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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. Please visit our website for additional information on these and other activities at <http://sustainability.nationalacademies.org>.

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 Emi Kameyama at 202-334-2694 or Sustainability@nas.edu or visit our website.

CALL FOR APPLICATIONS

Research Associateship Programs of the National Research Council

The Research Associateship Programs of the National Research Council are accepting applications for graduate, postdoctoral and senior research awards in U.S. government laboratories and affiliated institutions. Submission deadline is August 1, 2009. Detailed information and application instructions are available at www.national-academies.org/rap.

NEW REPORTS

Letter Report on the Review of the Research Program of the FreedomCAR and Fuel Partnership, Phase 3

This letter report broadly reviews the strategy and structure of the FreedomCAR and Fuel Partnership, as requested by the U.S. Department of Energy. Although the Obama Administration's focus on nearer-term technologies is on the right track, there remains a need for continued investment in longer-term, higher-risk, higher-payoff vehicle technologies that could be highly transformational with regard to reduced use of petroleum and reduced emissions. Such technologies include advanced batteries, technologies for hydrogen storage, and hydrogen/fuel cells. For researchers, contractors, and investors to be willing to make long-term commitments to these and other potentially important developing technologies, a consistent year-to-year level of support must be provided.

http://www.nap.edu/catalog.php?record_id=12711

Final Report from the NRC Committee on the Review of the Louisiana Coastal Protection and Restoration (LACPR) Program

This second and final report from the National Research Council on the Louisiana Coastal Protection and Restoration (LACPR) Program reviews a 2009 draft report from the U.S. Army Corps of Engineers on hurricane protection and coastal restoration for southern Louisiana. The National Research Council finds that the lack of a comprehensive protection and restoration plan for southern Louisiana constitutes a major shortcoming in the Corps' report. It recommends that, before the end of 2009, the Corps and the State of Louisiana agree on the elements of a long-term plan and on a number of high-priority protection projects (such as levees and zoning plans) and restoration measures (for example, the creation or enhancement of wetlands or barrier island) projects for immediate implementation.

http://www.nap.edu/catalog.php?record_id=12708

Letter Report on the WATERS Network Science Plan

A Water and Environmental Research Systems (WATERS) Network of hydrologic observatories has been proposed through the National Science Foundation (NSF) to support research that could help address society's water management challenges (e.g., water quality, flood forecasting). The network, as envisioned, would include sensors at diverse sites across the United States and would enable the collection, analysis, and integration of hydrological, environmental science and engineering, and social science data at a level that has not been possible before. At the NSF's request, the National Research Council evaluated the project's Science Plan, which identifies the broad research questions that would be the foundation of the Network. This letter report finds that the Science Plan successfully communicates a high-level vision for transforming water science and engineering research through the WATERS Network, and it identifies high-level research questions that will set a foundation for second-level research. The report questions, however, whether the WATERS Network meets criteria for its proposed funding source and suggests approaches for resolving this concern.

http://www.nap.edu/catalog.php?record_id=12707

Applications of Social Network Analysis for Building Community Disaster Resilience: Workshop Summary

Social network analysis identifies the relationships and attributes of members, key actors, and groups that make up social networks. This document sums up discussions at a workshop held February 11-12, 2009, at the request of the Department of Homeland Security, to provide guidance on a potential research agenda to increase the effectiveness of social network analysis for improving community disaster resilience. Researchers gathered with emergency management practitioners to explore the state of the art in social network analysis and its applications; current work on theories, principles, and design or strengthening of networks; and gaps in knowledge that prevent its application to building networks.

http://www.nap.edu/catalog.php?record_id=12706

Scientific Value of Arctic Sea Ice Imagery Derived Products

During the 1990s, environmental scientists and members of the intelligence community collaborated to consider potential uses of classified assets and data to advance the understanding of environmental change. This program collected classified overhead imagery at six sites around the Arctic basin. Hundreds of unclassified products derived from those images have been produced but not yet released to the public. The National Research Council has reviewed the derived products, and reports that they show detailed processes that are important for studying effects of climate change on sea ice and habitat--data that are not available elsewhere. The report recommends that the products be released as soon as possible to the scientific research community.

