

## Response to Questionnaire on the impact of new technologies for climate protection on the enjoyment of human rights

### Section 1: Introduction to organisations making this submission and their experience and expertise in this area

This response is submitted on behalf of Heinrich Böll Foundation (HBF), Center for International Environmental Law (CIEL), Action Group on Erosion, Technology and Concentration (ETC Group), and Third World Network (TWN). These are civil society organisations which have a comprehensive political and technical understanding of geoengineering and its consequences and are therefore responding to the civil society, technical and core questions in the questionnaire. We have done our best to provide a comprehensive and considered response, bearing in mind that the consultation period ran over the spring holiday season in some parts of the world, limiting what was already a rather short period for response. We are grateful for the extension of time provided by the Human Rights Council Advisory Committee (HRCAC) to respond in this regard. We understand the report being produced by the HRCAC as intended to open up a line of enquiry and dialogue, rather than coming to any definitive conclusions on this issue, and are approaching the questionnaire in that spirit. We would also appreciate opportunities for further discussion of this topic with the HRCAC.

As there is overlap between the different questions asked and we also wish to provide relevant wider context for our answers, we have divided our response into section headings, listing under each section the questions to which we are intending to respond. We hope that doing so will enhance clarity. This introductory section aims to answer the below question:

*(Civil Society Question 1) Please describe the relevant work that your organization has done on the issue of NTCP and human rights. What are the key accomplishments? What challenges has your organization faced?*

**Heinrich Böll Foundation (hbf):** HBF has been working on geoengineering since 2015 and has played a key role in building critical awareness in civil society networks on movements on this issue. We have also followed geoengineering governance discussions in a wide range of international fora, including the Convention on Biological Diversity (CBD), London Convention/London Protocol (LC/LP), UN Framework Convention on Climate Change (UNFCCC), the Intergovernmental Panel on Climate Change (IPCC), and the Aarhus Convention. We have helped to launch the Hands Off Mother Earth Campaign (HOME) against geoengineering and co-host the GeoengineeringMonitor.org. Our main challenge so far has been the speed at which geoengineering is being normalized and developed, often in violation of the moratorium introduced by the CBD, discussed further below, and in clear violation of fundamental substantive and procedural rights. In our work against geoengineering, we stand in solidarity with Indigenous Peoples and other communities around the world affected by geoengineering projects and experiments.

**Center for International Environmental Law (CIEL):** Since 1989, CIEL has used the power of law to protect the environment, promote human rights, and ensure a just and sustainable society. CIEL's attorneys have been on the vanguard of identifying emerging threats to human rights and the environment, developing innovative legal strategies to confront them, and

building diverse coalitions to leverage a full set of campaigning tools in different jurisdictions for over thirty years. Geoengineering intersects with numerous areas of our expertise, beginning with CIEL's longstanding work to address the drivers of climate change, ensure respect for human rights in actions to address the climate crisis, and protect communities from the impacts of project decisions made in boardrooms thousands of miles away from where the impacts will be felt. In 2019, CIEL and HBF published *Fuel to the Fire: How Geoengineering Threatens to Entrench Fossil Fuels and Accelerate the Climate Crisis*, an in-depth examination of the linkages between the fossil fuel industry and geoengineering, which continues to serve as a resource for civil society organizations, journalists, and others monitoring geoengineering technologies and related policy developments. CIEL has also monitored and analyzed discussions of geonegineering policy and governance in various fora, including negotiations within the International Organization for Standardization (ISO) related to certain categories of geoengineering, most significantly Solar Radiation Management. As a recognized expert on carbon capture and storage (CCS) and related technologies that depend on CCS, including direct air capture (DAC) and fossil hydrogen (blue hydrogen), CIEL has published analyses, testified before legislative bodies, and provided presentations in a variety of fora on the feasibility, risks, and impacts of these technologies, applicable regulatory regimes, and industry interests behind them. CIEL participates actively in many relevant intergovernmental processes including the UNFCCC, the Human Rights Council, and the Aarhus Convention.

***ETC Group:*** ETC Group is an international civil society organization that works to address the socioeconomic and environmental issues surrounding new technologies that could impact the world's poor and vulnerable communities. We work closely with partner civil society organizations, Indigenous Peoples' organizations and social movements, especially in Africa, Asia and Latin America. We have a 4-decade history of producing independent break-through research to inform civil society and the international community about the potential social and environmental impacts of emerging technologies. In 2007 ETC was the first organization to bring geoengineering to the attention of international civil society. ETC was instrumental in bringing a critical analysis of geoengineering to the UN London Convention and the CBD, where several precautionary decisions have since been adopted, including a moratoria on geoengineering. ETC is also active at several other UN bodies such as UNFCCC and UN Environment Assembly (UNEA) where we have contributed our research and experience on the impacts on emerging technologies, including geoengineering. ETC has been a reference for local and Indigenous communities resisting the imposition of geoengineering projects, e.g. ocean fertilization in the Sulu Sea in the Philippines (2008) and in Haida Gwaii Canada (2012). ETC is a co-founder (in 2010) and an active participant in the international network 'Hands Off Mother Earth (HOME) against geoengineering', which has grown into the largest network fighting geoengineering and promoting climate justice, with over 200 member organizations from 45 countries.

***Third World Network (TWN):*** TWN is an independent non-profit international research and advocacy organization based in the Global South. It seeks to bring about a greater articulation of the needs and rights of peoples in the South, a fair distribution of world resources, and forms of development which are ecologically sustainable and fulfil human needs; and aims to deepen the understanding of the development dilemmas and challenges facing developing countries and to contribute to policy changes in pursuit of just, equitable and ecologically sustainable development. It conducts research on economic, social and environmental issues pertaining to the South; publishes books and magazines; organizes and participates in conferences, seminars and workshops; and provides a platform representing broadly Third World interests and

perspectives at international fora such as United Nations agencies, conferences and processes, the World Trade Organization (WTO), the World Bank, and the International Monetary Fund (IMF). It undertakes work on geoengineering-related issues in the context of its work on climate change, biodiversity, international trade, international health, and human rights.

