

## PERMAFROST PATHWAYS

Connecting Science,  
People, and Policy for Arctic  
Justice and Global Climate

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## THE ISSUE

### THE “PERMAFROST POLICY PROBLEM”

The best available science confirms that the Arctic is warming three to four times faster than the rest of the world, but due to complex geopolitical dynamics and conflicting national priorities, the most serious consequences and drivers of environmental change in the region remain unresolved. Permafrost thaw represents one of the detrimental impacts of a warming Arctic; this once-frozen soil underlies 15% of the global exposed land surface in the Northern Hemisphere (and roughly 85% of the Alaska land area). As it thaws, permafrost has the potential to destabilize local ecosystems, causing major damage to critical infrastructure, permanently altering the natural landscape, and contributing to greenhouse gas emissions at an unprecedented rate. Nevertheless, permafrost remains nearly absent from legal and policy frameworks. Due to scientific uncertainty and lack of meaningful circumpolar cooperation, government decision-makers are not adequately addressing permafrost thaw as a major threat to climate mitigation and adaptation, and as such are failing to adequately protect human health, economic resilience, and fundamental rights of Indigenous and Arctic communities.

## THE GOALS

**RECOGNITION:** Integrate permafrost thaw processes and impacts into climate policy frameworks at the international, pan-Arctic, national, and sub-national level.

**COORDINATION:** Improved coordination among policymakers to better understand, quantify, and consider permafrost thaw in decision-making processes.

**RESPONSE:** Advancement of adaptation and resilience policy frameworks that more adequately respond to local, pan-Arctic, and global risks from permafrost thaw.

## THE EXPECTED OUTCOMES

**KNOWLEDGE & VISIBILITY:** Increasing recognition of permafrost thaw, scientific experts, Arctic communities, and thought leaders among key decisionmakers.

**STRATEGIC FUNDING:** Addressing resource shortages for affected Arctic communities, field research scientific observing and monitoring networks, and climate models.

**LAW & GOVERNANCE:** Formal safeguards for adaptation to and mitigation of permafrost thaw.

**ACCOUNTABILITY:** Ensuring responsible and just action by those with power to make decisions about permafrost thaw.

**ABOUT** Permafrost Pathways was launched in 2022 with funding through the TED Audacious Project—a collaborative funding initiative catalyzing big, bold solutions to the world’s most urgent challenges. Through a joint effort of Woodwell Climate Research Center, the Arctic Initiative at Harvard Kennedy School, the Alaska Institute for Justice, and the Alaska Native Science Commission, Permafrost Pathways harnesses the combined expertise of leading research institutions and on-the-ground organizations specializing in climate science, policy, and environmental justice to inform and develop adaptation and mitigation strategies to address permafrost thaw.



Photo: Sue Natali; Amautluak,

## THE WORKSTREAMS

### US REGULATORY AND EXECUTIVE ACTION

- ✘ Ensure that permafrost thaw is a recognized and measured as part of climate change regulatory responses and agency efforts to mitigate threats to ecosystems and public health.
- ✘ Implement federal laws, policies, programs, or tools dedicated to disaster response (short- and medium-term) and recovery (short- and long-term) in a manner that is sufficient and accessible to Alaskan communities affected by permafrost thaw and compounding events.
- ✘ Clarify the roles and responsibilities of US federal agencies in supporting, facilitating, and funding relocation of Alaska Native communities.

### NATIONAL POLICY AND LEGISLATIVE ACTION

- ✘ Strengthen national legislative action and support for GHG reduction commitments that incorporate permafrost thaw.
- ✘ Design and implement a national relocation governance framework that facilitates protection in place, managed retreat, and community-led relocation for the most affected Arctic communities.

### ARCTIC INDIGENOUS & LOCAL COMMUNITY-LED ADAPTATION AND RESILIENCE

- ✘ Engage with (and help strengthen) the network of community-based organizations, research and academic institutions, climate-change analysts, philanthropic organizations, Arctic youth, and other experts that are advancing adaptation and mitigation responses to permafrost thaw and other natural disturbances across the Arctic.

### PERMAFROST RESEARCHER COMMUNITY OF PRACTICE

- ✘ Develop a self-sustaining "community of practice" among Arctic permafrost researchers and modelers that promotes engagement in national and global climate policy and decision-making processes.

### PAN-ARCTIC AND INTERNATIONAL CLIMATE NEGOTIATIONS

- ✘ Inform policymakers working towards the implementation of the Paris Agreement (e.g., top country-level climate negotiators and environmental ministers) of permafrost thaw and its relevance to climate change.
- ✘ Strengthen the scientific record used by global scientists and policymakers to design climate change policy and set emission reduction targets at the international and national levels.
- ✘ Further integrate Indigenous Knowledge in Arctic research and governance and establish concrete processes for co-producing knowledge with Northern Communities.

### INTERGENERATIONAL CLIMATE JUSTICE

- ✘ Present permafrost thaw as an issue of human rights, climate justice, and equity that impacts future generations--not only in the Arctic but worldwide.
- ✘ Support the integration and amplification of Arctic Indigenous communities affected by permafrost thaw in global climate policy fora.

### PHILANTHROPY AND PUBLIC-PRIVATE PARTNERSHIPS

- ✘ To support collaboration between private for-profit business innovators, researchers, and governments to identify and scale appropriate solutions to address permafrost thaw and its impacts.

## THE "TACTICS"

### ACTIVITIES, ENGAGEMENT, OUTPUTS

- ⇒ Public Comments and Requests for Information on environmental assessments, GHG monitoring and data collection, disaster response.
- ⇒ Interagency working groups, advisory committees on natural climate solutions, wildfire management, and community-led relocation.
- ⇒ Agency-focused convenings on Arctic security, relocation eligibility, and adaptation.
- ⇒ Legislative briefings on permafrost science and impacts.
- ⇒ Amendments to governance regimes for disaster response, ecosystem and wildfire management, Arctic research and policy, subsistence resource use, and relocation.
- ⇒ Alaska- and pan-Arctic coalitions on tribal governance, community-led monitoring and observation networks, adaptation to land degradation.
- ⇒ Peer-to-peer learning across Arctic communities at conferences, workshops.
- ⇒ Adaptation toolkit for Arctic communities, policy practitioners, and scientific researchers.
- ⇒ Policy guidance and training for scientific experts specializing in the permafrost carbon cycle.
- ⇒ Best practices for community-based monitoring, co-production of knowledge with Arctic communities
- ⇒ UNFCCC review mechanisms and for a, including the Global Stocktake of the Paris Agreement, and Conference of the Parties.
- ⇒ Improved representation of permafrost thaw processes in IPCC reports and expert discourse.
- ⇒ High-level coalitions and cooperation with Arctic states on cryosphere priorities.
- ⇒ Arctic youth-driven advocacy and policy engagement.
- ⇒ Sustainable development and rights-based protections in the Arctic.
- ⇒ Resources for venture funds, global business leaders, innovators, and investors seeking to fill funding gaps.
- ⇒ Updated assessments of economic costs and risks of degradation from permafrost thaw.