



FORUM for
CLIMATE ENGINEERING
ASSESSMENT

GOVERNING SOLAR RADIATION MANAGEMENT

Academic Working Group on Climate
Engineering Governance

EXECUTIVE SUMMARY



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Designed and typeset by Top Shelf Design

Suggested Citation: Chhetri, Netra, Dan Chong, Ken Conca, Richard Falk, Alexander Gillespie, Aarti Gupta, Sikina Jinnah, Prakash Kashwan, Myanna Lahsen, Andrew Light, Catriona McKinnon, Leslie Paul Thiele, Walter Valdivia, Paul Wapner, David Morrow, Carolyn Turkaly and Simon Nicholson. 2018. *Governing Solar Radiation Management*. Washington, DC: Forum for Climate Engineering Assessment, American University. <https://doi.org/10.17606/M6SM17>

EXECUTIVE SUMMARY

This report offers a practical guide for policymakers, civil society organizations, and anyone else interested in the governance of Solar Radiation Management (SRM). It details twelve near-term recommendations that should be implemented to govern SRM. In addition, the report explains why the governance of SRM demands immediate attention, outlines the current state of thinking about the risks and opportunities of SRM development, and seeks to define what it means to govern SRM well in the near term with an eye toward the future.

Governance of SRM: Key Considerations

SRM (sometimes called solar geoengineering or albedo modification) is a proposed means to respond to climate change. If they were ever to be successfully developed and used, SRM technologies could cool the Earth by reflecting a small percentage of incoming sunlight back into space. Leading proposals for SRM include depositing reflective particles into the upper atmosphere (“Stratospheric Aerosol Injection”) or whitening low-altitude marine clouds (“Marine Cloud Brightening”). There is a possibility that, in combination with emissions reductions and adaptation, such technologies could be used in ways that alleviate some portion of some of the risks associated with a warming planet.

However, consideration of the development of SRM technologies, let alone their use at some future point, is highly speculative and contentious, for a variety of reasons.

One reason is that the development of SRM technologies would need to overcome large technical hurdles. Another, even more important consideration is that while SRM might help address certain risks associated with climate change, it also could create its own risks—including climatic, environmental, social, geopolitical, and ethical risks. Even small-scale research efforts and discussion of SRM could

distract from needed climate change mitigation and adaptation activities and could lock in future large-scale research or even deployment.

Ultimately, this report makes the case that a balance must be struck in SRM governance. Governance must avoid too strict a shackling of SRM research, while simultaneously protecting against recklessly conducted research or deployment that could directly and indirectly harm people now and in the future.

Near-term Governance Needed Regardless of Position on SRM

The group of governance experts that prepared this report represent, by design, a diversity of perspectives. Following two years of workshops and deliberation, they are divided on the wisdom, practicality, and desirability of SRM technologies. Still, even with the wide range of perspectives in the group, this report represents a consensus statement about the need for near-term governance and presents a set of consensus recommendations.

The report seeks a path, then, that is not beholden to any of the bold claims that others have made either for or against development of SRM. The report sets out practical steps that ought to be taken now by national governments, international organizations, and civil society actors, whatever one thinks about SRM’s potential contributions as a response to climate change or the risks that SRM development could entail.

The report has an explicit focus on the governance of near-term SRM activities up until about 2025. To govern SRM in the near-term entails developing mechanisms that can steer various kinds of SRM research and, in addition, promote broad, vigorous, well-informed societal discussions about that research. Such discussions should include whether and how, if at all, SRM might figure into a broader portfolio of

climate responses. That discussion is crucial because SRM remains in the early stages of technological development, which allows a rare, fleeting opportunity to encourage the development of more responsible research practices in an emerging field. Looking further into the future, near-term governance also means preparing existing institutions for a time when SRM may be considered more seriously as a policy option.

Establishing the Political and Scientific Context for Consideration of SRM

Section 1 of the report provides background, context, and definitions for SRM. The report remains agnostic about whether SRM research of any kind ought to continue or be promoted, as well as about the advisability of future SRM deployment. It argues that the growing conversation about SRM merits near-term efforts to govern small-scale research and foster inclusive and transparent societal deliberation. To that end, Section 1 situates current and emerging research efforts in the context of global climate policy and lays out the potential for, and limits to, SRM as a piece of a broader climate policy portfolio. This section argues that SRM is not, and should not be understood as, a substitute for climate change mitigation and adaptation.

Determining the Objectives of SRM Governance

Section 2 outlines a set of four objectives that should guide near-term efforts to govern SRM:

Objective I — Keep mitigation and adaptation first:

Ensure that, if SRM is considered, it remains subsidiary to mitigation and adaptation measures.

Objective II — Thoroughly and transparently evaluate risks, burdens, and benefits:

Develop the capacity for broad-based assessment of the diverse potential risks, burdens, and benefits of SRM.