## Section 2: Categorisation of technologies

This section responds to the question below:

*(technical community question 3) How would you differentiate between “new” and “old” technologies for climate protection?*

As a preliminary matter, we note the use of the term “New Technologies For Climate Protection” (NTCP) within the questionnaire. We prefer in our response to use the term “geoengineering technologies”. This is not a matter of semantics; describing the technologies as NCTP presupposes that they are beneficial or desirable when, as discussed further below, they do not address the root causes of climate change as needed to prevent climate catastrophe, have unproven climate benefits, and delay the necessary transformation from a fossil economy. The term “geoengineering technologies” also describes the nature of the interventions being made, rather than their purported impacts, and links directly to the existing legal and governance framework for these technologies, being a term that has been used in international legal instruments since 2007.

There is no universally agreed definition of geoengineering although it has been defined under a number of Multilateral Environmental Agreements, including the Convention on Biological Diversity (CBD); and the London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (1972) and its 1996 London Protocol (LC/LP). It is often divided into two categories of technologies: Carbon Dioxide Removal (CDR) and Solar Radiation Management (SRM)<sup>1</sup>. CDR technologies aim at removing CO<sub>2</sub> from the atmosphere once emitted. Broadly speaking, SRM technologies aim at masking the warming impact of greenhouse gases by blocking part of the incoming solar radiation, reflecting more of it into space, or allowing more heat to escape the earth’s atmosphere. CDR and SRM approaches have been proposed in both marine and terrestrial environments,<sup>2</sup> and both categories of technologies involve transboundary impacts. Therefore, a more appropriate way of distinguishing different technologies would be to group them according to the ecosystems (potentially) affected through a geoengineering intervention: marine-based, land-based, and atmospheric geoengineering. Grouping technologies by their areas of impact may facilitate the identification of the diverse rights affected by geoengineering (including the rights to a healthy environment, food, and culture, and the rights of Indigenous Peoples, etc. as discussed further in Section 4 below).

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<sup>1</sup> In the ISO process, the term Earth Radiation Management is used separately from SRM, although the organizations signing this note take the view that there is no meaningful distinction between the two.

<sup>2</sup> Carnegie Climate Governance Initiative, Policy Brief: Governing Marine Solar Radiation Modification, [https://www.c2g2.net/wp-content/uploads/c2g\\_policybrief\\_marine-SRM.pdf](https://www.c2g2.net/wp-content/uploads/c2g_policybrief_marine-SRM.pdf).

Geoengineering technologies have been researched and studied for decades, including by the fossil fuel industry.<sup>3</sup> Although geoengineering proposals have existed for a long time, and some, like Weather Modification Technologies, have been explored in the past for military and agricultural uses, they are still largely hypothetical and untested. In this sense, they remain “new” technologies—especially when it comes to deployment at scale. Geoengineering technologies are clearly distinct from renewable energy technologies, although the latter are often referred to as newer energy sources. The fundamental differences between the two stem from the fact that technologies such as solar and wind are demonstrated, available, and increasingly economically feasible, whereas geoengineering technologies remain unproven, unavailable, and infeasible. The risks and negative human rights implications of geoengineering technologies are also of an entirely different order of magnitude when compared to the potential human rights impacts of renewable technologies, with any human rights-related impacts of renewable technologies being far more capable of resolution than those related to geoengineering technologies (see further Section 4 below). Availability, equitable ownership, and cost are critical human rights elements in comparison between renewable energies and geoengineering (including CDR and carbon capture and storage (CCS)), where geo and climate engineering approaches pose greater threats to water scarcity, land rights, food security, equity, and health. This is in addition to concerns over delayed phase out of the primary greenhouse gas contributor, fossil fuels.

### **Section 3: Adequacy of existing legal framework(s), including human rights law, to address geoengineering**

This section responds to the below questions:

*(core question 5) Is the existing international and your national human rights framework adequate to safeguarding human rights of those affected by the use of NTCP? Why or why not? If not, what principles may be identified in order to address the gaps? List them according to priority.*

*(technical question 1) Will the current international human rights framework and standards as well as national policies be effective in addressing human rights challenges from NTCP? If not, how can they be improved?*

*(tech community 6) How should the impact of the use of NTCP be assessed and attributed given scientific uncertainty? What is the role for the precautionary approach?*

#### **Summary of key points in this section**

Existing human rights obligations set clear parameters for research into and deployment of geoengineering technologies. Human rights law must be interpreted in light of, and consistent with, international environmental law. Determining what is required by human rights law in this regard requires adherence to the wider international legal framework governing geoengineering activities, including relevant multilateral environmental agreements as well as principles of international environmental law such as the precautionary principle and duty

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<sup>3</sup> CIEL, *Fuel to the Fire: How Geoengineering Threatens to Entrench Fossil Fuels and Accelerate the Climate Crisis* (Feb. 2019), <https://www.ciel.org/reports/fuel-to-the-fire-how-geoengineering-threatens-to-entrench-fossil-fuels-and-accelerate-the-climate-crisis-feb-2019/>.

not to cause transboundary harm, as discussed further below. States' duties to cooperate in securing enabling conditions for human rights and in effectuating international legal frameworks to prevent, reduce and remedy transboundary/global environmental harm are also directly relevant to the regulation of geoengineering. Such duties should explicitly be incorporated into consideration of human rights obligations related to geoengineering. As will be discussed further in Sections 4 and 5 below, relevant human rights obligations also include upholding the rights of access to information, participation in environmental decision-making, and access to justice as identified, for example, in the Aarhus and Escazu Conventions.

### **3.1 The Relevance of Multilateral Environmental Agreements (MEAs)**

While there are no international treaty regimes dedicated to the topic of geoengineering, a number of MEAs contain provisions relevant to its regulation or restriction and have adopted specific decisions on geoengineering. For example, States parties have called for precaution and restrictions on the experimentation and deployment of geoengineering exist under the CBD and the London Convention and London Protocol (LC/LP). These agreements, along with the international environmental law principles of precaution and prevention, form part of the regulatory framework for assessment, prevention, and mitigation of the risks posed by geoengineering technologies. In order to ensure a coherent approach to geoengineering across relevant fora and bearing in mind the Vienna Convention on the Law of Treaties (which provides that treaties should be interpreted in the light of other international law rules), decisions adopted in the CBD and LC/LP should be taken into account by bodies considering human rights obligations relating to geoengineering, including the HRCAC.

