prospective Site Management
- Financing
- Organization and Communication
- Sustainable Urban Development
- Suspected Contaminations on Sites, Site Characterization
- Cleanup, Reuse, Monitoring

Group I: National Strategy on Site Recycling

National Strategy for Site Redevelopment in Germany

Strengthening of the political support for site recycling on national, county, regional and local level by incorporation of site recycling into a politically accepted wholistic planning concept

To lower green field development considerably a national strategy on site recycling / sustainable management of (developed) land is needed. The bmb+f-U.S.EPA Bilateral Agreement is considered to be a suitable platform to discuss and develop approaches to the strategy, which should cover a wide range of issues, e.g:

- Environment-Communication (must lead to conscious handling with reuse of sites and to solutions in the consent between environmental needs and political and legal demands)
- Education / Development of problem consciousness of the official participants
- Economic push-pull systems
- Site inventories must be connected with plans of environmental goals to allow for evaluation and quantifying of potentials. Informational needs of the stake-holders must be determined and specified to allow for tailor-made reporting (cost, potentials, alternatives)
- Publishing and knowledge dissemination concepts

Today site recycling is not part of a national concept, so far there are only individual site recycling projects on attractive locations. Municipalities are in most cases the passive, investors the active project participants

Public Outreach (for the issue in general)

How to make sustainable land management an issue of public interest ? How to push the public to be alarmed, if Greenfield is developed instead of site redeveloped ?

This seems to be a basic prerequisite to force local politicians to work with the issue even if there is no acute project-related reason. We should find a publicly effective way to distribute good news and success-stories.

There is an interest to see, how this is done in the U.S..

Marketing in general

Developing and communication of effective marketing concepts to create new and positive images for formerly used sites. The ecological, economical and social improvement of site recycling must be emphasized, not the cleanup process

Shift from abandoned sites as a burden to vacant sites as a development potential.

Measurement of Success in site Redevelopment – how ?

Bench-marking criteria are needed to make success measurable and presentable (for politicians)

First ideas are:

- Time period of abandonment
- Number of newly created jobs
- Reduction of traffic between home and work (new jobs for the neighborhood)
- Longevity of site-use / Prevention of abandoning
- Creation and preservation of high ecological site quality to allow various reuses in the future

Knowledge Dissemination (in general)

How to organize information and knowledge transfer regarding site redevelopment ?

Prognoses of Effects and their Potential for Public Relation work

There is a strong need to show the social benefits such as new jobs, less criminality etc and the social risks, e.g. gentrification of the former neighborhood

Tools for evaluating different reuse scenarios are needed in order to attract political support.

Sustainable Finance- and Tax-Systems as a Part of the National Sustainability Strategy

The Public financing and budgeting system must support the ecological improvement process of site recycling. A revision of the public financing tools is needed and financial incentives for environmentally sound management should be created.

Points of discussion should be for example the idea of tradable rights for land consumption and/or a "land development tax" and its conflicts with the municipal responsibility for spacial planning.

Experiences should be discussed internationally, the Bilateral Agreement could be a platform for this discussion.

Adaption of costs for brownfields redevelopment and greenfield sites (either by promotion of recycled land [tax, grants, others]) or increase of prices for greenfield (because the consumption of nature shouldn't be free of charge).

The idea of an obligation to check, if an intended development of a green field could also be established on a brownfield is also worth a thought and discussion. An important aspect in this respect is, that a preferred brownfield redevelopment leads to a fixation of economical power in some geographical areas. Thus financing of ecological and social "open space functions" of greenfield areas and the respective load sharing with the densely developed areas have to be discussed in the same context.

A number of studies has been prepared in Germany in this respect, a comprehensive survey and an open discussion, in national and international forums, is still needed.

Environmental Impact Assessment (EIA) for Structural Development Programs

This will be part of the EU-Regulation which is expected in 2001. Granting and funding mechanisms must be environmentally sound. EIA should make sure that these mechanisms do not contradict the goal of sustainable regional development. It is still unclear which tools are needed in the regions to meet the standards of the EU-Regulation.

Experiences in the U.S. would be of interest.

Degradation of Site Quality

Which factors cause or control degradation ? How about potential solutions: provisions, insurances, funds? Prohibit the degradation of site quality by law?

Does specification of a particular use in no-further-remediation-letters promote degradation on the long hand by hindering up-grades ?

