



REPORT ON THE MINI-WORKSHOP ON BIODIVERSITY AND CLIMATE-RELATED GEO-ENGINEERING

Introduction

1. On the 10th June, 2011, the Secretariat of the Convention on Biological Diversity convened a mini-workshop on biodiversity and climate-related geo-engineering at the margins of the 34th meeting of the Subsidiary Bodies to the United Nations Framework Convention on Climate Change. The meeting was attended by 19 participants representing government agencies, inter-governmental organizations, non-governmental organizations and academia.
2. The mini-workshop participants discussed the following items:
 - Definitions for climate-related geo-engineering, including consideration of carbon capture and storage;
 - Potential impacts of geo-engineering activities on biodiversity; and
 - Possible gaps and limitations in the global regulatory framework for geo-engineering.
3. The purpose of this document is to transmit the results of the discussions on the first two items to the Liaison Group on biodiversity and climate-related geo-engineering meeting in London, United Kingdom of Great Britain and Northern Ireland, the 29th June – 1st July, 2011.

Definitions for Climate-related Geo-engineering as it relates to Biodiversity

4. With regards to the definition of climate-related geo-engineering as it relates to biodiversity, at least some of the participants believed that the following elements are important to consider:
 - an indication that the action is intentionally undertaken to change the environment in a way that addresses climate change;
 - clarification that the geo-engineering process should require human intervention and not be based on processes that would otherwise happen naturally (e.g. exclude reforestation); and
 - an indication of scale based on impacts that action might have rather than geographic or other size criteria.
5. At least some participants believed that the following should be discussed further when considering definitions but that care should be taken during such discussions in order to avoid unintended consequences or to exclude geo-engineering approaches that should not be excluded from regulation:
 - exclusions such as carbon capture and storage; and
 - existing safeguard systems already regulating geo-engineering.
6. Furthermore, some participants expressed concern that differentiating between research and deployment is ineffective as it largely depends on the stated intention rather than the impact, scope and scale.



7. Finally, participants saw little value in separate definitions for solar radiation management and carbon dioxide removal.

Potential Impacts of Climate-related Geo-engineering on Biodiversity

8. Participants in the workshop identified a number of risks and opportunities that could emerge if climate-related geo-engineering is pursued. These risks and opportunities are outlined below although it should be noted that the inclusion of such points in this document doesn't represent consensus among all participants but rather presents the range of views and inputs.

9. In addition to the below risks and opportunities, at least some workshop participants highlighted the need for additional models on the links between chemical and physical changes brought on by climate-related geo-engineering and biological processes and the delivery of ecosystem services. Participants also emphasized the need for full life cycle analysis of the potential impact of climate-related geo-engineering on climate change, including all elements of climate change likely to impact biodiversity (temperature and precipitation change, sea level rise, ocean acidification, CO₂ fertilization, etc).

Risks

10. The lack of understanding of risks as a result of reliance upon models and limited observations makes it difficult to evaluate the full spectrum of potential impacts of climate-related geo-engineering on biodiversity, especially when considering complex systems such as the reliance of some ecosystems on monsoons. In particular, the full impacts of climate change on biodiversity were not realized until after decades of analysis of models, observations and experiments, whereas climate-related geo-engineering is relatively un-studied and, therefore, should continue to be managed within the framework of the precautionary principle/approach.

11. Nevertheless, the following points were highlighted by at least some participants:

- Reliance on geo-engineering may discourage investments in ecosystem-based approaches to climate change mitigation;
- Some approaches are irreversible and, as such, if unanticipated negative impacts on biodiversity are observed, no action can be taken to reverse the impacts;
- Since the impacts of climate-related geo-engineering are likely to be complex, it may be difficult to prove causality if a negative impact on biodiversity is observed;
- Cumulative impacts on biodiversity may lead to tipping points that are difficult to predict when examining isolated approaches or single interventions;
- Indirect impacts on biodiversity may include increase pressure on land use; and
- Given the complexity of the issue, it may be difficult to effectively engage those responsible for managing and conserving biodiversity, including indigenous peoples and local communities, in discussions on geo-engineering.

Opportunities

12. Workshop participants discussed a number of potential benefits for biodiversity that may be realized through well managed climate-related geo-engineering. At least some participants highlighted the following:

- Geo-engineering may present a cost effective way to reduce the negative impacts of climate change on biodiversity;
- Many approaches to geo-engineering are reversible and, as such, if unanticipated negative impacts on biodiversity are observed, could be stopped or reversed in short order;
- Geo-engineering may buy time to implement climate change mitigation activities that successfully achieve co-benefits for biodiversity and biodiversity-based livelihoods.