



April 2007

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## INTRODUCTION

We are pleased to present you with *Sustainability at the National Academies*, a monthly update highlighting activities related to sustainable development from throughout the National Academies. Additional information on these and other activities is also available at <http://www7.nationalacademies.org/sustainabilityroundtable/>

The [Roundtable on Science and Technology for Sustainability](#) provides a unique forum for sharing views, information, and analyses related to sustainability. The goal for the Roundtable is to mobilize, encourage, and use scientific knowledge and technology to help achieve sustainability goals and to support the implementation of sustainability practices. Through its activities, the Roundtable identifies new ways in which science and technology can contribute to sustainability. What follows is a brief summary of sustainability-related activities being conducted throughout The National Academies.

You are receiving this update based on your participation in ongoing or past activities of the Roundtable. If you would prefer not to receive future monthly updates or would like to be added to the recipient list, please contact Kathleen McAllister at 202-334-2047 or [Sustainability@nas.edu](mailto:Sustainability@nas.edu)

## NEW REPORTS AND OTHER NEWS

**Agricultural Water Management: Proceedings of a Workshop in Tunisia, Series: Strengthening Science-Based Decision Making in Developing Countries**

This report is a collection of papers from a workshop, "Sustainable Management of Scarce Water Resources for Agricultural Production," held in Tunisia. Participants, including scientists, decision makers, representatives of non-profit organizations, and a farmer, came from the United States and several countries in North Africa and the Middle East. The papers examined constraints to agricultural production as it relates to water scarcity; focusing on 1) the state of the science regarding water management for agricultural purposes in the Middle East and North Africa 2) how science can be applied to better manage existing water supplies to optimize the domestic production of food and fiber. The cross-cutting themes of the workshop were the elements or principles of science-based decision making, the role of the scientific community in ensuring that science is an integral part of the decision making process, and ways to improve communications between scientists and decision makers. This workshop was organized by the Science and Technology for Sustainability Program of the Academies' Office of Policy and Global Affairs.

[http://www.nap.edu/catalog.php?record\\_id=11880](http://www.nap.edu/catalog.php?record_id=11880)

**Sustainable Management of Groundwater in Mexico: Proceedings of a Workshop, Series: Strengthening Science-Based Decision Making in Developing Countries**

This report is a collection of papers presented at a workshop in Merida, Mexico, "Sustainable Management of Groundwater in Mexico." The cross-cutting themes of the workshop were the elements or principles of science-based decision making and the role of the scientific community in ensuring that science is an integral part of the decision making process. Papers included in this volume describe the groundwater resources of Mexico's Yucatan Peninsula, approaches to managing groundwater in Mexico and governmental and scientific institutions concerned with water resources. Other papers discuss US approaches to managing scarce water resources. Participants in the workshop included representatives from leading scientific and academic institutions, federal state and local governments, non-governmental organizations and businesses. This workshop was organized by the Science and Technology for Sustainability Program of the Academies' Office of Policy and Global Affairs.

[http://www.nap.edu/catalog.php?record\\_id=11875](http://www.nap.edu/catalog.php?record_id=11875)

**Prospective Evaluation of Applied Energy Research and Development at DOE (Phase Two)**

Over the past several years, Federal agencies—largely at the direction of Congress—have expanded efforts to measure the performance of their activities. Through the Government Performance and Results Act (GRPA) and other mandates, the agencies have developed indicators of program performance. At the request of Congress, the NRC has undertaken a series of studies using quantitative indicators to evaluate the effectiveness of applied energy R&D at DOE. This is the third report in the series and presents the results of the application of benefits evaluation methodology developed in the second study to six R&D programs within DOE. These are: the carbon sequestration, integrated gasification combined cycle technology R&D, the natural gas exploration and production, the distributed energy resources, the light-duty vehicle technology R&D, and the chemical industrial technologies programs. The report also includes descriptions of enhancements

of the methodology in the form of new indicators for environmental and security benefits and of refinements of the evaluation process based on experience with the case studies. Finally, the report's appendix contains the detailed analyses of each of the six programs.

