

Saving the Frozen Arctic – A new assessment evaluates potential climate action measures and their feasibility

A new rapid response assessment from UArctic identifies and evaluates 61 potential interventions to slow down, halt, and reverse the effects of climate change in the Arctic and northern regions.

The Arctic is warming four times faster than the global average rate. Several crucial tipping points, or irreversible thresholds, will soon be crossed, causing major changes in local livelihoods and ecosystems, and threatening the stability of the rest of the world through massive sea level rise from melting ice caps and rapid methane release from thawing permafrost.

Numerous measures have been suggested to keep the Arctic frozen and to halt, or even reverse, the effects of climate change in the North. However, these schemes range from serious research projects to back-of-the-envelope calculations, and no systematic overview study exists that would make it possible to compare the options.

The new rapid response assessment identifies and evaluates 61 proposed interventions on their potential and assesses whether they are feasible, timely, and deployable at scale. The report was developed under Phase I of the Frozen Arctic Conservation project, a collaborative undertaking between UArctic, GRID-Arendal, and the Arctic Centre of the University of Lapland.

“Our goal was three-fold. One, to capture and effectively map out the whole range of possible interventions that exist or have been proposed to reverse, stabilize, or delay climate change impacts in the global North to benefit the world. Two, create a set of criteria for all potential interventions to be scored. And three, do a preliminary analysis of the strengths and weaknesses of each and their knowledge gaps,” outlines Professor John Moore, lead of the assessment team from the Arctic Centre of the University of Lapland.

The interventions were evaluated across twelve criteria: technological readiness, scalability, timeliness, potential to make a difference in the North, potential to make a global difference, cost vs benefit, likelihood of environmental risks, effects on Indigenous/local communities, reversibility, likelihood of termination shock, suitability within current legal/governance structures, and level of attention within academia, public media, and industry.

“Some traditional land-based mitigation activities, for example afforestation and peatland restoration, as well as some more experimental carbon dioxide removal measures such as biochar scored relatively highly in this initial assessment. Similarly, some atmospheric solar radiation management measures scored very high in the assessment, especially with respect to their potential global impact. Ocean-based measures, on the other hand, tended to score much lower than land-based ones and had higher degrees of uncertainty associated with them,” Tiina Kurvits, lead of the GRID-Arendal team, describes the team’s findings.



Despite being the most complete report of its kind, the work is not yet done. “Considerably more research is still required into most measures, especially into their potential impacts on local communities. System-wide risks are also questioned for many of the proposed interventions,” says Lars Kullerud, President of UArctic. “As a rapid assessment, our analysis leaves many open questions to be examined in a more comprehensive evaluation in the second phase which is to commence soon.”

A short summary and full compendium of ideas assessed in this report are available online at www.uarctic.org/publications.

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Through cooperation in education, research, and outreach we enhance human capacity in the North, promote viable communities and sustainable economies, and forge global partnerships. Created through the Arctic Council, UArctic is committed to upholding its principles of sustainable development as well as the United Nations Sustainable Development Goals. UArctic is constituted as an international association based in Finland.