



Event proceedings

Side-event on climate-related geoengineering: research, governance and the 2050 vision

Side event during the 22nd Meeting of the Subsidiary Body on Science, Technical and Technological Advice to the Convention on Biological Diversity (SBSTTA-22)

Montreal, Canada, 6 July 2018

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Summary

On 6 July 2018, the Carnegie Climate Geoengineering Governance initiative (C2G2) convened a side-event in collaboration with the Secretariat of the Convention on Biological Diversity (CBD) during the 22nd Meeting of the Subsidiary Body on Science, Technical and Technological Advice (SBSTTA-22) to the CBD in Montreal, Canada.

The event brought together 43 international experts (including SBSTTA Members and Observers) to explore new insights into transdisciplinary knowledge and governance of climate-related geoengineering. Key findings from a specially commissioned [technical briefing](#) were presented to stimulate consideration of what knowledge gaps need to be addressed to inform emerging international governance of climate-related geoengineering and support the Convention's 2050 vision. These included:

- **Substantial knowledge gaps were identified in relation to governance and research of climate related geoengineering.**
- **Despite some existing literature, further knowledge gaps were also identified in relation to ethics, governance and deployment of climate-related geoengineering.**
- **A range of governance, research and knowledge sharing needs were identified together with possible next steps for how these needs could be addressed through the CBD, including:**
 1. Identify and involve relevant institutions and actors;
 2. Assess which existing institutions can lead the discussions;
 3. Identify and enhance synergies between processes and discussions;
 4. Enhance multilateral and multi-disciplinary learning through establishing research groups or an international conference(s);
 5. Develop frameworks or guidance for how national governments take on these issues;
 6. Create or foster creation of protocols, ethical frameworks or codes of conduct for research;

Discussion with participants was stimulated by presentations and commentary provided by leading voices from policy, academia, research, civil-society and indigenous people's groups.

C2G2 is grateful to all speakers and workshop participants who contributed to this important discussion and to the Secretariat of the CBD for their collaboration in convening this event.

Background

1. This side-event followed on from a one-day workshop convened around the 21st Meeting of the Subsidiary Body on Science, Technical and Technological Advice (SBSTTA-21) to the CBD in December 2017 (see [workshop report here](#)). The event is part of an ongoing collaboration between the Carnegie Climate Geoengineering Governance Initiative (C2G2) and the Secretariat of the Convention on Biological Diversity (CBD) aimed at catalysing learning and sharing of knowledge between Parties, in pursuit of the CBD's 2016 Decision XIII/14 for “more transdisciplinary research and sharing of knowledge” about the impact of geoengineering on biodiversity and ecosystems.
2. A new Technical Briefing Paper was prepared by C2G2 and the Mercator Research Institute for Global Commons and Climate Change (MCC) for SBSTTA-22 validating and elaborating on knowledge gaps identified in the C2G2 workshop with SBSTTA-21 in December 2017 (see [Technical Briefing Paper here](#)).
3. An expert panel reflected on three questions: (i) What are the priority areas to address? (ii) How should this align with the CBD's strategy, 2050 vision and delivery of the SDGs? (iii) What are the next steps for SBSTTA and other actors? Followed by audience question and answer discussion.

The C2G2 Technical Briefing Paper

4. The C2G2 Technical Briefing Paper: knowledge gaps on climate-related geoengineering in relation to the Convention on Biological Diversity (CBD)¹ presents an assessment of knowledge gaps on climate-related geoengineering relevant to the CBD based on a recent workshop with members of the SBSTTA and validated by a review of relevant academic literature.
5. It is presented as part of an ongoing collaboration between the C2G2 and the Secretariat of the CBD and aims to provide a technical evidence-based input to inform Parties, observers and others as they consider future action on climate-related geoengineering research and governance.
6. Knowledge gaps around ethics, governance, deployment and research are identified and suggestions made for next steps to progress the development of research and governance relevant to SBSTTA and the CBD.
7. Substantial knowledge gaps were identified in relation to governance and research of climate-related geoengineering, including:
 - **Governance:** With regards to existing regulatory frameworks (local, regional and international), who are the decision-making actors? What institutional(s) are (or would be) responsible for the monitoring, evaluation and verification of geoengineering technologies?
 - **Research:** What type of capacity development is needed? How might knowledge-sharing and enhanced access to information strengthen research? Why is there a lack of interest in on-the-ground research and more interest on processes?
8. Despite some existing literature, further knowledge gaps were also identified in relation to ethics, governance and deployment of climate-related geoengineering, including:
 - a) **Ethics:** What are the risks associated with a focus on geoengineering technologies diverting attention/focus/effort from other techniques and approaches to emission reductions? What safeguards and emergency measures are being researched/proposed for the various scales of research taking place? What is being researched/proposed in terms of liability and redress measures?