Any experience with this long-term issue would be of interest.

Improve Availability of Sites

If the site owner has a higher value of the sites in his books than the „real value“, he will lose money when he sells the site or gives up the ownership. These sites frequently remain fallow over longer periods of time. What are solutions for these balancing problems ? If a bigger company is involved, its value may decrease significantly, if the book-value is corrected to zero and the shareholders are alarmed.

Balancing and auditing rules must include this issue, but what does practice looks like ?

Are there any creative mechanisms to drive land owners to be open to redevelopment (fees, penalties)

Group II: Regional, prospective Site Management

Regional Land Management Plans

Planning organization and procedures on the national, state, regional, and municipal level are to be modified to support site redevelopment (hinder siting on greenfields, implement redevelopment and remedial goals in development plans).

Official business-site statistics should be validated and check for their suitability to serve as a basis for further planning.

The municipal planning responsibility may possibly be shifted towards a regional planning (by giving incentives and shaping of granting rules) or by change of the respective laws (very difficult)?

Main goal is the solution of the competitive situation of the municipalities by creation of a regional approach. The access to professional project managing bodies could be easier, permitting procedures could be streamlined and a solution to the fact that lack of coordination kills the price level could be provided. The formation of site-groups (contaminated and uncontaminated sites should also be beneficial in this respect.

Site inventories which are matched with contamination suspicion-maps and environmental quality goals should serve as one planning-instrument to assess the development potentials of the sites. The information requirements of the stake-holders must be investigated and systemized to allow for a sound reporting (costs, potentials, alternatives).

Prospective Site Management

How to prevent sites from being contaminated AND/OR abandoned ? What can be done during the time, when the site is still in use. How to fill the gap between shut down of activities (end of authority supervision) and the management of the fallow land (start of the next supervision or action)?

How about a rule that a site must be restored to its original quality (coverage should be established by insurance)? Environmentally sound production technologies could be promoted by reduced insurance payments.

There is a strong interest in further development of the ideas, exchange, development of procedures, and documentation of examples.

The municipality should have an interest in prospectively plan the demand of sites, it could offer municipal / regional site management as part of public service. Especially for those businesses which are growing „out of their site“ either form size or from emissions.

Municipal/Regional Marketing

What makes a site an attractive site ? It's not only location. What makes the location a good location? It's also the image, good cooperation with local regulators, services provided by local authorities (client orientation).

How to attract investors and their money to Brownfields ?

The technical community in Germany sees a great development potential in this field. E. g. regarding possible service activities of the administration for the investors.

International marketing for the regions is important. Support, know-how and examples are needed.

Group III Financing

Site-specific Environmental Redevelopment Business Plans (including Evaluation of Alternatives)

Is needed to support the decision for the best alternative.

The economical benefits of site recycling projects must be made predictable. Regulations for the various steps must be created. The steps are e.g.

- valuation procedure for formerly used sites,
- market analysis for the reuse
- cost benefit analysis
- cost-financing calculation
- Financial Risk Management Report

Steps could be: Determination of interests, Requirements and Formats for Business Plans (readable and understandable for everyone, modular, focusing potentials, considering time aspects) data-room/warehouse concept, CBA,

A suitable standardization would promote communication and acceptance.

Release from Liability for Unknown Contaminations

Check of existing and developing of new models for liability release. What information and regulations are needed? Important to enhance investor interests. ("No-further-remediation-letter")

Definition of site contaminations and cleanup targets in public-private contracts or in an official urban/regional development plans. What has to be defined? Who has to be involved?

Risk-Sharing

How to avoid fixation of the degradation-trend of site quality when No-further-remediation-letters limit the site use to a low level use („parking-lot“)?

How about a fee for Greenfield development to be paid into a fund which covers long-term liability risks of investors in brownfield redevelopment?

Low-value Sites

Which ideas are there for these sites? A number of sites with the lowest property value (due to location etc.) in each country should be reviewed for innovative ideas to promote redevelopment without or with minor public funding/granting.

Public Private Partnership in Financing the Redevelopment

At present there is a growing interest of e.g. construction companies in fallow (contaminated) sites. Municipal owners are confronted with the need for the decision to sell, to team or to do the redevelopment alone. The decision making should be supported by the evaluation of the benefit (economically, ecologically, and socially). There is a lack of criteria, standards and a systematic and usable instrument.

