

POLICY BRIEF

# Stronger together for a climate resilient north

Mainstreaming adaptation to  
climate change at the local level  
in the Nordic Countries

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Based on recommendations from workshops, presentations, and panel discussions at the 6th Nordic Conference on Climate Change Adaptation, NOCCA 2023 held in Reykjavik, Iceland April 17-18.

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# NOCCA 2023

The 6th Nordic Conference on Climate Change Adaptation, NOCCA 2023, took place in Reykjavík, Iceland on April 17-18, 2023, which coincides with the year that Iceland holds the Presidency at the Nordic Council of Ministers. The participants of the conference were municipal experts and civil servants, researchers, policy- and decision-makers, as well as representatives from the private sector and NGOs. About 180 attended in situ, mostly from the Nordic countries, while a little over 700 followed the event online.

The focus of NOCCA 2023 was on how to mainstream adaptation to climate change at the sub-national level, with a special focus on the local authorities in Nordic countries. Four thematic areas were selected in consultation with the program committee: sea level rise, transboundary climate risks (TCR), nature-based solutions (NBS), and local master planning. The conference explored the current state of adaptation as well as actions implemented in different Nordic countries and the challenges, opportunities, and learnings from the implementation process. The role of different actors, such as national, regional, and local governments were discussed, and how dynamic engagement with the community is paramount to successful implementation. Finally, the role of the Nordic Council of Ministers in accelerating adaptation measures within the Nordic region and beyond was discussed.

The results from the conference have been synthesized into a policy brief that captures the thrust of the discussion of the conference and aims to inform and accelerate mainstreaming of adaptation at the municipal level in the Nordic countries.



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Assembled by the Climate Services and Adaptation Center at the Icelandic Met Office with support from Alta consulting, the Icelandic Ministry of Environment, Energy, and Climate, the Nordic Adaptation network, and NOCCA workshop coordinators.

## Key Messages from NOCCA 2023

- **Collaboration between local and national governments in adapting to climate change is important.** Municipalities are tasked with implementing adaptation responses, while the national government provides support through finance and legislation. There is a need for clearly assigned responsibilities in addressing climate change.
- **National governments have the responsibility to ensure that decisions on adaptation responses are underpinned by robust data and research.** National governments should allocate sufficient resources for research and monitoring of climate risk. Additionally, they should consider the diverse vulnerabilities experienced by different localities and economic sectors.
- **There is a need to bridge the gap between science and policymaking through continuous efforts, yielding better solutions.**
- **To facilitate the dissemination of scientific data to decision-makers and stakeholders, national platforms such as web portals are needed.**
- **Updating planning laws and regulations is necessary, expanding the scope of planning considerations beyond land-use planning.** A more comprehensive master planning approach is advocated, which delves deeper into climate change adaptation and considers the social setting and service delivery.
- **Engaging the local community in the decision-making process has multiple benefits.** It enhances understanding of risk and available responses, facilitates the selection of appropriate solutions, and builds consensus around expensive and disruptive yet necessary measures.
- **In a hyperconnected world, assessing and addressing transboundary climate risks is important.** Local governments need to collaborate with national governments and private businesses to tackle such risks.
- **The Nordic countries have developed excellent tools for adaptation and are willing to share them.** The countries can accelerate climate adaptation measures by establishing an information-sharing platform, where key learnings, case studies, guidelines, and tools on adaptation measures can be shared across the region.
- **Building on a common ground there is an opportunity for the Nordic countries to work together and enhance their global presence in implementing effective adaptation measures for regions that need assistance.**

# Introduction

This policy brief summarizes the key messages from the presentations and panel discussion from the first day of the conference as well as the findings from the four workshops held on the second day of the conference, each focusing on the four themes mentioned above.

The brief is divided into three main sections, the first section addresses the main findings of the conference and the consonance between the messages from the four different workshops on how to enhance adaptation to climate change on the local level. This section addresses the roles and responsibilities of national, regional, and local authorities and how they can improve cooperation in implementing processes for adaptation.

The second section explores theme-specific messages focusing on nature-based solutions, sea level rise, and transboundary climate risks. Since the results from the master planning workshop encompass processes that apply to all themes and points of discussion they are woven into the overall findings.

The last section sets out policy recommendations for the Nordic Council of Ministers on how they can accelerate adaptation implementation amongst Nordic countries and beyond.



