

Results of the Municipal Survey on Climate Change Adaptation in Lapland, Finland

Lotta Eriksson, Hanna Isojärvi-Lehmus, Ella Virkkula,
Vilhelmiina Palosaari

The Regional Council of Lapland

19.12.2025

Keywords list



**MOUNT
RESILIENCE**



Co-funded by
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Swiss partners have received funding from the Swiss State Secretariat for Education, Research and Innovation (SERI).

- Lapland's municipalities
- Finland
- Climate Change
- Adaptation
- Survey

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Executive summary

This report presents the results of the Municipal Survey on Climate Change Adaptation in Lapland that was carried out between September 2024 and March 2025 by the MountResilience project. The survey assessed the current level of climate work in Lapland's municipalities and identified the support required to strengthen these efforts.

The results are evaluated in comparison with the national survey on regional and municipal climate efforts. The survey revealed that while most Lapland municipalities recognize significant climate impacts and are motivated to advance adaptation and mitigation measures, progress is hindered by limited resources and expertise, creating a strong need for external support, training, and funding.

1. Introduction

The Municipal Survey on Climate Change Adaptation in Lapland was carried out between September 2024 and March 2025. The survey aimed to determine which municipalities in Lapland have adapted to climate change, identify the most significant climate risks, evaluate measures already planned or implemented, and assess the overall state of adaptation along with the support required to strengthen municipal efforts.

This report presents the survey findings, illustrating how climate change is already affecting municipalities, the current level of climate action, and future goals. The survey design was strongly influenced by the nationwide climate survey for regions and municipalities, coordinated biennially by the Association of Finnish Cities and Municipalities. The latest nationwide survey, published last year, included six Lapland municipalities (Miettinen et al. 2024, p.10). In this report, the results will be compared to the nationwide survey and its outcomes.

2. Method

The survey was sent to all municipalities in Lapland. In some cases, the municipality's climate leads were contacted directly. In other cases, the request was sent to the municipal registry, the municipal leader, and, when applicable, to a person presumed to be responsible for climate-related issues, accompanied by a request to forward it to the appropriate recipient.

Multiple reminders were sent of the survey and later assisted completion meetings were arranged upon request. The initial two-month response period was extended by four months due to low participation.

Out of 21 municipalities in Finnish Lapland, 17 responded to the survey. That brings the response rate up to 81%.

The high response rate ensures the reliability of the survey results in assessing the state of climate action in Lapland. Moreover, compared to the nationwide survey's response rate of 39% (Miettinen et al. 2024, p.9), this survey achieved an exceptionally high level of participation.

3. The Level of Climate Work

3.1. The Results of the Survey

The survey shows that out of 17 municipalities only four (4) have an official Climate Action Plan (see Figure 1). These municipalities are Kemijärvi (the plan is not public), Kittilä (Kittilän kunta 2024), Pelkosenniemi (Pelkosenniemen kunta 2023) and Sodankylä (the plan is not public). Four (4) more municipalities are planning to publish a climate action plan in the near future. They are Enontekiö, Inari, Rovaniemi, and Utsjoki.

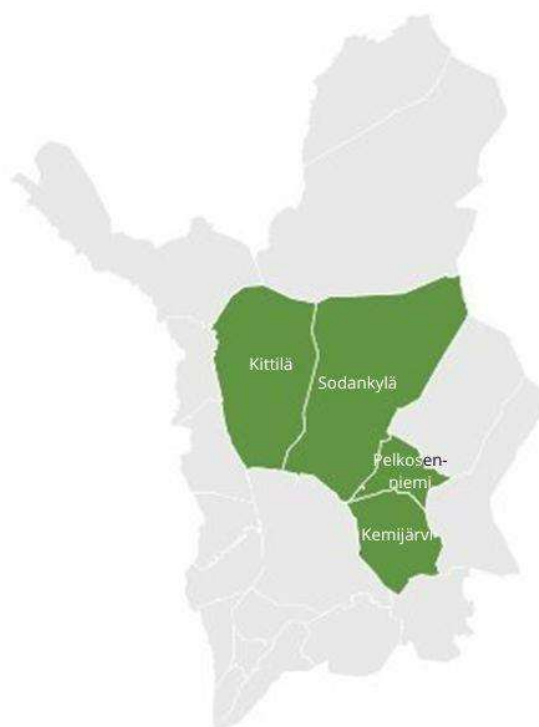


Figure 1: Municipalities that have a Climate Action Plan during the Survey

However, ten (10) of the respondent municipalities have official climate goals, even if they do not have an actual action plan (figure 2). When combining these with the municipalities that have Climate goals and Climate Action Plans, that brings up the number of municipalities with officially planned climate work up to 14. As a result, 24% of responding municipalities have a Climate Action Plan and 59% have official climate goals. Since the survey, two additional municipalities, Keminmaa (Huhtala 2024) and Tornio (Tornion kaupunginvaltuusto

2025), have published Climate Action Plans. This means that seven municipalities still have no current plans to prepare a climate action plan.



