



# Environment & Security

12th National Conference on  
Science, Policy and the Environment

January 18-20, 2012 | Washington, D.C.

 National Council for Science and the Environment  
*Improving the scientific basis for environmental decisionmaking*

## VISION

The 12th NCSE National Conference on Science, Policy and the Environment explores the connections between climate disruption, food, energy, water, public health and the security of communities, here in the U.S. and around the world.

The complex relationships between these themes are reflected in the many cross-cutting sessions that bring together leaders from the scientific, diplomatic, development, conservation, business, military, educational, and policy communities.

Whatever your background, I hope that you will be challenged in a constructive way to consider these issues from new and different perspectives; work across traditional boundaries; and, bring a solutions-oriented "can do" attitude to developing outcomes.

Look around and you will see many knowledgeable individuals with whom you can begin new relationships to advance your work and launch initiatives to redefine the relationship between security and the environment. These are individuals with whom you can help build a more secure world; a world where the essential needs for food, energy, water, and health can be achieved in healthy ecosystems and sustainable communities.

Perhaps this is your first NCSE conference, or perhaps you have been to all twelve (and there are many who have). You are in for a great experience, filled with opportunities for growth and impact. So, welcome, roll up your sleeves, and get to work!

### **Peter Saundry**

Executive Director,  
National Council for Science and the  
Environment

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# Agenda

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*\*Note: Sessions Located in Atrium Hall Unless Otherwise Noted*

## **Wednesday, January 18, 2012**

- 8:00 a.m. Registration, Continental Breakfast and Scientific Poster Presentations Open
- 8:35 a.m. Opening and Introduction: Ambassador (ret.) Richard Benedick, President, National Council for Science and the Environment
- 8:40 a.m. Keynote Address: "Reinventing Fire: Real Security and Applied Hope"  
Amory Lovins, Cofounder, Chairman, and Chief Scientist, Rocky Mountain Institute
- 9:20 a.m. American Council On Renewable Energy (ACORE) Thought Leadership Award - Presentations: Vice Admiral (Ret.) Dennis McGinn, President, ACORE
- 9:30 a.m. Exhibition opens  
Plenary 1: Integrating Climate, Energy, Food, Water and Health
- 10:30 a.m. Plenary 2: Integrative by Sector
- 11:30 a.m. Plenary 3: Building Resilience
- 12:30 p.m. Lunch on your own - Book Signing with Amory Lovins
- 2:00 p.m. Symposia A (12)
- 3:45 p.m. Symposia B (12)
- 5:30 p.m. Keynote Address: Thomas Friedman, Columnist, *The New York Times*  
Introduction by Astrid Merget, Chair, NCSE Board of Directors; Professor, Public Administration Institute, Louisiana State University
- 6:30 p.m. Reception and Book Signing with Thomas Friedman

## **Thursday, January 19, 2012**

- 8:00 a.m. Registration, Continental Breakfast, Exhibition and Scientific Poster Presentations Open
- 8:45 a.m. Opening and Introduction: Peter Saundry, Executive Director, National Council for Science and the Environment  
Launch of Climate Adaptation and Mitigation E-Learning (CAMEL) community portal  
David Hassenzuhl, Dean and Professor, School of Sustainability and Environment, Chatham University
- 8:50 a.m. Keynote Address: Sherri Goodman, Senior Vice President and General Counsel, CNA; Executive Director, CNA Military Advisory Board
- 9:30 a.m. Plenary 4: Climate Disruption
- 10:30 a.m. Plenary 5: Energy Security
- 11:30 a.m. Plenary 6: Health Security
- 12:30 p.m. Lunch on your own – breakout workshop leaders will meet
- 2:00 p.m. Breakout Workshops (24 concurrent sessions)
- 5:30 p.m. NCSE Lifetime Achievement Award and John H. Chafee Memorial Lecture  
Dr. Gro Harlem Brundtland, former Prime Minister of Norway and Director-General, World Health Organization. Introduction by Mohamed El-Ashry, Senior Fellow, U.N. Foundation
- 6:20 p.m. The Innovation Generation - Youth Recognition

6:30 p.m. Reception

## Friday, January 20, 2012

8:00 a.m. Continental Breakfast

8:50 a.m. Keynote Address: Kathleen Merrigan, Deputy Secretary of Agriculture, U.S. Department of Agriculture

Introduction by Ann Bartuska, Deputy Under Secretary for Research, Education, and Economics, U.S. Department of Agriculture

9:50 a.m. Plenary 7: Water Security

11:00 a.m. Plenary 8: Food Security

12:10 p.m. Closing Keynote Address: Lisa Jackson, Administrator, U.S. Environmental Protection Agency and Rajiv Shah, Administrator, U.S. Agency for International Development

Introduction by Ambassador (ret.) Richard Benedick, President, National Council for Science and the Environment

12:50 p.m. Buffet lunch (with student mentoring tables)

2:15 p.m. End

## Core Planning Committee

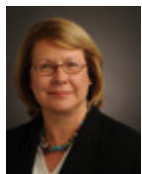
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**A. Karim Ahmed**  
President, Global Children's  
Health and Environment Fund



**Vice Admiral Paul Gaffney**  
President, Monmouth University



**Ann Bartuska**  
Deputy Under Secretary for  
Research, Education, and  
Economics, U.S. Department of  
Agriculture



**Margaret Leinen**  
Associate Provost of Marine and  
Environmental Initiatives, Florida  
Atlantic University and Executive  
Director of FAU's Harbor Branch  
Oceanographic Institute



**Ambassador (ret.) Richard  
Benedick**  
President, National Council for  
Science and the Environment



**H. Jeffrey Leonard**  
President, Global Environment  
Fund



**Mohamed El Ashry**  
Senior Fellow, United Nations  
Foundation



**Peter Saundry**  
Executive Director, National  
Council for Science and the  
Environment



**Sherri Goodman**  
Senior Vice President and  
General Counsel, CNA;  
Executive Director, CNA  
Military Advisory Board

# Advisory Group

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The 12th National Conference on Science, Policy and the Environment: *Environment and Security* is the result of the dedicated work of many people inside and outside of the National Council for Science and the Environment.

The Core Planning Group shown on the previous page set the initial vision and scope of the conference.

Members of the Advisory Group met on conference calls throughout 2011 to define themes and sessions, work with session coordinators, develop new sessions, recruit speakers, write papers, advance the solutions-oriented outcomes, and assist this event in countless ways.

In addition, session coordinators and moderators have devoted much effort in developing their sessions, recruiting speakers, and developing resources.

The Advisory Group members and session leaders were assisted throughout by NCSE staff members David Blockstein, Stevenson Bunn, Caley Corsello, Allison Feldman, Jenifer Jackson, Shelley Kossak, and Lilah Sloane.

To these advisors, session leaders and staff, I express my deep appreciation and gratitude.

Peter Saundry  
Executive Director

- Michael Aimone, Vice President, Strategy Development, Battelle
- Susan Avery, President and Director, Woods Hole Oceanographic Institution
- Gordon Binder, Senior Fellow, World Wildlife Fund
- Joshua Busby, Assistant Professor of Public Affairs, University of Texas at Austin
- Kent Butts, Professor of Political-Military Strategy, U.S. Army War College
- David Catarious, Special Assistant to the Deputy Assistant Secretary for Energy Efficiency, U.S. Department of Energy
- David Cleaves, Climate Advisor to the Chief, U.S. Forest Service
- Rita Colwell, Distinguished Professor, University of Maryland and The Johns Hopkins University
- James Connaughton, Executive Vice President, Corporate Affairs, Public and Environmental Policy, Constellation Energy
- Geoffrey Dabelko, Director, Environmental Change and Security Program, Woodrow Wilson International Center for Scholars
- David Diamond, Advisor to the Deputy Under Secretary for Operations, National Oceanic and Atmospheric Administration
- Amanda Dory, Deputy Assistant Secretary for Defense for Strategy, U.S. Department of Defense
- Sidney Draggan, Ecologist, Science Policy Analyst
- Major General (USAF, Ret.) Rich Engel, Director, Environment and Natural Resources Program, National Intelligence Council
- Paul Faeth, Senior Fellow, CNA
- Leon Fuerth, Distinguished Research Fellow, National Defense University, and Research Professor of International Affairs, the George Washington University
- Ignacio Gonzalez, Communications, Corporate Affairs, Shell Oil Company
- Charles "Chip" Groat, John A. and Katherine G. Jackson Chair in Energy and Mineral Resources, Department of Geological Sciences and Professor of Geological Sciences and Public Affairs, University of Texas at Austin

## Advisory Group (continued)

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- Alan Hecht, Director for Sustainable Development, Office of Research and Development, U.S. Environmental Protection Agency
- Chris Holmes, Global Water Coordinator, U.S. Agency for International Development
- Diana Jerkins, National Program Leader, Division of Global Climate Change; Institute of Bioenergy, Climate, and Environment, National Institute for Food and Agriculture, U.S. Department of Agriculture
- Jack Kaye, Associate Director for Research, Earth Science Division, Science Mission Directorate, NASA
- Mark Keim, Senior Science Advisor, National Center for Environmental Health, Centers for Disease Control and Prevention
- Steven Koonin, Adjunct Staff Member, Science and Technology Policy Institute, Institute for Defense Analyses; former Under Secretary for Science, U.S. Department of Energy
- Vice Admiral (USCG, Ret.) Richard Larrabee, Director, Port Commerce Department, The Port Authority of New York and New Jersey
- William Masters, Professor and Chair, Food and Nutrition Policy Department, Friedman School of Nutrition, Tufts University
- Mark Paese, Director, Office of Operational Systems, National Weather Service, National Oceanic and Atmospheric Administration
- Anna Palmisano, Energy Specialist
- Christine Parthemore, U.S. Department of Defense
- Jonathan Patz, Professor and Director, Global Environmental Health, University of Wisconsin, Madison
- Robbin Peach, Executive Director, Collaborative Institute for Oceans, Climate & Security, University of Massachusetts, Boston
- Donna Perla, Senior Advisor, U.S. Department of Agriculture
- Carlos Rodriguez-Franco, Executive Lead for Cultural Transformation, Office of the Chief, U.S. Forest Service
- Carl Shapiro, Economist, U.S. Geological Survey
- Emmy Simmons, Food Security Specialist
- Alan Thornhill, Chief Environmental Officer, Bureau of Ocean Energy Management (BOEM)
- Rear Admiral David Titley, Oceanographer and Navigator of the Navy; Director, Maritime Domain Awareness and Space, U.S. Navy
- Mark Walbridge, Ecologist/National Program Leader, Agricultural Research Service, U.S. Department of Agriculture
- General Charles Wald (USAF, Ret.), Director, Deloitte Service LP; Leader, Deloitte's Department of Defense Practice, Federal Government Services
- David Wallinga, Senior Advisor in Science, Food and Health, Institute for Agriculture and Trade Policy
- Ken Williams, Chief, Cooperative Research Units, U.S. Geological Survey

# Wednesday, January 18, 2012

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## Detailed Agenda

8:00 a.m. **Registration, Continental Breakfast, and Scientific Poster Presentations Open**

8:35 a.m. **Opening and Introduction: *Ambassador Richard Bendick***, President, National Council for Science and the Environment

8:40 a.m. **Keynote Address: "Reinventing Fire: Real Security and Applied Hope"**  
*Amory Lovins*, Cofounder, Chairman, and Chief Scientist, Rocky Mountain Institute

9:20 a.m. **American Council On Renewable Energy (ACORE) Thought Leadership Award - Presentations: *Vice Admiral (Ret.) Dennis McGinn***, President, ACORE

9:30 a.m. **Exhibition opens**

### **Plenary 1: Integrating Climate, Energy, Food, Water and Health**

**Moderator: *Frank Sesno***, Director, School of Media and Public Affairs, The George Washington University; Creator and Host, Planet Forward

- *Jeff Seabright*, Vice President for Environment and Water Resources, The Coca-Cola Company
- *Daniel Gerstein*, Deputy Under Secretary for Science and Technology, U.S. Department of Homeland Security
- *Geoff Dabelko*, Director, Environmental Change and Security Program, Woodrow Wilson International Center for Scholars
- *Rosamond Naylor*, Director, Center on Food Security and Environment, Stanford University

10:30 a.m. **Plenary 2: Integrative by Sector**

**Moderator: *Tom Gjelten***, Correspondent, National Public Radio (NPR)

- *Rear Admiral Neil Morisetti*, Climate and Energy Security Envoy, Ministry of Defense and the Foreign and Commonwealth Office, U.K.
- *Susan Avery*, President and Director, Woods Hole Oceanographic Institution
- *Sherri Goodman*, Sr. Vice President and General Counsel, CNA; Executive Director, CNA Military Advisory Board
- *Nancy Sutley*, Chair, The Council on Environmental Quality

11:30 a.m. **Plenary 3: Building Resilience**

**Moderator: *Vice Admiral (Ret.) Lee Gunn***, President, CNA Institute for Public Research

- *Heather Grady*, Vice President, Foundation Initiatives, The Rockefeller Foundation
- *Andrew Steer*, Special Envoy for Climate Change, World Bank
- *Marcia McNutt*, Director, U.S. Geological Survey
- *David Orr*, Paul Sears Distinguished Professor of Environmental Studies and Politics, Oberlin College; James Marsh Professor, University of Vermont

12:30 p.m. **Lunch - Book Signing with Amory Lovins**

2:00 p.m. **Symposia A (12)**

1. Climate Change and Security: Making the Connections
2. Security in a Changing Arctic
3. Sustainable Intensification of Food Supplies
4. The Double Burden of Malnutrition
5. Energy's New Map: The Geopolitical Effects of Emerging Energy Trends and Maritime Security
6. Science and Innovation for Energy Security
7. Water and Conflict
8. Snowpack to Thirst: How a Changing Climate is Impacting Water & Energy Security for Millions
9. National Resilience: Biological Terrorism and Environmental Security
10. How Sustaining Environmental, Occupational, and Public Health is Fundamental to Maintaining Community Security: Examples from Around the World
11. The Rio+20 Earth Summit: Green Economy and Global Governance
12. Powering America: How the Department of Defense Can Drive Innovation for Clean Energy Technology (Part 1)

3:45 p.m. **Symposia B (12)**

13. Preparedness for Extreme Events & Community Planning
14. Sustainable Security, Fragile States, and Climate Assessment
15. Global Resource Governance and Food Security
16. Climate Change and Food Security
17. Hanging in the pH Balance: Impacts of Ocean Acidification on Food Security
18. Tradeoffs Between New Sources of Domestic Energy
19. Energy Trade in the 21st Century: New Routes, New Players, & Implications for Maritime Security
20. Women and Water
21. Addressing Environmental Risks and Opportunities in Conflict Prevention, Peacekeeping and Peacebuilding Strategies
22. The Food-Water-Energy Nexus
23. Safe, Resilient, and Sustainable Communities
24. Powering America: How the Department of Defense Can Drive Innovation for Clean Energy Technology (Part 2)

5:30 p.m. **Keynote Address: *Thomas Friedman***, Columnist, *The New York Times*

Introduction by *Astrid Merget*, Chair, NCSE Board of Directors; Professor, Public Administration Institute, Louisiana State University

6:30 p.m. **Reception and Book Signing with Thomas Friedman**

# Wednesday Plenary Biographies

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## Opening and Introduction

**Ambassador (ret.) Richard Benedick** has played a major role in global environmental affairs as chief U.S. negotiator and a principal architect of the historic Montreal Protocol on protection of the ozone layer, and as Special Advisor to Secretaries-General of both the United Nations Conference on Environment and Development (Rio de Janeiro, 1992) and the International Conference on Population and Development (Cairo, 1994). After serving several years on Battelle's International Advisory Board, he became in 1998 Deputy Director in the Environmental and Health Sciences Division at their Washington D.C. office of Pacific Northwest National Laboratory (PNNL), and since 2001 is Senior Advisor to the PNNL-University of Maryland Joint Global Change Research Institute. Since 1994 Dr. Benedick has also been President of the National Council for Science and the Environment, an organization of over 500 universities, scientific societies, industry and civic groups dedicated to improving the scientific basis for environmental decision making. He is concurrently Visiting Fellow since 1995 at the Wissenschaftszentrum Berlin (Social Science Research Center).

## Keynote Address

**Amory B. Lovins** is Cofounder, Chairman and Chief Scientist of Rocky Mountain Institute ([www.rmi.org](http://www.rmi.org)), an independent nonprofit think-and-do tank that drives the efficient and restorative use of resources. An advisor to major firms and governments in over 50 countries for over the past four decades, he is author of 31 books and over 450 papers, and recipient of the Blue Planet, Volvo, Zayed, Onassis, Nissan, Shingo, and Mitchel Prizes, MacArthur and Ashoka Fellowships, 11 honorary doctorates, and the Heinz, Lindbergh, Right Livelihood, National Design, and World Technology Awards. Educated at Harvard and Oxford, he is a former Oxford don, an honorary U.S. architect, a Swedish engineering academician, a member of the National Petroleum Council, and a Professor of Practice at the Naval Postgraduate School. He has taught at nine other universities, most recently Stanford University's School of Engineering. In 2009, Time named him one of the world's 100 most influential people, and Foreign Policy, one of the 100 top global thinkers. His latest books are the coauthored business classic *Natural Capitalism* (1999); *Small is Profitable: The Hidden Economic Benefits of Making Electrical Resources the Right Size* (2002, [www.smallisprofitable.org](http://www.smallisprofitable.org)); the Pentagon-cosponsored *Winning the Oil Endgame* (2004, [www.oilendgame.com](http://www.oilendgame.com)), *The Essential Amory Lovins* (Earthscan, London, Sept. 2011); and *Reinventing Fire: Bold Business Solutions for the New Energy Era* (Chelsea Green, Oct. 2011, [www.reinventingfire.com](http://www.reinventingfire.com)).

