Climate Interventions Program Factsheet

The issue

Climate interventions are not a solution to the climate crisis nor a substitute for phasing out fossil fuels as quickly as possible.

Nonetheless, as the climate crisis intensifies, and the world fails to decarbonise at a sufficient pace, there is growing interest in powerful new technological interventions in the climate system[1] aimed at limiting some of its worst effects. With heating trending towards 3°C - twice the 1.5°C goal - these technologies reflect a growing sense of desperation and urgency.

Stratospheric aerosol injection (SAI), is the only method that might, within a handful of years, lower global temperatures by several tenths of a degree at a low direct cost. But its impacts are highly uncertain and it could introduce major new risks. Much more needs to be learned about its potential risks and benefits through well-governed research and serious public engagement.

CFG believes deployment at this time is unacceptable for environmental, geopolitical, and ethical reasons.

[1] Climate interventions are powerful climate-altering measures, which include Carbon Dioxide Removal (CDR), and Solar Radiation Modification (SRM) technologies - also known as solar geoengineering. Among the different SRM techniques researched, there are injection of aerosols in the stratosphere (SAI), marine cloud brightening (MCB), preventing polar ice melting, or space mirrors.

The context

The risk of poorly or ungoverned deployment of climate interventions is becoming a critical issue. Policymakers face difficult decisions but lack the information and public input they need.

New inflows of private funding and planned tests by commercial actors and research groups[2] underscore the urgency for governments to step in.

There is growing pressure to restrict research and development, driven by legitimate concerns about environmental and geopolitical impacts and the potential for things to go wrong. At the same time, misinformation can undermine the public debate – a risk potentially exacerbated by Artificial Intelligence. The EU can lead by example by establishing guardrails and supporting responsible global research. In 2023, **the European Commission stated it is keen to engage in international efforts to assess risks and uncertainties and to support and promote governance of climate interventions**.[3] This was also the conclusion of the European Commission's Chief Scientific Advisors, who published recommendations on the issue in December 2024. The seven independent scientific advisors stressed, inter alia, the need to conduct further scientific research, to ensure transparent public funding, and to support international scientific assessments[4].

Tests and even sub-scale (less than global) deployment of SAI could theoretically move ahead in the next five years, without public oversight. This might send shock waves across the geopolitical landscape. In contrast, a scientifically robust, diplomatically coordinated global deployment would require at least a decade.

[2] In 2024, a small-scale research on cloud brightening techniques led by the University of Washington, was stopped by the city of Alameda (US). A few months before, Make Sunsets, a private company, undertook a DIY experiment by sending balloons to the stratosphere to test SAI. The company has raised more than $1.2 million from venture capital firms. A U.S.-Israeli startup called Stardust Solutions, which plans to someday launch reflective particles into the stratosphere raised $15 million, also from venture capital firms.

[3] European Commission and High Representative, 2023; and European Commission, 2023

[4] Solar radiation modification technologies cannot fully address climate change, and responsible research on impacts is needed - advisors tell the European Commission, 2024

The potential impacts

The stakes could not be higher. Deciding to use - or not use - SAI and other climate interventions will have profound consequences for present and future generations.

Climate change affects everything: entire civilisations are under threat. The grim challenge for policy-makers is to weigh up the potential reduction of existential risks from runaway heating against the new known and unknown risks SAI could introduce, including a warming shock in case of sudden termination.[5] There are no risk-free options. This requires far more than just a scientific assessment: decisions on SAI will affect all human experience, environmental, political and ethical. Both climate change and climate interventions affect:

- Security and migration: geopolitical tensions are multiplied by climate change and SRM could pose additional complexities at a time of rising instability.[6]
- Sustainable development: climate change threatens health, food security, access to water, and prosperity, yet it is unclear how climate interventions might improve or worsen developments across countries and regions.[7]
- Justice: procedural (who decides), distributive (who benefits), intergenerational (how to empower future generations faced with unknown challenges).[8]
- Nature and ecosystem health: climate change is destroying vulnerable ecosystems, yet climate interventions raise deep ethical questions about humanity's role within nature, and its approach to climate action.

Critical decisions await: on whether and how to conduct research, how to guard against risky testing, and how the world might decide on potential deployment, or rule out SAI altogether. Some would rather avoid this conversation, but a lack of governance is itself a risk. **CFG believes the time has come for an honest, sober and inclusive discussion, and for responsible governance to be put in place. The EU can and should play a central role.**

[5] Parker and Irvine, 2018.
[6] US National Intelligence Council, 2021, US Department of Defense, 2021, Young, 2023.
[7] Honegger, Michaelowa, and Pan, 2021.
[8] Clingerman, 2018; Morrow and Svoboda, 2014; Táíwò and Talati, 2021.

Our objectives

CFG strongly supports prioritising mitigation and responsible planetary stewardship as the cornerstones of climate action. At the same time, CFG also wants to see European institutions take an active role in governing disruptive technologies, based on robust scientific evidence and society-wide consultations. CFG facilitates access to research, global expert networks, and potential policy options. In the field of climate interventions, CFG seeks to build accountable and inclusive governance that safeguards this and future generations, including:

- ➔ Strengthening transparency with an international public registry of research and funding
- ➔ Encouraging monitoring for tests in the stratosphere
- ➔ Cooperating in guiding and pursuing responsible research and preventing ungoverned deployment
- ➔ Developing scenarios informed by geopolitical and foresight analysis

CFG may build on work already underway among EU institutions. This includes the Co-CREATE project on SRM research governance and convening discussions with researchers, policy advisors and civil society groups to jointly develop and road-test policy options.

The CFG team is committed to a balanced and just consideration of the full range of risks, uncertainties, ethical challenges and societal values. Independent of government or corporate funding, CFG listens and responds to diverse needs for information and deliberation.

For questions or feedback write to us at
climateinterventions@cfg.eu