¹ See: <https://www.c2g2.net/wp-content/uploads/20180704-C2G2-CBD-ResGaps.pdf>

- b) **Governance:** What existing regulatory frameworks are in place at the local, regional and international levels and how is the policy process being shaped? How can society effectively design a decision-making process that ensures multi-stakeholder engagement? What is the public perception of these technologies in developing countries? What is the minimum legal framework required for a country to govern geoengineering broadly, but also for specific technologies such as Solar Geoengineering?
- c) **Deployment:** How might geoengineering technologies impact biodiversity? What are the cost/benefits of nature-based solutions (e.g. ecosystem-based approaches) vs other geoengineering technologies? How applicable is research conducted in one country, for another country/region?
9. A range of governance, research and knowledge sharing needs were identified together with possible next steps for how these needs could be addressed through the CBD, including:
- Identify and involve relevant institutions and actors by considering (i) at what stage should they be involved? (ii) How can non-parties to the CBD be involved and treated in the CBD and other processes (e.g. IPCC, IPBES, International Resources Panel, UNEA, UNFCCC).
 - Assess which existing institutions can lead the discussions or whether there is a need for a new institution to regulate climate-related geoengineering research governance.
 - Identify and enhance synergies between processes and discussions held at UNFCCC and CBD (and other biodiversity-related conventions) e.g. through meeting and discussion between the chairs/co-chairs of respective SBIs.
 - Enhance multilateral and multi-disciplinary learning through, for example, establishing an international research group or organising an international conference to enhance synergies between different fora and to improve understanding of climate-related geoengineering issues.
 - Develop a frameworks and/or guidance for national governments on how to address these issues at a national level (e.g. through enhanced discussions between CBD focal points).
 - Create or foster creation of protocols, ethical frameworks or codes of conduct and guidelines for research (and/or deployment) of climate-related geoengineering options.
10. Workshop presenters included:
- Mr. Norbert Baerlocher**, Head, Rio Conventions Section (Climate Change, Biodiversity), International Affairs, Federal Office for the Environment (FOEN)
 - Prof. Sabine Fuss²**, Head of working group Sustainable Resource Management and Global Change, Mercator Research Institute for Global Commons and Climate Change (MCC)
 - Mr. Nicholas Harrison**, Senior Programme Manager, Carnegie Climate Geoengineering Governance Initiative (C2G2)
 - Ms. Silvia Ribeiro**, Latin America Director, ETC Group
 - Mr. Kai-Uwe Schmidt**, Senior Director of Programmes, Carnegie Climate Geoengineering Governance Initiative (C2G2)
 - Dr. Yolanda Teran**, Indigenous International Forum on Biodiversity (IIFB) and Indigenous Peoples and Local Communities (IPLC)
 - Prof. Hamdallah Zedan**, Egyptian Environmental Affairs Agency and National Focal point / Coordinating Committee for CBD COP14

² Presented via pre-recorded video played to side-event participants.

Welcome and introduction

11. Mr. Nicholas Harrison, Senior Programme Manager of Carnegie Climate Geoengineering Governance Initiative (C2G2), opened the meeting by welcoming participants to the side-event and noted that approximately 10 attendees were also present at the previous C2G2 workshop during SBSTTA-21 in December 2017.
12. Mr. Harrison then introduced the Senior Director of Programmes of C2G2, Mr. Kai-Uwe Schmidt.