CBD decision X/33 is discussed in the legal opinion commissioned by HBF from Philippe Sands QC and Kate Cook and shared previously with the HRCAC (the Opinion) which describes the decision as establishing a moratorium on geoengineering technologies, albeit with a qualified and limited exception for small-scale scientific research studies [paragraph 17] (annexed to this submission). CBD decision X/33 includes a requirement for prior justification on an adequate scientific basis for either the small-scale scientific research studies or any end decision to deploy geoengineering technologies (i.e. if the moratorium is lifted). The Opinion goes on to address the specific CBD requirements needed to meet the definition of small-scale scientific research studies, including the need for any such study to be in a controlled setting and subject to a thorough, transparent, and prior environmental impact assessment. Likewise, the Opinion explains how the London Convention and London Protocol framework indicate “the use of caution, prohibition and science-based assessment in relation to a relatively new set of technologies.” [paragraph 34].

On the basis of the above and the duty to cooperate that applies to all parties to a multilateral treaty (and that is expressly set out in Article 5 of the CBD), the Opinion states that “Until parties can agree on whether or not the deployment of geoengineering technologies can be justified, taking into account the significant risks that they pose, the adherence to a moratorium as indicated in the COP Decisions adopted under the CBD and LC/LP referred to above may be the only feasible expression of their duty to cooperate with each other in good faith.”[paragraph 58].

The Opinion notes that the international climate regime does not explicitly address geoengineering technologies but: “To the extent that there is evidence that the use of such technologies may undermine actions to cut emissions, lock in dependency on fossil fuels and/or have an adverse impact on the protection of sinks and reservoirs, it is strongly arguable that the deployment of such technologies runs counter to the aims and purposes of the [United Nations Framework Convention on Climate Change/Paris Agreement].” [paragraph 92]. Such evidence does exist, as noted by CIEL and HBF in “IPCC Unsummarized: Unmasking Clear Warnings on Overshoot, Techno-fixes, and the Urgency of Climate Justice”, their briefing note concerning The Working Group III Contribution to the Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report, *Climate Change 2022: Mitigation of Climate Change*.<sup>4</sup> For example, CCS allows fossil fuels—which account for more than 80% of global greenhouse gas emissions—to be used for longer and increases the shares of fossil fuels in policy scenarios.<sup>5</sup> The Opinion adds that any state action that prioritises the deployment of geoengineering technologies, which pose potentially grave risks, over policies that promote the transition away from fossil fuel use and towards renewables which do not pose equivalent risks, is also open to challenge on the basis that this will frustrate the goals of the Paris Agreement and is inconsistent with the principles of international law. These principles include the precautionary and prevention principles as well as the duty not to cause transboundary harm, as well as correlating with human rights obligations, as discussed further below.

The Opinion describes the duty not to cause transboundary harm as “clearly relevant”, both in the context of geoengineering activities causing harm to transboundary environments and the risk that geoengineering may risk overshoot, (which will in turn risk transboundary harm) [paragraph 90]. Discussing this duty in the context of the CBD, the Opinion also refers to the international law obligation to conduct an environmental impact assessment “where there is a risk that a proposed industrial activity may have a significant adverse impact in a transboundary context, in particular on a shared resource.” It adds that this obligation could potentially apply to the conduct of field trials which may have transboundary effects [paragraph 81]. This is further supported by Principle 13 of the Framework principles on Human Rights and the Environment, produced by the UN Special Rapporteur on Human Rights & the Environment (Framework Principles).<sup>6</sup> These principles are described as setting out basic obligations of States under human rights law as they relate to the enjoyment of a safe, clean, healthy, and sustainable environment.<sup>7</sup> Principle 13 sets out that States should cooperate with each other to establish, maintain, and enforce effective international legal frameworks in order to prevent, reduce, and remedy transboundary and global environmental harm that interferes with the full enjoyment of human rights. Geoengineering poses very real threats in this regard.

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<sup>4</sup> CIEL & HBF, *IPCC Unsummarized, Unmasking Clear Warnings on Overshoot, Techno-fixes, and the Urgency of Climate Justice*, pp. 24-32 (Apr. 2022), [https://www.ciel.org/wp-content/uploads/2022/04/IPCC-Unsummarized\\_Unmasking-Clear-Warnings-on-Overshoot-Techno-fixes-and-the-Urgency-of-Climate-Justice.pdf](https://www.ciel.org/wp-content/uploads/2022/04/IPCC-Unsummarized_Unmasking-Clear-Warnings-on-Overshoot-Techno-fixes-and-the-Urgency-of-Climate-Justice.pdf)

<sup>5</sup> *Id.* at p. 4, citing IPCC, Working Group III, *Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the IPCC Sixth Assessment Report* (2022), at TS 5.1, at TS-53; SPM C.4.4, at SPM-36; Ch. 6, 6.7.4, at 6-118).

<sup>6</sup> Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment, *Framework Principles on Human Rights and Environment*, UN Doc. A/HRC/37/59 (Jan. 2018), <https://www.ohchr.org/en/special-procedures/sr-environment/framework-principles-human-rights-and-environment-2018>.

<sup>7</sup> *See id.*

It will be apparent from the above that any consideration of the application of the provisions of international human rights law to geoengineering cannot take place in a vacuum. In the interests of upholding the environmental rule of law and the wider coherence of the multilateral system, the existing MEAs and international law obligations discussed above inform the application of human rights obligations in respect of geoengineering.

### **3.2 The Precautionary Principle and Human rights obligations**

The Opinion refers to the relevance of the principles of precaution and prevention to Geoengineering activities. It states that precaution is clearly relevant given the uncertainty of the impacts of geoengineering on complex planetary systems and their potential irreversibility [paragraph 76]. It adds that it is necessary to look at all the risks of deploying geoengineering, including risks of overshoot [paragraph 80]. The Opinion states that geoengineering options must be weighed against alternative options, including those where there is more scientific certainty [paragraph 81]. It flags that where there is a governance gap, precaution weighs in favour of less uncertain or risky alternatives (such as cutting fossil fuel production and use, increasing electrification with renewables, and reducing energy demand) as they are less potentially harmful. The Opinion also notes that like the precautionary principle, the prevention principle is “highly relevant to the interpretation of legal regimes which seek to restrict geoengineering through decisions and resolutions.” [paragraph 81]. The duties to respect and protect in human rights law, read in the light of the precautionary principle, require States to favour available measures that curb emissions to prevent and mitigate climate change over geoengineering technologies that pose greater risks to human rights both because of their uncertain climate efficacy and because of their potential adverse impacts.<sup>8</sup> In this they support the provisions of the Paris Agreement discussed above, underlining the inherent coherence of the international legal approach to geoengineering technologies.