# Main findings

## What is the role of national governments in mainstreaming adaptation at the local level?

### **Addressing political and policy challenges**

National governments must have an updated national adaptation policy and action plan that takes a cross-sectoral approach to lead and ease decision-making at national and sub-national levels of governance. Governments need to prioritize proactive policymaking which aims to prevent emergencies from happening, underpinning resilience at the national and sub-national levels.

### **Ensuring research, monitoring, and dissemination of information**

National governments have the responsibility to ensure that decisions on adaptation responses are underpinned by robust data and research. Governments must ensure adequate resources and measures for continuous research both to swiftly fill in the knowledge gap and to maintain and strengthen the current understanding of adaptation to climate change. To do so effectively an overview is needed on what research exists or is being conducted and where gaps in knowledge are to be found.

### **Sustain a broad cross-sectoral approach**

While it is crucial to prioritize nature-based research on climate change impacts, it is equally important to explore the social sciences' contributions to adaptation options, policy development, and implementation across governance levels. National governments should provide sufficient funding to universities and research institutions engaged in monitoring and interdisciplinary research. Moreover, there is a need to ensure the availability of site-specific data and research for local authorities.

### **Supporting the development of accessible climate services**

National governments should lead the work on clarifying and defining responsibilities for information sharing and use. They need to ensure access and dissemination of current information to different stakeholders and user groups that need scientific input into decision-making. This includes

understanding the needs of different user groups and presenting the data in a comprehensive and approachable format. There are already excellent examples from the Nordic countries of national platforms (i.e., Climate Atlas) which share scientific data and knowledge relating to both the nature and impacts of climate change and the options for climate change adaptation efforts that are presented in an accessible way for different users.

### **Assessing current and future risks**

National governments have the responsibility of assessing current and future risks of climate change. In collaboration with key stakeholders such as the science community, public institutions, and local governments, they need to decide on acceptable risks for the country, as well as consider different vulnerabilities that distinct localities and economic sectors can experience. This involves deciding on coefficients for different climate hazards such as sea level rise and precipitation intensity as well as assessing vulnerabilities relating to the current societal situation and societal development trends. This information, amongst others, form the base of official climate risk scenarios which in return will guide planning decisions such as infrastructure development and zoning rules.

## **Where do local and national authorities converge when developing climate-resilient communities?**

### **Through the implementation of adaptation measures**

National governments have the responsibility to ensure local authorities are supported and equipped to manage adaptation. They do that by coordinating adaptation policies and making guidelines on how to implement the national action plan into local functions, such as land-use planning, using innovative and effective measures like nature-based solutions and service delivery. This entails using legislation to make adaptation obligatory as well as creating processes of reviewing and changing adaptation measures and policies according to new knowledge and innovation.

### **Through ways of funding adaptation actions**

Implementing adaptation measures can be costly and requires a new way of working. National governments must ensure there is enough funding for training and upskilling at the local level as well as for the construction and maintenance of adaptation measures.

### **Through clarification of responsibility and stakeholder engagement**

National governments must clarify and coordinate responsibilities and mandates at different levels of government and amongst ministries and institutions. Part of this work should include guidelines on how to involve different stakeholders in the adaptation processes and plans. Integral to stakeholder engagement is to consider adaptation measures in the light of just transition, ensuring that no one is left behind, especially vulnerable and/or marginalized groups.

### **Through planning laws and regulations**

It is the role of the national government to consider what changes are needed to national planning and other relevant laws and regulations to make the system responsive to climate adaptation. The system must balance long-term planning and land-use and coastal planning with the need to create flexibility to adapt to changing scenarios as new data and information build up better knowledge. This includes ensuring that zoning rules are in accordance with acceptable risk for an area and introducing climate risk assessment plans for new development.

## **By extending land-use planning to dynamic master planning**

Master planning provides a framework for local authorities to create a holistic plan for their area. It provides a structure to consider the interplay between land use, the built environment, social settings, public services, and infrastructure. To extend from conventional land-use planning to a more dynamic master planning, national governments must provide guidelines for local authorities on how to create cross-sectoral planning for climate change impacts and adaptation, and how to manage climate risks without compromising other important sustainability concerns. This must include, amongst other things, land use, service delivery, health and education, biodiversity, and other environmental factors, such as ecosystem services and stakeholder engagement guidelines.



