Summary for Stakeholders

Geoengineering refers to a suite of technological interventions aimed at slowing or halting some of the effects of climate change. Two of the major kinds of geoengineering that are at present gaining traction rapidly are Solar Radiation Modification (SRM) and Carbon Dioxide Removal (CDR). SRM approaches focus on deliberately cooling the planet by reflecting a small amount of sunlight to space or by allowing more of Earth's infrared radiation is to escape to space. SRM methods include utilizing mirrors in space to reflect sunlight (Space Based Reflectors), increasing the reflectivity of land or ocean surfaces (surface albedo), increasing the reflectivity of marine clouds (Marine Cloud Brightening), and increasing the reflectivity of the stratospheric aerosol layer via Stratospheric Aerosol Injection or SAI.

SRM, and in particular SAI, is likely to have a host of unintended consequences on planetary systems such as rainfall and weather patterns. Most notably, recent scientific assessments conclude that SAI (and possibly MCB) are likely to have significant impacts on the health of the ozone layer. However, some governments and companies are accelerating towards deployment by conducting empirical research and experimentation, without any global oversight or governance.

This report asserts that SAI research both needs to and can be, effectively governed under the Vienna Convention for the Protection of the Ozone Layer, which has been universally ratified.

- Article 2(1) of the Vienna Convention has a wide scope and covers all human activities which "modify or are likely to modify the ozone layer". This will include SAI as it will likely modify the Ozone layer.
- Article 2.2(a) of the Convention requires parties to "co-operate by means of systematic observations, research and information exchange in order to better understand and assess the effects of human activities on the ozone layer and the effects on human health and the environment from modification of the ozone layer". This will include SAI research and associated activities.
- Article 2.2(c) requires parties to "co-operate in the formulation of agreed measures, procedures and standards", which will extends to procedures and standards for SAI research.
- In Article 3, parties commit to co-operate in, directly or through competent international bodies, the conduct of research and scientific assessments on "climatic effects deriving from any modifications of the ozone layer" and more specifically "substances, practices, processes and activities that may affect the ozone layer, and their cumulative effects". This again will require countries to cooperate directly or through competent international bodies on SAI research.

Conducting SAI research activities, such as outdoor experimentation, without transparently sharing information and clarifying the research's scope and associated risks violates the duty to cooperate as outlined in Article 2.2(a), 2.2(c), and 3. There is, therefore, no ambiguity around the fact that the Vienna Convention is an appropriate convention to govern those SRM that affect the ozone layer, specifically SAI. In fact, the duty to cooperate under the Convention creates a strong basis to create a cooperative framework to manage SAI research.

To effectively govern SAI research under the Vienna Convention, we propose the adoption of a research assessment framework. This framework can be established through existing institutions under the Convention, including the Conference of the Parties, the Ozone Secretariat, the Ozone Research Managers, and the Vienna Convention Trust Fund for Research and Systematic Observation. This framework should incorporate the following key norms:

1. **Information Sharing and Consultation:** Governments must share information and consult with one another when proposing outdoor experiments.

2. **Environmental Impact and Risk Assessment:** Projects should undergo a thorough environmental impact and risk assessment, including the development of risk management plans based on a precautionary approach.
3. **Independent National Regulatory Frameworks:** Countries hosting SRM experiments should establish national regulatory frameworks with independent scientific bodies to oversee research, separate from government agencies funding such research.
4. **Support for Developing Countries:** SRM research in developing countries should be supported through the Trust Fund, focusing on studying adverse transboundary or global impacts and building global scientific capacity in SRM equitably.
5. **International Approval Process:** Develop an international approval process for outdoor research, integrating all the aforementioned norms, under the Vienna Convention.

These norms can be instituted through COP decisions, recommendations of subsidiary bodies and/or operational policies of implementing agencies.

In conclusion, the governance of SRM research, particularly SAI, under the Vienna Convention provides a robust legal framework to address the potential environmental and transboundary impacts of these technologies and should be pursued to ensure responsible and coordinated research in this field.