Figure 2: The municipalities that have official climate goals

The reported climate goals were the ISO-handbook (ISO 14001 environment standard and ISO 45001 occupational health and occupational safety standard), a climate scenario and/or municipal strategy guidelines for preparing a Climate Action Plan during the next term of council. However, some respondents did not know whether the municipality had any climate goals.

The municipalities' climate action plan and/or climate goals were connected to both mitigating the effects of climate change and adapting to already occurring impacts of climate change. None of the reported climate goals were solely related to adaptation. 55% of the respondent municipalities focused solely on mitigating the effects and the remaining 45% focused on both mitigating and adapting (figure 3).

3.2. Comparison to the Nationwide Survey

In the nationwide survey, 47% of the municipalities had Climate Action Plans. The percentage is higher compared to municipalities in Lapland, where only 24% have Climate Action Plans.

However, 59% of the municipalities in Lapland have established climate goals, which comes close to the nationwide survey where 65% of the respondent municipalities have climate goals (Miettinen et al. 2024, 12, 16).

The reported climate goals in the nationwide survey focused on either mitigating or adapting to climate change. 62% of the goals focused on mitigating the effects of climate change and 24% focused on adapting. (Miettinen et al. 2024 12-13.) In the survey conducted in Lapland, the percentage of the reported goals focusing solely on mitigating the effects of climate change was 55%. The remaining 45% focused on both mitigating and adapting to the effects of climate change. Simultaneously, the reported goals in Lapland focused less on mitigation alone, and more on adaptation than in the nationwide survey.

However, the results are not fully comparable to the nationwide survey because its percentages were derived from open-ended responses focusing exclusively on either mitigation or adaptation. In contrast, the Lapland survey included municipalities that addressed mitigation alone as well as those combining mitigation and adaptation, with none focusing solely on adaptation.

4. The Impacts of Climate Change on Municipalities

4.1. Reported Impacts

The survey included a question on experienced climate risks, allowing respondents to select key impacts. This question was answered by 84% of participating municipalities.