[http://www.nap.edu/catalog.php?record\\_id=11806](http://www.nap.edu/catalog.php?record_id=11806)

### **Tools and Methods for Estimating Populations at Risk from Natural Disasters and Complex Humanitarian Crises**

Each year, millions of people around the world are displaced by natural or human-induced disasters and social conflicts resulting in humanitarian crises. The South Asian earthquake and tsunami in 2004, Hurricane Katrina in 2005, and the ongoing conflict in Darfur are recent, highly publicized examples. Response and relief efforts are often hampered by a lack of good population data. Relief workers need estimates of the numbers and exact locations of people, as well as their ages, gender, and other relevant characteristics to know exactly how much and what type of aid is needed. This National Research Council report provides a framework for estimating populations at risk and improving the use of population data for effective disaster relief work. The report concludes that all nations, especially resource-poor nations most vulnerable to disasters, should be enabled to conduct a nationwide census every ten years, and that this information should be geographically referenced. Population data alone are not sufficient but must be accompanied by interagency and government coordination and training in the collection, use, and distribution of the data.

[http://books.nap.edu/catalog.php?record\\_id=11895](http://books.nap.edu/catalog.php?record_id=11895)

### **PEPFAR Implementation: Progress and Promise**

In 2003 Congress passed the United States Leadership against HIV/AIDS, Tuberculosis, and Malaria Act, which established a five-year, \$15 billion initiative to help countries around the world respond to their AIDS epidemics. The initiative is generally referred to by the title of the five-year strategy required by the act—PEPFAR, or the President's Emergency Plan for AIDS Relief. A requirement of the act which established PEPFAR was that the Institute of Medicine (IOM) provide Congress with an evaluation of the initiative's progress three years after the passage of the Leadership Act. In response, the IOM Committee for the Evaluation of PEPFAR Implementation examined the initiative, including visits to most of the fifteen PEPFAR focus countries. Overall, the Committee concludes that PEPFAR has made a promising start, but it warns that there is an enduring need for U.S. leadership in the effort to respond to the HIV/AIDS pandemic. This report details the Committee's recommendations for PEPFAR.

[http://books.nap.edu/catalog.php?record\\_id=11905](http://books.nap.edu/catalog.php?record_id=11905)

### **Contributions of Land Remote Sensing for Decisions About Food Security and Human Health: Workshop Report**

Land remote sensing: the use of space-based satellite technologies to obtain information on environmental variables such as land-use and land-covering combination with other types of data can provide information on changes in the Earth's surface and atmosphere that are critical for forecasting and responding to human welfare issues, such as disease outbreaks, food shortages, and floods. This report summarizes a workshop on the potential contributions of remotely sensed data to land-use and land-cover change and ways to use physical, biological, temporal, and social characteristics of particular locations

to support decisions about human welfare. The discussions focused on human health and food security, two aspects of human welfare in which remotely-sensed environmental conditions play a key role. Examples illustrating the possibilities for applying remote sensing for societal benefit are included throughout the report. As a result of the workshop, three themes were identified that, if fostered, could help realize the potential for the application of land remote sensing to decisions about human welfare: (1) integration of spatial data on environmental conditions derived from remote sensing with socioeconomic data; (2) communication between remote sensing scientists and decision makers to determine effective use of land remote sensing data for human welfare issues; and (3) acquisition and access to long-term environmental data and development of capacity to interpret these data.

