

## **The U.S.-German Bilateral Working Group: Collaborative Engineering and Scientific Research for a Sustainable Future. Results from Phase 3 (2000-2005) and Beginning Phase 4 (2006-2010).**

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### **ABSTRACT: (150 words)**

Since 1990, the United States and Germany have worked bilaterally to identify, understand and apply innovative technologies and policies for remediation and sustainable revitalization of contaminated sites in each country. The last sixteen years (= three Phases) have produced remarkable benefits in both countries. Cities in the U.S. such as New York City, Chicago, and Buffalo are applying redevelopment strategies from Germany's Ruhr Valley. Washington DC is applying "green" roof and low-impact development stormwater systems from Stuttgart to redevelop its brownfields. In 2006, cooperation between Germany and the U.S. entered a new phase of collaboration - Phase 4. Phase 4 of the partnership will focus on long-term holistic solutions for sustainable revitalization. Regional land-use planning, project management, and site design and landscape, will be studied as integral elements of sustainable revitalization.

### **Introduction**

The U.S. German Bilateral Working Group originated in 1990 in order to share and transfer information, ideas, tools and techniques regarding environmental research. The U.S. Environmental Protection Agency (EPA)/Office of Research and Development (ORD) and the German Federal Ministry for Education and Research (BMBF) developed this partnership. Initially, EPA and BMBF worked together in Phase 1 (1990-1995) to evaluate innovative treatment technologies for contaminated sites. Much of this early research cooperation was dedicated to learning about each country's sampling and analytical methods and quality assurance procedures, in addition to learning about each organization's respective mission and policies. From 1990-1995, five innovative treatment technologies were evaluated in the U.S. and five in Germany. U.S. and German sampling and analytical methods were used in both countries. EPA and the BMBF focused primarily on developing and implementing quality

assurance procedures for the sampling and analytical methods and also quality management procedures for the overall technology evaluation. During Phase 2 (1995-2000), the quality assurance/management procedures developed in Phase 1 were evaluated with ten additional technology evaluations (five in each country). In the U.S., Phases 1 and 2 resulted in a refinement of quality assurance/management procedures for technology evaluations. For Germany, Phases 1 and 2 resulted in the German Standard Procedures for the Evaluation of Remedial Technologies (DETAD). Additionally, many of the technologies were implemented for site remediation and the technology evaluation information was transferred to other countries.

In 2000, EPA and BMBF decided to continue their cooperative activities in Phase 3 with a focus on removing obstacles to the revitalization of potentially contaminated sites (e.g., Brownfields). During Phase 3, products were developed in each country that will continue to be tested and refined over the next several years. EPA and BMBF are now beginning Phase 4 of the Bilateral Working

Group, which will focus on sustainable land revitalization.

The following sections provide details regarding the evolution and applications of ideas and products developed as part of Phase 3 of the U.S.-German Bilateral. Additionally, the authors share details of the Phase 4 workplan and the strategies that U.S. and German practitioners will pursue in their efforts to share and apply lessons, technologies, and policies from each country.

## Phase 3 (2000-2005)

### Organization

While EPA and BMBF are the lead organizations for the Working Group, many other organizations became involved in Phase 3. In the U.S., EPA's Office of Brownfields Cleanup and Redevelopment joined EPA's Office of Research and Development as a co-lead. EPA/ORD was responsible for program management in the U.S. while GSF GmbH was responsible for program management in Germany. The core working group in Germany included: Ferber, Graumann und Partner, Probiotec GmbH, Difu, and Universität Stuttgart. In addition to EPA's primary contractors, Tetra Tech EM Inc. and Neptune and Company, Inc., EPA invited the Interstate Technology Regulatory Council (ITRC), a state-led organization, to assist in Phase 3 research as part of the core working group. "Model projects" (projects that were successful in one or more aspects of revitalization) were selected in both countries in order to develop the Phase 3 products. Experts in both countries from federal agencies, state and local governments, universities, developers, and non-governmental organizations (for example, Northeast-Midwest Institute) were also asked to participate in product development.