## Plenary 1: Integrating Climate, Energy, Food, Water and Health

**Frank Sesno** is Director of the School of Media and Public Affairs at The George Washington University, former CNN Senior Vice President and Washington bureau chief, and host and creator of Planet Forward, a user-driven web site and PBS program addressing energy and global environmental issues. A former anchor, White House correspondent and interview host with CNN, Sesno is also a nationally-renowned moderator, engaging some of the world's leading personalities. From five American presidents, to Yasser Arafat, Margaret Thatcher and Walter Cronkite, Sesno has spoken with some of the most influential people of our time. Recently, Sesno hosted a 10-part series for public television titled The Future of News. Sesno can also be seen on PBS' Nightly Business Report, presenting energy and climate-related innovations and inventions from Planet Forward's online community.

**Jeff Seabright** is the Chief Environmental Officer at the Coca-Cola Company, where he is responsible for environmental governance and leadership across global operations of the Coca-Cola system. He leads a team of some 20 experts working together to integrate water stewardship, sustainable packaging, climate protection practices, and sustainable agriculture into all company business decisions and practices



worldwide. Mr. Seabright has held several positions in government and business, including as Foreign Service Officer in the State Department, legislative assistant in the U.S. Senate, director of environment and energy at the U.S. Agency for International Development, and head of the White House Task Force on Climate Change under President Clinton. Before joining the Coca-Cola Co., he served as vice president for policy planning at Texaco. Mr. Seabright is chairman of the Board of the World Environment Center and a member of the Environmental Technology and Trade Advisory Council, a Federal Advisory Committee (FACA) serving the Secretary of Commerce. He also serves on the Boards of The Nature Conservancy (Georgia), Sustainable Atlanta, The Global Water Challenge, Pace Academy, Savannah Ocean Exchange, Erb Institute Strategic Advisory Council for the University of Michigan, Center for Energy, Development and the Global Environment (EDGE) at Duke University and the National Council for Science and the Environment.

**Daniel M. Gerstein** has served as the Deputy Under Secretary for Science & Technology in the Department of Homeland Security since August 2011. He is also an Adjunct Professor at American University in Washington, DC at the School of International Service (SIS) where he teaches graduate level courses on biological warfare and the evolution of military thought. Dr. Gerstein has extensive experience in the security and defense sectors in a variety of positions while serving as a Senior Executive Service (SES) government civilian, in uniform, and in industry. Before joining DHS, he served as the Principal Director for Countering Weapons of Mass Destruction (WMD) within the Office of the Secretary of Defense (Policy). He has served on four different continents participating in homeland security and counterterrorism, peacekeeping, humanitarian assistance, and combat in addition to serving for over a decade in the Pentagon in various high level staff assignments. Following retirement from active duty, Dr. Gerstein joined L-3 Communications as Vice President for Homeland Security Services, leading an organization providing WMD preparedness and response, critical infrastructure security, emergency response capacity, and exercise support to U.S. and international customers.

**Geoffrey D. Dabelko** is Director of the Woodrow Wilson Center's Environmental Change and Security Program, a nonpartisan research-policy forum on environment, population, health, and security issues. He is also an adjunct professor at the Monterey Institute of International Studies. For the past 20 years, he has brought together policymakers, practitioners, journalists, and scholars grappling with complex links among environment, population, development, conflict, and security. Dr. Dabelko has held prior positions with the Council on Foreign Relations, Foreign Policy and Georgetown University's School of Foreign Service. He currently leads two Wilson Center efforts supported by USAID: the Health, Environment, Livelihoods, Population, and Security (HELPS) Project and the Resources for Peace Project. Dr. Dabelko is co-editor with Ken Conca of *Environmental Peacemaking* (2002) and *Green Planet Blues: Four Decades of Global Environmental Politics* (4th edition 2010). He is an IPCC lead author for the 5th assessment (Working Group II, Chapter 12), and member of the UN Environment Programme's Expert Advisory Group on Environment, Conflict, and Peacebuilding.

**Rosamond Naylor** is the Director of the Center on Food Security and the Environment, the William Wrigley Senior Fellow at the Freeman-Spogli Institute for International Studies and the Woods Institute of the Environment, and a Professor of Environmental Earth Systems Science at Stanford University. She has been involved in a number of field-level research projects around the world and has published widely on issues related to climate impacts on agriculture, distributed irrigation systems for diversified cropping, nutrient use and loss in agriculture, biotechnology, aquaculture and livestock production, biofuels development, food price volatility, and food policy analysis. She is also engaged in policy advising in the U.S. and abroad. At Stanford, Naylor teaches courses on the World Food Economy, Food and Security, Sustainable Agriculture, Climate and Agriculture, and Human-Environment Interactions. She was named Fellow in the Aldo Leopold Leadership Program in Environmental Sciences in 1999 and Pew Fellow in Conservation and the Environment in 1994. She has served on the Oversight Committee for the McKnight Foundation's Collaborative Crop Research Program from 1997-2007 and the Advisory Committee for the Pew Marine Fellows Program from 2007-2010. She is currently on the Scientific Board of the Beijer Institute of Ecological Economics in Stockholm, and a member of the U.S. National Committee for the Pacific Science Association.

## **Plenary 2: Integrative by Sector**

**Tom Gjelten** covers global security and economic issues for NPR News. He was previously posted in Latin America and Central Europe, and he has covered U.S. diplomacy and military affairs from the State Department and the Pentagon. His reporting from Sarajevo from 1992 to 1994 was the basis for his book *Sarajevo Daily: A City and Its Newspaper Under Siege* (HarperCollins). He is also the author of *Professionalism in War Reporting: A Correspondent's View* (Carnegie Corporation) and a contributor to *Crimes of War: What the Public Should Know* (W. W. Norton). His most recent book is *Bacardi and the Long Fight for Cuba: The Biography of a Cause* (Viking). Gjelten's 1992 series "From Marx to Markets" won an Overseas Press Club award for "Best Business or Economic Reporting in Radio or TV." His coverage of the wars in the former Yugoslavia earned Gjelten the Overseas Press Club's Lowell Thomas Award, a George Polk Award and a Robert F. Kennedy Journalism Award. In addition to reporting for NPR, Gjelten is a regular panelist on the PBS program *Washington Week* and serves on the editorial board of *World Affairs Journal*. He is a member of the Council on Foreign Relations.

**Rear Admiral Neil Morisetti** joined the Royal Navy in 1976. After initial training and university (Environmental Sciences), he held various appointments, including command of four ships, ranging from the patrol boat HMS CYGNET to the aircraft carrier HMS INVINCIBLE. Promoted to Rear Admiral in November 2005 he was appointed Commander UK Maritime Force, a position he held until July 2007. In September 2007 he became the Commandant of the Joint Services Command and Staff College, responsible for providing post graduate education to officers from 60 nations. Since September 2009 he has been the UK government's Climate and Energy Security Envoy.

**Susan Avery** became the ninth President and Director of the Woods Hole Oceanographic Institution in February 2008 and is the first female leader of the institution. Avery has used her unique position as an atmospheric scientist in charge of a world-renowned oceanographic research institution to underscore the importance of the interactions between the ocean, atmosphere, terrestrial, and human systems in efforts to understand Earth as a whole. Her previous jobs include interim Vice Chancellor for Research and Dean of the Graduate School at the University of Colorado Boulder, as well as Provost and Executive Vice Chancellor for Academic Affairs. From 1994-2004, she served as director of the Cooperative Institute for Research in Environmental Sciences. Dr. Avery earned her Ph.D. in atmospheric science from the University of Illinois in 1978 and her research interests include studies of atmospheric circulation and precipitation, the development of new radar techniques and instruments for observing the atmosphere, and the role of climate science in decision support.

**Sherri Goodman** is Senior Vice President, General Counsel and Corporate Secretary of CNA, a non-profit research organization that provides analyses and solutions for national security leaders and public sector organizations. From 1993 to 2001, Ms. Goodman served as Deputy Undersecretary of Defense (Environmental Security). As the chief environmental, safety, and occupational health officer for the Department of Defense, she established the first environmental, safety and health performance metrics for the Department and, as the nation's largest energy user, led its energy, environmental and natural resource conservation programs. Overseeing the President's plan for revitalizing base closure communities, she ensured that 80% of base closure property became available for transfer and reuse. Ms. Goodman has twice received the DoD medal for Distinguished Public Service, the Gold Medal from the National Defense Industrial Association, and the EPA's Climate Change Award. Ms. Goodman served on the staff of the Senate Armed Services Committee for Committee Chairman Senator Sam Nunn. She has practiced law at the Goodwin Procter, and has worked at RAND and SAIC.

**Nancy Sutley** is the Chair of the White House Council on Environmental Quality (CEQ). In her role as Chair, she serves as the principal environmental policy adviser to the President. Prior to her appointment, Sutley was the Deputy Mayor for Energy and Environment for the city of Los Angeles, California. She represented Los Angeles on the Board of Directors for the Metropolitan Water District of Southern California and served on the California State Water Resources Control Board from 2003- 2005. Sutley also worked for California Governor Gray Davis as Energy Advisor, managing state and federal

regulations, legislative affairs, finances and press relations. She served as Deputy Secretary for policy and intergovernmental relations in the California EPA from 1999-2003. She advised on water and air pollution policy, and established budget and legislative priorities. During the administration of President William J. Clinton, Sutley worked for the EPA as a Senior Policy Advisor to the Regional Administrator in San Francisco and special assistant to the Administrator in Washington, D.C.

### **Plenary 3: Building Resilience**

***Vice Admiral (Ret.) Lee Gunn*** is president of CNA's Institute for Public Research (IPR) at CNA in Alexandria, Virginia. Gunn joined CNA in 2001 after serving in the U.S. Navy for 35 years. Immediately after concluding his active duty career, Gunn was asked by the Chief of Naval Operations to lead the Executive Review of Navy Training. The nine-month review was conducted by a senior team of experts in a variety of disciplines from the uniformed Navy, the corps of Department of the Navy Civilians, and the business and education communities. The recommendations of the Review continue to be implemented by the Navy, bringing about a revolution in training and learning for Navy men and women. Gunn also serves as: President of the American Security Project, a bi-partisan national security think tank in Washington, DC; Chair of the Board of Advisors of the Naval Postgraduate School in Monterey, CA; an advisor to the Global Perspectives Initiative at the University of Central Florida; and a member and Executive Board member of the Surface Navy Association, the professional association of more than 7000 surface warriors and supporters. He served as President of the Surface Navy Association from 2001-2006.

***Heather Grady*** joined the Rockefeller Foundation in 2010. As Vice President for Foundation Initiatives, she sets strategic direction for the Foundation's broad initiatives of grant making and oversees initiatives on issues including climate change, employment, health and transportation. She provides vision, leadership and direction to help achieve the Foundation's mission to expand more equitable growth opportunities and build resilience, and oversees the Foundation's program staff, a diverse group of professionals working in the US, Asia and Africa. Prior to joining the Rockefeller Foundation, Ms. Grady was the Managing Director of Realizing Rights: the Ethical Globalization Initiative, founded by former Irish President Mary Robinson. There she managed strategy and operations, and helped lead programs on employment, climate justice, corporate responsibility and women's leadership. Throughout her career, Ms. Grady has managed development and humanitarian programs with Oxfam Great Britain and other international organizations, and has lived and worked for over twenty years in a diverse range of settings, including Vietnam, China, Egypt, Sudan and the Gaza Strip. She has written and taught on international development, human rights, and climate change, and served as an Adjunct Professor at Columbia. She is a member of the Global Philanthropy Committee of the Council on Foundations.

***Andrew Steer*** became Special Envoy for Climate Change at the World Bank in July 2010. As such, he is responsible for guiding the Bank Group's work on climate change (now in over 130 countries), and for advancing a strong pro-development climate agenda internationally. In his post, which ranks at the level of Vice President, he will also oversee the \$6.5 billion dollar Climate Investment Funds and help mobilize climate financing. Prior to his appointment, Dr. Steer served for three years as Director General, Policy and Research at the UK Department of International Development (DFID) in London. In earlier years, he held a number of positions at the World Bank including Country Director for Indonesia and Vietnam, and Director of the Environmental Department. He was also Staff Director of the 1992 World Development Report on Environment and Development, the Bank's Flagship report to the Rio Earth Summit. Dr. Steer has three decades of experience working on development issues at the country level in Africa and Asia, and on global development issues. He has written widely on development issues and has taught Economics at several universities.

***Marcia McNutt***, Director of the U.S. Geological Survey, is responsible for leading the Nation's largest water, earth, biological science and civilian mapping agency in its mission to provide the scientific data

that enable decision makers to create sound policies for a changing world. Dr. McNutt previously served as president and chief executive officer of the Monterey Bay Aquarium Research Institute (MBARI), in Moss Landing, California. Dr. McNutt has participated in 15 major oceanographic expeditions and served as chief scientist on more than half of those voyages. She has published 90 peer-reviewed scientific articles. Her research has ranged from studies of ocean island volcanism in French Polynesia to continental breakup in the Western United States to uplift of the Tibet Plateau. She is a member of the National Academy of Sciences, the American Philosophical Society, and the American Academy of Arts and Sciences. She was awarded by the American Geophysical Union the Macelwane Medal in 1988 for research accomplishments by a young scientist and the Maurice Ewing Medal in 2007 for her significant contributions to deep-sea exploration.

**David Orr** is the Paul Sears Distinguished Professor of Environmental Studies and Politics and Special Assistant to the President of Oberlin College and a James Marsh Professor at the University of Vermont. He is the recipient of five honorary degrees and other awards including The Millennium Leadership Award from Global Green, the Bioneers Award, the National Wildlife Federation Leadership Award, a Lyndhurst Prize acknowledging “persons of exceptional moral character, vision, and energy.” He has been a scholar in residence at Ball State University, the University of Washington, and other universities. He has lectured at hundreds of colleges and universities throughout the U.S. and Europe. He has served as a Trustee for many organizations including the Rocky Mountain Institute ([www.rmi.org](http://www.rmi.org)) and the Aldo Leopold Foundation ([www.aldoleopold.org](http://www.aldoleopold.org)). He has been a Trustee and/or advisor to ten foundations.

### **Keynote Address**

**Astrid Merget** is Chair of National Council for Science and the Environment Board of Directors. She is a professor at the Public Administration Institute at the Louisiana State University. She served as Executive Vice Chancellor and Provost at the Louisiana State University from 2007 to 2010. Dr. Merget’s career includes service in senior executive positions in academia and government. Prior to 2007, she was Dean of the Indiana University School of Public and Environmental Affairs and Director of the School of Public Policy and Management and held positions at The Ohio State University, Syracuse University, and The George Washington University. Dr. Merget has also held senior executive positions in the federal government include senior adviser to the secretary of the Department of Health and Human Services and special assistant to the assistant secretary for policy development and research at the Department of Housing and Urban Development.

**Thomas Friedman**, a world-renowned author and journalist, has won the Pulitzer Prize three times for his work at *The New York Times*. His foreign affairs column, which appears twice a week, reports on US domestic politics and foreign policy, Middle East conflict, international economics, environment, biodiversity and energy. Friedman is the author of *From Beirut to Jerusalem*, which won both the National Book and the Overseas Press Club Awards in 1989. *The Lexus and the Olive Tree*, winner of the 2000 Overseas Press Club Award for best non-fiction book on foreign policy. *Longitudes and Attitudes: Exploring the World After September 11*, issued in 2002, consists of columns Friedman published about September 11. *The World is Flat: A Brief History of the Twenty-first Century*, issued in April 2005 and updated in 2006 and 2007, received the inaugural Goldman Sachs/Financial Times Business Book of the Year Award. In 2008 he brought out *Hot, Flat, and Crowded*, which was published in a revised edition a year later. His sixth book and most recent book, *That Used to Be Us: How American Fell Behind in the World We Invented and How We Can Come Back*, co-written with Michael Mandelbaum, was released September 2011. For his coverage of the Middle East, Mr. Friedman was awarded the 1983 Pulitzer Prize for international reporting (from Lebanon) and the 1988 Pulitzer Prize for international reporting (from Israel). He was awarded the 2002 Pulitzer Prize for Distinguished Commentary for “his clarity of vision...in commenting on the worldwide impact of the terrorist threat.” In 2004, he was awarded the Overseas Press Club Award for lifetime achievement and the honorary title, Order of the British Empire (OBE), by Queen Elizabeth II.

# SYMPOSIUM

## Wednesday, January 18, 2012: Sets A and B

\*Invited

On Wednesday, January 18, there will be two sets of concurrent symposia to provide focused discussion on critical cross-cutting topics. Symposia are 90 minute mini-plenary sessions comprised of coordinated presentations by a 3-5 diverse experts to provide insightful perspectives on the topic of the session, followed by moderated discussion among the speakers and a brief question-and-answer period and open discussion with all session attendees. Unlike breakout workshops, symposia do not develop recommendations for action.

### **Symposia A: 2:00 p.m. to 3:30 p.m.**

#### **1. Climate Change and Security: Making the Connections**

##### *(Hemisphere B)*

This session will review the recent advances in research on climate change and security, highlighting what has been learned from recent work. We will focus on research that better incorporates political, social and economic factors, which will determine whether the consequences of climate change are more or less likely to lead to conflict. The panelists will discuss what questions are being addressed by leading researchers in the field, and the evidence that has been accumulated to date, as research has honed in on this question. We will define security broadly in this discussion, and focus on how security in different regions, from Africa to Afghanistan, might be affected by climate change. The expanding focus beyond Sub-Saharan Africa is critical to our understanding of the full spectrum of security implications of climate change as other agriculturally-dependent, fragile states will be heavily impacted by the consequences of climate change.

