Science and decision-making in the implementation of IPBES

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What science-policy needs will IPBES serve?

- Initial analysis of gaps in BES science and policy considered:
  - The strengths and weaknesses of existing science-policy interfaces and coordination among them at all spatial scales, including the advisory bodies of biodiversity-related Multilateral Environmental Agreements and United Nations bodies.

- Identified gaps included
  - Use of science and scientists by policy advisory processes
  - Communication of scientific information to policy makers

What does ‘policy support’ mean?

- “There was agreement that a strengthened science-policy interface [should]…generate and disseminate policy-relevant but not policy-prescriptive advice with full and equal involvement of experts from all regions of the world” *Chairman’s summary, 2nd Intergovernmental Conference on IPBES, Nairobi, October 2009.*

- “The new platform should support policy formulation and implementation by identifying policy-relevant tools and methodologies, such as those arising from assessments, to enable decision makers to gain access to those tools and methodologies, and, where necessary, to promote and catalyse their further development.” 3rd intergovernmental meeting on IPBES Busan, Republic of Korea, 7-11 June 2010.

What implications does this have for the roles of scientists and policy-makers?

- We expect IPBES to differ from previous assessments
  - in the functions and membership of the plenary
  - in assessment methodology
  - In decision support
- Reports should enable policy-makers to evaluate the relative merits of specific strategies (mitigation, adaptation, and stabilization)
- The strategies assessed should be specified by the plenary
- Assessment should include quantitative conditional prediction of the consequences of those options

Perrings, C., A. Duraiappah, A. Larigauderie, and H. Mooney. 2011. The Biodiversity and Ecosystem Services Science-Policy Interface. Science **331**:1139-1140.

Which policy makers? At what scale?

- National governments
- Convention on Biological Diversity
- the six named ‘biodiversity-related conventions’*
- multilateral environmental agreements related to biodiversity and ecosystem services
- United Nations agencies
- other stakeholders

* Convention Concerning the Protection of the World Cultural and Natural Heritage; Convention on International Trade in Endangered Species of Wild Fauna and Flora; Convention on Migratory Species; Convention on Wetlands of International Importance; the International Treaty on Plant Genetic Resources for Food and Agriculture; United Nations Convention to Combat Desertification

What information do decision-makers need?

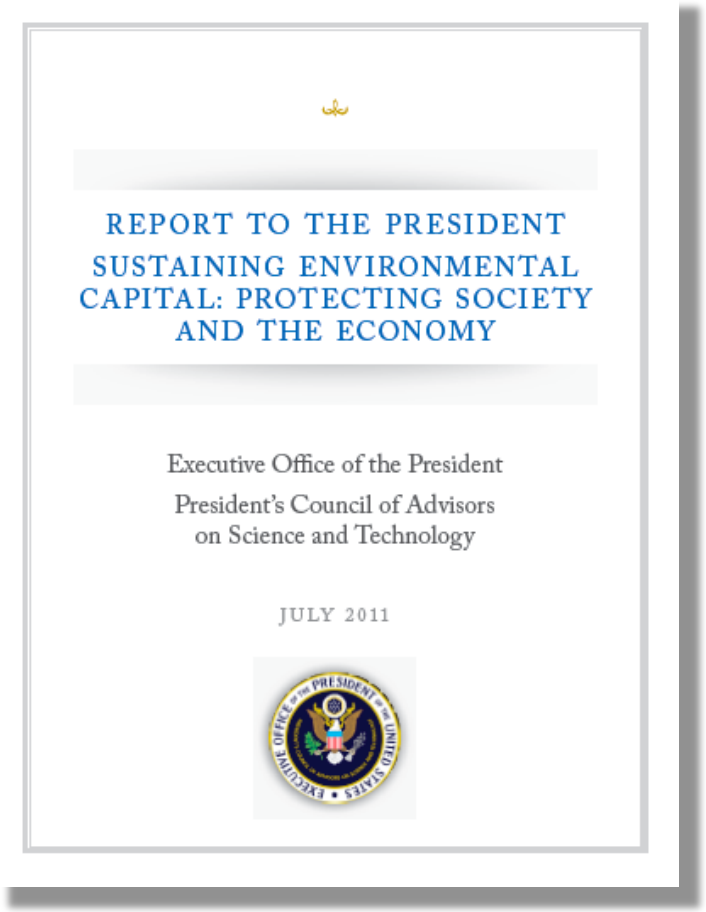
- For each feasible alternative policy option decision-makers need to know:
  - what the expected costs are
  - what the expected benefits are
  - who the gainers and losers are
  - what the risks are (and where the key uncertainties lie)

- Specification of ecosystem services indicates which processes are affected by biodiversity change

- Decision-makers still need information on the relative value of different ecosystem services

PCAST Report on biodiversity and ecosystem services

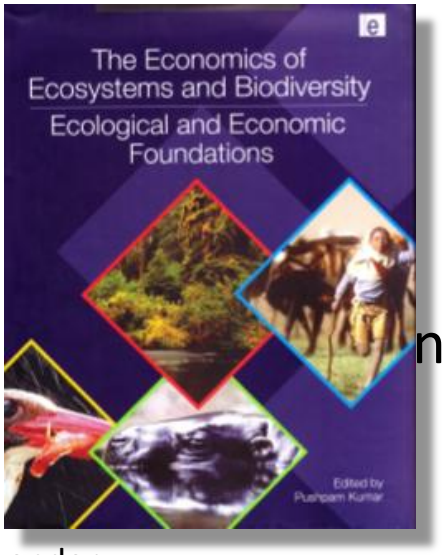
- "It is critical to establish IPBES on a sufficiently robust footing to provide reliable assessments of changes in the state of ecosystems, along with the causes, consequences, and economic costs of those changes".



