

An Integrated Approach to Global Challenges through Knowledge Management

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A holistic, interdisciplinary scientific approach to challenges

- Define problem sets as multidisciplinary at the outset (natural and physical sciences social sciences, humanities)
- Identify methodological approaches to problem solving – what are the differences in approach; what constitutes data, information, evidence for argument

What are the links ?

- Establish links among global issues: climate, energy, population, health, economic growth, national security, poverty :
 - Internal and external driving forces
 - Dynamics of system
 - Social drivers – who is listening?

Creating dynamics for change

- New approaches and business models for research :
 - PPP
 - Capital intensive industry research capacity
 - Networking research across the global
 - Net based tools – interactive social web

How best to develop integrated approaches to challenges?

- Use wider disciplinary set of approaches to scope and to solve problems
- Involve different national perspectives
- Build consensus on problem set (IPCC) through formal and informal networks
- Work media resources to spread messages

Institutional Approaches

- New business models for university-private sector research
- Use private foundations more to partner on innovative research
- NGO capacity (research, particularly in social sciences)

Developing integrated analysis and assessment tools

- IA provide policy-relevant results which must be communicated in a comprehensible way to interested audiences
- IA are inherently international in character and scope
- IA are multidisciplinary

Developing integrated analysis and assessment tools (2)

- IA incorporate uncertainty and contingency, both as elements of the scientific analysis and in the recommendations and options
- IA have a variety of perspectives (local, national regional, global)

Using Nodal Capacity

- Develop and favour networked research with distributed capacity over large geographical spaces
- Focus more funding on cooperative programs that address global challenges
- Facilitate the movement of human capital in the context of education, research and innovation

Strengthen integrated approaches

- Develop further special tools such as the IPCC or the Millennium Assessment to address specific problems
- Encourage the use of large scale, shared facilities to address global problems (or create new facilities)
- Encourage the design of new interdisciplinary approaches to knowledge

New Approaches to Interdisciplinary knowledge

- nanotechnology
 - Approaches the structure of matter and energy at nano levels
 - Scale approach to science blurs barriers between the fields physics, chemistry and biology

New Approaches to Interdisciplinary knowledge are underway now:

- Advanced biology
- Traditional science
- New genetic engineering skills
- Health and welfare issues seen as both technology and social issues
- Innovation investment – where is it going to come from
- Ethical issues – who is empowered?

New Approaches to Interdisciplinary knowledge

- Revive “political economy” as an integrated approach to analysing problem sets: economics, politics, philosophy, history, psychology and anthropology, contribution of science and technology to economic growth (innovation)
- Serious comparative methodology work on evidence functions and logic of statements in humanities, social sciences, natural sciences