Background and context: C2G2

13. Mr. Kai-Uwe Schmidt spoke about the mission of C2G2 being to catalyse the creation of effective governance for climate geoengineering technology by shifting the conversation from the scientific and research community to the global policymaking arena. C2G2 divides climate geoengineering into two different categories, carbon removal and solar geoengineering.
14. C2G2 is made up of a small team of professionals³ who have dedicated their careers to addressing climate change and supporting sustainable development. Executive Director, Janos Pasztor, was the former United Nations Assistant Secretary-General at the office of Secretary-General Ban Ki-Moon during the agreement and ratification of the Paris Agreement. Senior members of the team also served in the UN Secretary-General's Climate Change support team.
15. C2G2 has an Advisory Group⁴ composed of science, research, CSO, NGO, Government, UN, and youth representatives who are renowned professionals that bring a diversity of voices to the organization.
16. C2G2 is an initiative of the Carnegie Council for Ethics in International Affairs, which was founded by Andrew Carnegie over one hundred years ago. The initiative is currently funded by a Danish family foundation.
17. C2G2 is committed to its mission because it anticipates that challenging pathways to address climate change demand difficult governance choices which will take time to prepare for. All pathways aim to reach the Paris Agreement's goal of limiting the rise in global temperature to 2°C while aiming to not exceed 1.5 °C within the sustainable development agenda or describe under which conditions this would not be the case. The world is currently at a 1°C rise today..
18. Mr Schmidt highlighted that all pathways identify a paramount priority, which C2G2 fully subscribes to, namely to first and foremost reduce greenhouse emissions from human activity. He noted that Carbon Removals are included in most pathways at different orders of magnitude depending on each pathways varying description of emission reductions.
19. Mr Schmidt noted that Carbon Removals cover a portfolio of actions and responses ranging from those that are currently applied, known, and those emerging from current research.
20. Climate action pathways have shown that carbon removal efforts must be at such a scale that more is taken out of the atmosphere than is released into it to reach a net-negative level. It is necessary to identify ways to manage risks and maximize benefits of various technologies whether it is a removal or reduction system while also understanding the trade-offs that occur following decisions. The acceptability of this technology must also be discussed; such technology may pose no risks but could be unacceptable culturally or from other perspectives.
21. Mr. Schmidt emphasized that there are decisions to be made and understanding to be enhanced, but this takes time which we don't have. It is time to enhance existing discussions like the one at the Convention on Biological Diversity (CBD) to keep these issues in mind and to catalyse discussions in the governmental process.
22. C2G2 has three focus areas. The first is to catalyse international agreements to help prevent deployment of solar geoengineering unless there is an understanding of the risks and the potential

³ See: <https://www.c2g2.net/c2g2-team/>

⁴ See: <https://www.c2g2.net/c2g2-advisory-group/>

benefits. A governance framework must also be in place to take decisions, consider these issues, and regulate subsequent action to deploy the technology. The second priority is to support the development of international governance for research itself. The third priority is to encourage the discussion about carbon removal technologies at the appropriate sub-national, national, and international levels. This is to ensure that existing governance provisions are fit for supporting and making the decisions to reach the SDGs. C2G2 is involved in the intergovernmental process by providing briefings and gathering experts together.