[http://www.nap.edu/catalog.php?record\\_id=11759](http://www.nap.edu/catalog.php?record_id=11759)

### **Putting People on the Map: Protecting Confidentiality with Linked Social-Spatial Data**

Precise, accurate spatial data may revolutionize some fields of social science by opening new questions for investigation and, by linking to social and behavioral data, improving understanding of human behavior in its environmental context. Norms of science and government favor open access to all scientific data. However, sharing precise spatial data increases the risk that human research participants, who have provided some information under a promise of confidentiality, could be identified by a secondary data user who would thus break the promise. Several technical approaches to reducing the risk of identification have potential, but none yet adequately resolves conflicts among the objectives of data linkage, quality, access, and confidentiality protection. The report concludes that institutional approaches, involving establishing tiers of risk and access, will be required to balance these objectives. It offers recommendations for education, training, research, and practice to researchers, professional societies, federal agencies, institutional review boards, and data stewards.

[http://www.nap.edu/catalog.php?record\\_id=11865](http://www.nap.edu/catalog.php?record_id=11865)

## **NEW PROJECTS**

### **Review of the 21st Century Truck Partnership**

The committee will conduct an independent review of the 21st Century Truck Partnership. In its review, the committee will critically examine and comment on the overall adequacy and balance of the 21st Century Truck Partnership to accomplish its goals, on progress in the program, and make recommendations, as appropriate, that the committee believes can improve the likelihood of the Partnership meeting its goals. The vision of the 21st Century Truck Partnership is that the nation's trucks and buses will safely and cost-effectively move larger volumes of freight and greater numbers of passengers while emitting little or no pollution and dramatically reducing the dependency on foreign oil.

<http://www8.nationalacademies.org/cp/projectview.aspx?key=48722>

### **Evaluating the Efficiency of Research and Development Programs at the Environmental Protection Agency**

Early in the study, the committee will plan and conduct a public workshop on the issue of measuring the efficiency of federally-funded R&D programs and issue a workshop report that summarizes what transpired at the event. The committee will subsequently

prepare a final report with findings, conclusions and recommendation. The committee will look at efficiency measures that are currently used for EPA research and development programs and other federally-funded research and development programs, as well as the principles that should guide the development of efficiency measures for federally-funded research and development programs.

<http://www8.nationalacademies.org/cp/ProjectView.aspx?key=CSEP-Q-07-01-A>

#### **Review of Water and Environmental Research Systems (WATERS) Network**

The committee will review the draft NSF report on conceptual design for the WATERS Network and associated planning documents, as well as comment on the adequacy of the planning process for WATERS Network. The committee will also advise on how the WATERS Network can be integrated efficiently and effectively with similar efforts and activities of other federal agencies, particularly in view of the different missions of these agencies.

<http://www8.nationalacademies.org/cp/projectview.aspx?key=48784>

## **UPCOMING MEETINGS**

### **April**

Improving Risk Analysis Approaches Used By the U.S. EPA, April 17-18, 2007

<http://www8.nationalacademies.org/cp/meetingview.aspx?meetingid=1797>

Globalization of Innovation: Emerging Trends in Information Technology, Biopharma, and Financial Services, April 20, 2007

<http://www8.nationalacademies.org/cp/meetingview.aspx?meetingid=1993>

Committee on the Human Dimensions of Global Change (HDGC) April 25-26, 2007

<http://www8.nationalacademies.org/cp/projectview.aspx?key=67>

Committee on Evaluating the Efficiency of Research and Development Programs at the Environmental Protection Agency, April 24, 2007

<http://www8.nationalacademies.org/cp/meetingview.aspx?meetingid=1998>

NAS 144th annual meeting, April 28-May 1, 2007

<http://www8.nationalacademies.org/onpinews/newsitem.aspx?RecordID=03262007>

Panel on Ensuring the Climate Measurements from NPOESS and GOES-R, April 23-24, 2007

<http://www8.nationalacademies.org/cp/meetingview.aspx?MeetingID=2044&MeetingNo=1>

