

# S4D4C Training Material for Workshops on Science Diplomacy

## *SIMULATION EXERCISE – SOLAR RADIATION MANAGEMENT*

<b>Background</b>	<p>This training material is an output of the project S4D4C – Using science for/in diplomacy for addressing global challenges (<a href="http://www.s4d4c.eu">www.s4d4c.eu</a>). S4D4C has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 770342.</p> <p>The project S4D4C selected and developed training materials (presentations, methods, exercises, games, etc.) for trainings on Science Diplomacy for different target groups (mainly diplomats, scientists and science diplomats). These materials are open source under creative commons licences (see below for the applicable license).</p>
<b>Licence</b>	 <p>S4D4C Training Material by S4D4C (Horizon 2020 project 770342) is licensed under a <a href="https://creativecommons.org/licenses/by/4.0/">Creative Commons Attribution 4.0 International License</a>.</p>
<b>Details on the attribution</b>	<p>Basically, you are free to share and adapt for any purpose with attribution (more information about the licence is provided at the end of the document).</p> <p>Creator: S4D4C (Horizon 2020 project 770342). Peter McGrath, TWAS <a href="http://www.s4d4c.eu">www.s4d4c.eu</a></p> <p>We are happy if you drop us a line when using these materials. This way we can keep track of their dissemination and maybe also update the material to account for issues arising: <a href="mailto:contact@s4d4c.eu">contact@s4d4c.eu</a></p>
<b>Short description</b>	<p>Solar radiation management is a theoretical approach to reducing some of the impacts of climate change. The session involves a short description of the approach as well as a jigsaw negotiation exercise on the topic.</p>
<b>Learning objectives</b>	<p>The exercise aims at appreciating the role of science in international disputes and negotiations, encouraging the importance of evidence. The exercise aims at improving participants’ presentation and negotiation skills.</p>



This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 770342.

<b>Material type</b>	<input checked="" type="checkbox"/> presentation <input type="checkbox"/> method <input checked="" type="checkbox"/> simulation exercise <input type="checkbox"/> exercise <input type="checkbox"/> other: _____.
<b>Overall content category (if adequate and applicable)</b>	<input type="checkbox"/> What is Science Diplomacy? <input type="checkbox"/> Who are the Science Diplomacy stakeholders? <input checked="" type="checkbox"/> How does the European Union practice Science Diplomacy? <input type="checkbox"/> Which thematic and regional approaches of Science Diplomacy do exist? <input checked="" type="checkbox"/> What set of skills do I need to be a good science diplomat? <input type="checkbox"/> Which are good examples where Science Diplomacy has proven to be successful?
<b>Target groups (1)</b>	<input type="checkbox"/> Mainly for scientists <input type="checkbox"/> Mainly for diplomats <input checked="" type="checkbox"/> For any of the groups
<b>Target groups (2)</b>	<input type="checkbox"/> Mainly for beginners in Science Diplomacy <input type="checkbox"/> Mainly for trainees with basic understanding of Science Diplomacy <input type="checkbox"/> Mainly for advanced science diplomats <input checked="" type="checkbox"/> For any of the groups
<b>Group size</b>	<input type="checkbox"/> For individual learners <input checked="" type="checkbox"/> For small groups (up to 30) <input type="checkbox"/> For large groups (between 20 and 100) <input type="checkbox"/> For any group size
<b>Duration</b>	The overall session can be completed comfortably in about 2 hours 30 mins (plus optional coffee break).
<b>Level of interactivity</b>	<input checked="" type="checkbox"/> high <input type="checkbox"/> medium <input type="checkbox"/> low
<b>Preparation and material needed</b>	The trainer has to be familiar with the Solar Radiation Management approach and with the logistics of the exercise. Copies of the roles assigned and pre-cut group letters are needed. A screen and pc to show the introductory video may be used. The link can also be shared in advance for individual viewing.
<b>Recommended use case and guidance for the trainer</b>	The trainer should be very familiar with the jigsaw exercise. During the session, it is recommended that the trainer checks on the groups and guide them in the discussion if needed. Ideally more than one trainer should be present during the session. Highlight the role of the presentation and negotiation skills other than the specific result of the negotiation.
<b>Further resources and links</b>	<p>The latest IPCC report ('Special Report on Global warming of 1.5°C' - <a href="http://www.ipcc.ch/report/sr15/">http://www.ipcc.ch/report/sr15/</a>)</p> <p>Introductory video  <a href="https://www.youtube.com/watch?v=WR6uSXW-8p4&amp;feature=youtu.be">https://www.youtube.com/watch?v=WR6uSXW-8p4&amp;feature=youtu.be</a></p>

<b>Evaluation and assessment</b>	Please allow for some time for drawing conclusions on the exercise in the plenary session..
----------------------------------	---

## Outline

### 1. What should the audience know in advance?

No specific background knowledge in solar radiation management (SRM) or geoengineering is required. The background of the science involved and the concept of the game are relatively simple to grasp for anyone with any sort of science background or an understanding of policymaking and diplomacy.

