SYMPOSIUM SUMMARY

Cooperation for Global Sustainability: 3 Topics

Co-sponsored by International Institute for Applied Systems Analysis (IIASA), the National Academy of Sciences US Committee for IIASA, and the Embassy of Austria

Washington, DC

February 11, 2016

The overarching goal for the NMO-IIASA-Austrian Embassy symposium held February 11, 2016 was to connect current priorities of the U.S. government with areas of current IIASA research. The three topics addressed were: measurements of progress related to the Sustainable Development Goals; U.S. priorities during the chairmanship of the Arctic Council; and ecosystem services and biological sequestration related to climate change. Each panel featured at least one speaker from a U.S. department or agency and at least one speaker from IIASA. A summary of the symposium follows.

Welcome and Background

H.E. Dr. Wolfgang Waldner, Ambassador of Austria to the U.S., welcomed symposium attendees. He emphasized that IIASA, an important organization for Austria, also serves as a valuable resource for other countries. The U.S., in 1972, was one of the founding countries of IIASA, and the institute has continued to serve as a place where scientists from many countries come to work on complex problems together. Ambassador Waldner thanked the United States for the significant intellectual and financial leadership it continues to provide to IIASA.

Topic 1: Achieving the Sustainable Development Goals: Developing Pathways, Assessing Policies, and Measuring Progress

Introduction: **Pavel Kabat**, Director-General/CEO, IIASA, *The Global Ambitions of the Sustainable Development Goals (SDGs): Devising and Assessing Policies to Meet the Challenge*

Panel Discussion: **Don Saari** (moderator), Chair, U.S. NMO for IIASA; **William Colglazier,** AAAS Center for Science Diplomacy, UN Technology Facilitation Mechanism Group for SDGs, IIASA Distinguished Visiting Fellow; **Wolfgang Lutz,** Director, IIASA World Population Program; **Jennifer Park**, U.S. Office of Management and Budget, Executive Office of the President

Pavel Kabat noted that IIASA has been heavily involved in the development of the Sustainable Development Goals (SDGs), particularly SDG 7 (Energy), SDG 3 (Education), and SDG 6 (Water). IIASA's Global Energy Assessment (GEA) helped shape Goal 7. Rather than pursuing each SDG as a single silo, scientists and policymakers should use a systems approach that allows integrated policies.

The 17 SDGs have a total of 169 targets. William Colglazier noted that Science, Technology and Innovation (STI) related to the SDGs is moving quickly, but the community needs to stimulate new approaches to make progress faster. Systems thinking can help by creating science knowledge and building capacity. A central question is how to achieve goals both singly and collectively. National scientific bodies need to think about what contributions they can make nationally and globally.

Wolfgang Lutz noted that human population is not explicitly mentioned in the SDGs, even though several SDGs are directly related to population. These include universal primary and secondary education, reproductive health, and child mortality. Population challenges make it more difficult to expand education, improve heath, and reduce poverty. Immigration and war are also involved to population stress. IIASA researchers discussed all these factors in an article in Science Magazine, *Global Human Capital: Integrating Education and Population*. Education, the analysis shows, is a key driver of economic growth, but primary education alone is not enough.

Jennifer Park noted that United Nation's Statistical Commission (UNSC) was asked to identify indicators for each of the SDG targets. An interagency expert group has conducted a series of open consultations and prepared a set of indicators that establishes a framework and identifies areas for further methodological development. As of March 2016, a total of 235 indicators have been drafted for consideration by UNSC, but about 28 of these do not yet represent consensus. Again, more systems thinking is needed.

Topic 2: Arctic Changes, Arctic Visions: Informing Policies for the Arctic Future We Want
Introduction: **Ambassador Mark Brzezinski**, Executive Director of US Arctic Executive Steering Committee, Executive Office of the President, *Arctic challenges and a vision for the future Arctic*
Panel Discussion: **Robert Corell** (moderator), U.S. NMO for IIASA*;* **Paula Kankaanpää**, Director, Marine Research Centre, Finnish Environmental Institute; **Julie Gourley**, Senior Arctic Official, U.S. Department of State; **Charles Vörösmarty**, City University of New York and IIASA Arctic Futures Initiative; **Paul Berkman**, Professor of Practice in Science Diplomacy, Tufts University; **Ray Arnaudo**, Visiting Scholar, AAAS Center for Science Diplomacy, and former Arctic Council Chair for the U.S. State Department

Ambassador Mark Brzezinski began by reminding the audience that what happens in the Arctic doesn't stay in the Arctic. The Arctic serves as the refrigerator for the planet. The looming crisis in the Arctic is a small part of the looming crisis for the world. The Arctic is simultaneously a strategic challenge and human challenge.

Ambassador Brezezinski noted that the United States currently chairs the Arctic Council. U.S. priorities, he said, include national security, sovereign rights and responsibilities, maritime safety, environmental stewardship, scientific research, natural resources, preservation of indigenous culture and linguistics. President Barack Obama issued an Executive Order in January 2015 to enhance coordination on national efforts in the Arctic. This requires greater stakeholder engagement, but it must include science and policy working together.