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### Goals

EPA and BMBF agreed to the following goals for Phase 3:

- Facilitate equitable land use
- Facilitate faster redevelopment of sites
- Allow greater independence from public money
- Enhance benefits to society

These are similar to EPA's Office of Brownfields Cleanup and Redevelopment Goals, which are to:

- Protect the Environment: address brownfields to ensure the health and well-being of America's people and environment
- Promote Partnerships: enhance collaboration and communication essential to facilitate brownfields cleanup and reuse
- Strengthen the Marketplace: provide financial and technical assistance to bolster the private market

- Sustain Reuse: redevelop brownfields to enhance a community's long-term quality of life

### Approach

The purpose of Phase 3 was to help revitalization practitioners overcome obstacles to revitalization. The EPA and BMBF followed a systematic approach for each phase of the bilateral. For Phase 3 this included five steps: (1) baseline workshops, (2) feasibility studies, (3) product development, (4) beta testing of products, and finally (5) transferring information, tools, techniques, and approaches through publications, websites, and conference presentations.

Step 1 was to hold baseline workshops in each country to identify potential revitalization obstacles. In 2001, representatives of each revitalization stakeholder group (for example, bankers, developers, lawyers, community representatives, environmental specialists, economists, local governments, etc.) attended a baseline workshop in their home country. A few Bilateral Working Group members attended both baseline workshops. A list of obstacles was developed and then evaluated during the feasibility studies (Step 2).

Following the baseline workshops, EPA and BMBF developed feasibility study reports to compile the information regarding obstacles collected from the baseline workshop participants and to decide which obstacles would be researched further by the Bilateral Working Group. The intent of the EPA and BMBF was to provide tools, approaches, and technologies to overcome barriers to revitalization. Over 40 obstacles were identified including: identifying public and private financing options, evaluating and communicating environmental risks, addressing fear of liability (uncertainty), accessing information, communicating effectively with the community, creating a vision, and obtaining political support.

In Step 3, the Bilateral Working Group developed tools to assist revitalization stakeholders in overcoming the obstacles identified and to meet the Phase 3 goals. EPA and BMBF determined that two tools (one in the U.S. and one in Germany) would be developed, but that the Working Group would use similar approaches and information in order to develop them. For example, EPA and BMBF used and shared information collected from the open literature and the internet, model projects in each country, national and international conferences, discussions with experts, and joint workshops.

EPA and BMBF jointly developed and held five workshops in order to collect further information where data gaps were identified. The topics were:

- Economic Tools – Charlotte, North Carolina in November 2002
- Project Management and Marketing – Saarbruecken, Germany in May, 2003
- Environmental Risk Assessment and Communication – Portland, Oregon in October 2003
- Social Acceptance – Leipzig, Germany in June 2004
- Sustainable Reuse – St. Louis, Missouri in September 2004

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EPA compiled the presentations, discussions, and small group exercises on CDs that can be obtained free of charge. Information for ordering copies of CDs, and summaries of each workshop, can be obtained on the U.S.-German Bilateral website ([www.bilateral-wg.org](http://www.bilateral-wg.org) under ongoing activities, workshops).

The information collected from the literature, internet, model projects, conferences, discussions and joint workshops were incorporated into two comparable tools. In the U.S., Sustainable Management Approaches and Revitalization Tools – electronic (SMARTe) is being developed; while in Germany, the START-UP Plan was developed. SMARTe is a web-based decision support tool that will allow users to evaluate future reuse scenarios in a multi-criteria decision analysis framework. It is intended to be used by a diverse group of stakeholders working together to revitalize a potentially contaminated site. The current version contains information, links, best practices, electronic analysis tools, and presentation/communication assistance. The START-UP Plan is intended to guide users to develop a target-group specific, integrated project and business plan that is tailored to a specific brownfield. It helps to organize available, but often unstructured information, and draws attention to the details necessary for information transfer and communication between involved parties, project planning and securing project funding.

Step 4 of the approach is the testing of SMARTe and the START-UP Plan. Feedback on the products is being obtained through various mechanisms including the SMARTe web-site and demonstrations at workshops, conferences, and on webcasts. Additionally, sites at various stages of redevelopment were selected in 2005-2006 to test the products thoroughly. These “beta test projects” are being asked to use the products and provide direct feedback regarding the usefulness and usability of the tools and information.