##### Organizer/Moderator:

**Kaitlin Shilling**, Stanford University

##### Additional Discussants:

**Cullen Hendrix**, Assistant Professor of Government, College of William & Mary

**Kate Marvel**, Lawrence Livermore National Lab

**Justin Mankin**, Stanford University

**Yu Hongyuan**, Professor and Deputy Director, Department of International Organizations and Laws, Shanghai Institute for International Studies

#### **2. Security in a Changing Arctic** *(Oceanic A)*

This session will explore the security implications of the impacts of three significant disruptors in the Arctic: climate change; ship pollution (black carbon); and exploitation of the natural resources (especially fishing and oil). The session will discuss the impacts, status and way ahead regarding the Arctic Council effort to track “black carbon,” the need for, and future of, fisheries regulation in the Arctic, and the status of oil spill response and prevention. The session will present the topics of climate forcers, fishing sustainability regulation and oil spill response & prevention in order to facilitate discussion on the challenges regarding “stove piped” agency response and coordination in the Arctic, given the limited capabilities available.

##### Organizer:

**Courtney St. John**, Climate Change Affairs Officer, Task Force Climate Change, Office of the Oceanographer of the Navy, U.S. Naval Observatory

##### Moderator:

**Commander Blake McBride**, U.S. Navy

##### Additional Discussants:

**Julie Gourley**, Senior Arctic Official, U.S. Department of State

**Scott Highleyman**, Director, Pew International Arctic Program

**Captain John Caplis**, U.S. Coast Guard Headquarters

#### **3. Sustainable Intensification of Food Supplies**

##### *(Continental C)*

Global food supplies needed to meet the food needs of a growing world population (now

projected at something over 9 billion in 2050) require, in part, more efficient and sustainable use of natural resources (soil, water, biodiversity) for production. The combined achievement of more efficient and sustainable agricultural production patterns poses the challenge increasingly known as “sustainable intensification.” This session will explore the issue from diverse perspectives and suggest ways forward.

Organizer/Moderator:

**Emmy Simmons**, Food Expert

Additional Discussants:

**Stan Wood**, Senior Research Fellow,  
International Food Policy Research Institute

**Sara Scherr**, President and CEO,  
Ecoagriculture Partners

**Carl Hausmann**, Vice-Chairman,  
Consortium of the CGIAR Centers

**Robert Bertram**, Director, Office of  
Agricultural Research and Transformation,  
Bureau for Food Security, U.S. Agency for  
International Development

#### 4. **The Double Burden of Malnutrition**

*(Polaris C)*

Our food environment creates many kinds of malnutrition, with insufficiencies alongside excesses. At the simplest level, this “double burden” can be seen in the widespread prevalence of both underweight/stunting and obesity in the same population. Globally, up to 1 billion people are undernourished, about 1.5 billion are overweight of whom 0.5 billion are obese (FAO 2010, WHO 2011). Undernutrition and obesity often coexists within the same household and in a given person over their lifetime. Many deficiencies are most severe during pregnancy and early childhood, while shortfalls in iron and other micronutrients are highest among women of reproductive age. Excesses often accumulate over time causing a variety of metabolic diseases whose incidence varies widely with environmental conditions and food security levels. This symposium will address the global challenge of two-sided malnutrition, identifying how new discoveries and market trends influence nutrition and appropriate policy responses.

Organizer/Moderator:

**William Masters**, Professor of Food Policy,  
Friedman School of Nutrition, Tufts  
University; Director, Nutrition CRSP for  
Africa

Additional Discussants:

**Rachel Nugent**, Research Scientist,

Department of Global Health at University  
of Washington

**Chessa Lutter**, Regional Advisor on Food  
and Nutrition, Pan American Health  
Organization

**Dominic Schofield**, Manager, Infant and  
Young Child Nutrition Program, Global  
Alliance for Improved Nutrition (GAIN)

#### 5. **Energy's New Map: The Geopolitical Effects of Emerging Energy Trends and Maritime Security**

*(Meridian C)*

This session will trace how emerging energy trends are altering the world map of energy geopolitics. Topics will include new nuclear energy countries (Middle East & Southeast Asia); the changing energy landscape in the Americas (offshore deposits, shale gas, renewables, biofuels); new demand (China, India, Southeast Asia); and EU-North Africa connections (e.g., Desertec project). These trends are frequently examined by academics and policymakers, yet it is rare that the topics are brought together to visualize how the full world map is changing as a result of new energy trends.

Organizer:

**Christine Parthemore**, U.S. Department of  
Defense

Moderator:

**Steven LeVine**, author and contributing  
editor, *Foreign Policy*

Additional Discussants:

**Charles Ferguson**, President, Federation of  
American Scientists

**John Kelly**, Deputy Assistant Secretary for  
Nuclear Reactor Technologies, Office of  
Nuclear Energy, U.S. Department of Energy

**Rear Admiral David Titley**, Oceanographer  
and Navigator of the Navy; Director,  
Maritime Domain Awareness and Space,  
U.S. Navy

**Paul Holthus**, Executive Director, World  
Ocean Council

**Eric Thompson**, Acting Director, Strategic  
Studies, CNA

#### 6. **Science and Innovation for Energy Security**

*(Continental B)*

The goal of the session is to explore the role of science and innovation in enhancing energy security. Cutting edge science will be described from fields including biology, chemistry and

engineering, and the potential for applying new technologies to “real world” applications will also be discussed.

Organizer:

**Anna Palmisano**, Energy Specialist

Moderator:

**Sharlene Weatherwax**, Associate Director of Science, Biological and Environmental Research, U.S. Department of Energy

Additional Discussants:

**Tom Peterson**, Associate Director, Engineering Directorate, National Science Foundation

**Jeffrey Marqusee**, Executive Director, Strategic Environmental Research and Development Program (SERDP), U.S. Department of Defense

**Ed Owens**, Supervisor, Hybrid Systems and Materials Technology, Vehicles Technologies Program, Energy Efficiency and Renewable Energy, U.S. Department of Energy

## 7. Water and Conflict

*(Hemisphere A)*

Moving beyond hyperbolic newspaper headlines is a necessary first step to understanding and addressing the complex linkages between water, conflict and cooperation. The growth in competition for increasingly scarce clean water drives conflict dynamics today and concerns for tomorrow. Anticipated impacts of climate change are expected to exacerbate many of these challenges, in extreme ways in some cases. Transboundary water conflict draws the most attention but commonly remains in the realm of saber rattling. Will that record of cooperation or simply lack of conflict persist in a warmer, more water-scarce world? What about the neglected social conflict within states that commonly falls outside traditional realms of war and peace? Will the neglected realm of water cooperation and peacebuilding finally emerge as a realm for proactively utilizing interdependence to building confidence and trust among parties? This panel will highlight recent research and policy development around minimizing water conflict while maximizing the peace dividends of water cooperation.

Organizer/Moderator:

**Paul Faeth**, Senior Fellow, CNA

Additional Discussants:

**Ken Conca**, Program Director, Global Environmental Politics, American University

**Geoff Dabelko**, Director, Environmental Change and Security Program, Woodrow Wilson International Center for Scholars  
**Erika Weinthal**, Associate Professor of Environmental Policy, Nicholas School of the Environment, Duke University

## 8. Snowpack to Thirst: How a Changing Climate is Impacting Water & Energy Security for Millions

*(Polaris A)*

This session will focus on how environmental change and urbanization in mountain ecosystems are impacting water supplies, causing conflicts, and stimulating energy and water security crises for millions of people. It will also examine best practices and policies to mitigate, and adapt to, rapid environmental change.

Organizer/Moderator:

**Maureen McCarthy**, Executive Director, Tahoe Science Consortium

Additional Discussants:

**Terrence Surlis**, Executive Vice President for Research & Chief Science Officer, Desert Research Institute

**Sudeep Chandra**, Associate Professor of Natural Resources & Environmental Science, University of Nevada, Reno

**Katherine Batten**, Global Climate Change Coordinator, U.S. Agency for International Development

**Jerad Bales**, Chief Scientist for Water, U.S. Geological Survey

**Darci Glass-Royal**, Executive Director and CEO, Foundation for Environmental Security & Sustainability (FESS)

## 9. National Resilience: Biological Terrorism and Environmental Security

*(Meridian D)*

Environmental terrorism has long been proposed as a potentially effective weapon. Strengthening national resilience to such threats involves maximizing advanced warning, being prepared to provide timely and adequate medical countermeasures, making emergency healthcare available, and accelerating efforts to detect contamination and decontaminate the environment. Of equal importance is knowing how to communicate with the public regarding medical measures, health risks and options such as evacuation and exclusion, as well as

understanding broader social and psychological factors. This session will examine the environmental significance of this problem, its relationship to the EPA's environmental mission, health and agricultural policy, and international economics and biosecurity, all in the context of national security.

Organizer/Moderator:

**Peter Jutro**, Deputy Director for Science and Policy, National Homeland Security Research Center, U.S. Environmental Protection Agency

Additional Discussants:

**Randall Larsen**, Executive Director, WMD Center

**John Cruden**, President, Environmental Law Institute

**Thomas Inglesby**, Director, University of Pittsburgh Center for Biosecurity

**Marcy Rockman**, Anthropologist /Archaeologist, National Park Service

## **10. How Sustaining Environmental, Occupational, and Public Health is Fundamental to Maintaining Community Security: Examples from Around the World** (Continental A)

This session will present case studies where threats to environmental, occupational and/or public health have threatened or, or actually, undermined community sustainability and security – and conversely, examples of where efforts to solve an environmental, occupational, or public health problem has strengthened local or regional security. Through concrete examples of different types of public health issues, this session will show how inextricably linked environmental, occupational, and public health issues are to community well-being, and hence to social sustainability and security. The session will provide a platform for ongoing problem-solving and demonstrate the connection between human rights and labor rights and environmental and health issues – issues that are too often separated in formal academic or policy programs whereas crafting approaches to solving such problems must draw from all these areas of expertise.

Organizer/Moderator:

**Elizabeth Grossman**, independent journalist and writer, June 2011 Woodrow Wilson Center for International Scholars Public Policy Scholar

Additional Discussants:

**Joseph Amon**, Director, Health and Human Rights Division, Human Rights Watch

**Iris Brown Carter**, Community Liaison, Louisiana Bucket Brigade

**Frederick "Skip" Burkle, Jr.**, Senior Fellow, Harvard Humanitarian Initiative

## **11. The Rio+20 Earth Summit: Green Economy and Global Governance** (Polaris B)

The UN Conference on Sustainable Development ("Rio+20 Earth Summit") will be held June 20-22, 2012. It is expected to attract the participation of some 50,000 governmental, corporate, and civil society leaders from around the world. The two key themes of the Rio+20 Earth Summit will be the transition to a green economy and improvements in global sustainable development governance. This session will identify opportunities for NSCE participants to become engaged in the Rio+20 process both at the national and international levels and to put forward and discuss proposals for greening the economy and improving global governance.

Organizer/Moderator:

**Jacob Scherr**, Natural Resources Defense Council

Additional Discussants:

**Celeste Connors**, Director for Environment Affairs, National Security Council

**Diane Dillon-Ridgely**, Independent Director, Interface, Inc.

**Amy Fraenkel**, Regional Director for North America, United Nations Environment Programme

**Shalini Vajjhala**, Special Representative, Office of the Administrator, Joint Initiative on Urban Sustainability, U.S. Environmental Protection Agency

## **12. Powering America: How the Department of Defense Can Drive Innovation for Clean Energy Technology (Part 1)** (Oceanic B)

America's reliance on fossil fuel for transportation leaves it economically vulnerable and limits foreign policy options. On the battlefield dependence on fossil fuel for operational energy, often provided by truck convoys, carries a very high price in dollars and lives. The military has sought various solutions



to respond to this challenge including conservation, efficiency, and the deployment of new renewable energy sources. As the largest energy user in the U.S. and with its extensive experience in developing world changing technologies such as GPS and the internet, DoD is uniquely positioned to spur clean energy innovation. The variety of DoD's operational missions presents opportunities to incubate and test new energy technology, directly contributing to America's energy competitiveness while increasing national security. Representatives from the Office of the Secretary of Defense and the Services will discuss these opportunities in the area of operational energy.

Organizer/Moderator:

**Marcus King**, Associate Research Professor, The George Washington University

Additional Discussants:

**Oliver Fritz**, Deputy Director for Policy, Office of the Assistant Secretary of Defense for Operational Energy Plans and Programs  
**Captain Chris Tindal**, Director for Operational Energy, Office of the Deputy Assistant Secretary of the Navy for Energy  
**Colonel Paul Roeger**, Director, Operational Energy Integration, ARCIC, U.S. Army  
**Kevin Geiss**, Deputy Assistant Secretary of the Air Force for Energy

## **Symposia B: 3:45 pm to 5:15 pm**

### **13. Preparedness for Extreme Events & Community Planning**

*(Oceanic A)*

The session will define the risks that extreme events and climate change present to communities at large, as well as describe the drivers that contribute to community risk with respect to food and water security, critical infrastructure, and the public health as a whole. In addition, the session will describe the various mitigation and adaptation strategies that can be employed to reduce a community's environmental footprint and vulnerability to the threats of climate change. The panel of speakers consists of experts with knowledge of natural resources protection, stakeholder communications, community organizing, environmental security and municipal sustainability planning—all crucial components of successful community climate action planning. The intended results of this session are to build on the information available for a Whole Community approach to apply these concepts to climate change mitigation and adaptation, and to

share guidance that communities can use when preparing their Community Action Plans (CAPs). The session will also provide the tools to get communities started and provide useful consideration for contacting key stakeholders who will be instrumental in the CAP planning and implementation phases.

Organizer/Moderator:

**Mark Paese**, Director, Office of Operational Systems, National Weather Service, National Oceanic and Atmospheric Administration

Additional Discussants:

**Tony Tancini**, Senior Analyst, Marstel-Day, LLC

**Michael J. Gresalfi**, Senior Advisor, FEMA Response Directorate

**Fred Stine**, Citizen Action Coordinator, Delaware Riverkeeper Network

### **14. Sustainable Security, Fragile States, and Climate Assessment**

*(Polaris B)*

Fragile states have been identified as one of the greatest threats to international security. Early identification of unsustainable practices can help focus successful interventions in addressing fragility in an integrated and effective manner. U.S. strategy and intelligence assessments display growing awareness of the challenges climate change may present, specifically as an accelerant of instability in some of the most volatile and vulnerable regions of the world, placing increased burden on military and civilian institutions to respond. This session explores fragility as it relates to climate change and other stressors and the need to reinforce sustainability principles as a component of security strategy. A common conceptual framework is introduced to better assess state fragility and to better manage the consequences of climate-induced changes and the relationships between stressors. Research on natural resources and conflict, climate vulnerability, and efforts to build capacity to manage disasters and other stressors is presented.

Organizer/Moderator:

**Steven Hearne**, Senior Fellow, Army Environmental Policy Institute (AEPI)

Additional Discussants:

**Jeremy Alcorn**, Research Fellow, Energy and Environment Group, LMI

**William Goran**, Director, Center for the Advancement of Sustainability Innovations (CASI), U.S. Army Corps of Engineers

**Andy Bruzewicz**, Physical Scientist, U.S. Army Corps of Engineers (HQ)

**Joshua Busby**, Assistant Professor of Public Affairs, University of Texas

**Christine Youngblut**, Adjunct Research Staff Member, Institute for Defense Analyses

## 15. Global Resource Governance and Food Security

*(Polaris A)*

Global governance for food security must encompass questions of food supply, markets and trade, income and employment, and food safety nets. The “Rome-based” agencies (Food and Agriculture Organization of the United Nations, United Nations World Food Programme, and International Fund for Agricultural Development) are often seen as in the lead on supply issues, although all national government members of these organizations provide an additional layer of governance: the World Trade Organization on questions of markets and trade; the World Bank and the International Labour Organization (ILO) on issues of income and employment; and World Food Programme (WFP) and the global (largely NGO) humanitarian complex on food safety nets. The speakers in this session will consider whether the current constellations of international and intergovernmental institutions providing governance are succeeding in their roles; what might be done to increase their effectiveness; and where opportunities for new or revitalized organizations exist. A moderator could help to identify which new ideas about global governance might have the most impact on improving global food security.

Organizer/Moderator:

**Rajul Pandya-Lorch**, Head of 2020 Vision Initiative and Chief of Staff, International Food Policy Research Institute

Additional Discussants:

**Uma Lele**, Independent Consultant

**Charlotte Hebebrand**, Executive Director, International Food & Agricultural Trade Policy Council (IPC)

**Eric Munoz**, Senior Policy Advisor, Oxfam America

**Brian Greenberg**, Director of Sustainable Development, InterAction

## 16. Climate Change and Food Security

*(Continental B)*

Agriculture is a substantial contributor to climate change as well as significantly affected by it. Thus, solving the food security equation of this

century will require addressing the challenges of climate change: adapting crop and livestock systems to higher temperatures, shifting seasons, and more frequent and extreme weather events, floods, and droughts, while, at the same time, devising production and processing systems that mitigate greenhouse gas emissions and the sector's contributions to climate change. Scale will be an important factor in developing more effective approaches: some will require action at a global scale, others at an ecoregional or landscape scale, and still others, at a farm or field scale. This session will explore strategies for building sustainable food security along with climate change resilience as closely-linked issues.

Organizer:

**Emmy Simmons**, Food Expert

Moderator:

**Jonathan Shrier**, Acting Special Representative, Global Food Security, U.S. Department of State

Additional Discussants:

**Marc Cohen**, Senior Researcher on Humanitarian Policy and Climate Change, Oxfam America

**Rosamond "Roz" Naylor**, Director of the Center on Food Security and Environment, Stanford University

**Mark Rosegrant**, Division Director, Environment and Production Technology Division, IFPRI

**Jonathan Foley**, Director, Institute on the Environment, University of Minnesota

**David Battisti**, Professor of Atmospheric Sciences and Tamaki Endowed Chair, University of Washington

## 17. Hanging in the pH Balance: Impacts of Ocean Acidification on Food Security

*(Oceanic B)*

Fish and shellfish contribute 15 percent of animal protein for 3 billion people worldwide, according to a recent FAO analysis. Ocean acidification, caused by increasing levels of dissolved CO<sub>2</sub> in seawater, poses an increasing threat to the continued availability of marine protein as a food source and as an economic base for coastal communities worldwide. Caused both by atmospheric and land-based drivers, acidification presents an emerging challenge to coastal communities and economies. This session will explore the latest science on ocean acidification and its projected impacts on marine resources already facing multiple stressors, such

as overfishing and pollution. Through presentations and a panel discussion, this session will provide insights from the natural sciences and economics that could help regions and management institutions proactively prepare for the changes that ocean acidification may bring.