### **May**

Reducing Stormwater Discharge Contributions to Water Pollution, May 1-3, 2007

<http://www8.nationalacademies.org/cp/meetingview.aspx?meetingid=1965>

Chemical Sciences Roundtable Workshop

Bio-inspired Fundamental Chemistry for Energy, May 14-15, 2007

<http://dels.nas.edu/bcst/csr.shtml#upcoming>

Scientific Accomplishments of Earth Observations from Space, May 15-17, 2007

<http://www8.nationalacademies.org/cp/projectview.aspx?key=48691>

Climate Research Committee Meeting, May 16-17, 2007

<http://www.dels.nas.edu/basc/boardmeetings.shtml>

Board on Atmospheric Sciences and Climate, May 17-18, 2007

<http://www.dels.nas.edu/basc/boardmeetings.shtml>

## June

### **Strategic Advice on the U.S. Climate Change Science Program**

June 7-8, 2007, Boulder, CO

<http://www8.nationalacademies.org/cp/meetingview.aspx?meetingid=2032>

## July

### **NRC Colloquium on Water Implications of Biofuels, July 12, 2007**

<http://dels.nas.edu/wstb/biofuels.shtml>

## PROJECTS IN DEVELOPMENT

### **Partnerships for Sustainability**

The Roundtable on Science and Technology for Sustainability plans to commission a series of review papers and use a symposium to develop a better understanding of key factors of success (and failure) for partnerships established to promote sustainability. A steering group will be appointed to develop a common framework for the reviews and organize the symposium, planned for fall, 2007. For more information on the Roundtable on Science and Technology for Sustainability, visit:

[http://www7.nationalacademies.org/sustainabilityroundtable/Sustainability\\_Roundtable\\_Homepage.html](http://www7.nationalacademies.org/sustainabilityroundtable/Sustainability_Roundtable_Homepage.html)

### **Federal Sustainability Research and Development Forum**

The Roundtable on Science and Technology for Sustainability is planning a workshop ("forum") in late 2007 to discuss research gaps, needed analytical tools, and opportunities for collaboration among federal research and development programs focused on selected high priority challenges to sustainability. For more information on the Roundtable on Science and Technology for Sustainability, visit:

[http://www7.nationalacademies.org/sustainabilityroundtable/Sustainability\\_Roundtable\\_Homepage.html](http://www7.nationalacademies.org/sustainabilityroundtable/Sustainability_Roundtable_Homepage.html)

### **Pathways to Urban Sustainability Initiative**

The National Academies are planning a multi-year, multi-country initiative to address one of the central challenges and opportunities of the 21st century—the use of science and technology to help transform rapidly urbanizing regions of the developing world into "sustainable cities." Over the past year, the Academies launched this ambitious program through on-the-ground planning activities in China, South Africa, Tanzania and Mexico. We are currently raising funds for the next phase of the initiative, which will include an international symposium to examine the major trends, challenges, and potential paths forward to urban sustainability in developing world cities, and a set of on-the-ground projects in China to be carried out in partnership with the Chinese Academies of Science and Engineering and other leading Chinese science and technology institutions. For more information on past urban sustainability activities, visit:

[http://www7.nationalacademies.org/sustainabilityroundtable/Urban\\_Sustainability\\_Homepage.html](http://www7.nationalacademies.org/sustainabilityroundtable/Urban_Sustainability_Homepage.html)

## ONGOING ACTIVITIES

## Sustainability--The Issue

The Roundtable on Science and Technology for Sustainability

<http://www7.nationalacademies.org/sustainabilityroundtable/>

## People and Their Communities

Effective Use of Data, Methodologies, and Technologies to Estimate Subnational Populations at Risk