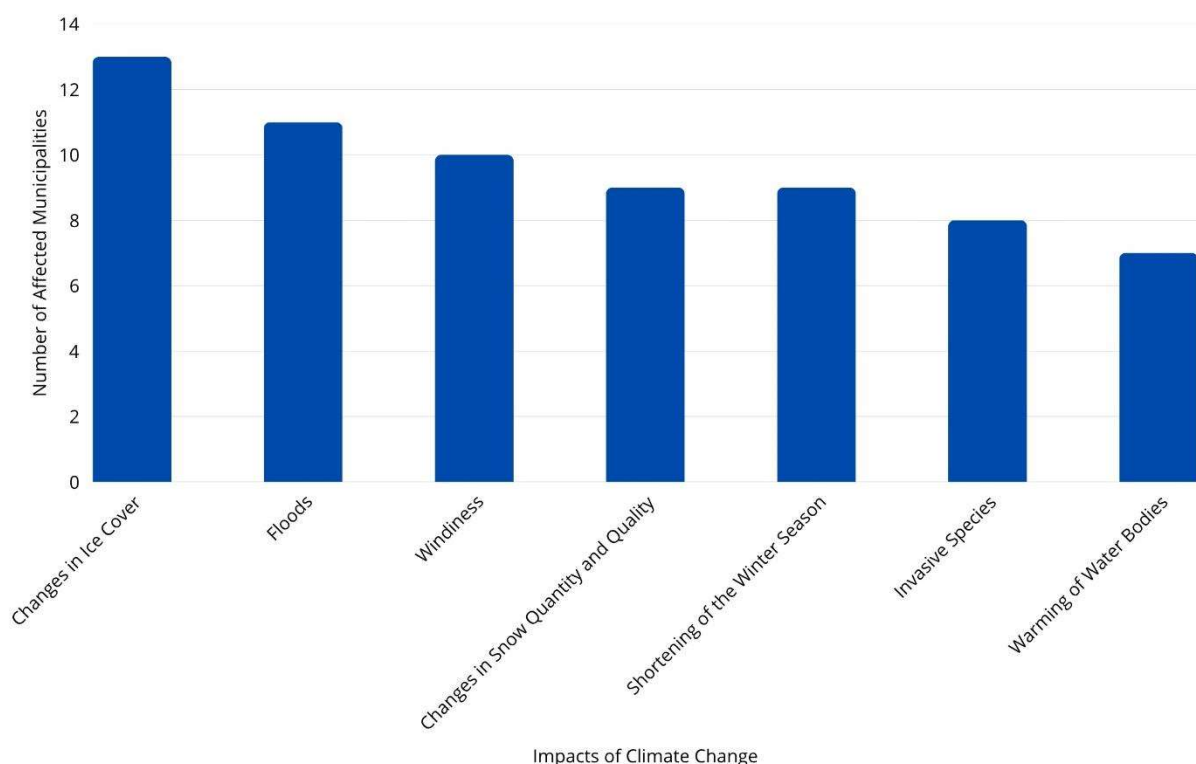


Figure 3: Reported impacts of climate change

The most reported impacts of climate change were related to changes in ice cover (Figure 3). 93% of the respondents reported changes in ice, and 79% reported changes in floods, including spring, autumn and storm water floods. Furthermore, 71% reported increasing winds, and 64% reported changes in quantity and quality of snow and shortening of the winter season.

Respondents also indicated the extent to which these impacts affect their municipalities, with most reporting significant effects from reduced snow cover, shorter winter seasons, and increased windiness.

Additionally, several municipalities were noticeably affected by warming of the water bodies, changes in ice quality, increasing drought, floods, and storms, as well as an increase in invasive species, heavy rainfall and heat waves.

4.2. Impacts Between Regions

The reported impacts of climate change varied between regions. Next, the most significant impacts from each region are presented. There are six (6) different regions in Lapland, and they are shown in Figure 4.



reported impacts in the Fell Lapland region were changes in snow and ice quantity and quality and in timberline, as well as shortening of the winter season, increased amount of windiness, spring floods, heavy rainfall, heatwaves and foreign species.

In Northern Lapland, reported impacts included changes in snow and ice quantity and quality, shifts in the timberline, a shorter winter season, reduced snow retention areas, and warming of water bodies. Additional impacts noted were increased windiness, forest fires, storms, drought, and the spread of foreign species.

Reported impacts in Eastern Lapland region comprised changes to snow and ice quality and quantity, along with shortening of the winter season and warmer water bodies.

In the Rovaniemi region, reported impacts included changes in snow and ice quantity and quality, increased windiness, more frequent spring floods, a shorter winter season, and warming of water bodies.

In the Kemi–Tornio region, municipalities noted changes in snow and ice conditions (quantity and quality), increased spring flooding, and warming of water bodies.

In Tornionlaakso, reported impacts comprised alterations in snow and ice quantity and quality, a shortened winter season, heatwaves, and timberline shifts. Additional observations included increased spring floods, heavier rainfall, invasive species, and warming of water bodies.

5. Adaptation Measures in Municipalities

Most municipalities (82%) reported that adaptation measures are not currently monitored; 12% indicated monitoring is in place, and 6% plan to begin soon. Where monitoring occurs, it is typically integrated into project reporting or event-based risk assessments.

The survey examined which adaptation measures have been implemented by municipalities in Lapland to address specific climate change impacts.

Adaptation measures taken for invasive species are:

1. Species control, campaigns, containers and streetside mowing
2. Utilization of foreign species, e.g. pink salmon
3. Action plans for preventing invasive species
4. Communication actions about invasive species to locals
5. The use of plants classified as invasive species are no longer utilized in parks and green areas

Adaptation measures taken for floods and storm water are:

1. Construction of storm water drainage, improving the sealing of sewers, flood embankments, levees and dam safety, and reporting.
2. Assessments of transformers to be protected.
3. On strategy level, flood protection and stormwater flood master plans

Adaptation measures taken for heat and windiness are:

1. Planting trees in school and kindergarten yards to protect from sun and the wind
2. Replanting trees in forests, parks and avenues
3. The Regional Plan that specifies the number of green spaces (inc. the improvement of biodiversity).