### **Section 4: Human rights risks/impacts of Geoengineering and how human rights obligations protect/mitigate against such risks**

This section responds to the following questions:

*(core question 1) Which new technologies for climate protection (NTCP) are of particular importance when it comes to impact on human rights? List three most relevant and explain your choice.*

*(core question 2.) What kind of NTCP may contribute to human rights promotion and protection? Please, explain how.*

*(core question 3) What are the key human rights challenges and risks arising from NTCP and from which in particular? Do NTCP create unique and unprecedented challenges or risks, or are there earlier precedents that help us understand the issue area?*

*(initial part of core question 4) What specific human rights may be affected by the use of NTCP? Please, explain how.*

*(core question 6) Given that NTCP may present potential risks for the enjoyment of human rights, to what extent do human rights legal obligations require the States to pursue other*

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<sup>8</sup> See, e.g., Inter-American Court of Human Rights, *Advisory Opinion OC-23/17* (Nov. 2017), paras. 175-80 (discussing the precautionary principle).

*climate protection policies presenting less risks of harm, including mitigation and adaptation measures?*

*(civil soc 3) What will be the impact of NTCP on the enjoyment of human rights in the field that your organization covers? What are the main human rights challenges that these technologies pose? Is the international human rights framework well equipped to address them? What are the policy gaps in national policies? What actions at national and international level would be required in order to effectively address these challenges*

*(technical question 2) Do you think that policy efforts to address human rights challenges in NTCP will promote their use or deter it? How to strike a balance between the need to employ technology with the goal of reaching net zero CO2 emissions and the need to protect human rights?*

### **Summary of key points in this section**

This section includes specific responses to particular questions referred to above. However, in summary, geoengineering poses significant risks, on an unprecedented scale, to a wide range of human rights of present and future generations, directly and indirectly. These include the rights to life, health, water, food, culture and Indigenous Peoples' rights, as well as the right to a healthy environment on which the realisation of other human rights depends. These risks to human rights fall unevenly on already vulnerable and marginalized groups and must be at the centre of any decision-making about geoengineering.

In addition, there exist alternative measures to mitigate climate change that either pose lower risks to human rights or actually promote or protect those through providing co-benefits such as lowering pollution or improving quality of life. The IPCC notes that it is feasible to swiftly end fossil fuel emissions, as required by the Paris agreement, scale up electrification and reduce energy demand. To the extent that reliance on geoengineering delays or displaces other mitigation measures and near-term action more likely to avoid overshoot, it exacerbates the threats to human rights posed by overshooting 1.5 even temporarily - which will unleash further irreversible harm to human and natural systems.

Geoengineering technologies also introduce their own risks to human rights, including the right to a healthy environment, through impacts such as pollution, risks to food security and biodiversity and climate system/weather patterns among others. Some of these impacts are foreseeable and likely to be concentrated in marginalized, vulnerable populations least responsible for climate change and already most harmed by its consequences, including Indigenous Peoples. Other impacts are less certain. However, all human rights impacts of geoengineering risk being both grave and potentially irreversible.

## **4.1 Impact of Geoengineering technologies on Human Rights**

In addressing core questions 1 and 3 above, as well as civil society question 3 and technical question 5, it is important to note that while geoengineering techniques are too numerous to address comprehensively in these comments, all such technologies could adversely impact human rights. Rights likely to be impacted include, but are not limited to, the rights to life,



food, water, health, a healthy environment, livelihood and adequate standard of living, culture, as well as rights specific to Indigenous Peoples. Impacts could occur through the direct, localized effects of the deployment of geoengineering, and through intended or unintended impacts on the global climate – such as rainfall disruption, termination shock, water depletion, and erosion of human and ecological resilience.

As examples of some of the acute risks to human rights posed by geoengineering technologies, IPCC findings repeatedly warn that CCS and CDR are unproven at scale, unavailable in the near-term, uncertain in terms of climate benefit and risk significant harm to humans and nature.<sup>9</sup> This makes relying on them both a delay tactic and a dangerous gamble that risks overshoot of 1.5C. The IPCC has found that going beyond 1.5°C, even temporarily, will result in irreversible impacts, including damage to ecosystems and greater loss of human life, resulting in attendant human rights breaches.<sup>10</sup> As well as uncertainties around its benefits for the climate, there are concerns that large-scale CDR could overburden future generations and impact food security, biodiversity or land rights, amongst others.<sup>11</sup> Land identified as marginal, abandoned and degraded (and therefore available for bioenergy crop production) may in fact serve other functions such as subsistence and biodiversity protection.<sup>12</sup> Working Group II of the IPCC noted that “*Deployment of afforestation of naturally unforested land, or poorly implemented bioenergy, with or without carbon capture and storage, can compound climate-related risks to biodiversity, water and food security, and livelihoods, especially if implemented at large scales, especially in regions with insecure land tenure (high confidence).*”<sup>13</sup>

Direct Air Capture is similarly of uncertain climate benefit, and would require enormous amounts of land, water, materials and chemicals. SRM, if deployed at the scale needed to influence climate symptoms, could further unbalance regional climates and thus endanger the sources of food and water for up to 2 billion people, creating mass and grave breaches of human rights. Scientific modelling shows that while it could have some cooling effect in certain areas of the Northern Hemisphere, SRM would unbalance rain and wind patterns between the tropics, disrupt monsoon regimes in Asia and cause more droughts in Africa, potentially affecting the livelihoods of up to two billion people.<sup>14</sup>

The IPCC has also consistently warned about the impacts of SRM, stating in the Summary for Policy Makers of the IPCC WGII report published in 2022 that SRM approaches “introduce a widespread range of new risks to people and ecosystems, which are not well understood”<sup>15</sup> If SRM were deployed but then stopped, intentionally, accidentally or because of human error or political changes, it would lead to a “termination shock” effect, that would cause temperature to rapidly increase to levels worse than at the starting point. This would have catastrophic effects on humans more difficult to adapt than ongoing climate change, as well as having devastating effects on biodiversity, animals and plants. Because of these and other risk factors,

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<sup>9</sup> IPCC Unsummarized, *supra* note 4, at pp. 24-32.

