



## LAND RESEARCH PROGRAM

### REVITALIZING BROWNFIELD SITES WITH NEW CLEANUP APPROACHES AND TOOLS

#### Issue:

A Brownfield is a property on which the expansion, redevelopment, or reuse may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. In 1995 the U.S. Government Accounting Office (GAO) estimated that there were up to 450,000 Brownfield sites in the nation. To eliminate the potential human and environmental risk that these sites pose, the U.S. Environmental Protection Agency's (EPA) Land Research Program in the Office of Research and Development (ORD) partners with EPA's Brownfields Program, and others, to provide guidance and incentives to support cleanup efforts and economic revitalization of these sites.

#### Science Objective:

The Land Research Program has developed scientific tools and

approaches that can be used by states and communities to evaluate, assess, and revitalize Brownfields and other potentially contaminated sites. The research supports EPA's efforts to encourage the reuse of Brownfield land so that it enhances the social, economic, and environmental interests and objectives of the community.

#### Application and Impact:

Major research contributions include the following:

##### Decision Support System

Scientists led the development of an integrated decision support system called SMARTe (Sustainable Management Approaches and Revitalization Tools – electronic). SMARTe can help users overcome obstacles to revitalization and to evaluate and assess market and non-market costs and benefits of site revitalization options. The

online system allows users to evaluate alternative reuse scenarios for sites. More information can be found at: [www.SMARTe.org](http://www.SMARTe.org)

##### Site Assessment Calculators

Scientists designed a suite of online calculators for assessing transport of environmental contaminants in subsurfaces including soil and groundwater. These calculators provide users with prepackaged tools for performing site assessment calculations. To broaden their usefulness for Brownfield purposes, researchers expanded the chemical database to include chlorinated solvents, pesticides, and other chemicals. Scientists also added models for assessment of vapor intrusion. More information can be found at: [www.epa.gov/athens/onsite/](http://www.epa.gov/athens/onsite/).

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### **Science for Understanding Models**

Groundwater models often are used for assessment of Brownfield sites. Scientists developed a resource document that can be used by state agencies and others to evaluate the models themselves and determine their suitability for assessing a site for groundwater contamination. The research has provided information that can be used to ensure the best available data are obtained. More information can be found at: <http://www.epa.gov/athens/publications/downloadable.html>

### **Community Sustainability Support**

Scientists provided technical expertise and worked closely with the community of Stella, Missouri, to create a master plan for the town's sustainability that included the reuse of a contaminated site. EPA will continue to monitor progress in Stella to determine if the planning process can benefit small rural communities by rebuilding their economic and social structures while protecting natural systems.

### **Brownfield Identification Tools**

Researchers continue to explore ways to use Geographic Information Systems (GIS) and remote sensing tools to make inventories of potential Brownfield sites.

### **Technical Support Materials**

Researchers have developed a number of technical support materials to assist states and local governments in their site revitalization efforts. An example includes CDs containing the U.S.-German Bilateral Working Group workshops and conference materials. More information can be found at: [www.smarte.org/smarte/resource/sn-us-german-workshops.xml](http://www.smarte.org/smarte/resource/sn-us-german-workshops.xml)

### **REFERENCES:**

Brownfields Cleanup and Redevelopment:  
[www.epa.gov/brownfields](http://www.epa.gov/brownfields)

Brownfields Research and Development:  
[www.epa.gov/AthensR/research/regsupport/brownfields.html](http://www.epa.gov/AthensR/research/regsupport/brownfields.html)

Brownfields Technical Documents:  
[www.epa.gov/ORD/NRMRL/publications.html](http://www.epa.gov/ORD/NRMRL/publications.html)

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