Organizer/Moderator:

**Erica Goldman**, Assistant Director for Science Policy Outreach, COMPASS

Additional Discussants:

**Carol Turley**, Senior Scientist, Plymouth Marine Laboratory

**Scott Doney**, Senior Scientist, Marine Chemistry & Geochemistry, Woods Hole Oceanographic Institution

**William Cheung**, Assistant Professor (National Geographic Fellow), University British Columbia, Vancouver

**Charles Colgan**, Chair/Professor, Community Planning & Development Program, Public Policy and Management, University of Southern Maine

## 18. Tradeoffs Between New Sources of Domestic Energy

### *(Polaris C)*

Greater reliance on domestic energy resources enhances energy security from a security of supply perspective, but if energy security is considered to include factors other than simply supply, the role and tradeoffs of each of our options give us complicating factors to consider. This session will explore sources such as coal, oil and gas, nuclear, and renewables. Speakers will address how different resources and technologies play out from a supply standpoint, but also consider the tradeoffs they necessitate, such as economics (including time horizons for investments), environment, low probability high risks, supply chain stability, and societal impacts.

Moderator:

**Alan Thornhill**, Chief Environmental Officer, Bureau of Ocean Energy Management (BOEM)

Organizers:

**Alan Thornhill**; **Charles “Chip” Groat**, Director, Center for International Energy and Environmental Policy, University of Texas at Austin; **Donna Perla**, Senior Advisor, U.S. Department of Agriculture; and **Ignacio Gonzalez**, Communications, Corporate Affairs, Shell Oil Company

Additional Discussants:

**Zia Haq**, Senior Analyst, Biomass Program,

Office of Energy Efficiency & Renewable Energy, U.S. Department of Energy  
**Amory Lovins**, Cofounder, Chairman and Chief Scientist, Rocky Mountain Institute (Soft Energy)

**Vice Admiral (Ret.) Dennis McGinn**, President, American Council On Renewable Energy (ACORE) (Renewables)

**Brenda Pierce**, Program Coordinator, Energy Resources Program, U.S. Geological Survey

## 19. Energy Trade in the 21st Century: New Routes, New Players, & Implications for Maritime Security

*Symposium #19 has been merged with Symposium#5.*

*We apologize for any inconvenience.*

## 20. Women and Water

### *(Continental A)*

The global water challenge is solvable, and women are part of the solution. The lack of access to water, sanitation and hygiene (WASH) impacts all sectors of development: health, education, environment, economic opportunity and security, with a disproportionate impact on women and girls, the water carriers. Lack of WASH remains a fundamental obstacle to women’s health and empowerment, perpetuating cycles of poverty. With time to engage in more productive activities, women reinvest, on average, 90 percent of generated income in their families, creating a broad ripple effect in the community. Projects designed and run with the full participation of women have proven to be more sustainable and effective. Over the next decade, close to a billion women living at

subsistence level will emerge as participants in the global marketplace. The workshop will cover the need for gender mainstreaming in WASH programming, cross sector impact, corporate and citizen engagement, and an overview of the Women for Water global campaign.

Organizers:

**Paul Faeth**, Senior Fellow, CNA and  
**Gordon Binder**, Senior Fellow, World Wildlife Fund

Moderator:

**John Oldfield**, Managing Director, WASH Advocacy Initiative

Additional Discussants:

**Jaehyang So**, Manager, Water and Sanitation Program, World Bank

**Kathy Baczko**, Former Director of Global Partnerships, WASH Advocacy Initiative

**Karen Sherman**, Director of Global Programs, Women for Women International

**Michael C. Fields**, Director, Xylem Watermark

## 21. Addressing Environmental Risks and Opportunities in Conflict Prevention, Peacekeeping and Peacebuilding Strategies

*(Continental C)*

This session will inform policymakers and practitioners on how climate change and natural resource scarcity can exacerbate existing vulnerabilities, tensions and conflicts, particularly if natural resources are mismanaged or not considered. Experts will identify different measures that may help to minimize factors that can lead to conflict. Presentations will draw on experiences from post conflict regions as well as lessons from various peacekeeping operations – highlighting the implications for failing to consider environmental issues. The session will focus on lessons from ongoing efforts, develop deeper networks for environmental peacebuilding projects, and will systematically analyze the opportunities to further integrate environmental considerations into peacebuilding and peacekeeping operations. This session is also aimed at enhancing awareness on the potential implications of climate change and natural resource scarcity as a threat multiplier for security.

Organizer/Moderator:

**David Jensen**, Head of Programme: Environmental Cooperation for Peacebuilding, United Nations Environment Programme

Additional Discussants:

**Carl Bruch**, Senior Attorney and Co-Director of International Programs, Environmental Law Institute

**Erika Weinthal**, Associate Professor of Environmental Policy, Duke University

**Sophie Ravier**, Environmental Officer, United Nations Department of Field Services

## 22. The Food-Water-Energy Nexus *(Hemisphere A)*

The world's food, water, and energy resources are already experiencing significant stress or shortfalls—and yet, in the next 20 years, demand for these resources is projected to increase significantly as populations, economies, and consumption rates grow. The world is ill-equipped for the changes, investments, and trade-offs that will be required. Meeting our future food, water and energy needs therefore presents a very real growth conundrum and security challenge. The highly inter-linked nature of these issues is particularly challenging and a common thread running through this nexus is water. Water security links together the web of food, energy, climate, economic growth and human security challenges that the world economy faces over the next two decades. Globally, water demand is expected to exceed supply by over 40 percent by 2030. This session will address a number of questions that cut across food-, water-, and, energy-security, including:

- With more than 70 percent of the world's fresh water being used for agriculture, how can food production be doubled to feed an increasing population?
- How can a projected increase of 40 percent in U.S. energy demand be met, given energy is the largest industrial user of water?
- What approaches are needed to bring in the nexus-thinking into policymaking, allocation of financial resources and generating political leadership to ensure future water security?

Organizer/Moderator:

**Jeff Seabright**, Vice President of Environment & Water Resources, The Coca-Cola-Company

Additional Discussants:

**Samantha Gross**, Director, Cambridge Energy Research Associates

**Charles Iceland**, Manager, Aqueduct Project, World Resources Institute

**John Kadyszewski**, Director, Planning and Strategic Initiatives; Director, American Carbon Registry, Winrock International  
**Roberto Lenton**, World Bank/Water for Food Institute, University of Nebraska

### **23. Safe, Resilient, and Sustainable Communities**

*(Hemisphere B)*

Cities are the most comprehensive integrators of economic and environmental forces, and are the logical starting point for accelerating the development and implementation of an integrated systems approach to sustainable development. By their very nature, cities are natural laboratories for sustainable development. This session will explore how cities can best prepare for a sustainable and secure future, ensuring strong economic growth while protecting natural resources. It will address how cities can best identify, and respond to, growing economic, environmental and security threats and better prepare an integrated sustainability and security strategy, taking into account potential air, land, water, and climate change. The goal of this session is to identify a path forward that will advance environmental security and sustainability across a national network of progressive urban communities.

Organizer/Moderator:

**Alan D. Hecht**, Director for Sustainable Development, Office of Research and Development, U.S. EPA

Additional Discussants:

**David Orr**, Distinguished Professor of Environmental Studies and Politics, and Special Assistant to the President, Oberlin College; James Marsh Professor, University of Vermont

**John Crittenden**, Director, Brook Byers Institute for Sustainable Systems, Georgia Tech

**Joseph Fiksel**, Executive Director, Center for Resilience, Ohio State University; U.S. EPA Sustainability Advisor

**Patrick Doherty**, Deputy Director, National Security Studies Program and Director, Smart Strategy Initiative, New American Progress

### **24. Powering America: How the Department of Defense Can Drive Innovation for Clean Energy Technology (Part 2)**

*(Meridian B)*

Facility energy use represents approximately 30% of DoD's total energy costs. Executive orders call for adopting clean energy technology in installation acquisition strategies and integrating sustainable practices into facilities operations. Dramatic fluctuations in energy costs also provide incentives for lower energy consumption. The Defense Science Board has identified DOD facility reliance on a fragile commercial electricity grid as a serious and growing risk to continuity of critical missions. This session will explore how DoD can promote cost-effective clean energy solutions while maximizing supply security in the face of volatile energy markets and growing vulnerabilities in delivery systems. Strategies include interagency cooperation on energy research, development, testing and evaluation (RDT&E) and providing early support to corporations that produce clean energy technologies. Research leaders from the public and private sectors will discuss these options in facilities energy.

Organizer/Moderator:

**Leo Goff**, CNA

Additional Discussants:

**Alex Beehler**, B&D Consulting, former Department of Defense

**Lieutenant General Larry Farrell**, U.S. Air Force (Ret.), President, National Defense Industrial Association

**Robert Kwartin**, Vice President, ICF International

Thursday, January 19, 2012

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## **Detailed Agenda**

- 8:00 a.m. **Registration, Continental Breakfast, Exhibition and Scientific Poster presentations open**
- 8:35 a.m. **Opening and Introduction:** *Peter Saundry*, Executive Director, National Council for Science and the Environment  
**Launch of Climate Adaptation and Mitigation E-Learning (CAMEL) community portal**  
[www.camelclimatechange.org](http://www.camelclimatechange.org)  
*David Hassenzahl*, Dean and Professor, School of Sustainability and Environment, Chatham University
- 8:50 a.m. **Keynote Address:** *Sherri Goodman*, Senior Vice President and General Counsel, CNA; Executive Director, CNA Military Advisory Board
- 9:30 a.m. **Plenary 4: Climate Disruption**  
**Moderator:** *Richard Harris*, Correspondent, NPR
- *Ambassador Peter Wittig*, Permanent Representative of Germany to the United Nations
  - *Rear Admiral David Titley*, Oceanographer and Navigator of the Navy; Director, Maritime Domain Awareness and Space, U.S. Navy
  - *Major General Muniruzzaman (Ret.)*, President, Bangladesh Institute of Peace & Security Studies
  - *Margaret Leinen*, Associate Provost of Marine and Environmental Initiatives; Executive Director, Harbor Branch Oceanographic Institute, Florida Atlantic University
- 10:30 a.m. **Plenary 5: Energy Security**  
**Moderator:** *Juliet Eilperin*, National Environmental Reporter, *The Washington Post*
- *Steven Koonin*, Adjunct Staff Member, Science and Technology Policy Institute, Institute for Defense Analyses; former Under Secretary for Science, U.S. Department of Energy
  - *David Jhirad*, Director, Energy, Resources and Environment Program, The Johns Hopkins University
  - *Vice Admiral (Ret.) Dennis McGinn*, President, American Council On Renewable Energy (ACORE)
- 11:30 a.m. **Plenary 6: Health Security**  
**Moderator:** *Jonathan Hamilton*, Correspondent, National Public Radio
- *Rita Colwell*, Distinguished Professor, University of Maryland College Park and The Johns Hopkins University Bloomberg School of Public Health
  - *Howard Frumkin*, Dean, School of Public Health, University of Washington
  - *Catherine Woteki*, Under Secretary for Research, Education and Economics, U.S. Department of Agriculture
- 12:30 p.m. **Lunch on your own – breakout workshop leaders will meet**
- 2:00 p.m. **Breakout Workshops (24 concurrent sessions)**
1. Geographic Combatant Commands (GCC's) Climate Change Adaptation
  2. Models and Decision Support for Understanding Risk, Climate Disruption and Security
  3. Climate Change, Security, and Risk Assessment: Transformation for Adaptation to Secure and Sustainable Communities
  4. Non-linear Climate Disruptions and Security

5. Fisheries and Food Security (Aquaculture) (combined with) Fishing for Security
6. Conserving Critical Ecosystems and Biodiversity While Achieving Global Food Security
7. Climate Change and Food Security
8. Remote Sensing, Climate Change, and Food Security: Integrating Data Providers and Users
9. Trade and National Security Dimensions of Food Policy Beyond the Food Security Paradigm
10. Achieving Universal Energy Access by 2030 – Innovative approaches to delivering energy services in developing countries
11. Tradeoffs Between New Sources of Domestic Energy
12. Integrating People into Decisions about Water
13. World Water Forum
14. Watershed Payment for Ecosystem Services
15. Urban Water Security
16. Women, Health, and the Environment
17. Health Consequences of Global Migration from Rural to Urban Environments
18. Climate Change and Health
19. Biosecurity in a Changing Climate - How the United States Must Adapt to New Threats of Human and Animal Pathogens and Invasive Species
20. Forests and Environmental Security
21. Environmental Literacy for a Secure Future
22. The Water-Energy-Security Nexus
23. Human Ecology, Human Security
24. Joined at the Hip: Water Security for Humankind and Biodiversity

5:30 p.m. **NCSE Lifetime Achievement Award and Chafee Memorial Lecture**  
*Dr. Gro Harlem Brundtland*, former Prime Minister of Norway and Director-General, World Health Organization. Introduction by *Mohamed El-Ashry*, Senior Fellow, United Nations Foundation

6:20 p.m. **The Innovation Generation - Youth Recognition**

6:30 p.m. **Reception**

# Thursday Plenary Biographies

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## Opening and Introduction

**Peter Saundry** is Executive Director of the National Council for Science and the Environment and Conference Chair. He is honored to provide day-to-day leadership to the organization hosting this conference. Since 1993, he has been responsible for overall program leadership, financial and staff management, strategic planning and development. Dr. Saundry is an experienced leader in building coalitions of individuals and organizations to promote environmental science and its utility in addressing societal concerns. Dr. Saundry has been instrumental in creating the Encyclopedia of Earth and has been an engaged participant in most of the NCSE programs.

## Keynote Address

**Sherri Goodman** is Senior Vice President, General Counsel and Corporate Secretary of CNA, a non-profit research organization that provides analyses and solutions for national security leaders and public sector organizations. From 1993 to 2001, Ms. Goodman served as Deputy Undersecretary of Defense (Environmental Security). As the chief environmental, safety, and occupational health officer for the Department of Defense, she established the first environmental, safety and health performance metrics for the Department and, as the nation's largest energy user, led its energy, environmental and natural resource conservation programs. Overseeing the President's plan for revitalizing base closure communities, she ensured that 80% of base closure property became available for transfer and reuse. Ms. Goodman has twice received the DoD medal for Distinguished Public Service, the Gold Medal from the National Defense Industrial Association, and the EPA's Climate Change Award. Ms. Goodman served on the staff of the Senate Armed Services Committee for Committee Chairman Senator Sam Nunn. She has practiced law at the Goodwin Procter, and has worked at RAND and SAIC.

## Plenary 4: Climate Disruption

**Richard Harris**, an award winning journalist, reports on science issues for NPR's news magazines *Morning Edition*, *All Things Considered*, and *Weekend Edition*. Harris joined NPR in 1986. In 2010, Harris' reporting uncovered that the blown-out BP oil well in the Gulf of Mexico was spewing out far more oil than asserted in the official estimates. He covered the United Nations climate negotiations, starting with the Earth Summit in Rio de Janeiro in 1992, followed by Kyoto in 1997 and Copenhagen in 2009. Harris was a major contributor to NPR's award-winning 2007-2008 "Climate Connections" series. Harris has been the recipient of many of the journalism and science industries' most prestigious awards. Before joining NPR, Harris was a science writer for the *San Francisco Examiner*. Harris is co-founder of the Washington, D.C. Area Science Writers Association, as well as past president of the National Association of Science Writers.

**Ambassador Peter Wittig** has been Permanent Representative of Germany to the United Nations since December 2009. In 2010 he was elected President of the United Nations "Peacebuilding Commission." Since January 2011, he has represented Germany in the UN Security Council. He joined the German Foreign Service in 1982. He has served in Madrid, New York (Permanent Mission to the United Nations), Bonn (as private secretary to the Foreign Minister) and as Ambassador to Lebanon. As Ambassador to Cyprus, he also acted as Special Envoy of the German Government for the Cyprus Question. In 2002 he was appointed Ambassador in the Directorate-General for the United Nations and Global Issues in the Foreign Office in Berlin and became Director-General in 2006. After studying History, Political Science and Law at Bonn, Freiburg, Canterbury and Oxford Universities, he taught as Assistant Professor at the University of Freiburg. He has written articles on the history of ideas and on foreign policy.



**Rear Admiral David Titley** served over 10 years at sea, including a tour as navigator aboard USS Farragut (DDG 37), and tours as oceanographer aboard USS Belleau Wood (LHA 3), USS Carl Vinson (CVN 70), Carrier Group Six and U.S. 7th Fleet. Shore tours include serving on the staff of the U.S. Commission on Ocean Policy and as the senior military assistant to the director of Net Assessment in the Office of the Secretary of Defense. Titley has commanded the Fleet Numerical Meteorological and Oceanographic Center in Monterey, and was the first commanding officer of the Naval Oceanography Operations Command. He served his initial flag tour as commander, Naval Meteorology and Oceanography Command. Education includes a B.S. in Meteorology from the Pennsylvania State University, a M.S. in Meteorology and Physical Oceanography and Ph.D. in Meteorology, both from the Naval Postgraduate School. He attended the Massachusetts Institute of Technology Seminar XXI on Foreign Politics, International Relations and National Interest, and is a fellow of the American Meteorological Society. In 2009, Titley assumed duties as Oceanographer and Navigator of the Navy and director, Task Force Climate Change. In 2011, he assumed responsibility for Navy Space and Maritime Domain Awareness.