<sup>10</sup> See CIEL & HBF, *Beyond the Limits New IPCC Working Group II Report Highlights How Gambling on Overshoot is Pushing the Planet Past a Point of No Return* (Feb. 2022), [https://www.ciel.org/wp-content/uploads/2022/02/CIEL\\_HBF\\_IPCC-WGII-Key-Messages-28Feb2022.pdf](https://www.ciel.org/wp-content/uploads/2022/02/CIEL_HBF_IPCC-WGII-Key-Messages-28Feb2022.pdf).

<sup>11</sup> Report of the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment, *Report to the UN General Assembly on a safe climate*, UN Doc. A/74/161Annex, (Jul. 2019), <http://srenvironment.org/sites/default/files/Reports/2019/CC%20Good%20Practices%20Annex.pdf>, para. 21.

<sup>12</sup> IPCC Unsummarized, *supra* note 4, at p. 31.

<sup>13</sup> IPCC, Working Group II: *Climate Change 2022: Impacts, Adaptation, and Vulnerability*. Contribution of Working Group II to the IPCC Sixth Assessment Report (2022), SPM B.5.4 at SPM-19.

<sup>14</sup> Alan Robock et al., “A Test for Geoengineering?”, *Science Magazine*, vol. 327 (2010), <https://climate.envsci.rutgers.edu/pdf/TestForGeoengineeringScience2010.pdf>

<sup>15</sup> IPCC WGII, *supra* note 13, SPM B.5.5. at SPM-20.

over 250 scientists from all over the world are calling for a non-use agreement concerning solar geoengineering.<sup>16</sup>

It is also important to note the risk that adverse effects of the technologies (and of temperature overshoot based on reliance on them instead of near-term reduction measures) would be disproportionately experienced by marginalized and vulnerable populations, exacerbating inequalities. Where the distribution of risks is both foreseeable and concentrated in particular populations, this would be potential violation of the right to non-discrimination. Principles 3 and 14 of the Framework Principles prohibit discrimination and require states to take additional measures to protect the rights of those most vulnerable to environmental harm. In this, states are required to pay attention to historical or persistent prejudice against groups of individuals, recognizing that environmental harm can both result from and reinforce existing patterns of discrimination. As an example of this in the geoengineering context, the IPCC has noted that CCS processes increase air pollutants, deplete water and cause risks to neighbouring communities, causing potential breaches of human rights.<sup>17</sup> As noted by the UN Special Rapporteur on Human Rights & Hazardous Substances and Wastes (SR), the existing burden of pollution and toxic substances falls most heavily on vulnerable and marginalized populations.<sup>18</sup> By adding to this burden, geoengineering technologies risk exacerbating existing marginalisation and vulnerability and therefore falling foul of the human rights obligations.

In response to core question 2, it will be evident from the above that geoengineering technologies are of doubtful value (at best) in contributing to the promotion and protection of rights and indeed pose significant and potentially irreversible impacts to humans and the natural systems on which they depend. In response to core question 3 in this regard, geoengineering, with its potentially irreversible impacts on a planetary scale, can be regarded as creating unprecedented impacts on human rights, akin perhaps only to the use of nuclear weapons.

#### **4.2 To what extent do human rights obligations require States to pursue other climate protection policies presenting less risks of harm than geoengineering technologies?**

Core question 6 has been addressed throughout this response, but it bears emphasising that existing human rights obligations, read in the light of existing obligations under multilateral environmental agreements and other principles of international law, including the precautionary principle, require States to pursue those measures within their power that pose the least risk of harm to human rights.

A human rights-based approach, interpreted in line with international law obligations under the Paris agreement and the precautionary principle, requires the prevention of further greenhouse gas emissions. The IPCC has affirmed that proven mitigation measures (like electrification with renewable energy, energy demand reduction, and - most importantly - a fossil fuel phaseout) are feasible and most likely to avoid catastrophic levels of warming. It is notable that the “Safe Climate” section of a recent report by the SR focuses exclusively on the reduction of fossil fuel use and the promotion of renewable energy as methods for responding to climate

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<sup>16</sup> Solar geoengineering deployment at planetary scale cannot be fairly and effectively governed in the current system of international institutions. It also poses unacceptable risk if ever implemented as part of future climate policy.” (<https://www.solargeoeng.org/>)

<sup>17</sup> IPCC Unsummarized, *supra* note 4, at p. 25.

<sup>18</sup> Special Rapporteur on the Implications for Human Rights of the Environmentally Sound Management and Disposal of Hazardous Substances and Wastes, *Report on Twenty-Five Years of the Mandate on Toxics*, UN Doc. A/75/290 (Aug. 2020), <https://undocs.org/en/A/75/290>, para. 11.

change, noting for example that “Long-term plans for achieving deep emissions reductions by 2050 provide essential vision as well as certainty to investors that economies will shift away from fossil fuels over the next three decades.”<sup>19</sup> The UN Secretary General has also described the IPCC’s findings as “sound[ing] a death knell for coal and fossil fuels, before they destroy our planet,” and declared fossil fuels “a dead end.”<sup>20</sup>

Phasing out fossil fuels will improve air quality and reduce premature deaths, strategies to increase energy conservation and efficiency also often mutually support sustainable development. However, geoengineering technologies do nothing to mitigate greenhouse gas emissions and indeed some create pollution, facilitate the continued use of fossil fuels and divert financial resources away from the necessary deployment of renewable technologies.