http://www.nap.edu/catalog.php?record_id=12631

Global Environmental Health: Research Gaps and Barriers for Providing Sustainable Water, Sanitation, and Hygiene Services

The Roundtable on Environmental Health Sciences, Research, and Medicine of the Institute of Medicine convened a workshop in October 2007, summarized in this volume, to address objectives related to Sustainable Water, Sanitation, and Hygiene Services. One of the objectives of the workshop was to think about the interdependence of environmental health and human health as connected through water. A second objective of the workshop was to consider how planning, management, and interdisciplinary approaches-including technology, social behavioral issues, gender, health, environment, economic, and political aspects-can be integrated to arrive at sustainable solutions. Many organizations and agencies are trying to forge a path toward sustainable practices in water, but the various sectors utilizing and governing water services are not interconnected. More integration and a greater understanding of holistic approaches are needed.

http://www.nap.edu/catalog.php?record_id=12597

Evaluation of Safety and Environmental Metrics for Potential Application at Chemical Agent Disposal Facilities

In the United States, destruction of the chemical weapons stockpile began in 1990, when Congress mandated that the Army and its contractors destroy the stockpile while ensuring maximum safety for workers, the public, and the environment. The destruction program has proceeded without serious exposure of any worker or member of the public to chemical agents, and risk to the public from a storage incident involving the aging stockpile has been reduced by more than 90 percent from what it was at the time destruction began on Johnston Island and in the continental United States. Even so, the Army and its contractors

are desirous of further improvement. To this end, the Chemical Materials Agency (CMA) asked the NRC to assist by reviewing CMA's existing safety and environmental metrics and making recommendations on which additional metrics might be developed to further improve its safety and environmental programs.

http://books.nap.edu/catalog.php?record_id=12580

TR News: May-June 2009, Transportation and the Environment: Mutual Enhancements

The TR News is Transportation Research Board (TRB)'s bimonthly magazine featuring timely articles on innovative and state-of-the-art research and practice in all modes of transportation. The May-June 2009 issue of TR News includes the following articles:

- The Environment and Transportation: Making Both Better Than Before
- Transportation and Environmental Sustainability: Taking "Making It Better Than Before" into the Future
- Air Quality Management: Successes and Emerging Challenges

(<http://onlinepubs.trb.org/onlinepubs/trnews/trnews262AirQuality.pdf>)

http://www.trb.org/news/blurb_detail.asp?id=10685

NEW PROJECTS

Spatial Data Enabling USGS Strategic Science in the 21st Century

At the request of USGS, this study will examine progress made in establishing Spatial Data Infrastructures (SDI), primarily based on U.S. experience; the challenges faced by those infrastructures; and options for the evolution of the National SDI. The study will examine the role that USGS can play in continuing to ensure access to high quality geospatial data and promoting use of geospatial data to support scientific analyses and decision-making through a spatial data infrastructure construct.

<http://www8.nationalacademies.org/cp/ProjectView.aspx?key=BESR-U-08-03-A>

Improving Principles and Guidelines for Water Resources Planning by the U.S. Army Corps of Engineers

This study will advise the U. S. Army Corps of Engineers in the Corps' response to a 2007 congressional mandate to revise the federal Principles and Guidelines (P&G). The P&G document contains the basis for planning Corps of Engineers water resources projects. The Corps of Engineers will provide two documents to the committee for review and comment. The first document will summarize proposed changes to the Principles and Guidelines that have been recommended in reports from the National Research Council and from other organizations. The second document will be a proposed revision of a portion of the P&G. That portion will consist of the "principles" (a 2-page policy statement) and Chapter 1 of the P&G Guidelines document, also known as "Standards."