**Major General Muniruzzaman (Ret.)** is the President of Bangladesh Institute of Peace and Security Studies. He is a former career military officer who has also been the Military Adviser to the President of Bangladesh. An experienced UN peace keeper and has had the distinction of heading the post election UN mission in Cambodia. He is a founding member of the research cluster Non - Traditional Security Asia based in Singapore. He is also a member of a multinational initiative named 'Military Advisory Council (MAC)' on climate change. He has also launched a South Asian initiative called SANSaC (South Asian Network of Security and Climate Change) that has membership from all South Asian countries. He is currently leading two major research projects on climate induced migration and analyzing the nexus of conflict focusing on Bangladesh and South Asia, the other project is on Water Security of South Asia. He writes extensively on climate change issues and is the editor of quarterly academic journal 'Peace and Security Review'.

**Margaret Leinin** is the Associate Provost of Marine and Environmental Initiatives and Executive Director of the Harbor Branch Oceanographic Institute, a unit of FAU located in Fort Pierce. Dr. Leinen is the founder and President of the Climate Response Fund, a non-profit organization that works to foster discussion of climate engineering research and to decrease the risk that these techniques might be called on or deployed before they are adequately understood and regulated. Previously, she spent two years as the Chief Science Officer of Climos, Inc. Prior to working in the non-profit and private sectors, Dr. Leinen served at the National Science Foundation. She joined the National Science Foundation (NSF) in 2000 as Assistant Director for Geosciences and Coordinator of Environmental Research and Education. Dr. Leinen has also been in academic leadership positions at the University of Rhode Island, serving as Vice Provost for Marine and Environmental Programs and as Dean of the Graduate School of Oceanography.

### **Plenary 5: Energy Security**

**Juliet Eilperin** is serves as *The Washington Post's* national environmental reporter. Ms. Eilperin has covered issues ranging from climate change to the 2008 presidential campaign for the *Post*. In the wake of the Deepwater Horizon explosion in April 2010, she wrote several investigative pieces exposing the lack of federal oversight over offshore drilling. Her environmental reporting assignments have entailed trekking on the Arctic tundra with Selma Hayek and Jake Gyllenhaal and searching on her hands and knees for rare insects in the caves of Tennessee. Ms. Eilperin has received numerous environmental fellowships and honors, including the 2011 Peter Benchley Ocean Award for Media. She is the author of "Fight Club Politics: How Partisanship is Poisoning the House of Representatives," and "Demon Fish: Travels Through the Hidden World of Sharks."

**Steven E. Koonin** served as the U.S. Department of Energy's second Senate-confirmed Under Secretary for Science from May 19, 2009 through November 18, 2011. As Under Secretary for Science, Koonin functioned as the Department's chief scientific officer, coordinating and overseeing research across the DOE. He led the preparation of the Department's 2011 Strategic Plan and was the principal author of its recently released Quadrennial Technology Review. Koonin particularly championed research programs in High Performance Simulation, Exascale Computing, Inertial Fusion Energy, and Greenhouse Gas Monitoring, Reporting, and Verification. He also provided technical counsel on diverse nuclear security matters. Dr. Koonin currently works at the Institute for Defense Analyses in Washington D.C., and will take up an academic position in 2012.

**David Jhirad** holds the titles of HRH Prince Sultan bin Abdul Professor of Environmental Policy, and Director of the Energy, Resources and Environment (ERE) Program at the Johns Hopkins University. He is a former professor and/or research at Georgetown University's School of Foreign Service, Brookhaven National Laboratory, California Institute of Technology, Boston University and the University of Massachusetts. Dr. Jhirad was the special adviser on energy and climate and vice president of Research and Evaluation at The Rockefeller Foundation as well as vice president for Science and Research at the World Resources Institute. He served in the U.S. Department of Energy as deputy assistant secretary for International Energy Policy, Trade and Investment and senior adviser to the Secretary of Energy. Dr. Jhirad led U.S. bilateral relationships with all major energy producing and consuming nations, and represented the United States as vice chairman of the Governing Board of the International Energy Agency in Paris and lead delegate to the Asia-Pacific Economic Cooperation Energy Working Group. He served as a senior energy and science adviser to USAID and worked in Latin America, South Asia and Sub-Saharan Africa on energy policies to ensure equity, environmental sustainability, energy technology innovation and infrastructure. Dr. Jhirad has also testified before Congress on energy and environmental issues. He holds his Ph.D. in applied physics from Harvard University.

**Vice Admiral Dennis V. McGinn (U.S. Navy, Ret.)** is the president of the American Council On Renewable Energy (ACORE), a non-profit membership organization dedicated to creating a more secure and prosperous America with clean, renewable energy. For more than a decade Admiral McGinn has been actively engaged in efforts at the national level to highlight the close link between energy, climate and national security. He is a strong advocate for innovative government policy, public and private partnerships, and investments that will promote clean energy growth and innovation. He has testified before the U.S. Congress on the national and economic security implications of climate change and our dependence on fossil fuels, highlighting the need for action on clean energy. He is a widely recognized energy and national security expert, who has interviewed with major news networks and national journalists. Admiral McGinn serves as co-chairman of the CNA Military Advisory Board advising policy makers on the nexus of energy and national security, and as an international security senior fellow at the Rocky Mountain Institute. He is also a director of the National Conference on Citizenship.

### **Plenary 6: Health Security**

**Rita Colwell** is Distinguished University Professor both at the University of Maryland at College Park and at Johns Hopkins University Bloomberg School of Public Health, Senior Advisor and Chairman Emeritus, Canon US Life Sciences, Inc., and President and CEO of CosmosID, Inc. Her interests are focused on global infectious diseases, water, and health, and she is currently developing an international network to address emerging infectious diseases and water issues, including safe drinking water for both the developed and developing world. Dr. Colwell served as the 11th Director of the National Science Foundation, 1998-2004. In her capacity as NSF Director, she served as Co-chair of the Committee on Science of the National Science and Technology Council. Dr. Colwell has held many advisory positions in the U.S. government, nonprofit science policy organizations, and private foundations, as well as in the international scientific research community. She is a nationally-respected scientist and educator, and has authored or co-authored 17 books and more than 750 scientific publications.

**Howard Frumkin** is Dean, and Professor of Environmental and Occupational Health Sciences, at the University of Washington School of Public Health. Dr. Frumkin is an internist, environmental and occupational medicine specialist, and epidemiologist, who has worked in academia and public service. From 2005 to 2010, he held leadership roles at the U.S. Centers for Disease Control and Prevention, first as director of the National Center for Environmental Health and Agency for Toxic Substances and Disease Registry (NCEH/ATSDR), and later as Special Assistant to the CDC Director for Climate Change and Health. During his tenure NCEH/ATSDR created programs in Climate Change and in Healthy Community Design; launched training programs for college students, doctoral students, and post-docs; expanded its Biomonitoring and Environmental Public Health Tracking programs; and launched its National Conversation on Public Health and Chemical Exposures. From 1990 to 2005, he was Professor and Chair of the Department of Environmental and Occupational Health at Emory University's Rollins School of Public Health and Professor of Medicine at Emory Medical School.

**Catherine Woteki** is Under Secretary for USDA's Research, Education, and Economics (REE) mission area, and the Department's Chief Scientist. Before joining USDA, Dr. Woteki served as Global Director of Scientific Affairs for Mars, Incorporated, where she managed the company's scientific policy and research on matters of health, nutrition, and food safety. From 2002-2005, she was Dean of Agriculture and Professor of Human Nutrition at Iowa State University. Dr. Woteki served as the first Under Secretary for Food Safety at the U.S. Department of Agriculture (USDA) from 1997-2001, where she oversaw U.S. Government food safety policy development and USDA's continuity of operations planning. Dr. Woteki also served as the Deputy Under Secretary for REE at USDA in 1996. Prior to going to USDA, Dr. Woteki served in the White House Office of Science and Technology Policy as Deputy Associate Director for Science from 1994-1996.

### **NCSE Lifetime Achievement Award and John H. Chafee Memorial Lecture**

**Mohamed El-Ashry** is senior fellow with the UN Foundation and a Board Member of the Arab Forum for Environment and Development, as well as a WRI Alum. He served as chief executive officer and chairman of the Global Environment Facility (GEF) from July 1994 to July 2003. He also served as chairman of the GEF during its Pilot Phase (1991-1994). Prior to joining the GEF he served as the chief environmental advisor to the president and director of the Environment Department at the World Bank, as senior vice president of the World Resources Institute (WRI) and as director of environmental quality with the Tennessee Valley Authority. He has held teaching and research positions at Cairo University, Pan-American-U.A.R. Oil Company, Illinois Geological Survey, Wilkes University and the Environmental Defense Fund. He has also served as senior environmental advisor to the UN Development Programme (UNDP), as special advisor to the secretary-general of the 1992 U.N. Conference on Environment and Development (UNCED) and as a member of the World Water Commission.

**Gro Harlem Brundtland** was the prime minister of Norway in 1981, 1986-1989, and 1990-1996. From 2007-2009, she served as the UN special envoy on climate change. During the 1970s, Dr. Brundtland acquired international recognition in environmental circles and a political reputation at home. She accepted the position of Minister of the Environment in 1974. In 1983, the UN Secretary-General invited her to establish and chair the World Commission on Environment and Development (the Brundtland Commission), which published its report, *Our Common Future*, in April 1987. She was also secretary general of the World Health Organization from 1998-2003. Before she began her political career, Dr. Brundtland spent ten years as a physician and scientist in the Norwegian public health system. She worked in the children's department of the National Hospital and Oslo City Hospital, and became Director of Health Services for Oslo's schoolchildren. She attended medical school at the University of Oslo and earned her master's of public health from Harvard University.

# BREAKOUT WORKSHOPS

Thursday, January 19, 2012 from 2:00 pm to 5:15 pm

\*Invited

Breakout workshops are designed to develop recommendations for using science and education to address issues related to “environment and security.” Each session is organized around a particular topic and will involve a combination of brief opening comments from invited experts in the field and facilitated participant group discussion to develop a set of 8-12 recommendations to the Obama administration, Congress, state and local government, business, non-profit organizations, colleges and universities and others.

## 1. **Geographic Combatant Commands (GCC's) Climate Change Adaptation** *(Oceanic A)*

Many of the Geographic Combatant Commands have well developed environmental security programs that have worked for years with the Department of State Regional Environmental Hubs to address regional environmental threats to stability. Based on strategic policy documents, it is understood that military should not be the lead in addressing the regional effects of climate change. However, the local leaders often lack the technical or manpower resources required to successfully address these missions, leaving their governments vulnerable to a loss of legitimacy and instability. The military community could be an indispensable resource for some countries as they have the contact and influence with the responsible host nation agencies to address this growing security issue. This session will focus on the regional adaptation issues of climate change, identify the ongoing climate change and environmental security activities of selected Geographic Combatant Commands and other roles and missions that regional militaries could undertake to address these issues, and identify what must be done to encourage the most efficient use of this military resource to create regional and governmental stability.

### Organizer/Moderator:

**Kent Butts**, Director, National Security Issues Group, U.S. Army War College

### Additional Discussants:

**Christine Youngblut**, Adjunct Research Staff Member, Institute for Defense Analyses

**Rachel Beer**, National Intelligence Fellow, Council on Foreign Relations

**Art Kolodziejki**, Chief, Environmental Security Branch, United States Africa Command

**Myrna Lopez**, Strategic Interagency Environmental Specialist, United States Southern Command

## 2. **Models and Decision Support for Understanding Risk, Climate Disruption and Security**

### *(Meridian C)*

We recognize that policymakers will need to make decisions about climate policy before scientists have resolved all uncertainties about climate change impacts. As such, this session seeks to address the importance of proper risk assessment methodologies in thinking about climate disruption and its uncertainty. Our understanding of the risk/uncertainty around climate change shapes the ways that decision-makers respond (adapt) to climate disruption. The task of understanding the risk of climate disruption is critical for those agencies tasked with security/defense-related missions. Risk assessments by these decision-makers inform our security posture. We will provide an introduction of climate risk, its connection to security (as viewed by those charged with defense/security related missions), explain the benefits of risk management as an approach to decision-making on climate change, and describe a new methodological framework (involving uncertainty quantification, progressive hedging and integrated systems analysis) for thinking about uncertainty and risk associated with climate disruption and security.

### Organizer:

**Nancy Brune**, Principal Member Technical Staff, Sandia National Laboratories

### Moderator:

**Gerald Geernaert**, Director, Climate and Environmental Sciences Division, Office of Science, U.S. Department of Energy

### Additional Discussants:

**Jay Gullede**, Senior Scientist and Director,

Science & Impacts Program, Center for  
Climate and Energy Solutions  
**George Backus**, Principal Member  
Technical Staff, Sandia National  
Laboratories

**Antonio Busalacchi**, Director and Professor  
of the Earth System Science  
Interdisciplinary Center, University of  
Maryland, College Park

**Rear Admiral Peter V. Neffenger**, Director,  
Strategic Management and Doctrine, U.S.  
Coast Guard

**Commander (Ret.) Esther J. McClure**,  
Energy and Climate Issue Team Lead,  
Office of the Secretary of Defense (OSD)

### 3. **Climate Change, Security, and Risk Assessment: Transformation for Adaptation to Secure and Sustainable Communities**

*(MD Classroom C-1)*

Coastal areas have a long experience in  
managing risk to prepare for and recover from  
extreme events. More often the long term trends  
of environmental change, such as sea level rise,  
are accentuated by extreme events. The response  
has generally been rebuilding to return to the  
status quo, rather than taking the opportunity to  
adapt and build new secure, sustainable  
structures. How can we transform the experience  
of current risk assessment into an appropriate  
response to these long term trends in order to  
strengthen the security of our communities?

This is an important component of  
environmental security and risk assessment for  
the future. It involves government and non-  
government institutions (operations,  
infrastructure, and policy), including the  
military, business, and built communities. A  
panel, including representatives of business, the  
built environment, environmental climate  
change, the United Nations/Environment and  
Security Initiative, the Army Corps of Engineers,  
and Homeland Security/FEMA will provide  
insightful perspectives on the issues and arrive at  
potential solutions with participant interaction.

Organizer/Moderator:

**Mantha Mehallis**, Director and Professor,  
Florida Atlantic University

Additional Discussants:

**Leonard Berry**, Director, Florida Center for  
Environmental Studies, Florida Atlantic  
University

**Marco Keiner**, Director, Environment  
Division, United Nations Economic

Commission for Europe (UNECE) and  
Member (Chair 2009), Management Board,  
Environment & Security Initiative  
(ENVSEC)

**David Kaufman**, Director, Office of Policy  
and Program Analysis, U.S. Department of  
Homeland Security/FEMA

**Jeffrey R. Arnold**, Project Manager,  
USACE Institute for Water Resources

**James Murley**, Deputy Director, Southeast  
Florida Regional Partnership

### 4. **Non-linear Climate Disruptions and Security**

*(Polaris C)*

Climate change is of concern to policymakers  
because it has the power to disturb, and to  
potentially disrupt, basic patterns of economic,  
social and political behavior that are the ultimate  
sources of stability and security. The ability of  
societies to respond successfully to climate  
change will be affected by its rate of onset: as  
measured, and also as estimated by means of  
forecasting models. Planning for climate change  
should recognize a number of possible abrupt  
changes ("tipping points", "non-linear  
disruptions" etc.), based on serious assumptions  
and estimates of their likelihood. This session  
will:

- Catalog scenarios that are solidly based on  
physical laws, though still controversial.
- What role this kind of event should play in  
designing robust public policy to limit  
and/or offset the effects of climate change.
- Focus on the degree to which science can  
support sound policymaking. Discussion  
should address not only margin of error as  
related to science, but margin of safety as  
related to national security.
- Address the level of sustained funding  
required to provide the capacity to collect  
and analyze data that would support  
improved long-range modeling of climate  
change and its effects.

Organizer/Moderator:

**Leon Fuerth**, Distinguished Research  
Fellow, National Defense University, and  
Research Professor of International Affairs,  
the George Washington University

Additional Discussants:

**Robert Corell**, Chair, Arctic Climate Impact  
Assessment

**Henry Pollack**, Professor of Geophysics,  
Emeritus, Department of Geological  
Sciences, The University of Michigan

**Sherri Goodman**, Senior Vice President and General Counsel, CNA; Executive Director, CNA Military Advisory Board

## 5. Fisheries and Food Security

*(MD Classroom C-3)*

Food security is directly linked to national security issues associated with fisheries depletion and economic instability (e.g., the Somali piracy). Where governments are incapable of meeting their citizen's basic needs and fulfilling their responsibility to provide security within their borders, the consequences are global and may directly threaten our own national security. A new paradigm of seafood security, one that integrates governance issues of emerging economies, a National Security Strategy for the U.S., and global fisheries management is required to proactively address the issues at the nexus of seafood and national security. This paradigm must thoughtfully integrate the impacts of climate change on marine resources (e.g., ocean acidification) and must directly and unequivocally address issues of global and national security. The goal of this workshop is to open a dialogue on the interdependencies of marine resource enforcement, global environmental governance, and fisheries science and to recommend specific actions for linkage.