As noted by CIEL and HBF, the IPCC mitigation pathways that avoid temperature overshoot beyond 1.5°C, and limit reliance on unproven techno-fixes are also the best routes to achieving other sustainable development goals and are most protective of human rights.<sup>21</sup> Mitigation measures that centre justice and equity and protect human rights, including community-owned renewable energy, community ecosystem restoration and the promotion of local agroecological and biodiverse food systems, are also more effective in achieving a sustainable transition. Striving for such durable, safe and sustainable mitigation approaches is essential to safeguarding human rights and advancing social justice. Human rights obligations require states to comprehensively assess the environmental and human rights impacts of geoengineering technologies, including their disparate effects on vulnerable and marginalized populations, when considering any development or deployment of geoengineering and weigh and prioritize available, lower risk/impact alternatives. As discussed further in Section 5, the prohibition on discrimination and the obligation to respect the rights of Indigenous Peoples must inform evaluation of and decision-making on geoengineering, and weigh against its deployment, given the known and foreseeable risks the technologies pose to vulnerable populations. Uncertainty regarding the full extent or permanence of the impacts of geoengineering should not preclude enactment of preventive measures or restrictions that avoid or minimize risk of harm. Foregoing alternative, lower risk measures to mitigate climate change, including proven measures capable of rapidly reducing greenhouse gas emissions while protecting human rights, in favour of technological interventions that introduce foreseeable and uncertain risks to human rights, is incompatible with the duties to respect and protect human rights.

In view of the above, we consider it arguable that support for geoengineering technologies through public funds or support provided by public institutions such as universities could in fact be regarded as a perverse subsidy, defined by the SR as government subsidies that provide

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<sup>19</sup> Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment, *A safe climate: good practices*, *Supplementary information on the report of the Special Rapporteur to the UN General Assembly*, UN Doc. A/74/161, Annex, (2019), undocs.org/A/74/161 para. 5.

<sup>20</sup> Secretary-General Calls Latest IPCC Climate Report ‘Code Red for Humanity’, Stressing ‘Irrefutable’ Evidence of Human Influence,” United Nations press release, August 9, 2021, <https://www.un.org/press/en/2021/sgsm20847.doc.htm>; “Secretary-General’s video message to the Press Conference Launch of IPCC Report [scroll down for languages],” United Nations Secretary-General statements, February 28, 2022, <https://www.un.org/sg/en/node/262102>.

<sup>21</sup> See IPCC Unsummarized, *supra* note 4.

financial support for activities that cause environmental harm.<sup>22</sup> Human rights obligations may be able to provide an important clarifying role concerning the duties of states to take carbon reduction measures that have the lowest risk and highest benefit for human rights, particularly for the most vulnerable populations at home and abroad, in accordance with the duty to protect.

#### **4.3 Is there a “need” to employ geoengineering technologies and does this need to be “balanced” with the need to protect human rights?**

We would strongly resist the premise of technical question 2 as reflecting a false dichotomy. Achieving climate goals is necessary for the protection of human rights and must be pursued in a manner that respects and protects human rights. The dual needs are to reduce emissions and limit warming, on the one hand, and the obligation to protect human rights, on the other – not to balance the use of geoengineering technologies with breaches of human rights. As discussed above, there are available means and measures to pursue climate mitigation without compromising, and indeed while advancing, human rights. International human rights obligations of States support a restrictive approach to geoengineering, and obligations related to the protection of the right to life are not subject to derogation.<sup>23</sup>

There is no obligation or “need” to employ geoengineering technologies; there is a need to take those measures that are proven, available, and effective to reduce emissions as rapidly as possible. And such measures do not include risky and unproven interventions in the climate system that pose potentially irreversible, global-scale, and grave risks to human rights. Derogations from human rights obligations in the context of emergencies are strictly limited under international law and must be strictly necessary to address the threat justifying the declaration of emergency while remaining consistent with other international legal obligations of the State.<sup>24</sup> As alternative measures exist to mitigate climate change, derogating from human rights obligations for the sake of geoengineering could not be justified under exceptions applying in the context of emergencies.

In its *Fuel to the Fire* report, CIEL noted the “incoherence of advocating for speculative and risky geoengineering technologies as critical to human rights while at the same time ignoring the pervasive and disastrous risks to human rights these same technologies present for both present and future generations.” Those risks are “both underestimated and—for many geoengineering technologies—potentially unavoidable.”<sup>25</sup> At the same time advocacy related to such technologies diverts resources and attention needed to address the causes of climate change and to enhance the development of safe, fair and known alternatives at all levels. Effective mitigation and adaptation pathways are often intrinsically integrative of human rights, while geoengineering approaches pose intrinsic risks to them. We are also concerned that the primary State funders of research on geo-engineering and climate engineering are, to our knowledge, fossil fuel extraction wealthy countries which are failing to sufficiently reduce their activities driving greenhouse gas emissions. This should be of serious concern to the Human Rights Council, that wealthier, extractive rich countries are defining the ability of humankind to safely, healthily and sustainably transform root causes driving climate change while the window of influence remains. Delayed action to rapidly reduce greenhouse gases to

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<sup>22</sup>Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment, *Right to a healthy environment: good practices*, UN Doc. A/HRC/43/53 (Dec. 2019), <https://undocs.org/A/HRC/43/53>, at 99.

<sup>23</sup> Philippe Sands QC and Kate Cook, *Joint Legal Opinion Regarding The Restriction of Geoengineering under International Law* (Mar. 2021) (Annexed to the present submission), Section V.

<sup>24</sup> *Ibid.*, at 154 and ff.

<sup>25</sup> *Fuel to the Fire*, *supra* note 3, p. 5.

stay within a 1.5C global temperature rise limit would, as IPCC reports outline, trigger tipping points including the irreversible melting of the Greenland Ice Cap, and the shift of land from a GHG emission sink to source, taking humanity from the *manageable to the unmanageable and the unimaginable*. That is both a human rights concern, and a profoundly moral one .

Rather than looking at climate and human rights consequences in isolation in this regard, it is instructive to consider them through the lens of the human right to a healthy environment. More than 155 States have recognized some form of this right, including through international agreements or their national constitutions, legislation or policies. The right to a clean, healthy and sustainable environment was also recognised by the Human Rights Council in resolution 48/13.<sup>26</sup> The holistic approach taken in the resolution emphasises the interconnected nature of the environmental crisis, pointing to the need to find solutions that do not pit one aspect of the environment against another. In addition, groups particularly vulnerable to environmental harm, including Indigenous Peoples, are identified. Finally, the resolution makes clear that the right to a healthy environment works in concert with the multilateral environmental agreements and principles of international environmental law identified in the preceding section.