The C2G2 Technical Briefing Paper

23. Nicholas Harrison spoke of C2G2's work in collaboration with the Secretariat of the CBD⁵. He identified CBD as the international organisation with the most mature and sustained engagement on this topic, which has included a number of decisions, recommendations, and discussions during COPs and SBSTTA meetings. The most recent was the decision in 2013 which called for more transdisciplinary research around this topic. At SBSTTA-21, a recommendation was made to keep a watching brief of the scientific community's discussions around these new issues coming up on the CBD's agenda. Within this context, C2G2 began a collaboration with the Secretariat of the CBD last year to move this discussion forward.
24. A C2G2 workshop was convened in collaboration with the CBD Secretariat last December which identified a ranges of knowledge gaps around transdisciplinary research and governance on climate-related geoengineering in relation to the CBD. Proceedings from this meeting are posted as an official information note to SBSTTA-22 on the CBD website⁶ and on the C2G2 website⁷.
25. C2G2 with analytical support from the Mercator Research Institute for Global Commons and Climate Change (MCC) then reviewed and analysed the research gaps identified in the December workshop, comparing it to a review of recent literature to validate and elaborate on where knowledge gaps exist (see [Technical Briefing Paper here](#)).
26. Mr. Harrison noted that 9 technologies are generally categorised as climate-related geoengineering and are sub-categorised by C2G2 as either Carbon Removal or Solar Geoengineering. Terminology used by researchers and commentators varies and C2G2 has developed a terminology guide to help navigate some of the common terms in use⁸.
27. Mr. Harrison also noted C2G2's recently published report⁹ which assesses the potential implications these nine technologies may have for delivering the 17 Sustainable Development Goals. The research found that 13 of the 17 SDGs have potential interaction with these technologies (See [report on Solar Geoengineering, Carbon Removal and the SDGs here](#))
28. Mr. Harrison introduced Prof. Sabine Fuss from the MCC to provide an overview of the analysis undertaken for the new C2G2 Technical Briefing Paper.
29. Prof. Sabine Fuss presented (via a pre-recorded video) the 3-part systematic review of negative emissions technology (NETs) also known as carbon dioxide removal (CDR). Based on this work, input was provided to C2G2 for its Technical Briefing Paper. C2G2's workshop on transdisciplinary research and governance on climate-related geoengineering was held at the CBD's SBSTTA-21 last year. One breakout group in the workshop identified knowledge gaps that need to be addressed. The other group explored regulatory options for geoengineering research governance.
30. Prof. Fuss displayed a net-negative timeline and spoke about the role of negative emissions in reaching Ambitious Climate Stabilization Targets. NETs aim to remove carbon dioxide (CO₂) - the major driver of anthropogenic climate change - from the atmosphere. They include natural techniques like planting more trees to lock up CO₂ as they grow, crushing rocks that naturally

⁵ See also: <https://www.c2g2.net/geoengineering-and-the-convention-on-biological-diversity/>

⁶ See: <https://www.cbd.int/doc/c/debf/bebf/bbaee42e539a255417181997/sbstta-22-inf-33-en.pdf>

⁷ See: <https://www.c2g2.net/workshop-and-conference-reports/>

⁸ See: <https://www.c2g2.net/terminology-guide/>

⁹ See: <https://www.c2g2.net/geoeng-sdgs/>

absorb CO₂ and spreading them on soils so that they remove CO₂ more rapidly, or adding burnt biomass to the soil to absorb CO₂. There are also technological solutions including sequestering CO₂ directly from the air (Direct Air Capture), enhanced weathering, and adding alkaline materials to the ocean to negate acidification. An option that is both natural and technological is using plants as fuel and capturing the resulting CO₂ before storing it underground. This is called Bioenergy with Carbon Capture and Storage (BECCS). Prof. Fuss noted that Solar geoengineering was also discussed during the earlier C2G2 workshop. Participants spoke of reducing the absorption of radiation by cirrus clouds or by increasing planetary albedo.

31. Knowledge gaps identified by the breakout groups in the earlier C2G2 workshop were organized into four different categories: ethics, governance, deployment, and research. On ethics, participants asked about the risks associated with focusing on geoengineering technologies rather than techniques and approaches to emissions reductions. For governance, individuals asked what regulatory frameworks already exist. The groups also asked about the outcomes/impacts/side effects of geoengineering technologies. On research, participants wanted to know more about the capacity needed for development. Dr. Fuss spoke further on the gaps identified in the deployment category. She presented a chart of the various technologies with their predicted deployment availability, cost, side effects, and permanence. She noted that while BECCS has potential to be deployed soon at a mid-level cost, it has several negative side effects.
32. The group that discussed regulatory options for geoengineering research governance emphasized the need for the involvement of the global South particularly through capacity development and by making deployment verification and monitoring more feasible. Another recurring theme was that participants thought that more work was needed with trade-offs. Dr. Sabine Fuss emphasized that CDR is not a replacement, but rather a companion for mitigation. The workshop groups concluded that there are ethical issues when it comes to the moral hazard, betting, and hubris of solar geoengineering.
33. There are knowledge gaps for the deployment of Carbon Removal, including socio-economic or environmental costs, needing a societal discourse, reducing dependence on Carbon Removal via the demand side, and the disconnection between actual investments and climate stabilization pathways. There were also knowledge gaps regarding governance including safeguards for only parts of Carbon Removal supply chains, it being unclear as to which body would govern deployment of Carbon Removal, minimum legal frameworks, and a need for new forms of multi-stakeholder engagement. On research, a strategy for capacity development is needed and improved communication among involved scientists, engineers, policymakers, and knowledge-sharing.
34. Mr. Nicholas Harrison encouraged the audience to read the prepared briefing and look at the various issues addressed by the workshop. He emphasized that repeatedly identified gaps are around issues of ethics, governance, deployment. He noted that while some direct impacts of NETs are not well understood, even many indirect impacts are unknown. Half of the research was dedicated to exploring the governance of geoengineering. Identifying and involving relevant actors was a big question. Another gap addressed was the question of who would lead this discussion whether it be individual organizations or constellations of institutions.
35. Multilateral and multidisciplinary learning around this issue must also be addressed. Global research programs, involvement of the global South, and conferences are proposed ways to solve this. National governments must also be educated to understand this issue. They must understand the risks and benefits of geoengineering technology for their nation and for the world. Protocols, frameworks, and codes of conducts could also be considered to ensure that research is governed.
36. Mr. Harrison explained that this side event was held to expand the discussion beyond the realm of academia to include diverse perspectives and insights, how this may align with existing work under the CBD and SBSTTA, and to identify next steps. He then introduced the four panellists.

