Task Force Strategy: Linking Knowledge with Action for SD

- International perspectives on what sustainable development wants – and gets – from S&T *[Mexico City]*
- Scholarship on international research systems (agriculture, health, energy, manufacturing) *[Harvard]*
- University approaches to sustainability science *[Temazon]*
- User-producer interactions in decision support systems: experience with climate forecasts around world *[Irvine*]*
- Managing the linkage – learning from innovative cases in the federal agencies & private sector *[Washington*]*

Common Themes That Emerged From Task Force Activities

- Task Force workshops entrained more than 60 scholars, managers, users from government, academic, and private sector positions around the world
- Revealed great wealth of experience and insight, much of which specific to individual cases, countries, or sectors (see briefing book; full reports on the workshops will follow over coming months)
- Nonetheless, several common themes emerged…

A persistent gap between knowledge and action

- Gap between what decision makers want from S&T and what S&T is offering
- Available knowledge is often not put to use and political support falters
- $\Rightarrow$ Need to understand why this gap persists and what changes in institutions, procedures, and program design can help to bridge it

A great but untapped potential for learning from experience

- Substantial world experience with knowledge systems
- Lessons learned rarely developed as input into contemporary systems
- $\Rightarrow$ Need to systematically and critically compare experience with knowledge systems across a wide range of sectors and regions

A need to foster user-producer interactions

- In effective knowledge systems, the problem to be solved is defined in a collaborative but ultimately user-driven manner.
- The collaborative dialogue of knowledge co-production must continue throughout the project, with both users' goals and scientists' R&D agendas changing in the process.

$\Rightarrow\Rightarrow$ Need to foster institutions and procedures for initiating and sustaining user-producer dialogues

The importance of end-to-end systems linking knowledge to action

- Successful programs involve end-to-end, integrated systems that connect basic scientific predictions or observations through several steps to outputs directly relevant for decision making.

$\Rightarrow \Rightarrow$ Need "supply chain" perspectives on the design of decision support systems that assure no missing or mismatched links

The value – and vulnerability – of bridging or boundary-spanning organizations

- User-producer dialogues can be strained along the supply chain from basic research to decision making
- Dialogues within science-based organizations often do not mesh with dialogues within operations or policy contexts
- $\Rightarrow$ Need for boundary-spanning organizations and individuals to promote effective dialogues, with recognition of their value and vulnerability

The importance of creating “safe spaces” for innovative risk taking

- Efforts to link knowledge to action in support of sustainable development often involve radical institutional innovations.

$\Rightarrow\Rightarrow$ Need “safe spaces” in which experimental innovations can be carried out and that protect innovators from hostile takeovers, encourage experimentation, and embrace error as a learning device

The need for appropriate targets and metrics

- Successfully targeting and sustaining programs linking knowledge to action for sustainability generally require a clear and readily understood statement of the beneficial outcomes that successful completion of the project would deliver
- $\Rightarrow$ Need a methodology that specifies goals, outcomes, deliverables and metrics, while encouraging the sort of innovative, experimental, high risk work that is central to mobilizing S&T for sustainability.

Possible Follow-up Tasks for the Roundtable

- People and capacity development
  - "S&T Peace Corps" for scientists, engineers… but with organizational backup in host and source countries
  - Fellows program for gov-univ-private exchanges
  - Awards/recognition program for innovative S&T "boundary spanners" in public and private sectors
  - Training (case-based short courses?) in design of effective S&T based decision-support systems
- Institutional analysis and design
  - Empirical research on what works and why (a framework, set of sectoral review papers, symposium; publication)
  - Incentive and measurement systems to support innovation programs linking knowledge to action (PART/GPRA +)