Organizers/Moderators:

**Robbin Peach**, Executive Director, Collaborative Institute for Oceans, Climate & Security, University of Massachusetts Boston, and **Robyn Hannigan**, Chair, Environmental, Earth and Ocean Sciences, University of Massachusetts, Boston

Additional Discussants:

**Daniel Schaeffer**, Chief Fisheries Enforcement, U.S. Coast Guard

**Jay O'Dell**, Mid-Atlantic Marine Program Director, The Nature Conservancy

**Samuel Barkin**, Associate Professor of Political Science, University of Florida

## 6. Conserving Critical Ecosystems and Biodiversity While Achieving Global Food Security

*(MD Classroom C-2)*

Achieving food security is among the most important challenges we face as a global community. Today, more than 1 billion people are undernourished and food-insecure, unable to fulfill their basic nutritional needs for healthy and productive lives. By 2050, a larger, wealthier global population will increase food demand by

70 percent relative to today. Until recently, the challenges of food security have been largely considered distinct from efforts to conserve biodiversity. Yet, the two are intricately linked: activities associated with food production can have significant negative impacts on ecosystem health. Healthy ecosystems and biodiversity provide ecosystem services that underpin all food production. Recognizing the linkages between biodiversity, food production and food security leads to another set of challenges regarding the trade-offs and synergies between ecosystem health and food production, the scale of management, as well as the institutions, capacities and incentives necessary for management of biodiversity and natural resources that can support sustainable, resilient food production and food security.

Organizers:

**Emmy Simmons**, Food Expert, and **Rajul Pandya-Lorch**, Head of 2020 Vision Initiative and Chief of Staff, International Food Policy Research Institute

Moderator:

**John Buchanan**, Senior Director, Food Security, Conservation International

Additional Discussants:

**Mohammad Bakarr**, Senior Environmental Specialist, Natural Resources, Global Environment Facility (GEF)

**Sara Scherr**, President and CEO, Ecoagriculture Partners

**Scott Swinton**, Professor and Associate Chairperson, Department of Agricultural, Food and Resource Economics, Michigan State University

**Phil DeCosse**, Food and Livelihood Security Practice Director, International Resources Group (IRG)

## 7. Climate Change and Food Security (Polaris B)

This workshop session will build upon the Climate Change and Food Security Symposium, considering in greater depth some of the issues, options, and actions that will enable the world community to meet increased food demands in 2050 in an environment of climate change: higher temperatures, shifting seasons, more frequent and extreme weather events, floods, and droughts. This session will explore the science, practices, and policies needed for building "climate-smart" and sustainable food and agricultural systems that will assure global food security. Participants will develop a set of specific, science-based, action-oriented

recommendations and initiatives aimed at particular audiences for meeting the challenge.

Organizer:

**Emmy Simmons**, Food Expert

Organizer/Moderator:

**Molly Jahn**, University of Wisconsin, and member, Commission on Sustainable Agriculture and Climate Change

Additional Discussants:

**William Cline**, Senior Research Staff, Peterson Institute for International Economics

**Christine Negra**, Coordinator, Commission on Sustainable Agriculture and Climate Change

**John Vrieze**, CEO and Owner, Baldwin and Emerald Dairies

**Julie Howard**, Deputy Coordinator for Development, Feed the Future Initiative, U.S. Agency for International Development

## **8. Remote Sensing, Climate Change, and Food Security: Integrating Data Providers and Users**

*(Horizon A)*

Scientists and policymakers alike have begun articulating the urgent need to incorporate energy, climate change, water scarcity, and food security into national and global security policy. Climate change is already threatening to impact food security, through extreme events and reduced crop yields. Remote sensing provides information on growing conditions, crop yields, and hazards that affect food security, and can be leveraged by development practitioners and their partners for informed decision-making. The session goal is to bring together remote sensing scientists who produce food security data/products and development practitioners who utilize these products, to develop recommendations on how remote sensing science can better address food security. The intended session results are a set of recommendations on advancing food security science and strengthening connections to policy and decision-making.

Organizers/Moderators:

**Erica Zell**, Battelle and **Liz Malone**, Battelle, PNNL Joint Global Change Research Institute

Additional Discussants:

**Molly Brown**, Research Scientist, NASA  
**Cesar Izaurralde**, Battelle/PNNL Joint Global Change Research Institute

**Jennifer Frankel-Reed**, Global Climate Change Adaptation Specialist, U.S. Agency for International Development

**Pietro Ceccato**, Associate Research Scientist, International Research Institute for Climate and Society (IRI), The Earth Institute, Columbia University

## **9. Trade and National Security Dimensions of Food Policy Beyond the Food Security Paradigm** *(Meridian D)*

This session brings together food systems scientists looking at holistic indicators of health and resilience, as well as policy researchers who have identified destabilizing forces that currently undermine security goals. The intended results are recommendations about how to advance food systems science and connect it to national and global policy and decision-making. We anticipate the recommendations will address farm economics, rising obesity rates, increased global hunger, food safety challenges, and international trade policies.

Organizer/Discussant:

**David Wallinga**, Senior Advisor in Science, Food and Health, Institute for Agriculture and Trade Policy

Moderator:

**Donna Berry**, Advocacy and Policy Director, Partners in Health

Additional Discussants:

**Molly Anderson**, Partridge Chair in Food and Sustainable Agriculture Systems, College of the Atlantic

**Jim Harkness**, President, Institute for Agriculture and Trade Policy

**Shelley Hearne**, Managing Director, Pew Health Group, The Pew Charitable Trusts

## **10. Achieving Universal Energy Access by 2030 – Innovative Approaches to Delivering Energy Services in Developing Countries**

*(Meridian E)*

Approximately 1.4 billion people worldwide lack access to electricity services and the benefits they bring to human health, agriculture and economic development. To meet this challenge and to improve the livelihood of about one quarter of the world's population, innovative thinking and a global commitment to alleviating energy poverty will be required over the next two decades. Fortunately, the international community has begun to focus on this global

problem as evidenced by the fact that the UN has designated 2012 as the “International Year of Sustainable Energy Access for All.” This panel will discuss several innovative approaches to provide accessible, affordable and reliable energy services to the global bottom-of-the-pyramid, while promoting environmental sustainability and climate resilience.

Organizer:

**Richenda van Leeuwen**, Senior Director, Energy and Climate, Energy Access Initiative, United Nations Foundation

Moderator:

**Ryan Hobert**, Deputy Director, Climate Change and Energy, United Nations Foundation

Additional Discussants:

**David Jhirad**, Director, Energy, Resources and Environment Program, The Johns Hopkins University

**Luiz Ros**, Manager, Opportunities for the Majority Sector, Inter-American Development Bank

**Warren Evans**, Director, Environment Department, World Bank\*

**Firas Ahmad**, Director, Emergence BioEnergy Inc.

## 11. Tradeoffs Between New Sources of Domestic Energy

### *(International Gateway)*

This session will build upon the symposium titled “Tradeoffs Between New Sources of Domestic Energy,” and its exploration of the factors other than simply supply, of sources such as coal, oil and gas, nuclear, and renewables. This session will explore the science, practices, and policies needed for effective decision-making. Participants will develop a set of specific, science-based, action-oriented recommendations and initiatives aimed at particular audiences to shape domestic energy policy.

Organizer/Moderator:

**Charles “Chip” Groat**, Director, Center for International Energy and Environmental Policy, University of Texas at Austin

Additional Discussants:

**Gal Luft**, Executive Director, Institute for the Analysis of Global Security (Alternatives to Oil Monopoly as a Fuel)

**Gabriel Filippelli**, Professor of Earth Sciences; Director, Center for Urban Health, Indiana University - Purdue University, Indianapolis (Interface with Human Health)

**Andrew Place**, EQT Corporation  
**Carey King**, Research Associate, Center for International Energy and Environmental Policy, Geology Foundation, Jackson School of Geoscience, University of Texas at Austin

## 12. Integrating People into Decisions about Water

### *(Hemisphere B)*

Management and policymaking for groundwater resources invoke complex issues of scientific, social, and technical relevance that involve scientists, the public, and policymakers. All parties need good listening skills and to strive to improve their understanding of the limitations of models and data. Initially, the burden is on the scientific community to understand public issues, consider policy implications, and reframe the presentation of modeled information and results to delineate uncertainties and address results within the context of people’s preferences and the broadest set of implications. Acceptance and understanding of multiple vector forces like climate change, environmental needs, non-sustainable water uses, and people’s migration patterns are critical to consider when developing tools for decision-making in groundwater availability. This session will address approaches to integrating, presenting, and discussing model or data results, while anticipating the issues and preferences that the public, policymakers, and decision-makers may express. Attendees will learn strategic approaches for developing and communicating complex regulatory, legal, and scientific problems and results. This session will improve their understanding of available decision making tools and modeling efforts, minimize policy risks and improve policy outcomes, and introduce resiliency into community responses.

Organizer/Moderator:

**Rima Petrossian**, Assistant Division Director, Water Resources Planning, Texas Water Development Board

Additional Discussants:

**Suzanne Pierce**, Research Assistant Professor, Jackson School of Geosciences, University of Texas at Austin

**Daniel P. Sheer**, President, Hydrologics

**Jobaid Kabir**, Chief, Decision Analysis Branch, United States Bureau of Reclamation, Mid-Pacific Region

**Marcel Dulay**, Parsons



### 13. World Water Forum

*(MD Classroom C-4)*

Known as the world's largest meeting focused on water, the triennial World Water Forum mobilizes creativity, innovation, competence and know-how to find solutions to global water challenges. The five World Water Forums organized since 1997 have placed water on the international political agenda and have contributed to a global awareness of the water issues. On March 12-17, 2012, Marseille, France will host the 6<sup>th</sup> World Water Forum. Over 25,000 water stakeholders from nearly 200 countries are expected to attend. This session will include leaders from the World Water Forum Secretariat and U.S. stakeholders, including a representative from the U.S. State Department, the Council of State Governments, and a private sector U.S. water partnership participant. Panelists will discuss U.S. leadership and initiatives to be showcased at the Forum, including the U.S. Water Partnership, as well as opportunities for participation. The session will provide an opportunity to discuss expected outcomes of the event and develop next steps.

Organizer:

**Monica Ellis**, CEO, Global Environment & Technology Foundation/Global Water Challenge

Moderators:

**Jerome Delli Priscoli**, Senior Advisor USACE Institute for Water Resources; Board of Governors, World Water Council; Editor in Chief of the journal *Water Policy*; U.S. Army Corps of Engineers Institute for Water Resources; and **Chuck Chaitovitz**, Principal, Global Environment & Technology Foundation

Additional Discussants:

**Aaron Salzberg**, Senior Advisor on Water, Bureau of Oceans and International Environmental & Scientific Affairs, U.S. Department of State

**Frédéric Doré**, Deputy Chief of Mission, France

**Sasha Sutcliffe-Stephenson**, Director of International Programs, The Council of State Governments

**Karin Krchnak**, Director, International Water Policy, The Nature Conservancy

### 14. Watershed Payment for Ecosystem Services

*(Hemisphere A)*

Many countries, both in the developing and developed world, have found great need to secure their water resources. Payment for ecosystem services is a mechanism that has been used to conserve forests, increase reforestation, reduce downriver sedimentation, and maintain clean water supply. This session intends to present several examples of PES schemes from the U.S., Latin America, and East Asia to find linkages between these projects. This will result in a discussion of how to use this mechanism to ensure water security in the areas predicted to encounter large periods of drought according to global climate models, thus facilitating the population in adapting to climate change before its negative consequences are felt.

Organizers/Moderators:

**Montserrat Acosta Morel**, Specialist in Adaptation to Climate Change, The Nature Conservancy, and **Catherin Cattafesta**, Environmental Protection Program Sub-Director, The Nature Conservancy, Dominican Republic

Additional Discussants:

**Gustavo Fonseca**, Natural Resources Team Leader, Global Environmental Facility  
**Sally Collins**, Fellow, Rights and Resources Initiative

**Carl Lucero**, Deputy Director, Office of Environmental Markets, USDA

**Sarah Lynch**, Director, Agriculture-Markets Unit, World Wildlife Fund

### 15. Urban Water Security

*(Continental B)*

Issues of water availability, quality and sharing in different regions around the world will be strategic questions in major urban areas in the future. The importance of proactive, inclusive water resource planning is apparent in a growing number of water-stressed areas throughout the world. It is becoming clear that such planning must account for increased uncertainty regarding the safe yield of traditional water resources; that is, planning in the presence of uncertainties that were not apparent a decade ago and are not yet fully acknowledged. This session will explore the complexity and importance of planning our water futures, through lessons learned from France and the US. This workshop will highlight the major questions regarding urban water management from the perspective of demand and present the issues which need to be addressed by

policymakers. Attendees will be able to discuss strategic issues for urban water demand for the next two decades. and develop recommendations for policymakers.

Organizers:

**Agathe Euzen**, Associate Research Professor, CNRS-LATTS France and **Marc Magaud**, The Office for Science and Technology at the Embassy of France in Washington

Moderator:

**Morgan Grove**, LTER co-Principal Investigator Baltimore Ecosystem Study

Additional Discussants:

**Bernard Barraqué**, Research Director, National Center for Scientific Research (CNRS) - CIRED France

**Agathe Euzen**, Associate Research Professor, CNRS - LATTS France

**Anne Le Strat**, Deputy Mayor, City of Paris

**Barbara Morehouse**, Professor, University of Arizona

## 16. Women, Health, and the Environment

### *(Horizon B)*

Women are at the center of the global dynamics of environmental degradation and human population growth, both as resource managers in developing nations, and in the way it is linked to their overall health, reproductive health, education, and economic opportunities. This session will explore how these issues are connected, including women-centered approaches which have proven to be effective not only for girls' and women's health, but also for education and economic opportunities, and environment sustainability. Leading Population, Health and Environment projects globally will provide compelling evidence for successful approaches, while newer "women-centered approaches" to growing conservation challenges with water, climate, species, and forest resources, will also featured. Finally, the unique U.S. role and responsibilities in the range of population and environment connections, and science, policy and advocacy options will be explored.

Organizer/Discussant:

**Vicky Markham**, Director, Center for Environment and Population (CEP)

Moderator:

**Rebecca Wadler**, Sustainability Education Program Associate, Izaak Walton League

Additional Discussants:

**Thilmeeza Hussain**, Deputy Permanent

Representative, Permanent Mission of Republic of Maldives to the United Nations  
**Tracy Mann**, Founding Director, Climate Wise Women

**Lucy Wanjiru Njagi**, Programme Specialist, Gender Environment, and Climate Change, UNDP

## 17. Health Consequences of Global Migration from Rural to Urban Environments

### *(Compass)*

Migration to urban conclaves comes from populations escaping conflict, post-conflict insecurities, climate change and biodiversity crises, and failing rural economies and threats to human security. Populations primarily represent those internally displaced from individual nation-state or regional neighbors. Over 1 billion people living in urban slums have little or no political voice, suffer extreme poverty rates that exceed total population growth, and lack international humanitarian representation. Sanitation is frequently ignored and infectious disease risks are more prevalent, especially in the most population-dense cities of Southeast Asia. Conflict risk is increasing as many urban centers have become trade centers for weaponry, predatory gangs and corruption as a common threat, especially for the most vulnerable populations. This session will explore the overall public health threats from unsustainable rapid urbanization, risk for future conflict, risk of infectious disease outbreaks, and directions of current prevention, aid and assistance programs.

Organizer/Moderator:

**Frederick "Skip" Burkle**, Senior Fellow & Scientist, Harvard Humanitarian Initiative; Senior International Public Policy Scholar, Woodrow Wilson International Center for Scholars

Additional Discussants:

**Ronak Patel**, Clinical Instructor, Department of Emergency Medicine, Harvard Humanitarian Initiative

**Robert McDonald**, Vanguard Scientist, The Nature Conservancy

**Anjali Pant**, Cornell Medical Center, NYC

## 18. Climate Change and Health

### *(Continental C)*

The health impacts of climate change, and adaptation to blunt those impacts, have been widely discussed. Much attention has focused on relatively small scale issues such as heat waves and individual health impacts. This session will

focus on large-scale climate change impacts on public health, through various pathways, including: [1] severe weather events and coastal inundation (and the health effects of associated population dislocation), [2] food security, [3] energy and transportation, and [4] infectious diseases. Participants will identify actionable outcomes including mitigation and adaptation strategies, emphasizing co-benefits.

Organizer/Moderator:

**Howard Frumkin**, Dean, School of Public Health, University of Washington

Additional Discussants:

**Mark Keim**, Senior Science Advisor, National Center for Environmental Health, Centers for Disease Control and Prevention  
**Jonathan Patz**, Professor & Director of Global Environmental Health, University of Wisconsin  
**Sam Myers**, Harvard Medical School  
**Rita Colwell**, Distinguished Professor, University of Maryland, College Park and The Johns Hopkins University, Bloomberg School of Public Health

## **19. Biosecurity in a Changing Climate - How the United States Must Adapt to New Threats of Human and Animal Pathogens and Invasive Species** (*Meridian B*)

This moderated multi-speaker workshop will address the intersection of climate disruption, environmental security and public health, as well as, the health of wildlife and domesticated animals. Leading experts will discuss how U.S. “biosecurity” policies and management approaches must adapt to prevent future harm such as disease outbreaks, species extirpations, environmental disruption and degradation and economic damage. Achieving biosecurity in a meaningful sense will grow ever more challenging as the climate changes and new pathways develop for further incursions by novel pathogens, parasites and invasive species. Innovative, and likely controversial, policy and management solutions will be needed to confront these threats. This workshop will tackle fundamental questions like how the terms “native” and “non-native” might change – and what their change would signify. Participants can share updates and insights and discuss opportunities for effective interventions. The session is organized by the Biosecurity Task Force of the Society for Conservation Biology.