<http://www8.nationalacademies.org/cp/projectview.aspx?key=BESR-U-04-08-A>

Public Participation in Environmental Assessment and Decision Making

<http://www8.nationalacademies.org/cp/projectview.aspx?key=34>

Review and Assessment of the Health and Productivity Benefits of Green Schools

<http://www8.nationalacademies.org/cp/projectview.aspx?key=296>

The Committee on the Human Dimensions of Global Change

<http://www7.nationalacademies.org/hdgc/>

## Life Support Systems: Atmosphere, Water, and Food

Advancing Desalination Technology

<http://www8.nationalacademies.org/cp/CommitteeView.aspx?key=48674>

Climate Change and U.S. Transportation

<http://www8.nationalacademies.org/cp/projectview.aspx?key=186>

Committee on Hydrology, Ecology, and Fishes of the Klamath River Basin

<http://www8.nationalacademies.org/cp/projectview.aspx?key=216>

Emerging Technologies in Agriculture to Benefit Farmers in Africa and South Asia

<http://dels.nas.edu/banr/index.shtml>

Energy Futures and Air Pollution in Urban China and the United States

<http://www8.nationalacademies.org/cp/projectview.aspx?key=131>

Environmental Decision Making: Principles and Criteria for Models

<http://www8.nationalacademies.org/cp/projectview.aspx?key=50>

Environmental Impacts of Wind Energy Projects

<http://www8.nationalacademies.org/cp/projectview.aspx?key=174>

FEMA Flood Maps: Accuracy Assessment and Cost-Effective Improvements

<http://www8.nationalacademies.org/cp/ProjectView.aspx?key=BESR-U-06-06-A>

Reducing Stormwater Discharge Contributions to Water Pollution

<http://www8.nationalacademies.org/cp/committeevew.aspx?key=48711>

Review of CCSP Draft Report 3.3: Weather and Climate Extremes in a Changing Climate

<http://www8.nationalacademies.org/cp/CommitteeView.aspx?key=BASC-U-06-03-A>

Sustainable Underground Storage of Recoverable Water

<http://www8.nationalacademies.org/cp/projectview.aspx?key=WSTB-U-04-02-A>

Strategic Advice on the U.S. Climate Change Science Program

<http://www8.nationalacademies.org/cp/projectview.aspx?key=209>

Water Implications of Biofuels Production in the United States

<http://dels.nas.edu/dels/sot.php?pin=WSTB-U-06-05-A>

## Economy and Industry

Critical Mineral Impacts on the U.S. Economy

<http://www8.nationalacademies.org/cp/projectview.aspx?key=48725>

Development and Implementation of a Cleanup Technology Roadmap for DOE's Office of Environmental Management

<http://www8.nationalacademies.org/cp/ProjectView.aspx?key=NRSB-O-06-03-A>

National Academies Materials Forum on Corrosion Education for the 21st Century

[http://www7.nationalacademies.org/nmab/current\\_activities.html](http://www7.nationalacademies.org/nmab/current_activities.html)

## Natural Systems

Hydrologic Impacts of Forest Management

<http://www8.nationalacademies.org/cp/projectview.aspx?key=1935>

Panel on Land-use Change, Ecosystem Dynamics and Biodiversity

<http://www8.nationalacademies.org/cp/projectview.aspx?key=285>

International Capacity Building for the Protection and Sustainable Use of Oceans and Coasts

[http://dels.nas.edu/osb/capacity\\_building/capacity\\_building.shtml](http://dels.nas.edu/osb/capacity_building/capacity_building.shtml)

## Institutions and Indicators

Key National Indicators Initiative (KNII)

Currently, this project is not available on the web. As soon as a web link becomes available, it will be included in this update.

## Sustainability Research and Development

Coal Research, Technology, and Resource Assessments to Inform Energy Policy

<http://www8.nationalacademies.org/cp/projectview.aspx?key=189>

Design Issues for the NOAA Sector Applications Research Program

<http://webapp.nationalacademies.org/cp/projectview.aspx?key=48688>

Grand Challenges for Engineering

<http://www.engineeringchallenges.org/>

Grainger Challenge Prize for Sustainability

<http://www.nae.edu/nae/granger.nsf?OpenDatabase>

Review of DOE's Office of Nuclear Energy, Science & Technology Research &

Development Program <http://www8.nationalacademies.org/cp/projectview.aspx?key=48668>

Preparation of this update was supported by the National Academies' George and Cynthia Mitchell Endowment for Sustainability Science.