

## Commentary

# The Arctic Council: A Path Forward for Geoengineering Engagement and Governance?

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The Arctic is in dire circumstances. New research suggests that the Atlantic Meridional Overturning Circulation (AMOC) could shut down within decades, it rains at the summit of the Greenland Ice Sheet, and the summer Arctic Sea Ice is predicted to be gone by 2030. The implications of these outcomes are concerning – they include changes to ocean temperatures around the United Kingdom and Scandinavia, and loss of key habitat for Arctic species. Additionally, Northern Europe is anticipated to experience less precipitation and may become less habitable resulting from cooler annual temperatures. These changes are likely to be felt across Northern Europe and have impacts on and reductions to Arctic ice. For the Inuit and other peoples Indigenous to the Arctic, reductions in ice signify decreased transportation and hunting access.

This situation requires action to maintain the integrity of the Arctic. While the EU has made significant achievements in emissions reductions, most countries (like Canada) are struggling to meaningfully reduce their emissions. Most countries will not meet their own emissions reduction targets. It is also increasingly unlikely for the world to meet the 2-degree Paris climate target, while meeting the 1.5-degree target is beyond any realistically achievable scenario. Failure to meet climate targets almost certainly spells the end of the Arctic as we know it. What, then, can be done to maintain the Arctic?

There are two conceivable paths to maintaining environmental and ecological integrity in the Arctic. First, as has been proposed in numerous venues, is the radical and transformative reconstruction of human society – eliminating the majority of fossil fuel use, removal of most meat products from human diets, implementation of strict population controls, and degrowth of major world economies. While theoretically feasible, this path is not viable for many reasons including a lack of political will. Therefore, we must consider the second pathway: research and possible deployment of geoengineering techniques.

What is geoengineering? Geoengineering is a series of technological interventions in global climate systems which would serve to mask the effects of climate change. Few geoengineering techniques

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currently proposed rectify the problems of buildup of greenhouse gasses in the atmosphere, but rather act to temporarily lower global temperatures. The premise of most geoengineering is to increase the reflectivity of different parts of the planet (ranging from the stratosphere, to clouds, to ice) and thereby reflect light and heat back into space – known as albedo modification or albedo enhancement.

The various technologies known as geoengineering are nascent, under-researched, and often poorly understood outside computer modeling. As a result, each carries its own social, economic, environmental, and ethical risks and consequences. Some are notably more scalable, or utilize more readily available technology, but the common trend across these techniques is their ability to invoke disagreement over whether they should be researched further.

The Arctic is no stranger to this disagreement. Harvard University formerly ran the Stratospheric Controlled Perturbation Experiment (SCoPEX) but the experiment was cancelled as a result of controversy. An early experiment to test project equipment over Sweden (notable in that it did not in fact intend to cause any change to albedo) was cancelled after the Saami Council issued an open letter objecting to the experiment, claiming that some of the unknown risks of geoengineering entail ‘catastrophic consequences’ and that, ‘There are therefore no acceptable reasons for allowing the SCoPEX project to be conducted either in Sweden or elsewhere.’ The SCoPEX project provides a clear example of the controversy that follows when experiments are conducted with insufficient prior consultation.

While it is true that various geoengineering technologies do hold potential risks, current research has not established the likelihood or extent of such risks. Research is required to ascertain to what extent these concerns are justified, and whether the probability can be reduced, or the consequences mitigated. Conversely, failure to research geoengineering is all but certain to lock us into a future where the environmental and ecological integrity of the Arctic is destroyed – likely irrevocably.

Prior to engaging in such research, we must determine who should be responsible for it. Most geoengineering technology’s research has been conducted by academics disengaged from the realities of Arctic living. Decision-making for geoengineering research should not lie solely in the hands of technocrats. Who else should be considered? Some public advocacy groups have proposed moratoria and bans on geoengineering research (including one supported by academics). While these movements are well intentioned, they do not account for the practicalities facing the world of geoengineering: Many proposed technologies for geoengineering are relatively simple and inexpensive, so it is possible for private actors or nefarious agents to engage in geoengineering research (and possibly deployment) programs without public oversight or transparency. Given this reality, a ban would only succeed in driving research into covert, private and military spaces, reducing accountability and the ability for democratic oversight of the research.

The path forward in geoengineering must be an open and transparent one. Governments must begin immediate public engagement and consultation programs to ensure that concerns around these technologies are appropriately studied and addressed. With a properly funded research program, the precise nature of the risks and consequences of these technologies can be determined; and then, if the risks indeed outweigh the benefits, appropriate governance mechanisms can be implemented.

The critical consideration here is where, who, and how to engage in consultation. In the Canadian Arctic context, the word consultation invokes constitutional overtones. Canadian Inuit groups are owed a constitutional duty to consult for impacts to their rights. The impacts to those rights resulting from geoengineering technologies will, of course, be project specific. However, the existence of this recognized legal duty should encourage governments to involve Indigenous groups at the earliest stage possible. There remains a question regarding which Indigenous groups should be consulted for broader governance decisions and how their voices fit into broader decision-making structures for geoengineering research.

International norms also work to support the inclusion of Indigenous voices while determining the future of geoengineering research. The United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) provides guidance on ensuring that states properly account for the voices of Indigenous groups. While there is ongoing debate regarding the precise legal effects that flow from UNDRIP, it provides a framework for government decisions that have profound impacts on the territories of Indigenous groups.

The issue of consultation regarding geoengineering technology is complicated by the fact that climate change is a trans-boundary issue. Nation-states have historically been held responsible for legal consultation requirements, but they may not be the best positioned to address the impacts of climate change in the Arctic. Geoengineering technologies and their impacts, like climate change, do not begin or end at the jurisdiction of nation-states. This fact suggests that a new model of consultation may be required for consultation on geoengineering technologies.

The Arctic Council is uniquely positioned to test out a new model of consultation in the geoengineering context. It represents eight nation-states and includes six Indigenous Peoples organizations as Permanent Participants (including the Saami Council). While the SCoPEX project stands as a prime example of how not to proceed, the dire circumstances in the Arctic suggest that now is the time to act. The Arctic Council has an opportunity to consult on geoengineering technologies in a new and meaningful way, emphasizing those whose lives and livelihoods are most directly at stake in the fight against climate change.

It is entirely plausible that the outcome will be to reject geoengineering technologies on account of their ethical implications, or that it is simply too dangerous. However, it should not be up to biased technocrats, nor governments lacking sufficient data. Therefore, engagement with the people at most risk – both of climate change and the effects of geoengineering – must be considered first and foremost, and a strong path forward through a combined institution such as The Arctic Council presents an excellent opportunity. Success in this venue could then be a model for future such deliberation, for geoengineering or other emerging technologies, and for not just Indigenous peoples, but for participatory decision making at the global scale.