Paula Kankaanpää and Julie Gourley also spoke about the Arctic Council and its work. The Arctic Council does Arctic assessments but not Arctic science. The U.S. Global Change Research Program is working on a set of indicators that can be used in these assessments. Even after the U.S. chairmanship ends, many of the efforts will be ongoing, Ms. Gourley said.

Charlie Vörösmarty focused his remarks on IIASA's Arctic Futures Initiative (AFI). AFI will support knowledge generation. For example, what are the plausible futures for the Arctic? What are the pathways to that future? How do Arctic surprises (thresholds and unintended consequences) influence those futures? What information is needed to make decisions about the future? The goal of the project is to promote an integrated future of the Arctic using a holistic, systems-level approach, and to create a collaborative environment for co-design with stakeholders of future pathways toward sustainable development. AFI will use systems analysis to develop scenarios by looking at the impacts of policy on societal and earth systems.

Paul Berkman noted that the world has a new ocean. The Arctic, once completely frozen over, is now ice free. Because of this, the world is entering a new stage.

Topic 3: Global Climate, Ecosystem Services, and Biological Sequestration
Introduction: **Philip Duffy**, President and Executive Director, Woods Hole Research Center, *Ecosystems and Climate: the Importance of biological systems in climate change mitigation and adaptation*
Panel Discussion: **Robert Corell** (moderator), U.S. NMO for IIASA*;* **Michael Obersteiner**, Director, IIASA Ecosystems Services and Management Program; **Ann Bartuska**, Deputy Under Secretary of Agriculture for Research, Education and Economics

To address climate change, we must pursue large scale removal of carbon dioxide, Philip Duffy said. He added that the potential for biological storage of carbon dioxide is greater than one might initially think. In addition, forest biofuels aren't carbon-neutral. Policy decisions made today will have impact for years to come.

Michael Obersteiner spoke about IIASA's GLOBIOM project. Calibrations and validation have been done, and scenarios have been developed for Brazil. IIASA has also developed a tropical forests flagship project.

Ann Bartuska described the need to move ecosystem services into the marketplace. Countries need to establish markets, and have systems for monitoring them, she said. She described the U.S. Department of Agriculture's Ten Building Blocks: soil health, nitrogen stewardship, livestock partnerships, conservation of sensitive lands, grazing and pasture lands, private forest growth and retention, stewardship of federal forests, promotion of wood products, urban forests, and energy conservation and effectiveness. These are voluntary and incentive-based, focused on multiple economic and environmental benefits. They meet the needs of producers; assess progress and measure success; and accentuate cooperation and building partnerships. At least half of them are also ecosystem related.

PARTICIPATION

Invitations to the symposium were targeted to four audiences: federal agency officials; scientific and professional organizations; university researchers; and science attaches from embassies of IIASA-member countries. Invitations were sent by BISO, IIASA, and the Austrian embassy using each organization's contact lists. Two hundred people attended all or parts of the symposium. Affiliations included:

Federal agencies: Agency for International Development (AID), Armed Forces Radiobiology Institute, Census Bureau, Defense Advanced Research Projects Agency (DARPA), Department of Agriculture, Department of Commerce, Department of Energy, Department of Homeland Security (DHS), Department of State, Environmental Protection Agency (EPA), Forest Service, National Aeronautics and Space Administration (NASA), National Institutes of Health (NIH), National Oceanographic and Atmospheric Administration (NOAA), National Park Service, National Science Foundation (NSF), Office of Management and Budget (OMB), U.S. Geological Survey (USGS)

Professional organizations: American Association for the Advancement of Science (AAAS), American Institute of Physics (AIP), Arctic 21, Biodiversity International, Carnegie Institution, Center for Understanding Change, Ecological Society of America, Environmental and Energy Study Institute, European Institute, Federation of American Scientists, Global Oceans, IEEE, INFORMS, Institute on Science for Global Policy, International Food Policy Research Institute, Kavli Foundation, Madison River Group, Millennium Challenge Corporation, Millennium Institute, MITRE Corporation, National Wildlife Federation, Raytheon, RTI International, Society for International Development, START, U.S. Pugwash, United Nations Foundation, Wild Geese Network, Woods Hole Research Center, World Bank, WWF International

Universities: American University, City University of New York, George Mason University, George Washington, Princeton University, Saginaw Valley State University, Towson University, Tufts University, National Defense University, Old Dominion University, University of Colorado, University of Maryland, Virginia Tech

Embassies: Austria, Costa Rica, Finland, France, Indonesia, Liechtenstein, Sweden, Switzerland

FOR MORE INFORMATION

All presentations from the symposium are available at
http://www.iiasa.ac.at/web/home/about/events/160209-AAASSymposium.html

For additional information about the U.S. NMO, see
http://sites.nationalacademies.org/PGA/biso/IIASA/index.htm

For additional information about IIASA, see http://www.iiasa.ac.at/