

## The impact of loss and damage from the adverse effects of climate change on human rights: PERMAFROST THAW, ARCTIC INDIGENOUS COMMUNITIES & LOSS AND DAMAGE

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### Permafrost Thaw as a catalyst and symptom of a rapidly warming Arctic.

The Arctic is warming three to four times faster than the global average. Depending on future emission scenarios, average Arctic temperatures are expected to reach 3.3-10° above the 1985-2014 average by 2100. These rising temperatures are exacerbating a host of climate hazards, including wildfires across Arctic tundra and boreal forests, sea ice melt, coastal erosion, altered abundance and distributions of key Arctic species, and notably, permafrost thaw—which may render much of the Arctic uninhabitable.

For decades, Arctic residents and scientists have been observing permafrost thaw—*i.e.*, one of the most severe, yet overlooked, climate threats to the realization and full enjoyment of human rights. Permafrost is ground that has been continually frozen for at least two consecutive years and often for thousands of years. This frozen soil layer extends across the boreal and tundra biomes and in mountain regions across the globe, underlying roughly [15% of the exposed land surface](#) area in the Northern Hemisphere. As global temperatures rise, this once-frozen ground is beginning to thaw, creating an increasingly unstable and dangerous environment.

Thawing permafrost destabilizes once-solid ground, causing subsidence, landslides, and erosion, as well as contributing to the disappearance or development of lakes, and driving saltwater encroachment into aquifers and surface water. These phenomena damage or destroy critical infrastructure and public utilities that ensure access to electricity and clean water. Other slow-onset processes - such as coastal and riverine erosion and the loss of sea ice along coastlines - and extreme events - such as floods and wildfire - can accelerate permafrost thaw and exacerbate its impacts on the surrounding environment.

### The impacts of climate change in the Arctic pose imminent Economic and Non-Economic Loss and Damage.

While recognition of global risks due to permafrost thaw continues to emerge, the Loss and Damage (used here to refer to the destructive impacts of climate change that cannot be avoided) experienced by those living in the circumpolar north is already concrete, measurable, and ubiquitous. Slow-onset processes, including permafrost thaw and coastal and riverine erosion, compound other highly visible drivers of Loss and Damage (*e.g.*, increased frequency of flooding and other extreme weather events). These impacts are directly associated with physical asset Loss and Damage (relating to infrastructure, property, and livelihoods) and non-economic Loss and Damage (which includes loss of life, biodiversity, and cultural heritage).

*Economic Loss and Damage:* Permafrost thaw destabilizes the built environment leading to concrete and quantifiable physical asset loss and damage. Destruction of roads and essential infrastructure, such as utilities, homes, schools, and places of work that are underlain by permafrost interfere with income-earning opportunities and impose direct costs on local communities. Under moderate GHG emissions scenarios, 29% of roads, 23% of railroads, 11% of buildings will be affected by permafrost degradation; these percentages increase to 44%, 34% and 17% respectively, under high emissions scenarios. The [latest study](#) published on permafrost impacts to infrastructure in the Arctic predicts that cumulative damage in all Arctic States by mid-century (2055-2064) could range from US\$182 billion under a moderate emissions scenario to US\$276 billion under a high emissions scenario. The highest burden of these costs is likely to fall on Russia, followed by Scandinavia, Iceland, and North America.

Arctic States recognize that the stability of public infrastructure is central to the advancement Arctic resilience. For example, the US Implementation Plan for the 2022 National Strategy for the Arctic Region (NSARIP) recognizes that to enhance community adaptation, it is necessary to protect “vulnerable infrastructure”; to respond to acute and long-term climate hazards, the US government aims to design “resilient and transformative infrastructure;” and to improve livelihoods and economic opportunity, the government purports to “invest in infrastructure,” leveraging innovative financing mechanisms to do so.

Unfortunately, existing investments, social protections, and economic safeguards are currently insufficient to protect against damages. Moreover, independent experts in research, engineering, and risk mitigation, government actors tasked with infrastructure protection and construction, and those in the private sector that possess the technical expertise and funding are

not coordinated on addressing the unique challenges posed by permafrost degradation, which takes different forms across the Arctic. For those living on lands underlain by permafrost thaw, especially Indigenous communities, costs of repair and recovery may be prohibitive and recurring; in the North American Arctic, where permafrost thaw is driving displacement and threatening lives and livelihoods, efforts are now focused on acquiring funding to implement adaptation strategies such as protection in place, managed retreat, and voluntary relocation.

***Non-Economic Loss and Damage:*** Changes to the physical environment due to permafrost thaw often transcend western market valuation, especially for Indigenous Peoples of the circumpolar North—communities that have contributed the least to climate change. Erosion and sedimentation from permafrost thaw can divert water courses, thereby disrupting subsistence fishing; ground subsidence and collapse affects use of traditional hunting grounds, reindeer migration routes and breeding grounds; and shifts in species distributions or an increase in abundance of pests and pathogens may pose risks to both animal and human health. For some communities, abandoning traditional ways of life and/or homelands are the best option for survival; but making this difficult choice often means leaving behind family, friends, and sites of cultural significance.

**Arctic Indigenous Peoples are disproportionately impacted by Loss and Damage due to permafrost thaw, despite heightened human rights protections.**

The UN Declaration on the Rights of Indigenous Peoples (UNDRIP) unequivocally extends special human rights protections—beyond those that are already owned under the ICCPR and ICESCR—to Indigenous peoples living in the Arctic region. Yet, Arctic Indigenous communities receive the least protection against, and compensation for, loss and damage due to climate change. The Arctic is home to nearly four million inhabitants, roughly ten percent of whom are Indigenous to the [Circumpolar North](#). The Indigenous People of Alaska and the circumpolar North have maintained their connection to culture and traditional ways of life that have sustained Tribes and communities in the Arctic for over 10,000 years.