<http://www8.nationalacademies.org/cp/projectview.aspx?key=48957>

Review of EPA's Title 42 Hiring Authority for Highly Qualified Scientists and Engineers

The National Research Council will convene an expert committee to evaluate the effectiveness of the U.S. Environmental Protection Agency's Title 42 program. On the basis of available information, theory, and experience, the committee will evaluate the

effectiveness of the program in meeting its original objectives, as implemented by EPA and relative to its application in other federal scientific agencies. The committee will comment on EPA's recruitment and retention of highly qualified environmental research scientists and engineers, and it will evaluate in general terms the overall quality and impact of EPA's Title 42 appointees. Finally, the committee will recommend methods and approaches that EPA might employ to strengthen its scientific leadership and to enhance the Title 42 Program.
<http://www8.nationalacademies.org/cp/ProjectView.aspx?key=DELS-BEST-09-05>

UPCOMING MEETINGS

July

TRB Special Task Force on Climate Change, July 28, 2009, Pacific Grove, CA
<http://guest.cvent.com/EVENTS/Info/Summary.aspx?e=43da5562-6e32-4d9d-9d51-ecf53adb0371>

Strategic Planning for the Florida Citrus Industry: Citrus Greening and the Future, July 28-29, 2009, Washington, DC

<http://www8.nationalacademies.org/cp/meetingview.aspx?MeetingId=3551>

Review of Near-Earth Object Surveys and Hazard Mitigation Strategies, Mitigation Panel, July 29-31, 2009, Boulder, CO

<http://www8.nationalacademies.org/cp/meetingview.aspx?MeetingId=3599>

State and Regional Innovation Initiatives: Partnering for Photovoltaic Manufacturing in the United States, July 29, 2009, Washington, DC

<http://www8.nationalacademies.org/cp/meetingview.aspx?MeetingId=3637>

Use of Emerging Science and Technologies to Explore Epigenetic Mechanisms, July 30-31, 2009, Washington, DC

<http://dels.nas.edu/envirohealth/epigenetic.shtml>

August

Hands-on Science Activities, August 1, 8, 15 and 22, 2009, Washington, DC

<http://www.koshland-science-museum.org/events/index.jsp>

Assessment of Intraseasonal to Interannual Climate Prediction and Predictability, August 3-4, 2009, Pasadena, CA

<http://www8.nationalacademies.org/cp/meetingview.aspx?MeetingId=3629>

Review of the FreedomCAR and Fuel Research and Development Partnership, Phase 3, August 4-6, 2009, Southfield, MI

<http://www8.nationalacademies.org/cp/meetingview.aspx?MeetingId=3641>

Assessment of Technologies for Improving Light-Duty Vehicle Fuel Economy, August 5-6, 2009, Washington, DC

<http://www8.nationalacademies.org/cp/meetingview.aspx?MeetingId=3649>

Assessment of Fuel Economy Technologies for Medium and Heavy Duty Vehicles, August 6-7, 2009, San Antonio, TX

<http://www8.nationalacademies.org/cp/meetingview.aspx?MeetingId=3638>

Review of Near-Earth Object Surveys and Hazard Mitigation Strategies, August 10-11, 2009, Woods Hole, MA

<http://www8.nationalacademies.org/cp/meetingview.aspx?MeetingId=3624>

National Earthquake Resilience - Research, Implementation, and Outreach, August 17-19, 2009, Irvine, CA

<http://www8.nationalacademies.org/cp/meetingview.aspx?MeetingId=3614>

Management and Effects of Coalbed Methane Development and Produced Water in the Western United States, August 18-19, 2009, Washington, DC

<http://www8.nationalacademies.org/cp/meetingview.aspx?MeetingId=3636>

TRB Webinar: Energy Solutions, August 19, 2009, 2:00 p.m. to 3:30 p.m. EDT

<https://www1.gotomeeting.com/register/921642376>

America's Climate Choices: Panel on Adapting to the Impacts of Climate Change, August 24-26, 2009, Boulder, CO