As part of Step 5, joint conferences were held in Germany and in the U.S. in order to present summaries of each of the joint workshops and to introduce SMARTe and the START-UP Plan to a large group of stakeholders. The summary conference in Germany was held in Berlin in April 2005. The summary conference in the U.S. was held in Denver, CO in November 2005. The conference presentations, question and answer discussions, and the expert panel discussions were strongly tied to the status of SMARTe and the START-UP Plan. Comments received will contribute to the further development of the products. Attendees provided suggestions for the practical application of SMARTe and the START-UP Plan and identified additional research needs. Additionally, webcasts, workshops and conferences are being used to introduce/demonstrate SMARTe and the START-UP Plan to potential users and to raise the awareness of the existence of these tools and their status.

## Phase 4 (2005-2010)

### Goals (U.S.)

Phase 4 of the U.S. – German Bilateral Working Group will sustain and enhance the work of Phase 3 through the development and application of mutually beneficial technologies, strategies and decision tools to redevelop contaminated lands in both countries. However, Phase 4 will look specifically at the development and application of tools and innovative programs in relation to *regional issues* affecting redevelopment of contaminated properties.

Like Phase 3, under Phase 4, SMARTe will serve as a primary channel through which the data and innovation from abroad will be channelled and applied. The guiding theme framing the research will be criteria and indicators for sustainable decisions in land management.

### Approach

The testing and exchange of information will be organized around six working groups - three in the U.S. and three in Germany. The U.S. working groups have organized their work around high-priority domestic themes affecting the role of design, project management, and regional land-use planning. Special attention will be given to the transfer of innovative design, project management and land-use from Germany to the U.S. The choice to focus on regional land-use planning emanated from interests in the U.S. to learn more about the broad but important universe of governance, infrastructure, and financing issues and their influence on sustainable redevelopment of contaminated lands. The focus on design emerged from growing appreciation in the U.S. of the influence of design and “green” infrastructure on contaminated land redevelopment. The focus on brownfields design also emerged from needs for tools to sustainably redevelop abandoned mine sites. Through the development of case studies and convening of landscape practitioners, new tools will be developed to assist stakeholders in the evaluation of revitalization alternatives for abandoned mines and other industrial sites. The decision to concentrate on project management emerged out of awareness that regional redevelopment is a long-term and comprehensive effort requiring inclusion of multiple social, economic, and environmental concerns. These concerns require thoughtful integration in order to reduce costs, redundancy and accelerate clean-up.

To further harmonize and strengthen the transfer of innovative technologies, tools, and programs between both countries, four U.S. brownfields practitioners have been selected to work with their German counterparts from the REFINA projects (see REFINA program description below). The four U.S. practitioners offer a unique union of experience with contaminated land redevelopment projects in Germany, regional redevelopment and innovative project management strategies, and proven experience with the transfer and application of innovation. The project practitioners reflect redevelopment efforts in:

Portland, Oregon (regional governance and urban land-use planning)  
Niagara Falls, New York (shrinking cities and bi-national regional cooperation)

New York City, New Jersey and Connecticut (regional planning)  
Georgetown, Connecticut ("green" design and private finance).

## Goals (Germany)

Bilateral cooperation under Phase 4 in Germany will fall under selected research projects funded under the "Research for the Reduction of Land Consumption and for Sustainable Land Management" (REFINA) program – a program under the Federal Government's National Strategy for Sustainable Development. The aim of the Federal Government's National Strategy for Sustainability is to reduce the consumption of open space for housing and transport to one-third of the present consumption – to 30 hectares/75 acres per day by the year 2020. In order to provide a scientifically reliable basis for decisions and measures, REFINA grants are used in the development and testing of innovative concepts for the reduction of land consumption to achieve a multitude of goals. These goals include the protection of the environment, economic growth, the provision of socially compatible housing, quality of urban building and mobility. With this program BMBF supports projects for efficient land use which develop and implement in particular utilization concepts for brownfield sites in city centres with a total of about 20 million Euros (more details see REFINA paper in these proceedings). Innovations are, however, generated mostly at the interfaces of different disciplines. Interdisciplinary cooperation is therefore of outstanding importance for changing course in the use of natural resources. Furthermore, the international cooperation of REFINA projects with practitioners from the U.S. will prove the developed concepts and are expected to strike new and unconventional paths for sustainable land use management in Germany.