*Map source: Arctic Biodiversity Assessment (CAFF, 2013); GRID-Arendal (GRID-Arendal/UN Environment, 2019), W.K. Dallmann (Norwegian Polar Institute, 2012), experts from the Arctic Council Permanent Participant organizations. The language classification for Haida is based on Schoonmaker et al., 1997, for Yukagir on advice from the Institute for the Peoples of the North, 2019.*

In North America, Indigenous representation in the Arctic includes Alaska Native groups, including: Aleut, Inuit, Tlingit, Haida, Tsimshian, Eyak, and Athabascan. Many Alaska Native communities are in the most remote parts of the state. The Canadian Constitution further recognizes First Nations, Inuit, and Métis.

The Saami People inhabit almost all of Arctic Scandinavia. As rough estimates, approximately 900,000 people inhabit Arctic Scandinavia of whom perhaps 50,000-90,000 are Saami. Saami have practiced subsistence ways of living across the Arctic region, including reindeer herding since time immemorial. The intimate relationship between reindeer and Sámi people is one of ancient origin that transcends practicality—their health, wellbeing, and futures are mutually dependent on one another. Under

current conditions, reindeer and reindeer herders face profound loss and damage as they grapple with pasture loss, the intrusion of extractive industries, and the impacts of Arctic climate change such as permafrost thaw and land degradation. Reindeer husbandry is forced to adapt to these threats while trying to maintain their traditional lifeways.

***Climate-Forced Displacement and “Voluntary” Relocation due to Permafrost Thaw***

Economic and Non-economic Loss and Damage is greatest when Arctic Indigenous peoples are displaced due to permafrost thaw and compounding phenomena. Indigenous peoples must be afforded access and land rights to ensure continuation of traditional hunting, herding, and fishing practices – consistent with the right to food, right to decent employment— and to ensure uninterrupted access to burial grounds and other sites of cultural significance. Better understanding and compensating Arctic Indigenous communities facing climate forced displacement must also center on Indigenous knowledge and the co-production of knowledge with Indigenous communities that are best equipped to monitor and respond to permafrost thaw.

Climate-forced displacement is increasingly impacting Indigenous peoples across the Arctic region: Saami in Norway, Finland, and Sweden are facing land-use conflicts due to renewable energy expansion, tourism, and “sustainable development” that is approved through private and public entities circumventing human rights obligations of Free, Prior, and Informed Consent. In the US-Arctic, land degradation due to erosion, flooding, and thawing permafrost, has positioned at least [73 of 200+](#) Alaska Native villages on a path of relocation in the coming years. Unfortunately, there are currently no national funds or governance frameworks that are specifically designed to compensate these villages for the Loss and Damage they’ve incurred due to permafrost thaw and to facilitate community-led relocation.

The most documented examples displacement in Alaska due to permafrost thaw is that of [Newtok, Alaska](#), a Yupik village near the Bering Sea. Due to major [political and funding barriers](#), only about 70 people have successfully relocated after 20 years of negotiations. But Newtok is not unique: [Kivalina](#), an Inupiat village of about 450 people located north of the Arctic Circle, has experienced repeated inundation from stormwaters; loss of sea ice, coastal and riverine erosion, and permafrost thaw are forcing relocation discussions in the [Native Village of Kwigillingok](#) and the [Native Village of Nunapitchuk](#); and the state of Alaska has officially recognized a new type of climate hazard: “Usteq” (Yup’ik word meaning “surface caves in”), which is a catastrophic form of ground collapse resulting from permafrost thaw, flooding, and erosion.

Without national laws or policies that compensates Arctic Indigenous communities for loss and damage due to climate change, pursuant to human rights obligations (including those set out under UNDRIP), it is up to Indigenous communities to advocate for rights to seek out ad hoc financial and technical support. Administration of such support is ultimately dictated by the availability of public funds and criteria that do not respect the tribal right to self-determination.

**Exclusion of Arctic Indigenous Peoples from Loss and Damage Financing and Governance constitutes a violation of social, economic, and cultural rights to which they are individually and collectively entitled.**

Especially in the absence of adequate national-level protections for Arctic Indigenous communities experiencing loss and damage due to permafrost thaw, there is a need to ensure that these specially-protected populations can directly access international funding mechanisms developed under the Paris Agreement. To date, however, Loss and Damage funding negotiations have excluded Indigenous Peoples living in the Global North. The Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts (WIM) was established to address loss and damage associated with impacts of climate change, including from slow-onset events, such as permafrost thaw. But the WIM limited focus to developing countries that are particularly vulnerable to the adverse effects of climate change. This narrow mandate ignored the parallels that exist between the loss and damage experienced in developing countries, especially Small Island Developing States, and the loss and damage experienced by Arctic Indigenous communities.

With the Loss and Damage Fund now operationalized, the Inuit Circumpolar Council (ICC) has specifically [called out](#) this arbitrary exclusion – noting that Arctic Indigenous Peoples live in developed countries of the Global North but are nevertheless subject to socioeconomic harms caused by colonization and human rights violations at the hands of States that do not formally recognize or uphold human rights obligations. Ahead of COP28, ICC called for the creation of direct pathways for Indigenous Peoples to access equitable climate finance, including the Loss and Damage Fund. Unfortunately, despite the operationalization of the Fund on the first day of the conference, neither Inuit nor any other Arctic Indigenous community are explicitly recognized as eligible for this funding or any other funding mechanism that has been negotiated under UNFCCC.

**An unequivocal statement from OHCHR confirming the availability of and direct access Loss and Damage funding for Arctic Indigenous Peoples is necessary to guarantee the realization of human rights for this Specially-Protected population.**