

Workshop Report Proceedings from a Workshop on Operationalizing Research Governance for Solar Radiation Modification (SRM)

Workshop in San Francisco, CA, January 17-18, 2024.

Attended by scientists, philanthropists, NGOs, entrepreneurs and others (full list below).

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Brief Workshop Summary

Purpose

The workshop explored practical ways to operationalize principles of SRM research governance as part of ongoing global discussions on effective governance. Attendees focused on three overarching principles of research governance (transparency, engagement, and systematic/adaptive management) and the special case of outdoor research, discussing practical actions that the field could take to implement effective governance. The discussion was held under Chatham House rules and participants gave permission to disclose their names. There was no attempt, nor any intention, to develop consensus or a plan. The aim was to spark ideas to contribute to the growing global field.

Structure of the Workshop

A key assumption of the meeting was that there are, and will likely continue to be, a wide range of actors in the SRM research and governance space, across sectors and geographies. Participants tried to focus on identifying mechanisms for implementing principles that could be effective ("the what") and avoided questions about which actors in the landscape should take on the work ("the who"). Nevertheless, common themes in the workshop included the difficulty of governance (regardless of form) in practice and questions about who is supporting and conducting SRM research today.

On the first day of the workshop, participants discussed three broad governance principles: 1) transparency, 2) global engagement and 3) systematic and adaptive management of research as well as 4) the special case of outdoor experiments. The organizers wanted to ensure that the governance discussions were relevant to all research (modeling, social science, etc.). Outdoor experiments were considered as a special case, to elicit discussion of whether they require more or different governance than "indoor" (e.g., computer modeling) research. The initial plenary session began with moderated panel discussions that highlighted lessons learned on those four topics followed by breakout groups organized along the same lines.

During the second day of discussions, the participants first offered their own concrete, actionable ideas for operationalizing the governance principles. Common themes that emerged included encouraging collaboration in the research and governance community; building participatory dialogue globally; and identifying processes to plan and manage

research. These became the focal themes for three breakout groups and discussions for the remainder of the workshop.

Key Takeaways

Transparency: The breakout group identified some basic needs for transparency, such as the need to disclose research funding sources, topics and data collected or generated beyond the practices typically required for publication. Some individual programs already implement these practices voluntarily by listing their funding sources on research websites. Other communities engaged in societally relevant research in the past and present, such as the Canadian Nuclear Waste Management Organization, have developed practices for ensuring transparency, which could be instructive for SRM research. The group discussed communications needs, such as providing researchers with training so they can participate in dialogue with diverse stakeholders and the public about the findings, complications, and risk/risk tradeoffs of SRM.

Global Engagement: The breakout group emphasized the need to engage researchers and research institutions in countries across the world and the need for public engagement more broadly. Participants discussed wide-ranging aspects of global engagement, such as in-country capacity building, the need for dedicated funding for long-term engagement, and how engagement can look different depending on the local/in-country context. This included recognition of the need to understand what the term “global” means in practice, as different interests will define global geographies differently (e.g., geographic, economic, social, etc.). Further, the group discussed how to consider and weigh tradeoffs regarding the layers of possible involvement ranging from grass roots/citizen level involvement to governmental involvement, which do not always reflect each other.

Participants raised questions about how the unevenness in engagement funding may result in nonrepresentative findings on opinions and perceptions regarding SRM research. They noted examples of local engagement and involvement in research that were effective at co-creating SRM research and were seen as responsible and responsive. We note that the meeting attendees were not globally representative, which was a function of invitees’ availability. We acknowledge that there are many parallel efforts and hope that our work contributes to the global conversation as it continues.

Systematic/Adaptive: Participants of this breakout group agreed on the need for strategically and systematically organized SRM research with a set of goals. However, both the process of determining the goals as well as who would be designated to set them sparked discord: Valuable disagreements arose about the extent and type of formal coordination required. As this body of research should support future decision making, many participants highlighted the need for a systematic investigation into specific questions for which decision makers need answers. This requires a dedicated effort to liaise and communicate with decision makers as part of a research setting agenda. Participants also discussed how research pathways might create technological or institutional lock-in and gaps in what is studied. Given the diversity of funders and interests in this space, participants raised questions about the appropriate balance of advisory structures and the ability to be nimble and identify the most important questions as they evolve over time.

Outdoor Experiments: The breakout group agreed that models alone are not likely to answer all research questions, which implies a need for small, very low-risk, scientifically important outdoor experiments. Discussion focused on the way outdoor experiments present differently from modeling work in terms of obvious visibility to the public. Participants also discussed the need to articulate and communicate the scientific and social value of outdoor experiments. The group discussed the need to help researchers effectively engage with the public on potential outdoor research, including explicit, dedicated financial support for engagement. Learning from previously proposed outdoor experiments is valuable. Vigorous discussion revolved around the importance of local researcher connections, the role of funding, public perception, why some comparable actions lack controversy, and media coverage.

Examples of actionable ideas

Participants discussed several specific ideas for early progress on the second day, in the spirit of contributing to the conversation and continuing to build the field. We recognize the need to expand this discussion to include many more voices and perspectives. We describe a few examples below; this list is only illustrative and not exhaustive:

- Research should generate data that is useful to decision makers in addition to providing basic physical scientific findings (the two are not mutually exclusive). Direct and proactive engagement via deliberative juries, social science methods, and solicitations at multiple scales is necessary to interpret acceptable uncertainties in model outputs from a non-scientist perspective. Examples included ongoing work in the Arctic tying geoengineering ideas to community surveys. Participants noted that no single group (including this one) will reflect the continuum of perspectives needed to develop and prioritize research questions equitably.
- Participants emphasized the need to incentivize and enable researchers to actively engage with non-scientists, not just provide passive transparency. For example, funders could require that researchers include engagement activities in proposals and studies, or link to existing engagement programs, and support transparent and responsive data sharing in funding packages.
- An independent entity could develop a public directory or even a membership organization that could host events for researchers and research projects engaged in SRM-related work. Participation in a public directory would be encouraged, and funding would be secured for curation, solicitation and quality control.
- There is a clear need to engage young researchers on a global scale. Relatively small-scale funding for expenses such as travel and research networking could support early-career researchers.

EDF is pleased to contribute to the conversation on SRM research governance and looks forward to working with additional groups and researchers in the future in support of a globally-representative, evolving, and productive conversation.

List of Participants

Brian Buma	Lisa Dilling	Joshua Elliott
Chris Field	Jane Flegal	Jeremy Freeman
Dakota Gruener	Susan Hackwood	Steve Hamburg
Matthias Honegger	Pete Irvine	Tom Isaacs
David Keith	Luke Kemp	Ben Kravitz
Rob Lempert	Jane Long	John Moore
Lisa Moore	Oliver Morton	Michael Oppenheimer
Ted Parson	Sasha Post	Cynthia Scharf
Dane Scott	Lexi Shultz	Hassaan Sipra
Shuchi Talati	Blake Walkowiak	