# Solar Radiation Management Governance Initiative (SRMGI): call for submissions

## 1 Overview

The failure of the Copenhagen COP-15 meeting to produce a binding global agreement has led to increased concerns that cuts in greenhouse gas emissions may prove too slow to avoid dangerous climate change. It has also heightened interest in geoengineering: deliberate large-scale interventions in the Earth's climate system, in order to moderate global warming.

The Royal Society 2009 report *Geoengineering the climate* concluded that geoengineering does not present an alternative to greenhouse gas emission reductions, but that it should be researched transparently, responsibly and internationally, as it may be the only option to reduce global temperatures quickly in the event of a climate emergency.

Now TWAS, the academy of sciences for the developing world, the Royal Society, and Environmental Defense Fund (EDF), are focusing on the governance of solar radiation management (SRM) approaches to geoengineering with the launch of the Solar Radiation Management Governance Initiative (SRMGI). The starting premise for SRMGI is that at present there are few international controls on SRM research, and little to ensure that any research that is done is undertaken responsibly, transparently and safely. The initiative will seek to make recommendations on the kind of governance arrangements that might be desirable or necessary should SRM geoengineering research go ahead.

A working group has been set up to produce background papers on possible governance arrangements. It is being chaired by Professor Richard Klein of the Stockholm Environment Institute. The papers will be used to inform a conference in March 2011, where representatives from a wide range of NGOs will discuss and test the proposed governance arrangements.

We are seeking as wide a range of views as possible to assist our study. We welcome submissions from academics of all disciplines, policymakers, non-governmental organisations and any other interested parties to inform our study. Organisations and individuals are invited to contribute by responding to the call for submissions. **The deadline for submissions is Friday 3 December**. However, the working group will be holding a two day meeting on 10 and 11 November. If you would like to make your submission available for consideration at this workshop please submit by **2 November**. Please see below for the submission details, and please pass this document on to anyone you know who might be interested in responding.

## 2 Working group terms of reference

The scope of the study includes all technologies intended to moderate climate change by reducing the amount of short wave solar energy to reach the Earth's surface. The table below outlines a working model categorisation for different solar radiation management (SRM) research activities, and will help guide initial discussions on how governance arrangements may be differentiated.

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| **1. Computer/desk studies**: theoretical studies not involving any potentially hazardous materials, having no environmental impacts. |
| **2. Laboratory studies**: experiments and other activities conducted within an appropriately contained laboratory environment: no deliberate release of potentially hazardous materials, no intentional environmental impacts. |

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| **3. Small field trials**: field trials involving activities (including release of materials to the environment) of a magnitude, spatial scale and temporal duration that lead to measurable environmental effects of a magnitude considered to be insignificant (below "*de minimis*" levels). |
| **4. Large field trials**: field trials involving activities (including release of materials to the environment) of a magnitude, spatial scale and temporal duration that lead to measurable and significant environmental effects (ie exceed the *de minimis* levels), but that are not of a sufficient magnitude, spatial scale or duration to be considered to be deployment. |
| **5. Deployment**: activities (including release of materials to the environment) leading to environmental effects of a sufficient magnitude, spatial scale or duration to affect climate significantly. |

**Overall working group objective**

*To produce discussion papers for the SRMGI conference in March 2011 that consider, and make practical recommendations on, possible governance arrangements for solar radiation management (SRM) research.*

The outputs of the SRMGI working group will provide the foundation for discussions at the SRMGI conference in March 2011. As the purpose of the March meeting will be to debate and "test drive" the governance proposals developed by the working groups, the papers will need to be focused on real-world policy recommendations, rather than academic discussion. This means the task of the working group, including at the November workshop, is to develop actual procedures and recommendations that can be put into mock practice in March. It should be possible to learn a lot about how the SRMGI proposals might work, or how they are inadequate or need further definition, through this exercise.

Recognising the diversity of perspectives on SRM research governance, it is not expected that the working group will achieve consensus positions on all recommendations in the background papers. It will be acceptable, and may be preferable, for the group to present several alternatives on various key governance questions.

It is expected that the working group's deliberations will focus most closely on governance arrangements for research categories 1, 2 and 3 in the table above. This is not to say that the SRMGI work and output should not be very aware of how governance of early research might influence governance of larger research projects or even possible deployment. Nor should the proposed focus prevent the SRMGI working group and output from making comments and suggesting considerations for larger scale geoengineering research. It is not expected, however, that categories 4 and 5 will be the primary focus of the working group and conference process.

Fundamental challenges that need to be addressed by the working group include:

- Identifying and characterising categories of SRM activities that might require different governance arrangements, and suggesting threshold levels to divide and distinguish the research categories;
- Exploring the functional mechanics of governing SRM research, providing suggestions for public engagement, review, advice, and sanctioning processes;
- Reviewing the existing legal and institutional landscape relevant to SRM, suggesting institutional and regulatory tools for building an international management framework, and identifying research or governance activities that could benefit from international coordination;
- Based on these three lines of analysis, identifying opportunities and challenges for alternative proposals for the governance of research on SRM, and making recommendations to policymakers and other stakeholders.