Objective III — Enable responsible knowledge creation:

Ensure that any SRM-related research is responsive to societal needs and concerns to the greatest extent possible.

Objective IV — Ensure robust governance before any consideration of deployment:

Begin the near-term work of establishing effective institutions and norms to govern decisions about potential deployment.

Looking at SRM Governance Across Scales

Section 3 describes the governance roles and functions that can be and ought to be played at the national and international levels by state and non-state actors. The section makes clear that governance of SRM is about far more than formal regulation; it involves a wide range of formal and informal mechanisms for shaping outcomes. There is no need for national-level actors and international-level actors to wait on one another to take needed governance steps, though the section details the importance of and avenues for collaboration and coordination between actors and levels of governance.

A Set of Concrete Near-Term Governance Recommendations

Section 4 details three sets of essential activities that ought to be undertaken by the international community, national governments, and civil society organizations to begin the work of effectively and responsibly governing SRM. The activities are: create politically legitimate deliberative bodies; leverage existing institutions; and

make research transparent and accountable. The activities are fleshed out through a set of twelve concrete recommendations for governance action.

The recommendations detail actionable near-term steps, pointing to lessons learned from efforts to govern other complex technologies or issue areas. At the same time, the recommendations try to avoid being overly prescriptive. In this early stage of research and development, society must create governance mechanisms in the context of great uncertainty about the dangers and merits of SRM technologies now and in the future. The recommendations are designed to pave the way to development of politically legitimate processes and arrangements necessary for SRM governance.

The three sets of activities and corresponding recommendations are:

Create politically legitimate deliberative bodies

1. Establish a World Commission on SRM.
Develop a high-level representative body to engage in a broad-based international dialogue on issues related to governance of SRM. This body's mandate should include, inter alia, debating first-order questions about whether and to what end SRM should be researched and developed, and how it fits within a broader climate response landscape.
2. Establish a Global Forum for Stakeholder Dialogue.
Develop a forum, venue, or process to allow deliberation by stakeholders who might otherwise be marginalized from international deliberations about SRM but may be impacted by any SRM governance decisions.

Leverage existing institutions

3. Strengthen cooperation between international organizations.
Additional mechanisms for coordination across international organizations on the subject of SRM should be developed to identify existing institutional capacities for SRM governance within the international system.
4. Assess and improve capacities for regional coordination and conflict resolution.
Coordination at the regional scale is important for understanding the spillover effects of SRM and for encouraging transboundary cooperation. Regional organizations should work to better understand potential positive and negative spillover effects, and link these to other forms of dialogue about regional environmental governance.
5. Continue ongoing assessment role for IPCC and related processes.
The work of the IPCC and other relevant and legitimate assessment bodies to assess the current state of knowledge on SRM, including both scientific and social scientific work relating to SRM, should continue, in order to ensure that any consideration of SRM research and potential deployment occurs in the context of current climate science.
6. Develop foresight capabilities in decision-making systems.
National governments and appropriate coordinating UN bodies should work to develop and employ foresight practices to inform consideration and development of governance structures for the research and potential deployment of SRM technologies.

Make research transparent and accountable

7. Report on SRM research and development activities in the global stocktake under the Paris Agreement. *An evaluation of global research and development trends on SRM should be included in the stocktake exercise of the Paris Agreement on climate change under the UNFCCC, in order to ensure greater transparency regarding the development of these technologies.*
8. Institutionalize codes of conduct for responsible SRM research. *In countries in which SRM research is currently underway, or is foreseen to emerge in the near future, the scientific community should coalesce around a specific and explicit code of conduct for SRM research. Funders should require grantees to adhere to an established code of conduct.*
9. Ensure that ongoing research includes international and interdisciplinary collaboration. *State and private funders of SRM research should prioritize projects that feature substantial international and interdisciplinary partnerships.*
10. Clarify funding streams. *With the goal of ensuring transparency and responsible research, all sources and recipients of research funding should be a matter of public record and there should be clarity that funding is specifically for SRM.*
11. Develop a publicly accessible clearinghouse. *National governments should develop publicly accessible clearinghouses of all publicly funded and, to the extent possible, privately funded SRM research. Such national clearinghouses should, in turn, feed data into an international clearinghouse. The clearinghouses should be designed and developed by an existing authoritative body or ideally through a collaboration among a set of authoritative bodies.*
12. Develop best practices for risk and impact assessments. *National governments, risk assessment and environmental impact assessment (EIA) experts, and SRM researchers should work together to expand risk assessment and EIA procedures and protocols so that they can provide evaluation of potential environmental and social harms as well as enable public notification and consultation, for SRM experiments.*

While these recommendations should be viewed as an ideal package and are connected to one another in various ways, the implementation of any one recommendation need not wait on the implementation of all. Whatever one believes about the desirability or feasibility of SRM research or potential technologies, the largely ungoverned status quo is untenable. The actions detailed in this report to govern SRM should begin now.