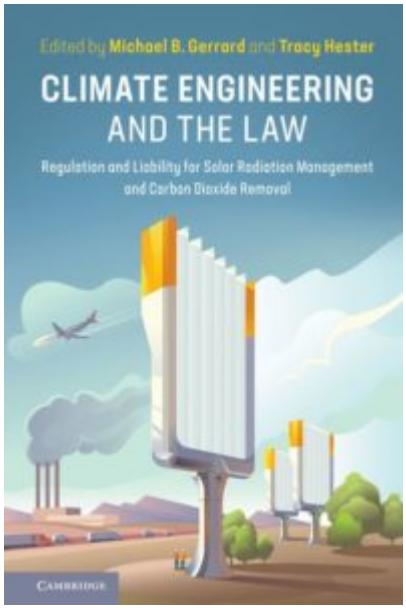
A couple weeks ago, I introduced solar geoengineering (see also 1, 2, 4 in the series). This is a set of proposed technologies that would reduce climate change by blocking or reflecting a small portion of incoming sunlight. It appears that it would be effective in reducing climate change, inexpensive, rapid, and technically feasible. It would also pose environmental risks and social challenges. Here, I offer a brief overview of the relevant legal landscape.

In contrast with negative emissions technologies, which largely raise "typical" environmental issues that can be managed through extant domestic regulation, solar geoengineering poses novel challenges. Most importantly, at scales large enough to alter the climate, it would necessarily have transboundary — if not global — effects. International law is thus salient. Yet because there are no binding international legal instruments that are specific to solar geoengineering, some interpretation is necessary.

Although a logical starting point is the international climate change regime, these agreements make no reference to solar geoengineering and are of limited applicability. The objective of the central UN Framework Convention on Climate Change [PDF] is the stabilization of atmospheric greenhouse gas concentrations, which solar geoengineering would not affect, at least not directly. Even its principles offer little guidance. Does precaution imply considering solar geoengineering as a precautionary response to climate change, or rejecting it due to its own risks? The Paris Agreement's [PDF] objective is to limit warming to 1.5 or 2°C, which solar engineering could accomplish. States could, at least in principle, include such activities as part of their nationally determined contributions under the Agreement.

The Conferences of Parties to the Convention on Biological Diversity have issued a few nonbinding decisions concerning geoengineering, and is the only global intergovernmental body to have done so. Its first cautioned states to not undertake or approve geoengineering that might affect biodiversity without adequate scientific basis, governance, and consideration of risks (Decision X/33, paragraph 8(w)). Its most recent such decision reaffirmed this and called for "more transdisciplinary research and sharing of knowledge among appropriate institutions" (Decision XIII/14 [PDF]).

At a general level, customary international law operates as a catch-all for activities that pose a risk of significant transboundary harm. In cases of such activities, states are obligated to practice due diligence by requiring authorization, performing an environmental impact assessment, notifying and cooperating in good faith with potentially affected states, informing the public, and developing contingency plans for an emergency. A state in whose jurisdiction or under whose control solar geoengineering would be undertaken would bear these procedural obligations.



Climate Engineering and the Law

At an even higher level of abstraction, international environmental law is generally not oriented toward protecting ecosystems and Earth systems for their own sake, but instead, "almost all justifications for international environmental protection are predominantly and in some sense anthropocentric" (Birnie, Boyle, and Redgwell 2009, 7). For example, the Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques (ENMOD) bans the hostile use of environmental modification, defined such that it encompass solar geoengineering. At the same time, ENMOD explicitly "shall not hinder the use of environmental modification techniques for peaceful purposes" and recognizes that they "could improve the interrelationship of man and nature and contribute to the preservation and improvement of the environment for the benefit of present and future generations."

Ultimately, perhaps solar geoengineering's greatest challenge is preventing its premature or excessive deployment. This is a matter of international relations. International law has established some possible forums for this, such as the UN General Assembly and Security Council. However, such negotiations may also occur outside of international legal institutions.

As stated, this is only a brief overview. For more details, see my recent comprehensive book chapter [PDF].