## Approach

The testing of concepts and exchange of information will be established on running REFINA projects in the focus of "Regional and Local Land Revitalization Planning". Six projects have been selected working on best practice solutions applicable in other cities and regions in Germany. Each project involves researchers but also regional and local planning institutions.

The project REGENA in the Neckar-Alb region constitutes an innovative approach to planning and administering commercial and industrial zones by a voluntary association of communities. The main concept is to have a group of communities (up to 23) negotiate about a set of industrially and commercially zoned areas that are selected, planned and managed as a common pool by all communities together.

Goal of the Saarland Balanced Land-Use project is to take the chance of the Saarland to be the first German state to achieve a zero-growth in

built-up land. Saarlands existing demographic perspectives (decrease in population), its location near France and the socio-geographic setting are keys for handling the natural resource "open space" and providing a working infrastructure in the future.

The project NKF-Hanover (Sustainable land use management in the city of Hanover - development of a private sector fund model to create economic incentives to exploit brownfields and reserve building land) aims at creating economic incentives for the re-use of inner-city brownfields or wasteland by developing a private sector fund model. It examines the conditions for realisation of the fund model in the city of Hannover.

The FLAIR project (Land use Management by Innovative Regional Planning) introduces a problem based approach in regional governance and planning and proposes an update of the traditional instrument of so called regional plan in the Region of Southern Upper River Rhine. The region is characterised by a significant disparity between a densely populated, prosperous and growing strip of settlements, industries and traffic infrastructure along the River Rhine and rural areas with smaller settlements within and along the Black Forest. This polarity of a highly concentrated West and rural areas in the East demands differentiated approaches to growth management.

The KOSAR project (Cost-effective reclamation and maintenance of Brownfield sites Models in the UK and Germany) explores specific planning and technical approaches for the use of the reserve status for brownfields. Options of this nature should be developed and implemented by affected regions and municipalities as part of their spatial planning responsibilities. The work is established in Chemnitz, a city with shrinking population.

The conversion of former military sites is addressed by the SINBRA project (Basic strategies for a sustainable reuse of non-competitive areas) using the old military site Kramnitz near Potsdam as representative example for an exemplary restoration of competitiveness of an abandoned site versus competing greenfield developments.

For the focus brownscapes design, a project focussing on the development and validation of alternatives for the re-integration of former industrial sites in urban contexts using the method of a design charette is in preparation. The procedure will be applied at former industrial sites, one in Germany and one in the U.S.

Additionally to bilateral information exchanges and working relations between the counterparts, joint workshops on common interest topics will be the basis for the bilateral working group cooperation.

## Conclusions

Germany and the United States share among the strongest and most productive environmental relations. In the 19th century, Gifford Pinchot modelled the U.S. National Forest Service after Germany's resources management programs. Urban zoning codes in New York City were taken and applied from Frankfurt am Main. Germany's Federal Environment Agency (Umweltbundesamt) was modelled after programs taken from the U.S.

Environmental protection Agency. Today, through the work of the U.S. – German Bilateral Working Group, the healthy and extraordinarily beneficial transfer and application of lessons between both countries continues. Nowhere is this better demonstrated than in the past work under Phase 3 and the evolving work of Phase 4.

## References

Relevant web sites

U.S.-German Bilateral Working Group:  
[www.bilateral-wg.org](http://www.bilateral-wg.org)

REFINA: [www.refina-info.de](http://www.refina-info.de)

SMARTE: [www.smart-e.org](http://www.smart-e.org)

START-UP Plan: [www.vegasinfo.de/startup/](http://www.vegasinfo.de/startup/)

## Figures

Number	Title
1	<b>The Bilateral Working Group in Saarbruecken, Germany</b>
2	<b>Instructions for Obtaining Workshop CDs</b>



**Figure 1 The Bilateral Working Group in Saarbruecken, Germany**

To Order Workshop CDs (free):

<http://www.epa.gov/nscep/ordering.htm>

<u>Workshop</u>	<u>Order Number</u>
Economic Tools	600C03001a
Project Management and Market Strategies	600C05002
Risk Assessment/Communication Tools	600C04099
Social Aspects	600C05009
Sustainable Reuse	625C06001

**Figure 2 Instructions for Obtaining Workshop CDs**