Increase of responsibility for the site quality is considered to result from selection of suitable financing mechanisms. (Turn-key solutions lower the interest of the companies in preserving the environmental quality of the site). The approach to let the company pay a bigger portion and then over the years hand it back as Leasing-Payments or else seems to be advantageous also in this respect.

What are the experiences with revolving loan funds and tax credits in this respect ?

Knowledge Dissemination

e.g. spreading the widely unknown information about insurances for site recycling projects

How can an unbiased source of information for a potential investor be created and maintained?

Group IV: Organization and Communication

<p>Project Management</p> <p>Best Practice Examples of community project communication and management, key functions are still needed.</p> <p>Specific characteristics of authorities, responsibilities, coupling of permitting procedures.</p> <p>Creation of a sense of project responsibility in authorities.</p> <p>Identify and develop key elements of controlling and reviews of project progress (cost and time controlling do not cover everything!). What special project culture is needed in redevelopment projects (must reflect uncertainties etc.).</p> <p>How to establish regular review-loops of the project organization ?</p> <p>Suitable and target oriented communication especially between planners (e.g. development-, construction, landscape-, and remedial planners) is necessary.</p> <p>Study key elements and document examples + guidance.</p>
<p>Organizational Aspects</p> <p>Assignees for site management are expected to be able to control registration, definition of goals, projects. Impediments for municipal creativity should be avoided.</p> <p>Personal Experiences of Municipal Brownfields coordinators?</p> <p>How about regional Brownfields Coordinators?</p> <p>How about the dataroom/data warehouse idea ??</p> <p>How to brush up and polish the bad image of municipal administrations in Germany ?</p>
<p>Participation / Public Outreach in Projects</p> <p>Today, there seems to be only low public interest in the issue.</p> <p>How to attract interest, how to create visibility.</p> <p>Strategies and Experiences for public involvement in early project phases to promote smooth risk communication.</p>
<p>Risk Communication</p> <p>Public participation in the planning phase must result in a conscious way of talking and handling risk.</p> <p>Experiences and practice orientend approaches.</p> <p>Switch on the light, blow up the old stack. How to bring the "kick" into the project ?</p>
<p>Decision Support Tools</p> <p>Integrate remedial investigation data, support data analysis, development and adjustment of conceptual site models and risk screening.</p> <p>Goal should be to create communication and transparent decision making.</p>
<p>Public private partnership (under organizational and communicational aspects)</p> <p>Involving mediation experts, Advice for the authorities by governmental expert groups</p> <p>Shift from the mainly administrative project view of the authorities to an economical one.</p> <p>Public funding out of one hand (today the funds are spread between various authorities)</p>
<p>Groundwater Remediation, Specification of Remedial Goals</p> <p>Chances and Constraints when defining remedial goals in groundwater remediation.</p> <p>Which compromises are possible ?</p> <p>Development of guidance to explore scopes and feasibilities in combining the technical, ecological and legal perspective.</p> <p>Would a data base be a suitable tool for decision support ?</p>
<p>Analysis of Interests of the Stake-holders</p> <p>Generic analyses and guidance for project work are needed.</p> <p>How to do community profiling?</p>

Group V: Sustainable Urban Development

Definition of Priorities in Urban Planning

Analysis of the potentials of the site and its vicinity for various reuse alternatives in scenarios (Application of GIS, creation of Decision Support Tools, site balancing)

Sustainable urban development includes the intensification of the inner city development versus the sprawl into the surrounding. But what do municipalities and inhabitants really want? Which kind of reuse is suitable? Business ? Light industry (?) etc.

How to make urban planning an issue of common interest?

Group VI: Suspected Contaminations on Sites, Site Characterization

Site Characterization Program

Can an investigation Program for 300.000 sites in Germany remove the stigma?

How to „remove the unknown,, ?

Experiences of the Brownfields Showcase Communities ?

Innovative Site Characterization Technologies

Site characterization is needed to remove the stigma and „the unknown“. New technologies and performance data are needed.

If sites shall be restored to their original quality, this must be known and documented.

Estimates of volumes are still the most important factor which contributes to planning uncertainties in site remediation or business plans on redevelopment, respectively.

Group VII: Cleanup, Reuse, Monitoring

Optimization of Frequently Used Technologies

A large portion (85%) of remediations is done with conventional technologies (e.g. groundwater pump+treat and SVE). Optimization of these technologies is considered to comprise a large potential for cost savings.