PCAST (2011*) Sustaining Environmental Capital: Protecting Society and the Environment*, OSTP Executive Office of the President, Washington D.C.

Extending assessments to include the value of biosphere change

- The Millennium Assessment was unable to estimate the value of changes in non-marketed ecosystem services
- Policy-relevance requires information on the importance of changes in non-marketed ecosystem services
- TEEB assessment of valuation studies on biodiversity and ecosystem services showed limits of current knowledge
- Valuation of biodiversity change should be integral part of IPBES assessments



Kumar P. (ed.) (2010). *The Economics of Ecosystems and Biodiversity*. Earthscan, London..

Supporting the development of inclusive wealth accounts

- IPBES assessments should support national and international efforts:
  - to measure changes in environmental 'wealth' e.g. through the World Bank's Adjusted Net savings measures
  - to extend national income accounts (national income and product accounts in the US) to include natural resources e.g. through the System of Environmentally Adjusted Accounts

World Bank (2010). *The Changing Wealth of Nations: Measuring Sustainable Development in the New Millennium*. World Bank, Washington D.C.
UNU-IHDP & UNEP (2012). *Inclusive Wealth Report 2012. Measuring progress toward sustainability*. Cambridge University Press, Cambridge.

Making conditional projections of policy options

- Evaluation of alternative strategies for managing biodiversity change requires comparison of expected payoffs of each strategy

- Implies probabilistic projections of the consequences of alternative strategies

- For strategies to be policy-relevant they should specified by the IPBES plenary (in the terms of reference of working groups)

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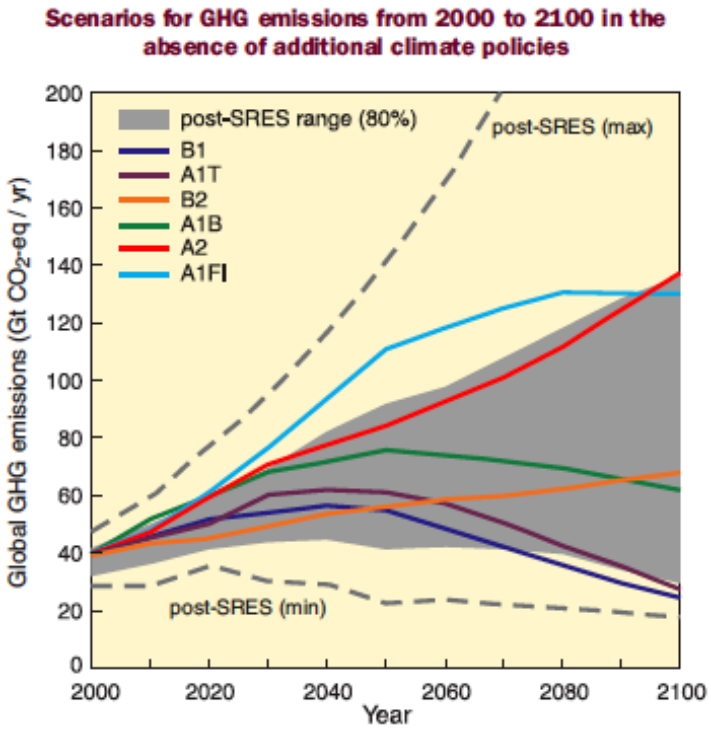
Making conditional projections of policy options

- Non-probabilistic scenarios of the kind used in the MA are of limited value
  - they offer little understanding the future consequences of current behavior
  - they do not describe policy relevant alternatives
  - they do not capture feedbacks between the social and biophysical components of the system



IPCC (2000) *Emissions Scenarios: A Special Report of IPCC Working Group III*. (IPCC, Geneva)

Perrings, C., A. Duraiappah, A. Larigauderie, and H. Mooney. 2011. The Biodiversity and Ecosystem Services Science-Policy Interface. Science **331**:1139-1140.

How might IPBES differ from previous assessments?

- IPBES offers an opportunity to create a science-policy tool that goes well beyond other assessments
  - plenary sets the policy options to use for evaluation
  - assessments address consequences of specific policy options at defined spatial and temporal scales
  - information includes estimates of the social cost of changes recorded
  - projections based on coupled models of social and natural systems capture feedbacks between social and environmental systems

What are the payoffs to doing things differently?

- Greater engagement by policy-makers
- Greater buy-in to assessment results
- Better and more policy-relevant science
- Better informed environmental policy at national level
- Potential for enhanced international cooperation and coordination in addressing biodiversity change