Biodiversity – Climate Interactions: adaptation, mitigation and human livelihoods

Workshop reflections and summary

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Recap of workshop aims

- Identify key areas in which biodiversity, climate change and sustainable development science and policy can be coordinated
- Explore role and function of biodiversity and ecosystems in the climate system
- Consider interactions between human livelihoods, the biosphere and climate in terms of functions and impacts
- Consider the role that biodiversity should play in climate change adaptation and mitigation strategies

Ecosystem services

- Ecosystem services
  - Intrinsic value of biodiversity
  - Other services mostly indirect via provisioning services (food supply…) and insurance services (climate – evaporation, carbon sinks, BVOCs and rainfall…)
- Need to know much more about role of biodiversity in these
  - eg; role of different ecosystem types (pristine forest, monocultures, bamboo, etc) on climate processes such as carbon cycle, BVOC emissions

Ecosystem change

- Many direct and indirect drivers of change in ecosystems (one of which is climate change)
- Last generation of biologists to study natural systems?
- General large erosion of Earth's natural capital, with negative consequences
- Society has largely benefited so far, but erosion of capital is unsustainable
- Expect effects on livelihoods, often (but not always) detrimental
- Again, need to know more about actual role of biodiversity in these

Climate change

- Climate change is now unequivocal and is very likely to be caused by humans
- Future climate changes are projected to be outside the historical range of climate variability in which many species have evolved
- Impacts on biodiversity – “canaries in the cage” that climate change may be dangerous for us
- Ecosystem change as driver of climate change (carbon emissions, change in rainfall)
- Ecosystem feedbacks on climate change
- Potential importance of biodiversity in maintaining ecosystem resilience of climate change –impacts on ecosystems, also feedbacks to climate change– but need to know more

Biodiversity and mitigation of climate change

- Not clear that conservation of biodiversity is in itself a tool for mitigating climate change
- However, sensible to seek win-win solution good for both climate and biodiversity (eg: avoiding deforestation)
- In fact need win-win-win solutions which are also beneficial to human livelihoods
- Other climate benefits in addition to mitigating carbon emissions, eg: maintenance and restoration of tropical forests – rainfall promotion
- But also trade-offs: potential conflicts between climate mitigation and conservation agendas, eg: maintenance of biodiversity requires natural disturbance regimes, but maximising carbon storage requires minimal disturbance
- May need new metrics of climate change accounting for actual impacts of different mitigation strategies including other effects eg: ocean acidification etc

Biodiversity and adaptation to climate change

- Need improved projections of climate change and its impacts on biodiversity to aid with decision-making
- Can adaptations be of “do-no-harm” variety? Seek win-win-win solutions where possible
- Maintain resilience in natural systems?
- Maintain / improve connectivity between ecotones to allow movement / migration. Deliberate movement of species to keep them within suitable climates?
- Introduction of species tolerant to drought, salt etc ?
- Ethical issues regarding invasives (both through deliberate introduction and increased freedom to migrate)
- Need to maintain genetic diversity
- May need to accept letting some species go

Institutional changes

- How to evaluate whether we are meeting political targets?
- Need to use (or develop?) indices of biodiversity change similar to existing metrics of climate change?
- Bring international conventions together more? (But are they any good?! And is joint negotiation viable?)
- Some start already been made eg: IPCC and CBD reports
- UN Global Biodiversity Organisation? (like WMO?)
- IPCC equivalent for biodiversity?
- Already done? MEA? IPCC Working Group 2 report?
- Get away from “the ominous THEM” (ie: policymakers) Scientists to work more with policymakers
- “to have an effect, scientists need champions at political level”
- Improve synergisms between climate and biodiversity communities at scientific working level

Outcomes and next steps

- Publication of meeting reports (summary + full report)
- Side event at meeting of Convention on Biological Diversity (CBD) Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA), UNESCO Paris, 3 July 2007
- Side event at 13th Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC), Bali, December 2007
- Invitation for special issue of Philosophical Transactions of the Royal Society
- Invitation for carbon-related papers for new journal Carbon Balance and Management – contact g.alexandrov@nies.go.jp
- Review paper?

Thank you

- Speakers and chairs
- All delegates
- Royal Society
- Joint Nature Conservation Committee
- Sponsors
  - DEFRA, Met Office, NERC, JNCC, DFID, Kew