

Strategic foresight on climate-changed futures: Co-creating Earth cooling contingency scenarios

The Centre for Future Generations (CFG) and the Australian National University (ANU) are exploring how Earth cooling approaches might be governed in a rapidly changing world. This work is being done under the SAFEGEOGOV project, funded by the UK's [Advanced Research and Invention Agency](#) (ARIA). The first phase of the project will use strategic foresight methodology to co-create scenarios imagining different solar radiation management (SRM) decision-making pathways over the next decade. A second phase will use these scenarios to help identify possible governance pathways that are both effective and socially legitimate.

The challenge

The climate crisis is rapidly worsening, and the world is on course for up to a 3°C rise over the course of this century. As climate impacts intensify and global efforts to cut greenhouse gases are not happening fast enough, there is growing interest to supplement traditional mitigation with earth cooling approaches. Earth cooling approaches would act like a planetary sunshade and have been the subject of scientific research for decades. The technical term for this is solar radiation modification (SRM) and the most studied approach is stratospheric aerosol injection (SAI). This would involve releasing tiny particles into the upper atmosphere with airplanes or balloons. These technologies are not a solution in themselves. Nor are they a substitute for urgent emissions reductions. But SAI could alleviate near-term suffering from extreme heat and some climate change impacts while mitigation and adaptation continue.

The implications of SAI are far-reaching, as are the potential risks – environmental, ethical and political. SAI could save countless lives and livelihoods in the coming decades and could alleviate near-term suffering from extreme heat and weather events. However, depending on how it was deployed, it could also damage the ozone layer, spark geopolitical tensions, and derail political momentum for reducing emissions. Introducing SAI means there would be someone to blame for climate impacts, rightly or not. It could also change how we think about justice and the role of humans in nature. SAI would affect every country, though not necessarily equally. Climate-vulnerable communities would have the most to gain or lose. Robust and equitable governance is needed to make sure any decisions around SAI are made in a fair and inclusive manner.

Our approach

The first step in exploring appropriate governance pathways is to imagine the various ways in which the world might look in the future. We are using strategic foresight methodologies to co-create scenarios that imagine a world with different SRM decision-making pathways in the next decade.

Strategic foresight is a structured way to think about the future so we can make better decisions today. By co-creating a range of scenarios with policymakers, scientists, civil society, and other stakeholders, we will explore how global politics, public opinion, environmental conditions and technological developments could shape the path of SRM. Rather than predict the future, we will map a range of possibilities. These will be used to stress-test possible governance responses under diverse social and political conditions.

Our methodology

We follow an established and rigorous foresight scenario methodology to develop draft scenarios, which are then examined in interviews and workshops, where participants refine the scenarios, debate their implications, and identify governance responses that are both effective and perceived as socially legitimate. This process puts stakeholders in control, allowing them to direct the conversation and embed key perspectives into scenarios that might otherwise be overlooked. CFG consults widely with experts and policy stakeholders around the world, with a particular emphasis on climate-vulnerable countries as well as OECD members.

How to be involved

We invite you to share your perspectives. In a one-on-one interview, we'll explore how these possible futures might affect you, your work, your family and your community. You'll be asked what you value in each scenario, what concerns you, and what would need to change for you to feel safer in that future. There are no wrong answers. By sharing your thoughts, you will help shape a conversation about how to govern SRM in a way that reflects real-world needs and values.

We anticipate that some of the following themes might be explored in our discussions

- Oncoming Devastation: What happens if the world continues on its current trajectory of increasing emissions, going beyond 1.5C in the next decade and to nearly 3°C warming by 2100? What would happen if severe climate impacts lead to growing public demand in several hard-hit countries to use SRM.
- Last Ditch Technocracy: What if governments massively scaled up investment to address climate change? Where might SRM research fit within a "let's use all tools available" approach?
- Private innovation, public risk: What happens if SRM research and outdoor testing is led by private companies driven by a profit motive and/or a belief that the benefits of SRM outweigh the risks of accelerating climate change?
- Unilateral deployment. What if a country takes active steps towards the deployment of SAI on its own? What might trigger this decision and what could be the result? What if the country was a nuclear power? What if it were a small country, but backed by private money and diplomatic allies?

Why get involved?

Contributing your thoughts and ideas to this scenario process will strengthen the development of potential futures of SRM decision-making and governance approaches to help limit risks in those futures. You will be invited to share your views on what effective governance and cooperation might look like under different visions of the future, how the public might respond to different scenarios, and how trust in science and governance institutions influences outcomes. We are interested in exploring what might be the safest approach, and what we might wish to avoid. The semi-structured interview process enables

you to help shape this discussion, to critically assess the implications, and to share your views on governance responses that might be both technically feasible and perceived as socially legitimate.