Adaptation measures taken for changes in ice are:

1. Changes to sledding routes
2. Providing warnings about thin ice conditions

6. Resources for Adaptation in Municipalities – What is Needed?

In the final part of the survey, municipalities were asked about the resources available for climate change adaptation and what additional support is needed to strengthen their efforts. The responses revealed that climate-related tasks are distributed among a wide range of roles, highlighting the fragmented nature of climate work within municipalities. Reported occupational titles included, for example, *Deputy Technical Manager*, *Head of Development*, *Head or Expert in Sustainable Development*, and *Project Manager*. Only a few municipalities employ dedicated climate experts or officials specifically responsible for sustainable development and climate adaptation.

The survey revealed that 59% of municipalities lack resources for climate change adaptation, while 41% have some dedicated resources.

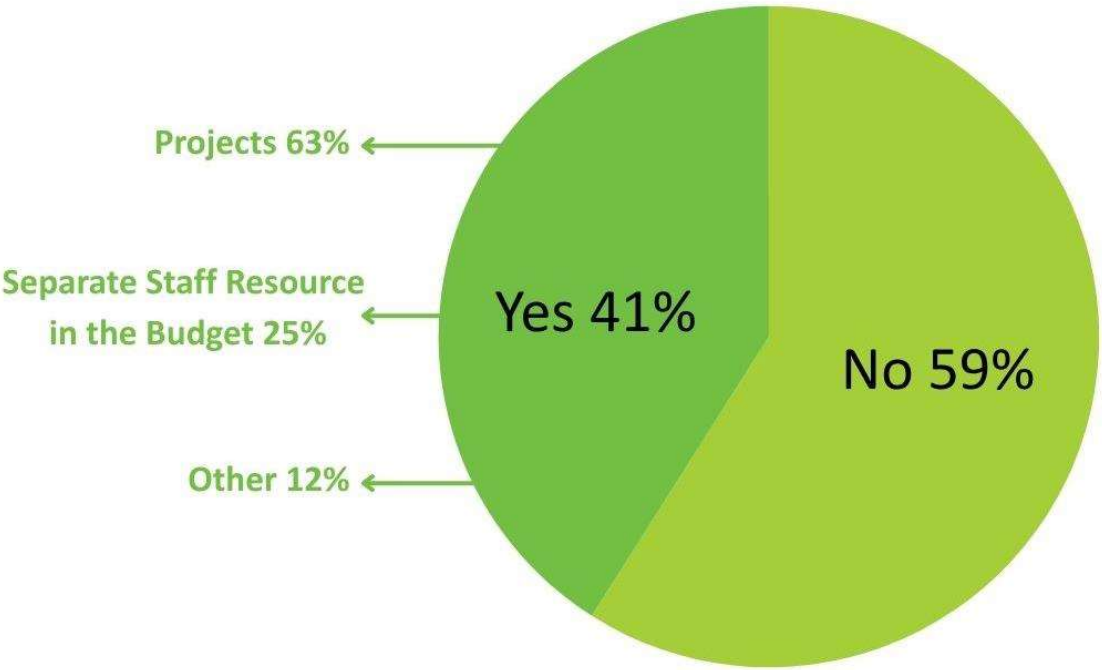


Figure 5: Specific Resources for Adapting to Climate Change in Municipalities

Municipalities with adaptation resources specified the types of resources available: 63% implemented projects, 25% allocated dedicated staff within their budgets, and 12% reported other forms of resources. The nationwide survey (Miettinen et al., 2024) found that smaller

municipalities are generally less equipped to integrate climate expertise into their work, primarily due to financial constraints (ibid., pp. 24, 27).

To address these challenges, the survey sought to identify actions municipalities should take to advance adaptation efforts. The responses are summarized below:

1. Increase knowledge for various municipal actors (current state, future changes and their impacts in climate work)
 - Especially managers and decision-makers
 - Different sectors and units of the municipality
 - Residents
2. Change attitudes towards climate work
3. The issue should be seen as important and climate work should be appreciated
4. Commitment to climate work and its monitoring
5. Escalation of a risk/concrete event that would make the municipality act
6. Resources (including personnel, funding and working hours)

Climate expertise is generally lacking in municipalities. Among the respondent municipalities, 88% reported insufficient climate expertise within their staff, and all (100%) expressed a need for external support, training, and additional resources.