If time allows, a short (10 minute) video can be shown the day before the exercise in order to allow participants to begin thinking about the issue without impacting on how the exercise unfolds.

The video is available at: <https://www.youtube.com/watch?v=WR6uSXW-8p4&feature=youtu.be>

(Note: Andrew Parker, who appears in the video, collaborates with The World Academy of Sciences (TWAS) on the Solar Radiation Management Governance Initiative (SRMGI: [www.srmgi.org](http://www.srmgi.org)).

### 2. How to carry out the exercise?

The facilitator should be familiar with the concept of SRM and geoengineering – enough to answer some of the inevitable questions that will arise.

Otherwise, the presentation provides a basic background to the concept of SRM and sets the scene for the political discussions that have been occurring till now.

Once this background information has been provided, participants are informed of the 'jigsaw' part of the exercise, i.e. how they will first meet together in one group representing a single constituency (a particular country or NGO group, for example). During this time they will examine one of the prepared briefing documents (about 1 page each – it is important that these documents are seen only by members of the intended country/NGO group and are not seen by other participants), agree on any interpretations. At the end of this session (about 30 mins), each person of each group should be ready to argue their country's/NGO's case in front of all other parties.

Indeed, this is the next stage of the exercise – and the most important part. One person from each group joins one from each of all the other groups to form a new set of groups (i.e. each new group includes one representative from each of the country/NGO groups), Allow ~60 mins.

This is where discussions and negotiations take place – with each country/NGO arguing its position and trying to extract agreement from the others, or agreeing to disagree but trying to find a workable solution to the impasse. (If needed, this

session can be broken up with a refreshments break – this allows two countries, for example, to meet and discussion in isolation. If the number of participants and time allows, this can be pushed by encouraging the West African and European groups to form a sort of alliance).

A third discussion session (15-20 mins) sees the country/NGO groups re-forming and each person discussing what happened in their 'negotiation' group. Did they manage to bring others around to their point of view? Did they have to compromise on anything? Was a final agreement reached? Was it a good agreement from their point of view.

It is recommended that the facilitator(s) circulate between the groups in each of these three phases to clarify any queries and to help keep the discussions on track.

One representative of each country/NG group then reports to plenary on these questions (2 mins each – 20 mins max.) and a comparison of the different groups and reactions is moderated by the facilitator.

The whole exercise ends with a short debrief and maybe an update of SRM discussions in the news (10-15 mins). The presentation includes some information on this, but note that this is a subject that is topical with new information being published at least on a monthly basis. Ideally the facilitator should try to stay updated and perhaps modify this final section of the presentation accordingly.

### **3. What kind of preparation is needed?**

The facilitator should be familiar with the concept of SRM and geoengineering – enough to answer some of the inevitable questions that will arise. S/he should also try to stay updated with the latest developments (see notes on concluding session of the exercise above).

Prior to the game, the country/NGO 1-page briefing documents should be printed out (at least 1 copy per group).

'Cards' with letters printed (A, B, C, D etc) corresponding to the different country/NGO groups should also be printed – an equal number of each and one each for each participant. These should be distributed at random (but making sure that people who normally work together or, if in an international setting, people from the same country are separated into different groups (letters)).

The facilitator should familiarize her/himself with the jigsaw part of the exercise and be able to give clear instructions. Participants often find this phase confusing; facilitators find it easier each time they introduce the exercise.

The discussions can get noisy if all participants remain in the same room. Ideally a large space is available so discussions from one group cannot be overheard by another group – or separate breakout rooms are made available.

## Annex – Details on the License

Attribution 4.0 International (CC BY 4.0) – see <https://creativecommons.org/licenses/by/4.0/>

You are free to:

- Share — copy and redistribute the material in any medium or format
- Adapt — remix, transform, and build upon the material
- for any purpose, even commercially.

This license is acceptable for Free Cultural Works.

The licensor cannot revoke these freedoms as long as you follow the license terms.

Under the following terms:

- Attribution — You must give appropriate credit, provide a link to the license, and indicate if changes were made. You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use.
- No additional restrictions — You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits.

Notices:

- You do not have to comply with the license for elements of the material in the public domain or where your use is permitted by an applicable exception or limitation.

No warranties are given. The license may not give you all of the permissions necessary for your intended use. For example, other rights such as publicity, privacy, or moral rights may limit how you use the material.