<http://www8.nationalacademies.org/cp/meetingview.aspx?MeetingId=3653>

September

Clean Water Act Implementation across the Mississippi River Basin, September 1-2, 2009, Moline, IL

<http://www8.nationalacademies.org/cp/meetingview.aspx?MeetingId=3620>

Development of an Integrated Science Strategy for Ocean Acidification Monitoring, Research, and Impacts Assessment, September 1-2, 2009, Washington, DC

<http://www8.nationalacademies.org/cp/meetingview.aspx?MeetingId=3627>

Sustainability: The Path Forward?, September 2, 2009, Woods Hole, MA

http://www.nasonline.org/site/PageServer?pagename=Jonsson_Upcoming_Events

Review of Sea Turtle Population Assessment Methods, September 8-10, 2009, Washington, DC

<http://www8.nationalacademies.org/cp/meetingview.aspx?MeetingId=3562>

2009 U.S. Frontiers of Engineering Symposium, September 10- 12, 2009, Irvine, CA

<http://www.nae.edu/Programs/FOE/USFOE/2009USFOE.aspx>

Arts on Foot 2009, September 12, 2009, Washington, DC

<http://www.koshland-science-museum.org/events/upcomingevent.jsp?id=344>

The Domestic and International Impacts of the 2009 Influenza A H1N1 Pandemic: Global Challenges, Global Solutions, September 15-16, 2009, Washington, DC

<http://www.iom.edu/CMS/3783/3924/71416.aspx>

Nutrient Requirements of Fish and Shrimp, September 16-18, 2009, Woods Hole, MA

<http://www8.nationalacademies.org/cp/meetingview.aspx?MeetingId=3285>

Doomsday Vaults and the Future of Food, September 23, 2009, Woods Hole, MA

http://www.nasonline.org/site/PageServer?pagename=Jonsson_Upcoming_Events

The Roundtable on Science and Technology for Sustainability, September 24-25, 2009 in Washington, DC

<http://sustainability.nationalacademies.org/roundtable.shtml>

12th Annual Symposium on Chinese-American Kavli Frontiers of Science, September 26-28, 2009 Kunming City, China

http://www.nasonline.org/site/PageServer?pagename=FRONTIERS_cafos_2009program

PROJECTS IN DEVELOPMENT

Research and Development on Urban Sustainability

An ad hoc planning committee will organize a one-day public workshop to discuss research gaps, needed analytical tools, and opportunities for collaboration among federal research and development programs and other relevant programs focused on challenges to urban

sustainability. Participants will include representatives from federal agencies, state/local agencies, academic non-governmental organizations, and key stakeholder groups such as the Conference of Mayors and the League of Cities, as well as international experts. Funding is currently being sought for this project.

ONGOING ACTIVITIES

PNAS Sustainability Science, Special Features

PNAS offers a series of special feature issues that highlight emerging fields in the physical, social, and biological sciences and are edited by leaders in the field. Special Features include a cluster of Perspectives and peer-reviewed research articles. As a service to readers, Special Features are freely available online from the date of publication.

<http://www.pnas.org/misc/sustainability.shtml>

From the July 2009 Issue:

Sharing Global CO₂ Emission Reductions among One Billion High Emitters

<http://www.pnas.org/content/106/29/11884.full>

Linking Social Norms to Efficient Conservation Investment in Payments for Ecosystem Services

<http://www.pnas.org/content/106/28/11812.full>

Global Potential for Wind-Generated Electricity

<http://www.pnas.org/content/106/27/10933.full>

The Current Refugial Rainforests of Sundaland are Unrepresentative of their Biogeographic Past and Highly Vulnerable to Disturbance

<http://www.pnas.org/content/106/27/11188.full>

From the June 2009 Issue:

Protecting the Amazon with protected areas

<http://www.pnas.org/content/106/26/10582.full>

To learn more about sustainability activities, both in the STS program and throughout the other boards and committees of the National Academies, please visit our webpage at:

<http://sustainability.nationalacademies.org/ongoing.shtml>

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