Organizer/Discussant:

**Peter Jenkins**, Executive Director, Center for Invasive Species Prevention

Moderator:

**John Fitzgerald**, Policy Director, Society for Conservation Biology

Additional Discussants:

**Kristine Smith**, Associate Director, Health and Policy, EcoHealth Alliance  
**Douglas Inkley**, Senior Scientist, National Wildlife Federation

## **20. Forests and Environmental Security** (*Classroom A*)

Forests provide key societal benefits, including clean water, carbon sequestration, timber, biodiversity, recreation and rural jobs. Climate change is altering the physical and biotic environment across the nation. There are many unknowns, but we can generally expect a warmer climate with more extreme climate events. As the environment changes, species interactions will change as species and populations migrate and as host-pathogen interactions are altered. Near term climate change effects on vegetation are largely indirect at present, but eventually will become direct and even more important. For example, destructive insect populations in the western US, Alaska and Canada are increasing to unprecedented densities as a result of changing climate extremes. Likewise, wildland fires are increasing in size and intensity. Globalization, the increased movement of organisms, has and will continue to bring new diseases, insects and invasive plants into the country. These “invasives” continue to put forest species at risk, either through new diseases and insects, or through aggressive competitors which are displacing some species from our landscapes. Add other stresses, such as forest fragmentation, and it becomes clear that the health and productivity of the Nation’s forests (and the world’s) are at-risk to degradation due to the many stressors and their interactions. A degraded forest impacts the public in general (e.g., water supply) and individual security (e.g., loss of life and/or property from fire).

Organizer/Moderator:

**Randy Johnson**, National Program Leader, Genetics and Global Change Research, USDA Forest Service, Research and Development

Additional Discussants:

**Dave Cleaves**, Climate Change Advisor to the Chief, USDA Forest Service

**Jerad Bales**, Chief Scientist for Water, U.S. Geological Survey

**William T. Sommers**, Director, EastFIRE Laboratory, George Mason University

**Mary Ellen Dix**, Forest Entomology Research Program Leader, USDA Forest Service

## 21. Environmental Literacy for a Secure Future

*(Polaris A)*

Building an environmentally literate society is essential for a sustainable and secure future. To engage diverse communities, intentional partnerships are vital. How must we prepare our communities to understand, cope, and adapt to anticipated threats on food production, water availability, natural disasters, energy supply, and disease transmission? How should we prepare for the increased risk of instability and conflict? Studies have noted that the most vulnerable and weakest in society bear the greatest brunt of climate change impacts. We will study some models which can serve as effective entry points to diverse and previously un-engaged communities. Discussion will seek to identify those principles that have led to greatest success for engagement and how these principles may be applied to a variety of settings – including formal education, informal education and civic engagement. The role of scientists and how scientific research can achieve broader social impacts will be particularly addressed.

Organizer/Moderator:

**Teresa Mourad**, Director, Education and Diversity Programs, Ecological Society of America

Additional Discussants:

**Al Stenstrup**, Director, Education Programs, American Forest Foundation, Project Learning Tree

**Sean Miller**, Director of Education, Earth Day Network

**Surili Sutaria**, Senior Analyst, Environmental Health, Association of State and Territorial Health Officials

**Deborah Sliter**, Senior Vice President for Programs, National Environmental Education Foundation

**Keith Tidball**, Senior Extension Associate, Department of Natural Resources, Cornell University

## 22. The Water-Energy-Food Security Nexus

*(MD Classroom C-5)*

This session will explore the connections between water, energy, food production and the hard and soft dimensions of their impact on state/regional security. At a time when fresh water is becoming limited due to climate change, water consumption demands by the energy and agricultural sectors could expand significantly in the near-term. Complicating the matter is the fact that water and energy assets are spatially unevenly distributed and hence cooperation is necessary across borders to achieve water, energy and food security. This session seeks to provide a systems-level appraisal of: the water-energy-food exchange; how the security of the operating environment determines and in turn is determined by rational water, energy and food use and generation; how this exchange can be modeled and applied around the world; the potential of technological solutions for addressing water-energy challenges; and the importance of public policies that consider integrated water, food, and energy development in realizing human security within a climate-stressed and potentially conflict-prone environment.

Organizer/Moderator:

**Nancy E. Brune**, Senior Policy Analyst, Sandia National Laboratories

Additional Discussants:

**Kevin Rosner**, Senior Fellow, Institute for the Analysis of Global Security

**Jakob Granit**, Director, Stockholm International Water Institute

**Michael Hightower**, Distinguished Member of the Technical Staff, Sandia National Laboratories

**Johanna Nesseth Tuttle**, Vice President for Strategic Planning and Director, Center for Strategic and International Studies (CSIS) Global Food Security Project

## 23. Human Ecology, Human Security

*(Oceanic B)*

Human social, political, and economic systems are set within regional and global ecosystem processes that include human population growth, density, and resource consumption, availability of resources including water, air, soils, crops, fisheries, forests, fuels, and others, and well functioning ecosystem services that provide those resources. The ecology of human systems, including increasing human population, decreasing resource availability, and declining ecosystem services, are leading to drought,

famine, human migration and refugees, urban crowding, disease, social unrest, conflict, and an overall reduction in short and long term human security. A greater understanding of the interconnections between human ecology and human security can contribute to better analytical and simulation tools, better approaches, and to a greater understanding of incentives, policy actions, and tradeoffs associated with different future strategies.

Organizer/Moderator:

**Howard Passell**, Senior Member of the Technical Staff, Sandia National Laboratories

Additional Discussants:

**Jerome Glenn**, Executive Director, The Millennium Project

**Tomas Ries**, Department of Strategic and Security Studies, Swedish National Defence College

**Chantal de Jonge Oudraat**, Executive Director, SIPRI USA

**Richard Cincotta**, Demographer in Residence, The Stimson Center

Water Scenarios Project, World Water Assessment Programme, UNESCO

**Peter McIntyre**, Assistant Professor, Center for Limnology, University of Wisconsin

**Ciara Raudsepp-Hearne**, Lecturer, McGill University

## **24. Joined at the Hip: Water Security for Humankind and Biodiversity**

*(Continental A)*

Given the momentum inherent in rising human populations, trends toward urbanization, continued climate change, increasing levels of pollution, water use and development pressures, freshwater resource systems will remain under threat well into the future. The consequences of these pressures will test our capacity to identify and institute creative solutions beyond that of traditional, high investment engineering solutions. This workshop assembles a panel of nationally and internationally recognized experts who will identify the chief sources of threat to humans, aquatic ecosystems, and biodiversity and discuss a new generation of solutions that more carefully integrates human needs with ecosystem protection with the express aim of designing more resilient water systems--in short, laying the groundwork to assure water security for both humankind and nature.

Organizer/Moderator:

**Charles J. Vörösmarty**, The City University of New York

Additional Discussants:

**Kalanithy Vairavamoorthy**, Director, School of Global Sustainability, University of South Florida

**William Cosgrove**, Manager, World

# Friday, January 20, 2012

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## **Detailed Agenda**

*Note: Sessions Located in Atrium Hall Unless Otherwise Noted*

- 8:00 a.m. **Continental Breakfast**, Poster Session and Exhibition continue
- 9:00 a.m. **Keynote Address: Kathleen Merrigan**, Deputy Secretary of Agriculture, U.S. Department of Agriculture  
Introduction by **Ann Bartuska**, Deputy Under Secretary for Research, Education, and Economics, U.S. Department of Agriculture
- 9:50 a.m. **Plenary 7: Water Security**  
**Moderator: Aaron Salzberg**, Senior Advisor on Water, Bureau of Oceans and International Environmental & Scientific Affairs, U.S. Department of State
- **Jaehyang So**, Manager, Water and Sanitation Program, World Bank
  - **Maureen Sullivan**, Director, Environmental Management, Office of the Deputy Under Secretary of Defense, U.S. Department of Defense
  - **Paul Faeth**, Senior Fellow, CNA
- 11:00 a.m. **Plenary 8: Food Security**  
**Moderator: Philip Brasher**, Editor, CQ-Roll Call Executive Briefing on Agriculture and Food
- **Raymond Offenheiser**, President, Oxfam America
  - **Tjada McKenna**, Deputy Coordinator for Development, U.S. Feed the Future Initiative, U.S. Agency for International Development
  - **Mark Rosegrant**, Division Director, Environment and Production Technology Division, International Food Policy and Research Institute (IFPRI)
- 12:10 p.m. **Closing Keynote Address: Lisa Jackson**, Administrator, U.S. Environmental Protection Agency and **Rajiv Shah**, Administrator, U.S. Agency for International Development  
Introduction by **Ambassador (ret.) Richard Benedick**, President, National Council for Science and the Environment
- 12:50 p.m. **Buffet lunch (with student mentoring tables)**
- 2:15 p.m. **End**

# Friday Plenary Biographies

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## **Keynote Address**

**Ann Bartuska** is Deputy Under Secretary for USDA's Research, Education, and Economics (REE) mission area. She comes to REE from the USDA Forest Service, where she was Deputy Chief for Research & Development, a position she has held since January 2004. She recently served as Acting USDA Deputy Undersecretary for Natural Resources and Environment from January - October of 2009, and was the Executive Director of the Invasive Species Initiative in the Nature Conservancy. Prior to this, she was the Director of the Forest and Rangelands staff in the Forest Service in Washington, DC. She is an ecosystem ecologist with degrees from Wilkes College (B.S.), Ohio University (M.S.) and West Virginia University (Ph.D.). Dr. Bartuska currently co-chairs the Ecological Systems subcommittee of the Committee on Environment and Natural Resources of the White House National Science and Technology Council and also is co-chair of the Sustainability Roundtable of the National Academy of Sciences. 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 AAAS and of the Society of American Foresters.

**Kathleen A. Merrigan** is the Deputy Secretary of the U.S. Department of Agriculture. Working alongside Secretary Tom Vilsack, Merrigan oversees the day-to-day operation of USDA's many programs and spearheads the \$149 billion USDA budget process. She serves on the President's Management Council, working with other Cabinet Deputies to improve accountability and performance across the federal government. Merrigan brings a wealth of knowledge to USDA from a decades-long career in policy, legislation, and research related to the many missions of USDA. Deputy Secretary Merrigan has managed the Know Your Farmer, Know Your Food effort to highlight the critical connection between farmers and consumers and support local and regional food systems that increase economic opportunity in Rural America. In November 2009, she made history as the first woman to chair the Ministerial Conference of the Food and Agriculture Organization (FAO) of the United Nations. Recognizing that most employees work outside of Washington, D.C., Merrigan has visited USDA field offices nationwide to ensure top-flight program delivery that meets constituents' needs. Recognizing the history and scope of her work, Time magazine named Dr. Merrigan among the "100 Most Influential People in the World" in 2010.

## **Plenary 7: Water Security**

**Aaron Salzberg** serves as the Senior Advisor on Water in the Bureau of Oceans and International Environmental & Scientific Affairs in the Department of State. He is responsible for managing the development and implementation of U.S. policies on international freshwater and transboundary water issues. Aaron has been the lead water advisor for the United States at several major international events on water including the Second, Third and Fourth World Water Forums, the International Conference on Freshwater in Bonn, the World Summit on Sustainable Development, the UN Commission on Sustainable Development and the G8 Summit in Evian. He also led the development of the recent report to Congress on the Paul Simon Water for the Poor Act of 2005 which outlines a strategy for how the U.S. will work to increase access to safe drinking water and sanitation in developing countries. Aaron also serves as a strategic planner on the U.S. Government team for the UN Commission on Sustainable Development – conceptualizing, developing and implementing strategies to advance U.S. policies on sustainable development.

**Jaehyang So** is Manager of the Water and Sanitation Program (WSP), a multi-donor partnership administered by the World Bank to support poor people in obtaining affordable, safe, and sustainable access to water and sanitation services. Under Ms. So's leadership, WSP designed and is implementing a results based program in its 24 focus countries and globally. Prior to joining WSP, Ms. So was the Lead Infrastructure Specialist in the South Asia Regional Infrastructure Department working primarily in Bangladesh and Pakistan on urban water and sanitation sector programs. Ms. So has also worked on the World Bank's corporate strategy and risk management development, leading the team preparing the World Bank Group's Sustainable Infrastructure Action Plan and the World Bank's response to the global economic crisis. Prior to joining the Bank, Ms. So was with Monitor Company in Cambridge, Massachusetts, where she advised Fortune 100 level companies on corporate strategy issues in the United States, Canada, Europe, and Japan. She is a Korean national, and holds an MBA and a BA in Economics from Stanford University.

**Maureen Sullivan** is the Director of Environmental Management in the Office of the Deputy Under Secretary of Defense (Installations & Environment) where she oversees development of environmental programs, policy and strategic plans for DoD activities throughout the United States. She leads DoD activities in compliance with environmental laws, prevention of pollution, management of natural and cultural resources, and cleanup of contaminated sites. Ms. Sullivan is also responsible for the DoD Native American program. Ms. Sullivan is the Department of Defense Federal Preservation Officer and the Alternate DoD member of the President's Advisory Council on Historic Preservation. Ms. Sullivan has served in various leadership positions as a member of the Office of the Secretary of Defense Environmental staff for the past 18 years, and possesses wide ranging experience in numerous DoD programs to include Pollution Prevention, Environmental Compliance, Historic Preservation, and the Clean Air Act. She served as the DoD representative to the Office of Management and Budget Interagency Panel which negotiated the final Ozone and Particulate Matter National Ambient Air Quality Standards in 1997. She also served as the DoD Liaison to the President's Council on Sustainable Development.

**Paul Faeth** is a Senior Fellow at CNA Corp., where he is developing a program of work covering issues related to water, climate, and national security. Prior to joining CNA, Faeth was the President of Global Water Challenge, a coalition of 24 corporations, NGOs, foundations, universities, and health agencies, working together to promote and invest in safe drinking water and sanitation for the poor in developing countries. Faeth worked for 18 years at the World Resources Institute, a global environmental think tank. He led the Economics Program and then became the Executive Vice-President and Managing Director, managing strategy and operations. Faeth's policy research at WRI included topics such as water, agriculture, climate change, and trade. Faeth also worked at the International Institute for Environment and Development, and the USDA's Economic Research Service. He holds degrees in Agricultural Engineering and Resource Systems and Policy Design.

### **Plenary 8: Food Security**

**Philip Brasher** is currently the Editor of the CQ-Roll Call Executive Briefing on Agriculture and Food. Previously he was a Washington correspondent for Gannett newspapers and specialized in coverage of food and agriculture policy. He was also a correspondent for The Des Moines Register, and served as a lead writer on recent award-winning projects by the Register that have examined the impact of climate change on agriculture and the prospects for and impacts of biofuels. Prior to joining the Register in 2002, he was the national food and farm policy writer for The Associated Press, based in Washington. He is a member of the Society of Environmental Journalists. He is a native of Texas.

**Raymond Offenheiser** is President of Oxfam America, a non-profit international development and relief agency and the U.S. affiliate of Oxfam International. Oxfam works to end global poverty through saving lives, strengthening communities and campaigning for change. Since Ray joined Boston-based Oxfam America in 1995, the organization has grown more than fourfold in size and has positioned itself as an expert on international development and global trade. Ray has worked his entire career in the



nonprofit sector: before joining Oxfam America, he served for five years as the Ford Foundation Representative in Bangladesh and, prior to that, in the Andean and Southern Cone regions of South America. He has also directed programs for the Inter-American Foundation in both Brazil and Colombia and worked for Save the Children Federation in Mexico. Ray holds a master's degree in development sociology from Cornell University and earned his bachelor's degree from the University of Notre Dame. He speaks fluent Spanish and Portuguese.

***Tjada D'Oyen McKenna*** is the Deputy Coordinator for Development for Feed the Future, the U.S. global hunger and food security initiative. In this capacity, McKenna coordinates implementation of Feed the Future across the U.S. government, oversees its execution and reports on results, and leads engagement with the external community to ensure that food security remains high on the development agenda. Feed the Future works with host government and private sector partners to address the needs of smallholder farmers and agribusinesses, emphasizing the empowerment of women; strengthen the enabling environment for strong agricultural markets; promote research and innovation for agricultural development; and increase U.S. investments in nutrition, while maintaining our support for humanitarian food assistance. Prior to taking on the role of Deputy Coordinator for Development in October 2011, McKenna served as Deputy Assistant to the Administrator in the U.S. Agency for International Development's (USAID) Bureau for Food Security.

***Mark W. Rosegrant*** is the Director of the Environment and Production Technology Division at the International Food Policy Research Institute (IFPRI) in Washington, DC. With a Ph.D. in Public Policy from the University of Michigan, he has 30 years of experience in research and policy analysis in agriculture and economic development, with an emphasis on water resources and other critical natural resource and agricultural policy issues as they impact food security, rural livelihoods, and environmental sustainability. Dr. Rosegrant developed IFPRI's International Model for Policy Analysis of Agricultural Commodities and Trade (***IMPACT***), which has become a standard for projections and scenarios for global and regional food demand, supply, trade, and prices; and ***IMPACT-WATER***, which integrates a detailed water supply and demand model with the food model. He currently directs research on climate change, water resources, sustainable land management, genetic resources and biotechnology, and agriculture and energy. He is the author or editor of seven books and over 100 refereed papers in agricultural economics, water resources, and food policy analysis. Dr. Rosegrant has won numerous awards, is a Fellow of the American Academy for the Advancement of Science, and in 2007 was elected Distinguished Fellow of the American Agricultural Economics Association.

### ***Closing Keynote Address***

***Lisa Jackson***, Administrator of the EPA, leads a staff of approximately 18,000 professionals dedicated to protecting the public health and environment of all Americans. She was nominated to lead the Agency by President Barack Obama on December 15, 2008 and confirmed by the Senate on January 23, 2009. She is the first African American to serve in that position. Administrator Jackson lists among her priorities reducing greenhouse gas emissions, improving air quality, managing chemical risks, cleaning up hazardous waste sites, and protecting America's water. Before becoming EPA's Administrator, Jackson served as Chief of Staff to New Jersey Governor Jon S. Corzine. Prior to that, she was appointed by Governor Jon S. Corzine to be Commissioner of the state's Department of Environmental Protection (DEP) in 2006. While Commissioner, Jackson was known for her advocacy for reducing greenhouse gases, aggressively addressing pollution, and having an open and honest dialogue with stakeholders in the public policy process. She was also noted for ensuring that underserved communities received fair environmental protection under the law. Jackson joined DEP in 2002, serving as Assistant Commissioner for Compliance and Enforcement, then Assistant Commissioner for Land Use Management, before becoming Commissioner.