## **What needs to happen at the local level to successfully embed adaptation measures?**

### **Awareness must be raised**

Local authorities are at the forefront of climate change and are a crucial administrative platform to carry out the implementation of adaptation responses. Their main task is often described as implementing national plans by embedding adaptation measures into their local operations. But just as important is the role that local authorities can play as an independent political actor, which has meant that front-runner municipalities in the climate area throughout history have occasionally also been running in front of national authorities. To effectively cover both roles, local authorities need to raise awareness of both future and imminent risks amongst local decision-makers and communities.

### **Roles and responsibilities must be assigned to ensure accountability**

Local authorities must ensure there are local processes for implementing adaptation measures. This involves assigning roles and responsibilities to local institutions and decision makers – including those in private business - to ensure that site-specific research underpins municipality plans and local plans. To strengthen accountability, local decision-makers must assume the responsibility of ensuring strategies and policies are underpinned by scientific research and new knowledge.

### **Local capacity must be ensured**

To facilitate adaptation measures local authorities need to identify the knowledge and skills required amongst local practitioners, provide training if needed, and seek cooperation with the national government in finding ways to fill in the skills gap when required. Local authorities, like the central government, need to work across different sectors and should be enabled to share knowledge amongst themselves.

### **Transparent engagement plans must be in place**

Creating support from the ground up should be paramount both at the local and national levels. Local businesses, local communities, and other local stakeholders are essential to decision-making. Their understanding and knowledge of their environment, culture, and society as well as their support is key to a successful implementation of adaptation response.

Local authorities should establish a robust and dynamic engagement strategy and process. There are numerous participatory methods available to involve relevant local actors as well as the local population in general. Whichever is used the aim should be to engage in a dialogue about what is valuable to the community, such as culturally and historically important buildings and sites, and competing interests between certain adaptation measures and other factors, such as industries and other activities. By embedding local knowledge and values into the decision-making process, municipalities can create a joint vision for the future and a consensus on the threshold of tolerance and disruption caused by climate hazards.

### **Communications that inform and encourage people to work together**

Local authorities need to be honest about the long-term implications of adaptation measures. They can be expensive and change surroundings permanently, impacting people's sense of place. As an example, adaptation measures could entail relocating culturally and historically important buildings and monuments that otherwise could be lost. Similarly, changes to zoning rules that reflect increased climate risk could see the cost of insurance rise significantly for affected areas.

# Thematic findings

## **Nature-based solutions: What is needed to successfully embed nature-based solutions into local practice?**

### **Increased understanding and long-term thinking**

Nature-based solutions are one of the most powerful and economically viable tools for robust adaptation and mitigation to climate change, while at the same time, they contribute to enhancing biodiversity and human well-being. The main barrier to implementation is a lack of awareness of their full potential and understanding of their multiple benefits.

To successfully implement NBSs a new cooperative approach and mindsets are needed, which often counter traditional methods of planning, designing, and building towns and cities. Stakeholders and decision-makers must fully understand the natural processes, biodiversity, and ecosystem services and incorporate their benefits and utility into their planning and development of the respective area. Hence, re-skilling and education, which stresses the potential and robustness of NBS, are needed for national and local decision-makers. Simultaneously, public awareness must be raised, emphasizing NBS benefits.

High-risk scenarios may call for a speedy response. This can result in a preference for grey solutions, which may be enacted speedily and are available off the shelf. NBS vary in scope and size, in cities and towns they can be easily implemented and will start working immediately. Strategic plans, multidisciplinary understanding, and long-term thinking are needed to unleash the full potential of NBS.

### **Nature-based solutions must become a part of the national and local toolbox**

To establish NBS as a mainstream tool to address adaptation to climate change, municipalities, and national governments must work together on strengthening their position within the legal framework and produce national guidelines. They need to clarify the roles and responsibilities of key initiators and players. They must also ensure adequate long-term funding for NBS to secure their successful implementation and maintenance and place them on

par with grey solutions within the budgets, which traditionally has not been done.

Additionally, authorities can provide financial incentives and support for implementing NBS. For example, municipalities can collect charges on a sliding scale for residents that have impermeable areas, as well as to offer grants to improve the permeability of a built-up territory, such as turning parking lots into permeable areas.