Panel presentations: What are the priority issues to address in relation to knowledge gaps and governance?

37. Prof. Hamdallah Zedan of the Egyptian Environmental Affairs Agency and National Focal point / Coordinating Committee for CBD COP14 began the panel discussion by saying that in 1992 the United Nations Framework Convention on Climate Change (UNFCCC) leading to the Kyoto Protocol to reduce CO₂ emissions by 5.2 percent, which was considered a breakthrough. They also negotiated the Paris Agreement in 2016. What many expected to be revolutionary has also been underwhelming. Now, scientists are saying that the atmosphere must be manipulated rather than address the root cause of emissions. The priority area to address the direct and indirect impacts of geoengineering technologies on ecosystem functions and processes. The other priority is the effectiveness, availability, and timeline of these geoengineering technologies. It is unclear if these technologies will improve mitigation efforts than what is currently happening. It is dangerous that if NETs is successful, nations will focus on implementation of geoengineering rather than reduce CO₂ emissions. Governance for research must also be addressed.
38. Mr. Norbert Baerlocher of the Federal Office for the Environment continued the discussion by highlighting his experience in international environment diplomacy and governance rather than in geoengineering technology. He told a story of how people in a Swiss town lived far from the train station because they were afraid of the technology long ago, which reflects the caution people have for geoengineering. He noted that the work of C2G2 is important in thinking of instituting governance before the technology arrives. C2G2 convinced him that it was truly a neutral organization and that it is ahead of the curve. It is difficult to think of governance when one is not familiar with geoengineering. Understanding geoengineering effects on biodiversity needs to be a priority, but we also should consider those effects that are less connected to biodiversity. He emphasized that it is especially important that we are aware of those technologies that can be used for harm and should acknowledge which technologies can realistically be deployed.
39. Ms. Silvia Ribiero, Latin America Director of the ETC Group, began speaking by noting that a priority will be discussed at the Subsidiary Body on Implementation (SBI), which is the conflict of interest due to synthetic biology. This is because most people that release reports in CBD have an economic interest in the issue of geoengineering. Most of the reports quoted here, even those quoted by Dr. Sabine Fuss, are from people who have an economic interest in the technology they are describing, which is a problem for public policy and the public. That is why it is important to have independent scientists who don't have economic interests to hold these public discussions. The three objectives of the CBD must be taken into account, which are the biodiversity, sustainable use, and shared benefits. The CBD has taken several decisions in COPs and SBSTTA on geoengineering. She spoke of the link between biodiversity and cultural diversity. CBD has consistently spoken about the need to prevent geoengineering's effect on biodiversity. Ms. Ribiero said that this must continue to be the priority. The CBD has two excellent studies, Technical Studies 66 and Technical Series 84. These have more research on each of the issues than any UN body. She then discussed the need to understand the structural causes of biodiversity erosion including industrial agriculture and climate change. The separation between carbon dioxide removal and solar radiation management is not useful for the CBD because geoengineering seeks to manipulate the global climate, which will have large impacts on biodiversity. Currently, there is minimal literature on the impact of geoengineering on biodiversity.
40. Dr. Yolanda Teran of the Indigenous International Forum on Biodiversity (IIFB) and Indigenous Peoples and Local Communities (IPLC) discussed how geoengineering was difficult for her organization to understand. She emphasized that this issue must be understood. Our universe is not just the earth, but it is above and below. This technology will affect everything in a holistic way. The priorities should be to align with our protocols, which already exist. Women, men, elders, and youth must be involved in conversations concerning the governance of geoengineering. It is necessary to review the protocols and code of conduct as well as those from other conventions when crafting governance. There are many unknowns including socio-economic impacts.
41. From the audience, one participant highlighted it is necessary to have full public participation in decision making because this is a global issue. The public must not be condescended to because