The papers produced by the working group will not constitute a formal report, but it is hoped they will seed a constructive, active, grounded discussion between the SRMGI partners before and during the SRMGI conference. Accordingly is its not expected that the papers will represent a consensus among working group members on all points. Background papers that outline a number of options for different governance arrangements, and their relative merits and demerits, would likely be of greater value for the

conference.

The working group will be subdivided into three subgroups, which will address the overall themes in more detail by answering more specific questions:

**Subgroup 1: Thresholds.** This subgroup will make recommendations on how to characterise different categories of SRM research that may need different governance arrangements, and suggest the thresholds to delineate the categories.

- What are the major categories of SRM activity that may require different governance arrangements?
- What are the distinguishing characteristics of each category (including possible externalities) to guide researchers, regulators and policymakers making decisions about planned research?
- What would constitute appropriate thresholds (both natural and social science) to delineate the different categories, and how can we define them?
- How can the above be tested in the March meeting?

**Subgroup 2: Mechanics.** This subgroup will make recommendations on the functional mechanics of SRM research governance, and provide suggestions for review, advice, public engagement and sanctioning processes. It will suggest how the governance of SRM research could actually work at the institutional, local and national levels, making recommendations on the steps from proposal to commencement of research projects.

- What are the existing governance mechanisms for controversial scientific research? How do they work and which aspects might apply to geoengineering research?
- What are some possible governance arrangements for the different categories of SRM research? These could range from no special governance arrangements, to various levels of governance, to a complete ban on the activity.
- What entities, new or existing, should be involved in review, advice, public engagement and sanctioning? What entities should have authority for approving or disapproving research at each different step?
- How should review & expert input be conducted?
- How should public engagement be conducted? Who needs to agree to and buy into the process?
- What steps can be taken to ensure transparency of SRM research sanctioning, conduct and results? What guidance should govern transparency?
- Is it possible at this stage to make recommendations on best practices for the different categories of SRM research?
- What norms of governance should be recommended for all countries?
- What should the processes be for formal international agreement of the SRM thresholds and governance arrangements?
- How can the above be tested in the March meeting?

**Subgroup 3: International.** This subgroup will explore the international dimensions of possible SRM research, reviewing the existing legal and institutional landscape, recommending possibilities for building an international management framework, and identifying research or governance activities that could benefit from international coordination.

- What are the existing international legal mechanisms that may have relevance to SRM governance?
- Which of these governance mechanisms (if any) could be adapted to address SRM?
- Will new mechanisms be required, and if so, what forms could they take?
- What SRM research could benefit from international coordination?
- What SRM governance activities could benefit from international coordination?
- What are suggested best practices for coordinating SRM research and governance internationally?

- How could national SRM research programmes be connected and coordinated? Who would be the responsible entity? What would be the process?
- How can the above be tested in the March meeting?

## 3 Submissions sought

We invite feedback on the following questions. Please respond to as many or as few questions as you like. We would also welcome illustrative examples where possible. Responses are likely to have the greatest impact if they are restricted to four pages plus appendices.

1) What do you consider to be the most important scientific, political, social, legal or ethical issues raised by SRM research? How could these issues be address by a governance structure?

2) What do you consider to be the ideal governance structure for SRM research? Please be specific as possible.

3) Through what steps could this governance structure be achieved?

4) How would you define the major categories of SRM research that require different governance arrangements, and how would you determine and set the thresholds between different categories?

5) Are there any other issues related to SRM governance that you consider to be important?

Submissions are welcomed on any of the issues mentioned in the project scope and terms of reference. We prefer to receive submissions in an electronic format. Please include any additional information as an appendix. We would appreciate copies of relevant published papers or articles, or electronic links.

**The deadline for submissions is 3 December 2010.** However, the working group will be holding a two day meeting on 10 and 11 November. If you to make your submission for consideration at this workshop please submit by **2 November.** From 20 October you will be able to make submissions via the project website: srmgi.org. Alternatively you can make your submission via email to Andy Parker at andrew.parker@royalsociety.org, or by post to: Andy Parker, Science Policy Centre, The Royal Society, 6-9 Carlton House Terrace, London SW1Y 5AG, UK or by fax: +44(0)20 7451 2692.

If you would like to submit your views but are unable to meet the deadline, or if you have any questions, please contact Andy Parker on +44 (0)20 7451 2590.

## 4 Confidentiality

Please indicate whether your response is a personal or institutional position. If you are submitting information on behalf of an organisation, please include details of the relevant person to contact should we wish to discuss issues raised in your submission. All submissions, plus a list of organisations and individuals who responded, will be published on our website. Please inform us if you do not want your submission to be made public.