What social and technical obstacles are hindering optimization? For the specification of goals and benchmarking, data are needed which could be compiled by collecting experiences for the clean-ups.

How about EPA's screening tool for optimization ?

How about a national data base which provides experiences for decision making and design in groundwater remediation.

Low-cost Remedial Technologies

and the (long-term) effects on site use

Conflict of site-use and long-term operation and maintenance (and contingency planning) ?

Performance data of low cost remedial measures are needed.

Examples:

- safeguarding measures (containment)
- treatment barriers
- Electrokinetic Technologies
- Natural Attenuation
- Phytoremediation

Long-term Operation and Maintenance

Advanced approaches which are adaptable to the current use of the site and its vicinity are needed.

Preparation of practice oriented guidance is of high interest for the German states.

Ecobalancing of Remediations

Determination of environmental footprint and merit of different remedial approaches over time should be easily possible.

Handy tools are needed.

What information do we need for the apticular steps of a site recycling (demolition, development-preparation, traffic modelling, clean-up action)?

How about the German monetarization-approach which suggests values for (e. g.) ecological potentials ?

11 Appendix 4: “Areas of Interest from the Municipal Point of View” compiled by DIFU

The following list was compiled by the Deutsches Institut für Urbanistik (DIFU) based on a survey and interviews.

Areas of Interest from the Municipal Point of View

The following topics and formulations of questions result one the one hand from the survey and the interviews carried out in the cities. On the other hand topics related to more mid- and long-term questions such as prevailing conditions or indirect tools for land management/land recycling result from our research work. Also the instruments suggested for a practice-related transatlantic exchange of research and experience are a mixture of hints from practice and research. We divided the aspects of interest in to several areas as follows.

Municipal Land Recycling Strategies

- *Which methods may be chosen in order to obtain early warnings on land disuse and plans for future utilization? (⇒ Land management)*
- *How can a medium to long-term demand for idle land be created? (⇒ Marketing)*
- *What strategies exist in the U.S. to put land recycling into common practice (holistic approaches to the problem, instruments and methods)?*
- *Exchange of project conceptions, visions and strategies for their implementation.*
- *What are the methods for acquiring and accommodating investors, and what do companies expect from municipalities?*
- *What strategies and instruments can be used to combine brownfield redevelopment with professional training and employment?*
- *How can brownfield sites be made suitable for purposes other than construction, such as environmental protection, particularly when there is a surplus?*
- *What models and methods can be applied to involve politicians and investors and foster cooperation with these groups?*
- *How can municipal and national intervention increase developers' interest in the preferred option of purchasing an abandoned industrial or commercial location instead of a greenfield site?*
- *Practically viable arguments demonstrating the advantages for the community as a whole of developing inner-city brownfields instead of new outlying sites.*

Land Management, Land Recycling and Urban Planning

- *Do precedents of municipalities reserving land specifically for investors exist?*
- *Early warning systems on brownfield emergence and development plans.*
- *Does the U.S. have more expedient procedural and planning approaches than Germany? (⇒ Project management and procedures)*
- *Exchange of examples of innovative urban utilization concepts.*
- *Do examples of successful "initial uses" exist, i.e. uses which have provided an incentive for other investors?*
- *How does the U.S. handle the problem of large brownfield areas and districts on a long-term basis?*
- *Do regional planning and other sources furnish applicable guidelines? (⇒ Legal environment)*
- *Do regional, intermunicipal solutions exist in land management and land recycling (particularly for reducing intermunicipal competition for business and rates)?*
- *Exchange of ways to handle forms of mixed brownfield use.*
- *Have any brownfield projects actually achieved socioeconomic integration?*
- *Are stipulations, criteria or indicators in place which allow planning concepts, land management approaches and land recycling projects to be classified as instruments or examples of "sustained urban development"? (⇒ Legal environment)*
- *How great is the gap between the diverging utilization conceptions of municipalities, developers and investors, and how can differences be reconciled?*

Project Management and Procedures

- *Which forms, methods and instruments of project management are employed? (⇒ Public-private partnership)*
- *What models of administrative organisation are in place for land recycling projects? Are there examples for a optimization of administrative organisation?*
- *What approaches are taken to simplify and accelerate procedures and reduce costs? (⇒ Costs and funding)*
- *Do non-profit organizations, NGOs and citizens have any influence on the procedure?*