they often are. There is a large focus on research, but the ethics must be addressed. Endless research on the issue could just work to delay us from having these ethical conversations.

42. Another member of the audience, asked what specific topics on research are needed to inform public debate on the issue. Prof. Hamdallah Zedan answered by saying that all the technologies require clear scrutiny regarding their impacts.
43. Mr. Nicholas Harrison then suggested merging the questions together to have the follow up questions of how these priorities should be aligned with the CBD's strategic plan, 2050-vision, and delivery of the SDGs and what are the next steps for SBSTTA and other actors.

Panel presentations: How should these be aligned with the CBD's strategic plan, 2050-vision and delivery of the SDGs?

44. Prof. Hamdallah Zedan began his response to the questions posed by quoting from the CBD's 2050-vision. Biodiversity is integrated into most if not all the SDGs. The CBD's 2030 goals are consistent with the Aichi Biodiversity Targets. It must be understood if new technologies will cause loss to biodiversity or not.
45. Mr. Norbert Baerlocher continued the conversation by saying that he is a climate negotiator and understand that we must reduce our emissions, but also that carbon must be taken out of the atmosphere. Switzerland doesn't have many areas where they can reduce emissions, but they do import energy. The country is trying to think of how they can reduce emissions elsewhere. Switzerland is working to do joint implementation of various ideas to finance climate projects in other countries. Precaution is accepted in Europe to avoid problem in the long-term. This is different from the approach in Washington D.C. where officials start something and then pay for it if there are resulting issues. The risk of geoengineering is too large that we cannot just begin implementation with the expectation of fixing whatever issues arise. Even afforestation has its risks; Portugal had a major forest fire because of the flammability of their Eucalyptus plants. A holistic approach is needed.
46. Ms. Silvia Ribiero added that the World Economic Forum also said that geoengineering and synthetic biology are some of the main global risks in their report, Global Risks. Regarding the 2050-vision, it is important to address the underlying drivers and structural contributors to biodiversity loss. The potential collective action of indigenous peoples and local communities (IPLC) must be recognized. We must also take all the decisions of the CBD together in unison. In the briefing report, it states that the CBD notes that more research on the impacts of biodiversity are needed, but this decision has several elements. She quoted the decision and said that it recognises the importance of taking account of science for life and for IPLC. Research is needed on the technology, but we also need to know the impacts on the work of the CBD and the issues related to it.
47. Dr. Yolanda Teran spoke about how the 2050-vision, SDGs, and Aichi targets should work in connection with one another. Currently, they are functioning in silos. There must be a holistic view of geoengineering to consider IPLC. The Shenden Plan should also be connected.

Panel presentations: What are the next steps for SBSTTA and others?

48. Prof. Hamdallah Zedan spoke of how there is too much of a scientific focus currently. The economic and cultural impacts of these technologies must be considered. The public must be involved in this discussion. The international community must discuss the ethical issues to decide if such technology is acceptable or not. Capacity building is needed to develop technology and to understand it and the impacts. It is also necessary to have global governance that involves everybody.
49. Mr. Norbert Baerlocher commented that research can slow down the process, but we must remember that our ministers must be convinced that this issue is relevant. Mr. Baerlocher shared a

story about his attempt to get a meeting with a US minister, but he was unable to because the minister viewed him as irrelevant. In meeting with officials, we can be relevant or have nuisance potential. Ministers have many obligations and limited time. The IPCC has been successful in helping make climate change a relevant issue. Biodiversity is not recognized as such a relevant issue yet at the ministerial level. The World Economic Forum recently identified the threat to biodiversity as one of the three most important risks for the future. Mr. Baerlocher explained that this will help him convince his minister to attend the future CBD Conference of the Parties in Sharm El-Sheikh.