Even in the abstract and hypothetical case that some future geoengineering technologies could one day deliver actual benefits for the climate, pitting one of the substantive elements of the right to a healthy environment (a safe climate) against others (eg. healthy biodiversity or a non-toxic environment) or suggesting that they must be traded off (as implied by the framing of the question, and by some proponents of geoengineering) runs directly counter to efforts to uphold a right to a healthy environment.<sup>27</sup> The fact that there is no question of “balancing” human rights against geoengineering technologies is confirmed by the commentary to Framework Principle 15 which states: “that a State is attempting to prevent, reduce or remedy environmental harm, seeking to achieve one or more of the Sustainable Development Goals, or taking actions in response to climate change does not excuse it from complying with its human rights obligations.” These considerations underline the need, and indeed the obligation, to avoid a situation where the health of one part of the environment, or the human rights of one part of the world’s population, are sacrificed for that of another. Instead, it is necessary to take a holistic approach to action to address climate change, by promoting proposals that are supportive of human rights and a healthy environment more broadly.

## **Section 5: Decision-making regarding geoengineering and procedural rights**

*(remainder of core question 4.) Who are the rights-holders that potentially would be the most affected by the use of NTCP? Are they also the most affected by climate change? How could they and the society at large be engaged in the decision-making process?*

*(civil society question 2) Should your organization be involved in the use of the NTCP (for instance, in a monitoring role) how would it contribute to the assessment of human rights impacts and ensuring its protection?*

*(civil society question 4) How should the rights to access information, to participate in environmental decision-making and to access to remedy be applied in the context of NTCP-related research, experimentation, development and deployment?*

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<sup>26</sup> UN Human Rights Council Resolution 48/13, *The human right to a clean, healthy and sustainable environment*, UN Doc. A/HRC/RES/48/13 (Oct. 2021), <https://undocs.org/A/HRC/RES/48/13>.

<sup>27</sup> These elements are identified in the report submitted by the Special Rapporteur to the Human Rights Council regarding good practices; *supra* note 22.

*(civil soc 6) What are the means to ensure meaningful public participation in the debate and decision-making process over the use and potential risks of NTCP, particularly of those most vulnerable or affected?*

### **Summary of Key Points in this section**

Human rights law guarantees the right of access to information and participation in decision-making, including the right of Indigenous Peoples to Free Prior and Informed Consent (FPIC), as well as to access justice and remedy in the event rights are violated. Community consultation and consent processes are necessary prerequisites to any decision-making on geoengineering. Such processes have not taken place to date for geoengineering projects/experiments, despite the fact that several geoengineering experiments are planned or already being carried out on indigenous territories. The highly technical nature of geoengineering and the commercial interests involved (including patents) have often meant that public information and engagement is limited. Business confidentiality cannot shield information essential to addressing environmental problems and avoiding human rights harm. Environmental and human rights defenders must be protected and able to exercise rights to freedom of expression, association, and participation in decision-making without intimidation or retaliation. Failing to guarantee equal public access to information and decision-making processes can enable or exacerbate corporate capture of climate policy.

## **5.1 Respecting environmental procedural rights in discussions around geoengineering**

Those who are at greater risk from environmental harm often include women, children, persons living in poverty, members of Indigenous Peoples and traditional communities, older persons, persons with disabilities, ethnic, racial or other minorities and displaced persons.<sup>28</sup> It is essential that the rights of these most marginalised groups and the public at large are upheld in the course of discussions around geoengineering. This includes the rights of access to environmental information, participation in environmental decision-making and access to justice in environmental matters. These rights are enshrined in regional agreements such as the Aarhus and Escazu Conventions and the Human Rights Council has also recognised that “the exercise of human rights, including the rights to seek, receive and impart information, to participate effectively in the conduct of government and public affairs and in environmental decision-making and to an effective remedy, is vital to the protection of a clean, healthy and sustainable environment.”<sup>29</sup> In addition, these rights have also been recognised as the procedural elements of the Right to a Healthy Environment by the UN Special Rapporteur on Human Rights and the Environment, whose report in this area states that ensuring broad, inclusive and gender-sensitive public participation not only fulfils human rights obligations but results in better outcomes.<sup>30</sup> As he has noted, upholding these rights: “makes policies more legitimate, coherent, robust and sustainable. Most important, a human rights perspective helps to ensure that environmental and development policies improve the lives of the human beings who depend on a safe, clean, healthy and sustainable environment — which is to say, all human

<sup>28</sup> Framework Principles on Human Rights and Environment, *supra* note 6; Commentary to framework principle 14.

<sup>29</sup> HRC Resolution 48/13, *supra* note 26, Preamble.

<sup>30</sup> Report by the Special Rapporteur to the Human Rights Council regarding good practices, *supra* note 22, pp. 7 and 17.

beings.”<sup>31</sup> The SR has also stressed that environmental standards should result from “a procedure that itself complies with human rights obligations, including those relating to the rights of freedom of expression, freedom of association and peaceful assembly, information, participation and remedy.”<sup>32</sup>

As a result, human rights obligations require geoengineering discussions to be conducted with the full awareness, participation and engagement of the public and in particular the groups that are most marginalised and likely to be impacted. In reality however, discussions around geoengineering are often very technical and scientific, dominated by technical experts and promoted by particular, often commercial, interests, with little opportunity for meaningful public consultation or engagement.<sup>33</sup> In order for discussions on geoengineering to be compliant with human rights obligations, the public and in particular vulnerable populations and Indigenous Peoples, as well as CSOs, should be able to play an active role in discussions on geoengineering, whether at the international, regional, national or sub-national level. This includes through exercising their rights of information, active participation, assembly, and access to justice in relation to policy or strategic decisions about whether to proceed with geoengineering technologies, as well as any specific projects that may be proposed. Such participation should take place well before any open-air experiments are carried out. So far, civil society, including those most vulnerable to negative impacts of geoengineering have not been consulted or engaged in such decisions in any meaningful way. Given the significant risk of transboundary harms associated with geoengineering technologies, respect for procedural rights of the public must be guaranteed in a non-discriminatory manner and enable the effective exercise of these rights by those potentially impacted by these technologies beyond the jurisdiction of the State.<sup>34</sup> In the context of technologies posing potential threat of harm within a wide geographic range, the duty of the States to protect these rights would require a precautionary approach unless it can be demonstrated that all those potentially affected had an adequate opportunity to be consulted.