- *What steps are being taken to raise the acceptance of land recycling projects?*
- *What practical effects can the environmental justice criterium have on land recycling procedures?*
- *How is the investigation of inherited environmental burdens handled? (⇒ Legal environment)*
- *Do American cities have land recycling project coordinators, and if so, what training have they received?*

Of particular Relevance: Public-Private Partnerships

- *What models of PPP exist in U.S. brownfield recycling practice?*
- *What is the ratio of public funds to private financing (sponsoring)? (⇒ Costs and funding)*
- *How can private partners be involved in sponsoring? (⇒ Costs and funding)*

Marketing

- *What brownfield marketing strategies are employed in the U.S.? (⇒ Strategies, land management)*
- *Is there a precedent for early detection of brownfield emergence and investors' land requirements?*
- *Do marketing, public relations, investor acquisition and land management ever work hand in hand?*
- *Have certain organizational forms proved to be particularly conducive to effective marketing?*

Costs and Funding (including Sponsorship Programs)

- *What financial resources, strategies and instruments are generally available in the U.S.?*
- *Have innovative concepts activated private capital?*
- *What role does private funding play in the U.S., and how important is it? (⇒ PPP)*
- *Can any polluter-financed funding models (pollution taxes, etc.) be used for land recycling? (⇒ Legal environment)*
- *Conversely, do municipalities and/or investors receive incentives or tax breaks or subsidies for investment in brownfield revitalization projects? (⇒ Legal environment)*

- *How are public and private funds invested, and which projects attract the largest share of the funds?*
- *Do any insurance models cover residual risks and related, unforeseen costs which could cause projects to fail?*

Legal, Economic, Fiscal, Market Environment

- *How do environmental law restrictions impinge on land recycling projects?*
- *Do any use-related standards affect redevelopment and municipal planning?*
- *Who is responsible for investigating contamination: the municipality, the polluter and/or the investor?*
- *Are procedural options available to cut red tape without lowering standards? (⇒ Project management and procedure)*
- *What level of participation do U.S. land recycling procedures require, and who has to be involved?*
- *What incentives do U.S. liability and tax laws provide to encourage development and utilization of brownfields? Which tax and finance instruments may be used especially by the municipalities?*
- *Do national or state planning regulations restrict land utilization, give preference to the revitalization of brownfields or limit growth?*
- *Do any regulations require private developers who use land for short-term profit and then leave it vacant to recultivate their land or pay into a fund to finance recultivation?*
- *Which taxes affect land recycling projects? (⇒ Funding)*
- *Can real estate taxes favor land recycling opportunities?*
- *What further incentives are provided to improve the attractiveness of locating on abandoned commercial or industrial sites?*
- *To what extent do real estate market conditions affect the chances for brownfield redevelopment projects?*
- *Are instruments or approaches in place to influence the real estate market in favor of land recycling projects?*

Exchange of Knowledge and Experience between Municipalities

- *Suggestions for joint workshops for urban planners.*
- *Discussion of planning issues and examples of innovative uses (⇒ Land management, land recycling and urban planning)*

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- *Discussion of project management models (particularly PPP) and funding and insurance models (⇒ Project management and procedures)*
 - *Exchange of examples of good and bad practice (successes and failures)*
 - *Exchange of experience between cities and towns of comparable size*
 - *Exchange of knowledge and experience by means of special personal contacts to appropriate counterparts and Internet platforms*
 - *Models combining land recycling, professional training and employment*
 - *Inner-city development concepts.*

Joint Working Groups on Pilot Projects

- *City practitioners and their private partners could form German-American working groups on pilot projects*
- *Experimental approaches with regard to „good practice“ transatlantic strategies and instruments (planning, marketing, financing, PPP etc.) on pilot projects.*

Dissemination of Knowledge, Experiences and Results

- *Forming a transatlantic platform for the exchange and dissemination of information about (mutual) projects, strategies, instruments and good practice for American and German city practitioners*
- *Building an Internet-Platform as a forum for current discussion and information about brownfield redevelopment topics mentioned above*
- *Establishing and/or intensifying personal contacts and improving motivation for common projects through transatlantic workshops*
- *Forming transatlantic alliances and bases for innovative, sustainable approaches and investments on brownfield projects.*