50. Ms. Silvia Ribiero said that we must prioritize compliance to the de facto moratorium. Several experiments have had to be stopped by reminding several governments that they are signatories to the CBD. There are three planned experiments to take place in the US because it is not a CBD signatory. The CBD could invite other parties to stop such experiments that are in violation to of the moratorium. The CBD also invite the UNFCCC to review what the CBD has been working on. A company in Canada, Oceaneos (formerly the Haida Salmon Restoration Corporation), that has been attempting to perform ocean fertilization. Now, the company is in Chile allegedly to conduct “ocean seeding” to promote the growth of fish populations. The CBD needs to act on this as well as Canada. It is necessary to have horizon scanning, which is difficult for many countries that do not have the capacity to explore what the technology means for them. This is an especially strong need for the global South. This information must come from independent sources.
51. Dr. Yolanda Teran emphasized we need to have more capacity building and increased IPLC participation. This capacity building must respect traditional systems of knowledge. Dr. Teran then quoted a statement given by a group of elders on the issue of geoengineering by saying that when creating something new, don’t use only your mind but also your heart because we need to achieve well-being for all.

Comments from the audience

52. Nicholas Harrison thanked the panellists and invited questions and comments from the audience.
53. One participant said that she is from small island. Many small island governments are desperate for investment. A project that she is considering is from the Chinese who told her that they’d like to test some new technology. She appreciated her invitation to the workshop because in her country, they don’t have conferences educating individuals about geoengineering.
54. One participant commented that geoengineering discussions at the CBD often have hidden discussions about winner, losers, and scales. It is possible to conduct geoengineering at the local and regional scales, but another geoengineering experiment on a larger scale could negate those efforts because the scale is so large. There is not much real dialogue about the impact of how different people will be affected differently. The other side of this has to do with investment. If investment is made into expensive technology such as sequestering carbon from the atmosphere, then we must consider what we are not investing in. It is likely investments at the local level would be neglected because the same investments on a larger scale could be costly. It is time for the CBD to have the real discussion, not just the science discussion. C2G2 is well positioned to encourage thinking on this.
55. One participant asked about public information campaigns regarding the efforts begun here at the workshop. The largest contributor to climate change has withdrawn from the treaties. He believes that climate change denial is increasing. We live in a world with increased tribalism and polarisation. There is much questioning of news and science. It is critical to be able to communicate effectively with the wider population because policymakers respond to the public.
56. One participant highlighted that horizon scanning is important because we are witnessing a range of different technological proposals for large threats with not enough time to listen to a diversity of assessments on them. Governance processes usually are only able to deal with one process because they must prioritize. One governance process that is very encouraging is the STI Forum in the UN, which is trying to align new technology with the SDGs. It is not appropriate to answer

questions solely on one axis; it is necessary to have new governance to bring in different types of knowledge.

57. One participant responded to the comment about scale by saying that it is an issue that has yet to be resolved. There have been efforts to try and establish a global agreement in the UNFCCC process, but this has not succeeded yet. Progress has been made at the small-scale and local levels. There is a global forest coalition, which is looking at the small-scale community projects protecting forests. There is no carbon accounting going on in these projects, which is why they are getting side-lined. A bottom up approach is what is needed.
58. One participant complimented the C2G2 report for differentiating between different categories of geoengineering and the subsets of each. He also complimented another participant for raising the issue of governance and differentiation. Each of the technologies featured in the C2G2 report required serious discussion. The scope and scale vary considerably. The discussion of governing risk should differentiate across these technologies.
59. Mr. Nicholas Harrison then thanked the speakers and participants and closed the event.

Disclaimer

This report has been prepared based on notes taken during the side-event on the 6 July 2018 and has endeavoured to faithfully and accurately document points raised by speakers and participants. The views expressed do not necessarily reflect official positions of C2G2, the Secretariat of the Convention on Biological Diversity nor those of workshop speakers or participants. Please notify Nicholas Harrison njharrison@c2g2.net of any important corrections required.