



Sustainability Science – Challenges and International Responses

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The Exposé

“Pertinent actions are not ordered linearly in the familiar sequence of scientific inquiry, where action lies outside the research domain. In areas like climate change, scientific exploration, and practical application must occur simultaneously. They tend to influence and become entangled with each other”.

“Participatory procedures involving scientists, stakeholders, advocates, active citizens, and users of knowledge are critically needed”.

Kates et al., 2001, *Science*, 292, 641-642

Momentum in Sustainability Science

- Journals and journal sections (including impact factors)
- Conferences and symposia
- Academic societies
- Specific research programs
- Specific educational programs



Key Challenges

- Overcome new sectoral-ism
- Audacity to address conflicts and divergences
- Sense for/of urgency instead of 'muddling through'
- Reflexivity instead of a pure utilitarian approach
- Institutional and organizational restructuring
 - How to overcome the 'disciplinary world order'
 - Interface management
 - Funding

'Models' of Sustainability Science

- The 'European' model
 - Strong conceptual and empirical contributions
 - Highly diversified community (with no explicit coordination)
 - Strong science-policy interfaces
 - Lack of institutional/organizational support

'Models' of Sustainability Science

- The 'Japanese' model
 - Strong leadership/institutional support
 - Broad research program and small educational program
(intercultural aspects)
 - Dominance of natural sciences/engineering
 - Minor science-society interface

'Models' of Sustainability Science

- The 'U.S.' model
 - Fast growth, critical mass
 - Strong leadership/institutional support
 - Enabling sustainability science
 - Minor science-society interface

Outlook

- Keep on doing it!
- Addressing the diverse but specific key issues in each model
- Building networks in order to foster exchange, learning, and coordination

The Future

“Imagine what might happen if students were regularly assigned actual sustainability problems that were brought to higher education by cities, businesses, nonprofit organizations, and other institutions. If classroom exercises produced workable contributions to solutions, students would understand they can have a positive impact on the world through their academic learning.”

“Most of our higher education institutions include somewhere in their mission statements goals for preparing students to help create a better society, yet this ideal is often not fully implemented.”

POLICY FORUM

SUSTAINABILITY

Education for a Sustainable Future

Debra Rowe

Sustainability is a buzz through which increasing numbers of individual colleges and universities, as well as national organizations, are collectively examining and using green-related word documents. ... To be successful, however, a national-level strategy is needed to move forward.

College and University Leaders

Sustainability is being integrated into U.S. higher education and learning curricula, research, student life, operations and purchasing, and community partnerships. ...

Rowe, 2007, Science, 292, 641-642