

# THE NATIONAL ACADEMIES

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## Transitioning to Sustainability: The Challenge of Developing Sustainable Urban Systems

### The National Academies' Second Sustainability R&D Forum

#### STEERING COMMITTEE

**ANN BARTUSKA** is the Acting Under Secretary for Natural Resources Environment in the U.S. Department of Agriculture. Prior to her appointment to this position, she served as the Deputy Chief for Research and Development in the USDA Forest Service for five years. Dr. Bartuska is an ecosystem ecologist with degrees from Wilkes College (B.S.), Ohio University (M.S.) and West Virginia University (Ph.D.). Earlier in her career she held a wide variety of positions within the Forest Service: Research and Development, State and Private Forestry, Forest Health Protection, Forest Management, and Ecosystem Management. From 2001-2004, she held the position of Executive Director of the Invasive Species Initiative. Dr. Bartuska currently co-chairs the Ecological Systems subcommittee of the CENR (Committee on Environment and Natural Resources) of OSTP. She is active in the Ecological Society of America, serving as Vice-President for Public Affairs from 1996-1999 and as president from 2002-2003. She has served on the Board of the Council of Science Society Presidents and is a member of the Society of American Foresters.

**GLEN T. DAIGGER** (NAE) is Senior Vice President and Chief Technology Officer at CH2M HILL with responsibility for the technology function for the firm's water businesses (water resources, water supply and treatment, wastewater). He is also the first Technical Fellow for the firm, an honor which recognizes the leadership that he provides for CH2M HILL and for the profession in the development and implementation of new wastewater treatment technology. Daigger has more than 30 years of experience in wastewater treatment plant evaluation, troubleshooting, and process design. His areas of expertise include biological wastewater treatment and treatment process design, in particular biological nutrient removal (both nitrogen and phosphorus), combined trickling filter and activated sludge systems, the use of biological selectors to control activated sludge bulking, and oxygen transfer. Between 1994 and 1996 he served as professor and head of the Environmental Systems Engineering Department at Clemson University. Daigger is a member of the American Society of Civil Engineers, American Water Works Association, Association of Environmental Engineering, International Water Association, Water Environment, as well as numerous other professional societies. Daigger received his PhD in Environmental Engineering, his Master of Science degree in Environmental Engineering and a Bachelor of Science degree in Civil Engineering all from Purdue University.

**MICHAEL FREEDBERG** is the Director for the Division of Affordable Housing Research and Technology in the Department of Housing and Urban Development (HUD)'s Office of Policy Development and Research. As co-chair of HUD's Energy Task Force, he coordinates HUD's Energy Action Plan, a comprehensive strategy for reducing energy costs in HUD's inventory of public and assisted housing, and is responsible for implementing the Technology Roadmap for Energy Efficiency in Existing Housing for the Partnership for Advancing Technology in Housing (PATH). Trained as an architect and urban planner, Mr. Freedberg has been involved in a wide range of residential energy activities. In New York City he developed the nation's first urban applications of solar and wind energy, as part of the first sweat equity conversions of abandoned tenement buildings to cooperative ownership. His projects created an important precedent for small-scale wind and renewable energy production in the United States. He was also Energy Policy Coordinator for the National Center for Policy Alternatives, focusing on alternative energy policies for state and local officials.

**HOWARD FRUMKIN** is Director of the National Center for Environmental Health/Agency for Toxic Substances and Disease Registry (NCEH/ATSDR) at the U.S. Centers for Disease Control and Prevention. He is an internist, environmental and occupational medicine specialist, and epidemiologist. Before joining the CDC in September, 2005, he was Professor and Chair of the Department of Environmental and Occupational Health at the Rollins School of Public Health of Emory University, and Professor of Medicine at Emory Medical School. At Emory, he founded and directed the Environmental and Occupational Medicine Consultation Clinic, the Occupational Medicine Residency training program, and the Southeast Pediatric Environmental Health Specialty Unit. He is the author or co-author of over 100 scientific journal articles and chapters, and has published 4 books on topics relating to urban sprawl, safe and healthy school environments, and environmental health. Dr. Frumkin received his B.A. from Brown University, his M.D. from UPENN, and his M.P.H. and Dr.P.H. from Harvard. Dr. Frumkin's interests include: building healthy communities, the health consequences of global climate change, and the mitigation of health disparities.

**JONATHAN FINK** is the Director of Arizona State University's Global Institute of Sustainability. In this role, he is Arizona State University's lead strategist for developing a comprehensive, university-wide approach to issues of global sustainability. Prior to taking over Arizona State University's sustainability portfolio in July 2007, Fink served for ten years as Vice President for Research and Economic Affairs, overseeing a research program whose budget increased from \$75M to \$220M in the decade, largely on the basis of innovative interdisciplinary programs across the university. Before becoming Research Vice President, Fink was Chair of Arizona State University's Geology Department (now part of the School for Earth and Space Exploration), where he has been a faculty member since 1982. He received a B.A. in geology and biology from Colby College, a Ph.D. in geology from Stanford University, and has held post-doctoral appointments in the Applied Math Department at the Weizmann Institute (Israel) and in the Planetary Geology group at Arizona State University. Dr. Fink is a volcano specialist who combines fluid mechanics, remote sensing, and isotope geochemistry to study eruptions on Earth and other planets. More recently, his research interests concern problems of urban sustainability. He has held an adjunct faculty position in the Department of Chemical Engineering at the University of Colorado and has been a Visiting Fellow in the Research School of Earth Sciences at Australian National University on several occasions. In 1992-93, he served as director of the Geochemistry and Petrology Program at the National Science Foundation, and was a visiting scientist at the National Museum of Natural History of the Smithsonian Institution. He was elected a fellow of the Geological Society of America in 1997 and a fellow of the American Association for the Advancement of Sciences in 2004. He currently serves on the Board of Directors of The Nature Conservancy in Arizona.

**MALKA PATTISON** analyzes the impacts of policies, programs, and legislation on public resources for the Secretary of the Department of the Interior's (DOI) Office of Policy Analysis in Washington, DC. Ms. Pattison also assesses linkages between ecosystem services, sustainability science, and science in decision making for the Geography Discipline of the U.S. Geological Survey. In 2008, she co-chaired "A Conference on Ecosystem Services (ACES)," a major research and applications conference convened by a consortium of Federal agencies including USGS, EPA, USFS, NOAA, and NSF. Previously, Ms. Pattison led workgroups at the Council on Environmental Quality on domestic and international issues such as adaptive management, climate change, oceans policy, and energy development. She has held a variety of positions within DOI including the Bureau of Land Management, Bureau of Indian Affairs, and the Minerals Management Service. Ms. Pattison was a technical advisor to the U.S. delegation to the United Nations Conference on Environment and Development in Rio de Janeiro in 1992. She has an M.S. in Urban and Regional Planning and a B.A. in Anthropology from the University of Arizona.