### **Active stakeholder engagement and education**

Stakeholder engagement is paramount to the success of adaptation responses, particularly when it comes to nature-based solutions. Experience shows that there can be considerable resistance from different stakeholders such as citizens and private landowners. Often this is due to a lack of understanding of what nature-based solutions entail. To overcome this, early engagement is required where the emphasis is on improving understanding and knowledge. This can support ownership and pride and make the implementation and maintenance of nature-based solutions easier. Therefore, material for educating key stakeholders at all stages is needed.

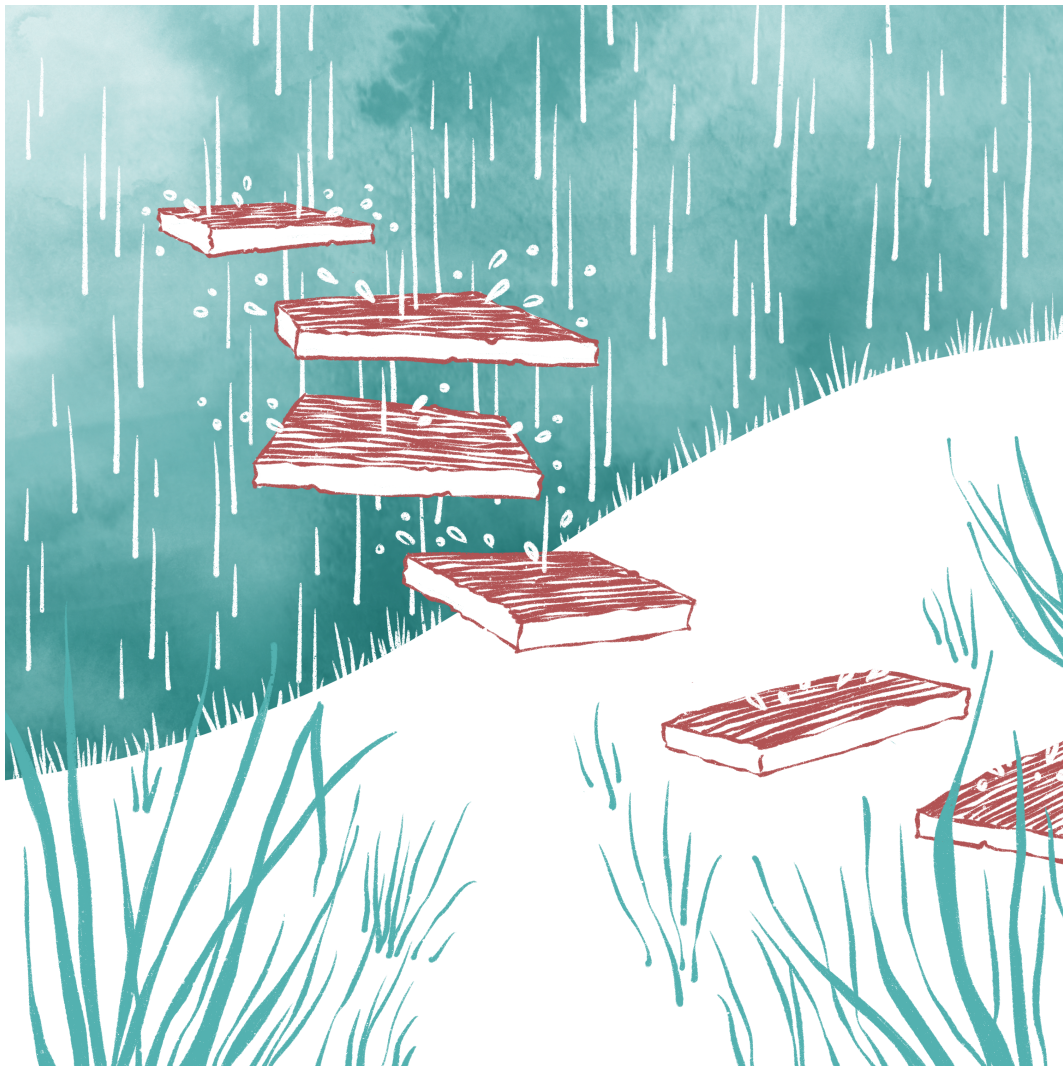
### **Benefits and potential side effects must be emphasized**

Local authorities and national governments need to bring to the fore the multifunctionality of nature-based solutions, especially their ecological and social worth. First, they are a long-term solution to environmental hazards. They add recreational value and improve landscaping within towns, at the same time providing local amenities and enhancement of quality of life in neighborhoods. Considering this, the socio-economic implications of nature-based solutions merit exploration. This can include potential unintended consequences, such as where nature-based solutions have been successfully implemented they tend to increase the value of properties which in return could result in sections of the local community being priced out of the area.