***Rajiv Shah*** serves as the 16th Administrator of the United States Agency for International Development (USAID) and leads the efforts of more than 8,000 professionals in 80 missions around the world. Since being sworn in on Dec. 31, 2009, Administrator Shah managed the U.S. Government's response to the devastating 2010 earthquake in Port-au-Prince, co-chaired the State Department's first-ever review of American diplomacy and development operations, and now spearheads President Obama's landmark Feed the Future food security initiative. He is also leading "USAID Forward," an extensive set of reforms to USAID's business model around seven key areas, including procurement, science & technology, and monitoring & evaluation. Before becoming USAID's Administrator, Dr. Shah served as Under Secretary for Research, Education and Economics and as Chief Scientist at the U.S. Department of Agriculture. At USDA, he launched the National Institute of Food and Agriculture, a new scientific institute that significantly elevates the status and funding of agricultural research. Prior to joining the Obama Administration, Shah served for seven years with the Bill and Melinda Gates Foundation where his positions included Director of Agricultural Development in the Global Development Program, and Director of Strategic Opportunities.

# Environment and Security Exhibition

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January 18-20, 2012

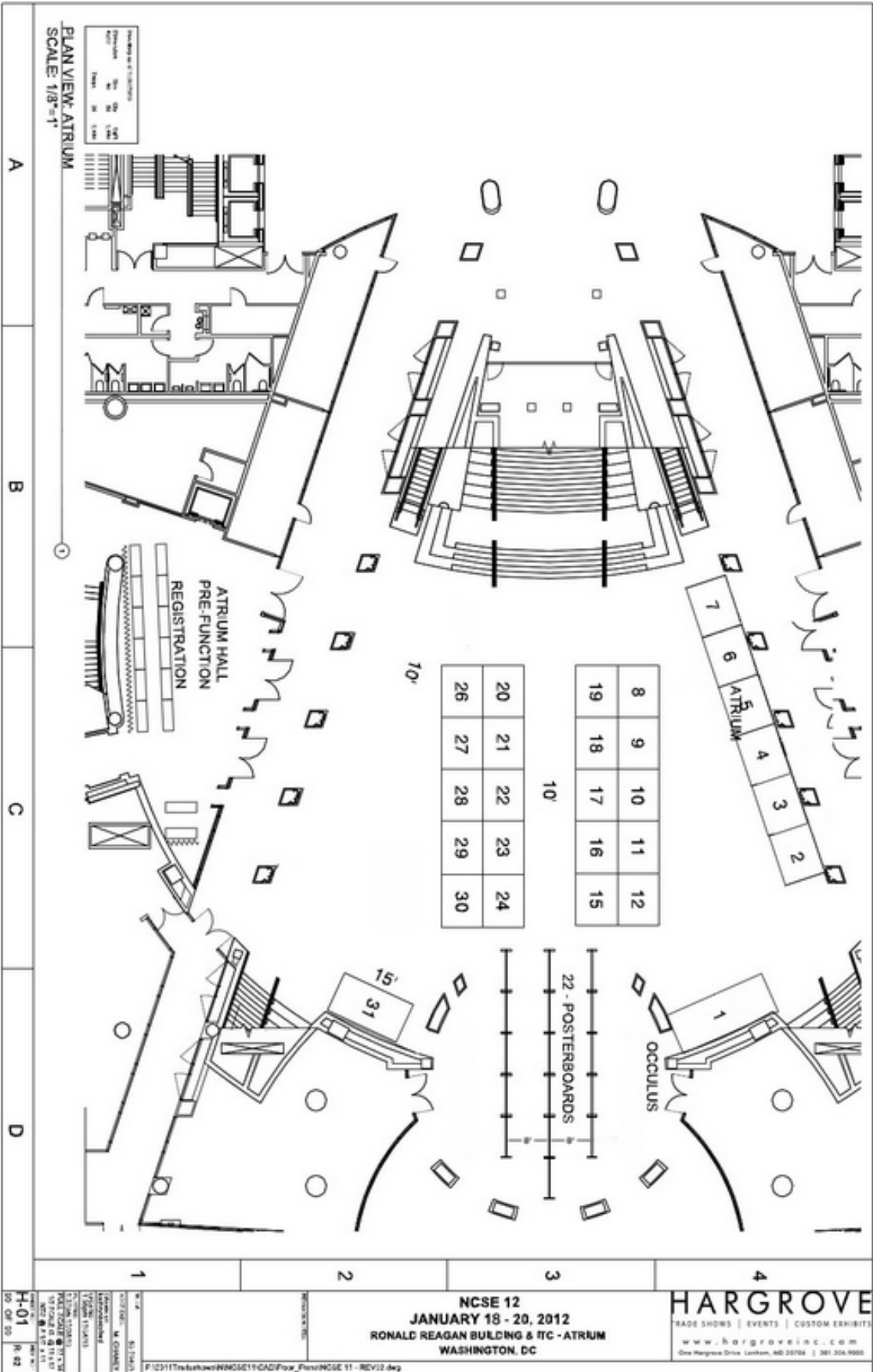
Wednesday Hours – 9:30 a.m. to 5:00 pm

Thursday Hours – 8:00 am to 8:30 pm

Friday Hours – 8:00 am to 3:00 pm

*Note: Exhibits will be held in the Atrium*

- 1 WebsEdge
- 2 U.N. Environment Programme
- 3 Environmental Law Institute
- 4 U.S. Geological Survey
- 5 AAAS - Science and Technology Policy Fellowships
- 6 The Aspen Institute
- 7 U.S. Agency for International Development
- 8 The Evergreen State College
- 9 U.S. Forest Service
- 10 U.S. Environmental Protection Agency
- 11 The Johns Hopkins University
- 12 American Meteorological Society
- 15 National Science Foundation
- 16 Chatham University
- 17 CAMEL Climate Change
- 18 National Council for Science and the Environment
- 19 United Nations Foundation
- 20 Center for Disease Control and Prevention
- 21 National Oceanic and Atmospheric Administration
- 23 U.S. Department of Agriculture
- 24 Sandia National Laboratory
- 26&27 Island Press
- 28 NORC at the University of Chicago
- 29 Woodrow Wilson International Center for Scholars
- 30 Bard Center for Environmental Policy
- 31 National Aeronautics and Space Administration



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# Poster Session

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*Note: Posters will be up for the duration of the conference from Wednesday through Friday in the Atrium Oculus (please see map on previous page).*

- 1. Application of an Integrated Framework to Assess and Rank Marine-Sourced Human Health Risks**  
Marin Kress; Robert E. Bowen -- *University of Massachusetts, Boston*
- 2. From Knowledge to Action: Supporting the Voices of First Nation and Inuit Communities Through Climate Change and Health Research in Canada's North**  
Diane Mcclymont Peace; Erin Myers -- *Health Canada*
- 3. Cooperation Over Water in the Eastern Nile Basin: Obstacles and Opportunities**  
Farah F. Hegazi -- *Duke University*
- 4. Fisheries Governance in the Central Arctic Ocean in the Face of Unprecedented Access**  
Scott Highleyman; Jeremy Davies; Henry Huntington -- *Pew Environmental Group*
- 5. The NSF supports Science, Engineering, and Education for Sustainability (SEES)**  
Kristin Kuyuk; Jennifer Thornhill -- *National Science Foundation*
- 6. Decision Support for Climate Change Adaptation**  
Heikki Tuomenvirta; Karoliina Pilli-Sihvola; Adriaan Perrels -- *Finnish Meteorological Institute; Swedish Meteorological Institute; Norwegian Meteorological Institute; CICERO; Helsinki University*
- 7. Examining the Role of Natural Resources in Conflicts on Three Continents**  
Annica Waleij; Angela Rhodes; William Goran; Steve Hearne -- *Swedish Defense Research Agency; US Army Corps of Engineers; US Army Environmental Policy Institute*
- 8. Environmental Vulnerability Assessments: A Tool in Support of Peace or Crises Management Operations**  
Annica Waleij; Louise Simonsson; Birgitta Liljedahl -- *Swedish Defense Research Agency*
- 9. Implications of Climate Change for Disease Emergence in Central Africa**  
Trevon Fuller; Henri Thomassen; Salvi Asefi-Najafabady; Sassan Saatchi; Anne Rimoin; Thomas B. Smith -- *University of California, Los Angeles; Arizona State University; California Institute of Technology Jet Propulsion Laboratory, UCLA*
- 10. Alleviating Food Insecurity: Comparing Sustainable Solutions and Technologies of Food Production**  
Sarah Carruthers; Taylor Boucock; Richard Goetz; Kevin Freiburger; Carolyn Lobbezoo -- *Sir Sandford Fleming College*
- 11. Zoonotic Diseases and Urban Wildlife**  
Liam Allen; Melissa Coria; Colleen Greig; Bethany Waite -- *Sir Sandford Fleming College*
- 12. Closing the Loop: Recycling Our Energy**  
Leah Gooyers; Dan Growden; Miriam Odermatt; Andrew Torrance -- *Sir Sandford Fleming College*
- 13. Improving Food Sustainability in Impoverished Urban Communities**  
Glen Gallinger; Gillian Holmes; Lyndsay Shular; Chris Surita; Helen Turner -- *Sir Sandford Fleming College*
- 14. Preparing Emerging Young Professionals for Transboundary Environmental Research and Leadership through Environmental Learning: the Across Borders Fellowship Program**  
Caitlin Grady -- *Purdue University; Dickinson College; U.S. Department of State's Office of Citizen Exchanges*

15. **Greening in the Red Zone: Disaster, Resilience, and Community-Based Natural Resource Management**  
Keith G. Tidball -- *Cornell University*
16. **Policy Implications Due to the Dependence of Water Stress Index on Spatial Scale Across the United States**  
Jennifer Roath; Laura Bowling -- *Purdue University*
17. **Education and Evaluation for Security**  
William Godfrey; Ed Barry -- *Enviroic Foundation International, Sustainable World Initiative*
18. **Species Richness, Distribution and Relative Abundance of Freshwater Mussel (Unionidae and Margaritiferidae) of the Strawberry River, Arkansas**  
Sujata Poudel, David E. Tenenbaum; John L. Harris; Alan D. Christian -- *University of Massachusetts, Boston; Arkansas State University*
19. **Conservation Agriculture for Food Security in Cambodia and the Philippines**  
Stephanie Boulakia; Lyda Hok; Kou Phally; Manuel Reyes; Agustin Mercado; Victor Ella; Don Immanuel Edralin -- *North Carolina Agricultural and Technical State University; CIRAD; Royal University of Agriculture, Cambodia; PADAC*
20. **Cocaine, Cattle, and Tropical Forest Conservation: Understanding Drug Trafficking as a Driver of Deforestation in Central America**  
Spencer Plumb; Erik Nielsen; Ophelia Wang; Steve Sesnie -- *Northern Arizona University; Planet Action*
21. **Feasibility and Design Considerations of Payment for Watershed Services (PWS) Programs on National Forest Lands**  
Wes Swaffar; Dr. Erik Nielsen -- *Northern Arizona University*
22. **Energy and Water in a Warming World Initiative: Power and Water at Risk**  
John Rogers; Erika Spanger-Siegfried; Nadia Madden; Megan Rising -- *Union of Concerned Scientists*
23. **Holistic Life Science Synthesis for Actualizing Win-Win Human-Environment Relations and Sustainability**  
Dan Fiscus -- *Frostburg State University*
24. **NEON: Transforming Environmental Data into Information for Societal Benefit**  
Brian Wee; Mike Stewart -- *National Ecological Observatory Network (NEON)*
25. **"Understanding Global Climate Change" DVD**  
Carol Landis -- *Byrd Polar Research Center, Ohio State University*
26. **Sustainable Campus Development from the Ground Up**  
David Hassenzahl -- *Chatham University*
27. **CAMEL (Climate, Adaptation, Mitigation, E Learning)**  
David Blockstein; Virginia Brown -- *National Council for Science and the Environment*
28. **The U.S. Flood Control Program at 75**  
Peter Black -- *SUNY ESF*
29. **NOAA's Ocean Science Blog: A Model for Connecting Coastal Managers and Communities Addressing Natural Resource Questions to the NOAA Scientists Studying U.S. Oceans and Great Lakes**  
Rebecca Wynne; Sara Eckert; Dr. Terry McTigue; Dr. Mark Monaco -- *NOAA*

# Collaborating Organizations

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*NCSE extends a special thanks to the following collaborating organizations for their generous participation in the conference program and assistance in spreading the word about our conference.*

*CNA*

*Center for Environment and Security (CENSE)*

*Cornell University, Civic Ecology Lab*

*Environmental and Energy Study Institute (EESI)*

*Environmental Security Conference, The University of Kansas*

*George Mason University, Environmental Science & Technology Center*

*Global Conference on Oceans, Climate and Security*

*National Wildlife Federation (NWF)*

*North Carolina Agricultural & Technical State University*

*Pollinator Partnership*

*Sustainable Agriculture and Natural Resource Management Collaborative Research Support Program (SANREM CRSP), Virginia Tech*

*Security & Sustainability Forum*

*Solutions Journal*

*Sustainable World Initiative*

*The Millennium Project*

*WebsEdge*

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*NCSE would also like to thank our volunteers, session organizers and chairs, note-takers, reporters, assistants, and discussants for their generous support*

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Miriam Odermatt

Andy Oetman

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Ginny Vroblesky

Sarah Warnock

Marissa Weiss

Jamie Whitacre

*Logo design and program cover by Emil Caillaux*

*Additional cover design by Diane Buric*



# Symposia Locations

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## Symposia A (2:00 pm – 3:30 pm)

- |               |  |
|---------------|--|
| Hemisphere B  | 1. Climate Change and Security: Making the Connections   |
| Oceanic A     | 2. Security in a Changing Arctic   |
| Continental C | 3. Sustainable Intensification of Food Supplies  |
| Polaris C     | 4. The Double Burden of Malnutrition   |
| Meridian C    | 5. Energy's New Map: The Geopolitical Effects of Emerging Energy Trends and Maritime Security  |
| Continental B | 6. Science and Innovation for Energy Security  |
| Hemisphere A  | 7. Water and Conflict  |
| Polaris A     | 8. Snowpack to Thirst: How a Changing Climate is Impacting Water & Energy Security for Millions  |
| Meridian D    | 9. National Resilience: Biological Terrorism and Environmental Security  |
| Continental A | 10. How Sustaining Environmental, Occupational, and Public Health is Fundamental to Maintaining Community Security: Examples from Around the World |
| Polaris B     | 11. The Rio+20 Earth Summit: Green Economy and Global Governance   |
| Oceanic B     | 12. Powering America: How the Department of Defense Can Drive Innovation for Clean Energy Technology (Part 1)                                      |

## Symposia B (3:45 pm – 5:15 pm)

- |               |   |
|---------------|---|
| Oceanic A     | 13. Preparedness for Extreme Events & Community Planning  |
| Polaris B     | 14. Sustainable Security, Fragile States, and Climate Assessment  |
| Polaris A     | 15. Global Resource Governance and Food Security  |
| Continental B | 16. Climate Change and Food Security  |
| Oceanic B     | 17. Hanging in the pH Balance: Impacts of Ocean Acidification on Food Security  |
| Polaris C     | 18. Tradeoffs Between New Sources of Domestic Energy  |
| N/A           | 19. Energy Trade in the 21st Century: New Routes, New Players, & Implications for Maritime Security ( <b>This session has been merged with Symposium #5</b> ) |
| Continental A | 20. Women and Water   |

Continental C	21. Addressing Environmental Risks and Opportunities in Conflict Prevention, Peacekeeping and Peacebuilding Strategies
Hemisphere A	22. The Food-Water-Energy Nexus
Hemisphere B	23. Safe, Resilient, and Sustainable Communities
Meridian B	24. Powering America: How the Department of Defense Can Drive Innovation for Clean Energy Technology (Part 2)

## Breakout Workshop Locations

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*All rooms are located on the Concourse Level unless indicated otherwise.*

Oceanic A	1. Geographic Combatant Commands (GCC's) Climate Change Adaptation
Meridian C	2. Models and Decision Support for Understanding Risk, Climate Disruption and Security
MD Classroom C-1	3. Climate Change, Security, and Risk Assessment: Transformation for Adaptation to Secure and Sustainable Communities
Polaris C	4. Non-linear Climate Disruptions and Security
MD Classroom C-3	5. Fisheries and Food Security (Aquaculture) (combined with) Fishing for Security
MD Classroom C-2	6. Conserving Critical Ecosystems and Biodiversity While Achieving Global Food Security
Polaris B	7. Climate Change and Food Security
Horizon A	8. Remote Sensing, Climate Change, and Food Security: Integrating Data Providers and Users
Meridian D	9. Trade and National Security Dimensions of Food Policy Beyond the Food Security Paradigm
Meridian E	10. Achieving Universal Energy Access by 2030 – Innovative Approaches to Delivering Energy Services in Developing Countries
International Gateway	11. Tradeoffs Between New Sources of Domestic Energy
Hemisphere B	12. Integrating People into Decisions about Water
MD Classroom C-4	13. World Water Forum
Hemisphere A	14. Watershed Payment for Ecosystem Services
Continental B	15. Urban Water Security
Horizon B	16. Women, Health, and the Environment
Compass	17. Health Consequences of Global Migration from Rural to Urban Environments
Continental C	18. Climate Change and Health
Meridian B	19. Biosecurity in a Changing Climate - How the United States Must Adapt to New Threats of Human and Animal Pathogens and Invasive Species

Classroom A	20. Forests and Environmental Security
Polaris A	21. Environmental Literacy for a Secure Future
MD Classroom C-5	22. The Water-Energy-Security Nexus
Oceanic B	23. Human Ecology, Human Security
Continental A	24. Joined at the Hip: Water Security for Humankind and Biodiversity

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