

Conference outcomes: Chair's Summary

Rethinking Adaptation: Limits, Governance, and Transformative Pathways

Climate adaptation is vital yet bounded by biophysical, institutional, and societal limits. While hard limits, like extreme heat and sea-level rise are emerging, soft limits – such as policy fragmentation and lack of coordination – also constrain progress. Effective adaptation requires transformative governance, cross-sector collaboration, participatory planning, and equitable resource allocation. Innovative tools like Hybrid Scenario Planning, Shared Socioeconomic Pathways (SSPs), and Public Participation GIS can bridge gaps between scientific modelling and local realities. Nature-based solutions (NBS) remain underused but hold strong potential to strengthen ecosystem resilience if better funded and integrated into national, regional, and local adaptation plans.

In the Arctic, rapid warming – up to four times the global average – is reshaping ecosystems, livelihoods, and governance. The region faces complex risks from permafrost thaw, extreme weather, and geopolitical pressures, all compounded by fragmented governance and threats to indigenous sovereignty. Adaptation strategies must transition from hazard-based to vulnerability- and impact-focused approaches, rooted in ethical integration of indigenous knowledge and cross-border cooperation among Arctic nations.

The transboundary nature of climate risks (TCRs) highlights the interconnectedness of global systems. Nordic countries, deeply integrated into global markets, are highly exposed through trade connections, energy, and food systems. Addressing TCRs requires systemic, coordinated adaptation planning that clarifies risk ownership, promotes public-private partnerships, and embeds resilience within broader geopolitical and economic frameworks. Adaptation in one region can have ripple effects across borders, underscoring the need for collective resilience and multilateral governance.

Climate justice emerges as a central pillar of adaptation, particularly in the Arctic, where indigenous and rural communities face disproportionate impacts. Justice must be procedural, recognitional, spatial, and intergenerational, ensuring that adaptation does not reinforce inequalities. Integrating indigenous and local knowledge (ILK) through co-designed frameworks and community-led approaches strengthens resilience, while safeguarding cultural heritage and sovereignty.

Youth voices emphasise emotional and psychological dimensions of climate change, such as eco-anxiety and solastalgia. Genuine inclusion of young people in decision-making is essential for intergenerational equity and transformative change. Tools like the Climate Emotions Wheel and creative, participatory engagement can foster empowerment and long-term thinking.

Finally, **climate security is becoming a strategic priority**. As a “threat multiplier,” climate change exacerbates food, water, and social vulnerabilities, demanding whole-of-society and whole-of-government approaches. Integrating climate risks into national and regional security frameworks enhances preparedness, foresight, and cooperation. Aligning with frameworks like UN Agenda 2030 and promoting Nordic-Baltic collaboration will be essential for managing emerging risks and reinforcing resilience across systems.

NOCCA2025 IN BRIEF

The 7th Nordic Conference on Climate Change Adaptation (NOCCA2025) was held on 14–15 May 2025 in Rovaniemi, Finland. Centered around the critical question of *"What are the limits to adaptation in the Nordic context?"*, the conference explored climate risks and adaptation strategies with a particular focus on northern ecosystems, natural resources, and the livelihoods of indigenous and rural communities.

Held in Lapland, NOCCA2025 provided a platform to examine both the challenges and opportunities of climate adaptation in Arctic and Northern regions. The program emphasized themes such as adaptation justice, security dimensions of climate change, and innovative approaches to strengthening resilience at regional and local level. A key focus was also placed on transboundary climate risks and the need for enhanced Nordic cooperation.

The event brought together 160 experts who shared the latest research and practical experiences through approximately 40 presentations and a poster session. Nordic Conferences on Climate Change Adaptation have been organized since 2010 and they are recognized as important forums for cross-sectoral dialogue, highlighting the importance of collaboration in addressing complex climate challenges.

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