

Knowledge Systems for Sustainable Development: Mobilizing R&D for Decisionmaking

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What makes some knowledge systems more effective than others in harnessing science and technology with the goals of sustainable development? “Knowledge systems” are viewed as consisting of a network of linked actors, organizations, and objects that perform a number of knowledge-related functions that link knowledge and know-how with action. Included are the incentives, financial resources, institutions, and human capital that give such systems capacity to do their work, and the intention to focus such work in some arenas rather than others. We evaluate how generalizable findings about knowledge systems might be. We begin with the premise that usable knowledge is ultimately “contextualized,” i.e., adapted to specific circumstances of place. The question remains, what (if any) generalizations about “what works” in the design of effective knowledge systems can be carried over from place to place, or sector to sector, or problem to problem. The symposium will present findings from a multi-year international comparative research project, with synthesis papers on three challenges facing systems seeking to promote the mobilization and application of useful knowledge: linking knowledge with action; multiple knowledge systems in development; and governing knowledge systems. Responses to the challenges will be illustrated by drawing on case studies from around the world examining knowledge systems for water management, climate forecasts, fisheries, agriculture, and health.

Co-Organizers

William C. Clark, Sustainability Science Program, Center for International, Development, Harvard University
and

Pamela Matson, School of Earth Sciences, Woods Institute for Environment, Stanford University

Moderator

Nancy Dickson, Sustainability Science Program, Center for International, Development, Harvard University

Speakers

William C. Clark, Sustainability Science Program, Center for International, Development, Harvard University

Linking Knowledge with Action for Sustainability

How can knowledge systems be designed that reduce the “know-do” (knowledge-action) gap for sustainable development? This talk summarizes how knowledge systems can be designed that better provide decision makers with the knowledge they most need (rather than with the knowledge that researchers most push), and how knowledge systems

can induce and enable decision makers to make more effective and efficient use of the opportunities that S&T offers to advance sustainable development. The talk focuses on three challenges confronting those trying to do a better job of designing institutions to link knowledge with action: the lack of effective supply/demand relationships; fragmentation of the knowledge system; and ignorance. It characterizes the institutional responses found in case studies to each of these challenges: boundary institutions that bring into alignment the demand for, and supply of, knowledge to support action; integration of knowledge production; and learning by doing.

Gilberto C. Gallopín, Economic Commission for Latin America and the Caribbean
Knowledge for Sustainable Development: The Challenge of Multiple Epistemologies

The talk is built around the proposition that because of the complex nature of sustainable development issues, the incorporation, articulation, “hybridization”, combination, or integration of forms of knowledge with, or in addition to, scientific knowledge in the process of understanding and managing socio-ecological systems results in a better characterization of the problem/issue and thus in more effective solutions. Thus, knowledge systems and research institutions that embrace multiple knowledges are more effective for fostering a sustainable development transition than those that do not. However, the articulation of different forms of knowledge poses important methodological, epistemological and institutional challenges. Challenges, opportunities, and lessons learned are identified and discussed

Louis Lebel, Unit for Social and Environmental Research, Chiang Mai University
Governance Challenges in Knowledge Systems: Institutional Opportunities in the Pursuit of Sustainable Development

The way knowledge systems are governed has a profound impact on the questions they can effectively address. Most actors exercise power in ways that promote relatively narrow sets of interests. To address the challenges of sustainability and social justice in development, however, requires that the interests of marginalized groups, and risks to and threats from environment, be properly articulated. In this talk we explore how different governance arrangements influence what knowledge is created, shared and used in the context of sustainable development. Crucial issues are financing, representation, and “end-to-end” accountability. We identify several common institutional design problems and recommend ways these might be addressed.

Pamela Matson, School of Earth Sciences, Woods Institute for Environment, Stanford University

Research actors in knowledge systems for sustainable development: Perspectives from the inside

This talk reflects on the experiences of researchers who have been working to make their – and their institutions' – science more useful and accessible to decision makers seeking to promote sustainable development. It is thus an effort to understand the implications of a knowledge systems perspective for researchers and their teams. It describes how such research teams engaged in sustainability science have emerged, identifies the greatest challenges they have faced, and seeks to characterize the generalizable lessons learned in the process.

Discussants

Kathy Jacobs, Arizona Water Institute and Department of Soil, Water, and Environmental Science, University of Arizona

James Buizer, Sustainability Initiatives, Office of the President, Arizona State University