### **Active monitoring and evaluation of nature-based solutions**

To gauge whether the expectations of projects meet intended goals, municipalities should evaluate and monitor multiple factors after the implementation of nature-based solutions. This should capture their intended multifunctionality, including satisfaction of inhabitants, biodiversity assessments, and economic impact, as well as measuring the impact the nature-based solutions have on the environmental hazards they are designed to address. Effective monitoring will also display any unintended

consequences of their implementation and allow valuable lessons to be learned.



## Sea level rise: Why use adaptive planning methods to help local authorities find the right responses?

### **Communities are key to building a consensus around adaptation responses**

Adaptation responses, such as building protective barriers, elevating transport infrastructure, or relocating residents and industries, are disruptive and expensive. They can cause considerable lasting damage to the local environment and affect distinct groups of society in unpredictable ways. However, the cause behind these measures is disruptive as well, especially if no adaptation measures are put in place. By engaging local authorities early in the decision-making process, municipalities can build consensus about the tough social and financial decisions that need to be made regarding adaptation

### **Communities are well-placed to identify vulnerabilities and thresholds of climate hazards**

Communities are well placed to identify vulnerabilities in local areas. Local knowledge can complement and strengthen scientific research and support the development of adaptation decisions. These bottom-up approaches will support decision-makers in developing desirable futures on a local level, what to avoid (*adaptation thresholds*), and how to get there (*adaptation responses*).

### **Adaptive long-term thinking is the foundation for building a long-lasting plan**

Changes in climate stressors driven by climate change will result in increased risk for coastal communities. This will become apparent in the form of more severe and frequent occurrences of coastal hazards. The uncertainty in future frequency and intensity of these hazards means that adaptivity should be embedded in the adaptation process to adapt timely. When a current adaptation policy does not manage to meet the objectives, an alternative adaptation response will be needed. The alternative strategy has to be implemented prior to reaching this threshold, emphasizing the importance of monitoring for decision-makers. This means that adaptation procedures should allow for adaptivity over time, depending on how the risk changes.





## **Transboundary climate risks: What can local authorities do?**

### **Ensure transboundary climate risk assessment at the local level**

In a hyperconnected world, climate risks permeate boundaries so that climate-related natural hazard events in one country or area can create societal risks in other countries or areas mediated through trade or in other ways. To ensure a deeper understanding and to be better prepared, municipalities should work with other stakeholders to map climate-related vulnerabilities that affect key industries in their area and their potential impact on local livelihood.

### **Enforce active dialogue between local and national authorities**

Policies covering TCRs are mostly dealt with at the national and supranational levels of governance. However, sub-national authorities can contribute positively to society becoming more proactive in addressing such risks, for example by inviting local stakeholders to analyze whether and possibly how the local community may be affected by these new forms of climate risk. This in turn can pave the way for clarifying the extent to which local measures can reduce TCRs, and where this is only possible to a limited extent as well as send policy signals up the governance hierarchy with orders for changes in national policy within relevant policy areas. One example is TCRs within livestock production in the Nordic countries linked to the extensive import of soya to produce concentrate, and identification of local wishes to eventually change the national agricultural policy to reduce this dependence.

### **Urge that the topic of transboundary climate risks is moved up the agenda at the national level**

As the understanding of TCRs deepens, national governments need a more systematic approach to address these risks. This includes incorporating TCRs into national security plans, development aid efforts, and research, and in the national climate adaptation plans, clarifying the role that local authorities are expected to play in this part of the climate adaptation work. Today, such clarification is lacking in all Nordic countries.