When asked about the types of support required, respondents highlighted the following needs:

1. A climate expert or a coordinator
2. A Project (also joint projects between municipalities)
3. Training for different sectors in the municipality
4. Instructions, recommendations and examples of measures
5. Prepared communication material on climate change adaptation and impacts
6. Support for applying for funding (e.g. project funding)
7. Support for everything possible, there are no resources

Overall, the responses indicate that municipalities require comprehensive support. The greatest challenges relate to limited resources and insufficient climate expertise, making external guidance and assistance essential. Targeted support in the following adaptation areas would significantly strengthen municipal climate work:

1. Developing an adaptation plan: Guidelines for creating a comprehensive plan that includes a framework, actionable steps, and implementation strategies at the municipal level, as well as methods for managing climate risks and preparing for extreme weather events

2. Guidance and communication: practical templates for climate work guidelines, a knowledge base for communication, and adaptation training tailored to different sectors.
3. Natural resources: support in sustainable use of natural resources, protecting forests and biodiversity in a changing climate
4. Use of land: municipal adaptation measures in planning processes and a comprehensive approach for adaptation on the use of land
5. Security of service / infrastructure: property maintenance in the changing climate, and securing security of service and risk management

The Regional Council of Lapland, the Centre for Economic Development, Transport and Environment, and the research institutes were perceived as the most important organizations providing support for municipalities.

The need for support in Lapland's municipalities aligns with findings from the nationwide survey, which confirmed that the greatest challenge for municipalities is the lack of resources for climate work. Adequate funding is essential. Municipalities should be consulted and given the flexibility to determine the steps most relevant to their climate efforts. This approach would increase the likelihood of implementation and enhance the impact of the results (Miettinen et al., 2024, p.35)

7. Conclusions

This report presented the results of the Municipal Survey on Climate Change Adaptation in Lapland. The main outcome of the survey is that Lapland municipalities have the desire and motivation to promote measures related to climate change adaptation.

The impacts related to climate change were reported to be partly different by region, but some similarities were also found. 93% reported that they had noticed changes in the amount of snow and ice, 79% of respondents reported changes in floods (including spring, autumn and storm water floods), and 71% reported increased windiness.

Among the municipalities that responded, 76% currently lack a valid Climate Action Plan. However, 82% have established climate goals, and several indicated plans to develop an action plan in the near future.

During the previous Finnish government (2020-2024), the Climate Law obligated municipalities to form official Climate Action Plans. Therefore, multiple municipalities in Lapland applied for funding from the Ministry of Environment. The application was also put into the municipal strategy. However, the current government removed the obligation from the Climate Law which has scattered the level of climate work between municipalities.

Regarding climate change adaptation, staff competence in Lapland's municipalities is generally considered insufficient. All municipalities expressed a need for support, training, and additional resources. Nevertheless, most respondents have recognized climate-related impacts and implemented concrete adaptation measures to address them.

References

Huhtala, Miika (2024) *Keminmaan Ilmastosuunnitelma 2025–2030*. Evate Oy.
https://www.keminmaa.fi/wp-content/uploads/2025/03/ilmastosuunnitelma_keminmaa_valtuusto-13.2.2025.pdf
(cited 8.10.2025)

Kittilän kunta (2024) *Ilmastosuunnitelma*. https://kittila.fi/sites/default/files/2025-01/Kittil%C3%A4n%20kunnan%20ilmastosuunnitelma_0.pdf (cited 8.10.2025)

Miettinen, Heikki; Juuso Ilmola; Jarno Parviainen; Pauliina Jalonen; and Marjaana Seppinen (2024) *Kuntien ja maakuntien ilmastotyön tilanne 2023–2024*. Helsinki: The Association of Finnish Cities and Municipalities.

Pelkosenniemen kunta (2023) *Ilmastotiekartta 2023-2030, Pelkosenniemen kunta*. <https://pelkosenniemi.fi/wp-content/uploads/2023/12/Ilmastotiekartta-2023-2030.pdf> (cited 8.10.2025)

Tornion kaupunginvaltuusto (2025) *Ilmastosuunnitelma 2025–2035 Rohkea – turvallinen – kestävä*, <https://www.tornio.fi/wp-content/uploads/2025/10/tornion-kaupungin-ilmastosuunnitelma.pdf> (cited 16.10.2025)