## 5.2 Respecting the Rights of Indigenous Peoples

In addition to the duties of non-discrimination and to take additional measures to protect those most vulnerable to environmental harm discussed above, particular duties applicable in relation to Indigenous Peoples are of direct relevance to geoengineering proposals. As noted in the commentary to Framework Principle 14, Indigenous Peoples face increasing pressure from Governments and business enterprises seeking to exploit their resources, as well as usually being marginalised from decision-making processes and often having their rights ignored and violated.<sup>35</sup> This has indeed been the case in relation to decision-making around current geoengineering projects, many of which have taken place or are being planned over indigenous territories. This includes both CDR and SRM projects such as a Marine Cloud Brightening

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<sup>31</sup> Framework Principles on Human Rights and Environment, *supra* note 6, Commentary to Framework Principle 16, para 55.

<sup>32</sup> *Ibid.*, Commentary to Framework Principle 11, para 33 (a).

<sup>33</sup> An eco-feminist critique of geoengineering can be found here

<https://feminisminindia.com/2020/08/18/geoengineering-gendered-effects-feminist-leadership/>

<sup>34</sup> See for instance the definition of the “public concerned” in context of the interpretation for the UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention), Report of the Compliance Committee on general issues of compliance, UN Doc. ECE/MP.PP/2017/32 (Aug. 2017), <https://undocs.org/ECE/MP.PP/2017/32>, at 3.

<sup>35</sup> Framework Principles on Human Rights and Environment, *supra* note 6, Commentary 41 (d).

project in Australia<sup>36</sup>, the SCoPEX project in the US and Sweden<sup>37</sup>, the Arctic Ice project in Alaska and other Arctic areas<sup>38</sup> and Ocean fertilization experiments in Chile/Peru<sup>39</sup> and Australia<sup>40</sup>, among others.<sup>41</sup> Decision-making around these projects highlights the fragmented nature of governance in this area, particularly in the interface between international and national-level decision-making. Areas of concern include the (lack of) transparency and efficacy of the environmental impact assessments that have been carried out, adherence to the legal obligations concerning public participation, consultation and provision of information, discussed above, particularly in relation to Indigenous Peoples, as well as concerns relating to human rights impacts. Other concerns relate to the application of the moratoria under the CBD and LC/LP and in particular the provisions relating to “small scale scientific research studies”, “conducted in a controlled setting within Article 3 of the Convention” and “thorough prior assessment of potential impacts on the environment.”

Decisions about measures affecting the lands and territories of IPs should be not be made without FPIC and without their worldview and inputs being directly taken into account, rather than assumptions being made about these by secondary sources, potentially for their own ends. As set out in Framework Principle 15, State’s obligations towards Indigenous Peoples and members of traditional communities include respecting and protecting their traditional knowledge and practices.<sup>42</sup> These matters are clearly at issue in the context of geoengineering where the assumptions and world views of those promoting geoengineering technologies are directly at odds with those of many Indigenous peoples.<sup>43</sup>

### 5.3 Monitoring the use of Geoengineering technologies

*(in response to civil soc question 2) Should your organization be involved in the use of the NTCP (for instance, in a monitoring role) how would it contribute to the assessment of human rights impacts and ensuring its protection?*

In response to civil society question two, the organizations submitting this response here have been and intend to continue to be involved in discussions concerning the regulation of geoengineering technologies to prevent outdoor experimentation and deployment of geoengineering. However, because of the profound and serious risks to human rights and the environment, and insurmountable governance challenges posed by these technologies, we do not intend to get involved in the use of geoengineering technologies nor any enabling governance frameworks

## Section 6: Concluding Comments

It will be evident from this response that geoengineering technologies, their impacts and their human rights implications raise a host of complexities and dilemmas of profound magnitude. While we have only been able to scratch the surface of the issues at hand in this response, we

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<sup>36</sup> [https://map.geoengineeringmonitor.org/srm/great-barrier-reef-mcb-trial-\(large-scale\)](https://map.geoengineeringmonitor.org/srm/great-barrier-reef-mcb-trial-(large-scale)).

<sup>37</sup> [https://map.geoengineeringmonitor.org/srm/stratospheric-controlled-perturbation-experiment-\(scopex\)](https://map.geoengineeringmonitor.org/srm/stratospheric-controlled-perturbation-experiment-(scopex)).

<sup>38</sup> [https://map.geoengineeringmonitor.org/other/arctic-ice-project-\(former-ice911\)](https://map.geoengineeringmonitor.org/other/arctic-ice-project-(former-ice911)).

<sup>39</sup> <https://map.geoengineeringmonitor.org/ggr/oceaneos-marine-research-foundation>.

<sup>40</sup> <https://map.geoengineeringmonitor.org/ggr/whalex>.

<sup>41</sup> See <https://www.map.geoengineeringmonitor.org> for a comprehensive and up-to-date overview of geoengineering experiments and research projects globally.

<sup>42</sup> Framework Principles on Human Rights and Environment, *supra* note 6, Framework principle 15 (c).

<sup>43</sup> <https://www.saamicouncil.net/news-archive/support-the-indigenous-voices-call-on-harvard-to-shut-down-the-scopex-project>.



hope that it will be equally evident that the need to consider them is entirely avoidable. At its heart, the case for geoengineering assumes that existing and alternative approaches will not work or are insufficient to mitigate climate change, and that therefore it is necessary to take the risk of enabling new technologies despite their unknown consequences for the earth's ecosystems, as well as those who depend on them. As is clear from the reports of the working groups of the IPCC discussed above, this assumption is incorrect. The potential side-effects of geoengineering technologies are not only deeply uncertain but they risk delaying existing solutions, breaching a range of human rights and worsening climate imbalance. A human rights-based approach requires a shift away from carrying out dangerous further experiments with the earth's ecosystems and a focus instead on finding equitable solutions that work in harmony with these systems, to the benefit of human beings and the other species with whom we share this planet. It also enables reconsideration of the role of groups such as Indigenous Peoples and local communities whose traditions and practices offer real alternative, proven guidance for how to live sustainably. Such approaches, alongside the use of equitable and human rights-friendly climate mitigation techniques discussed in this response, are undoubtedly more appealing, more just and likely to prove more fruitful than further industrial-scale, highly risky manipulation of our delicate earth systems.