# Concluding remarks: A vision for Nordic adaptation

## How can the Nordic Council of Ministers accelerate adaptation implementation amongst the Nordic countries and beyond?

### **Motivate information and knowledge sharing across the Nordic region**

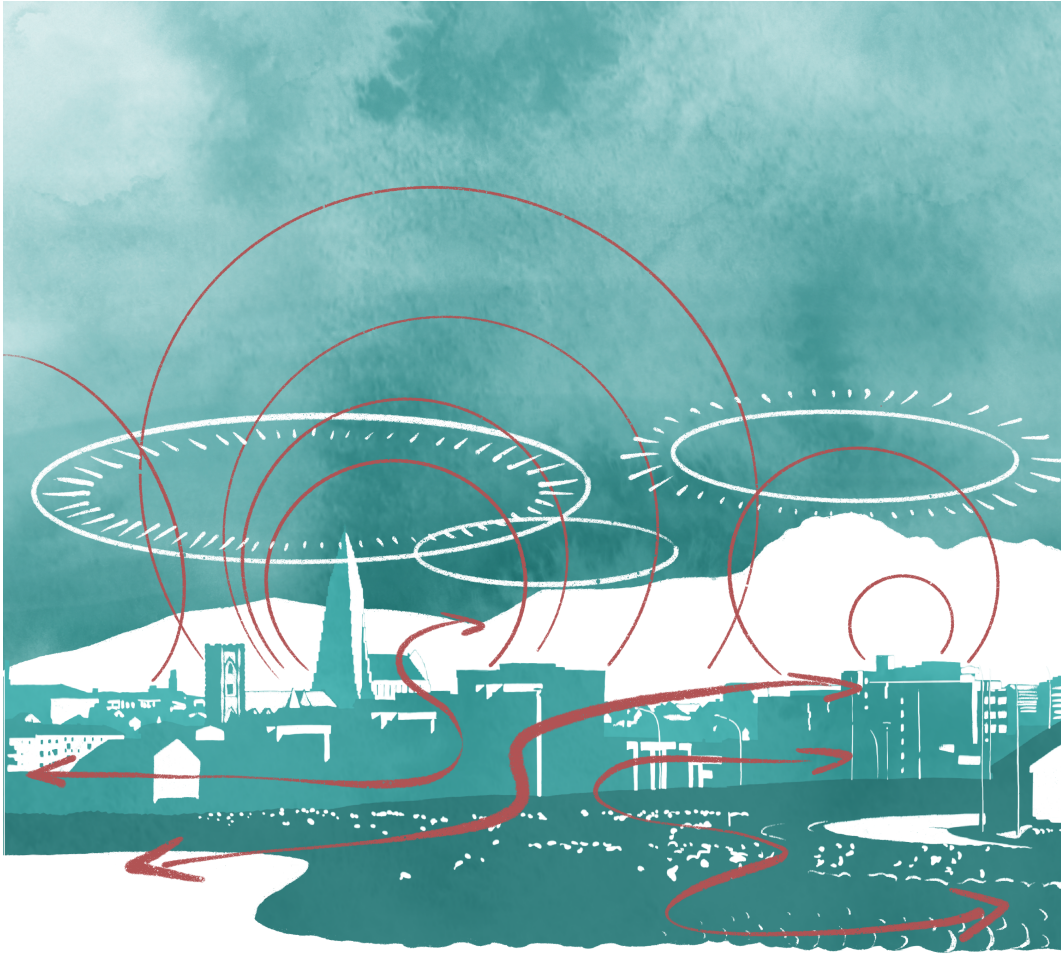
Knowledge sharing, networking, and collaborating deepen the understanding of key adaptation measures. Individually, the Nordic countries have gathered a significant amount of knowledge and experience in the field of climate change adaptation. Building on active cooperation, the countries can accelerate climate adaptation measures by establishing an information-sharing platform where key learnings and case studies are shared as well as guidelines and tools on adaptation measures that can be applied across the region.

A Nordic network of municipalities would offer the potential to support local authorities in strengthening adaptation responses and creating climate-resilient communities. The Nordic Council of Ministers is well-placed to assist in establishing such a network expediting progress in adaptation at a very significant level, the local level. Furthermore, the Council has an opportunity to instigate joint research projects that address for example transboundary climate risks and sea level rise in the Nordic region.

The NOCCA conference is an important contributor to developing and implementing climate adaptation measures in the Nordics. Therefore, it is essential to establish a sense of ownership of the NOCCA conference and ensure its regular occurrence every other year, solidifying its significance.

### **Urge the Nordic countries to take the lead on adaptation**

Adaptation to climate change is a global matter and risks are not restricted by borders. Overall, Nordic countries embody multilateralism, international solidarity, and advanced thinking on climate change adaptation. Building on this common ground there is an opportunity for the Nordic countries to work together and amplify their presence on the global stage bringing about effective adaptation measures for regions that need assistance.



# About this publication

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