



**MOUNT
RESILIENCE**

MountResilience

Accelerating transformative climate adaptation for
higher resilience in European mountain regions



**Co-funded by
the European Union**

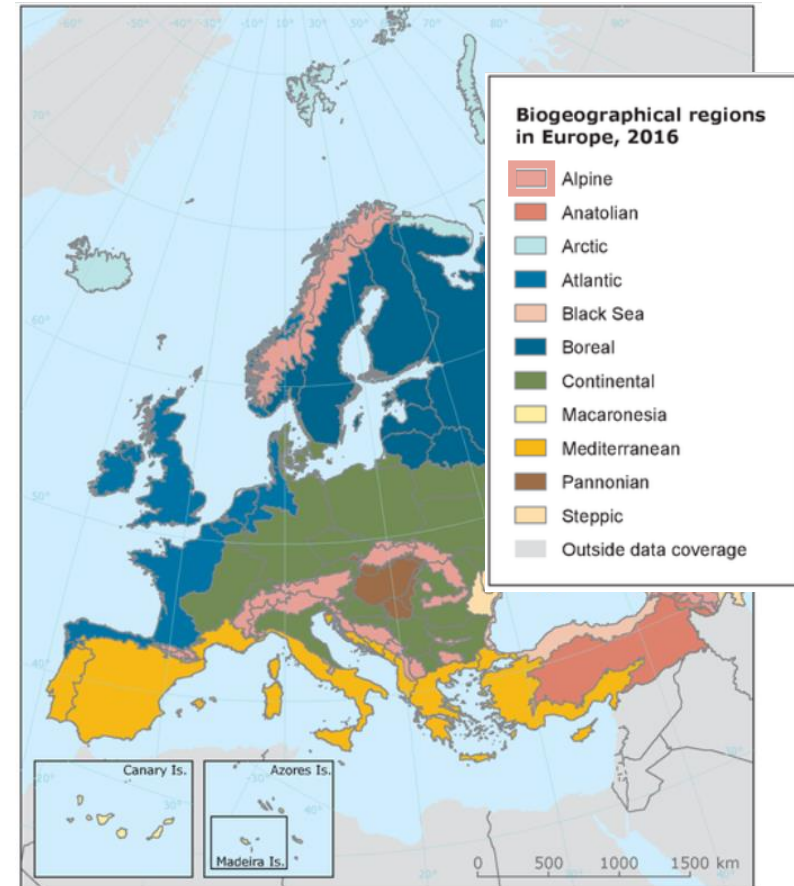
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Swiss partners have received funding from the Swiss State Secretariat for Education, Research and Innovation (SERI).

Why a project on mountain areas?

- Mountains cover **35% of the land area of Europe and 30% of the EU**
- **Every 6th EU citizen** lives in such areas
- Mountains actively provide **ecosystem services for all Europeans**, even those living in distant lowland regions



European Environment Agency, EEA, 2016

Why a project on mountain areas?

- Mountains were recognised as vulnerable ecosystems of global importance as early as the **1992 UN Conference on Environment and Development** in Rio
- The protection of mountainous regions enshrined in the **2030 Agenda for Sustainable Development**
- Mountain vulnerabilities highlighted in **EEA report 2024 European Climate Risk Assessment**



Mountains are sentinels of change

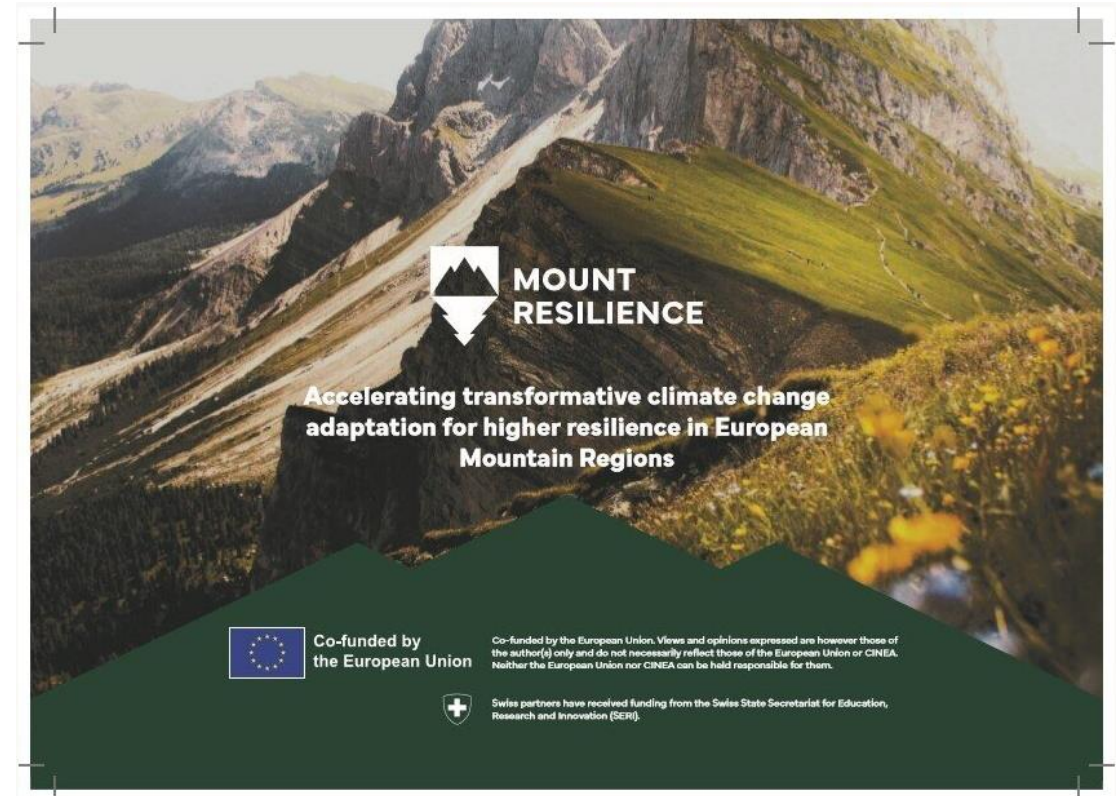
- European mountain regions are already suffering the **effects of climate change**
 - Alps: temperatures have increased by almost 2°C
 - Pyrenees: average temperature 30% more than the global average
 - Carpathians: temperature climbed 2.4°C higher than normal
 - Arctic: warming up 2 to 4 times faster than global average
- By the end of the century, it is projected that European mountains will have **changed physically & large glaciers will have experienced significant mass loss**
- Changes will also impact the **lower, mid-hills, and floodplain** environments

Adaptation in sectors such as water management, agriculture, forestry and tourism are key for adapting mountain areas



EU Horizon Missions – Climate Adaptation

- The project will run for **54 months**
- **1 September 2023 until 29 February 2028**
- The **total EU Contribution more than €15M**
- Funded under the **Horizon Europe – Miss-2022-Clima-01**



An ambitious consortium

- Led by **UNIMONT – University of Milan**
- **47 partners from 13 European Countries**



Regions involved

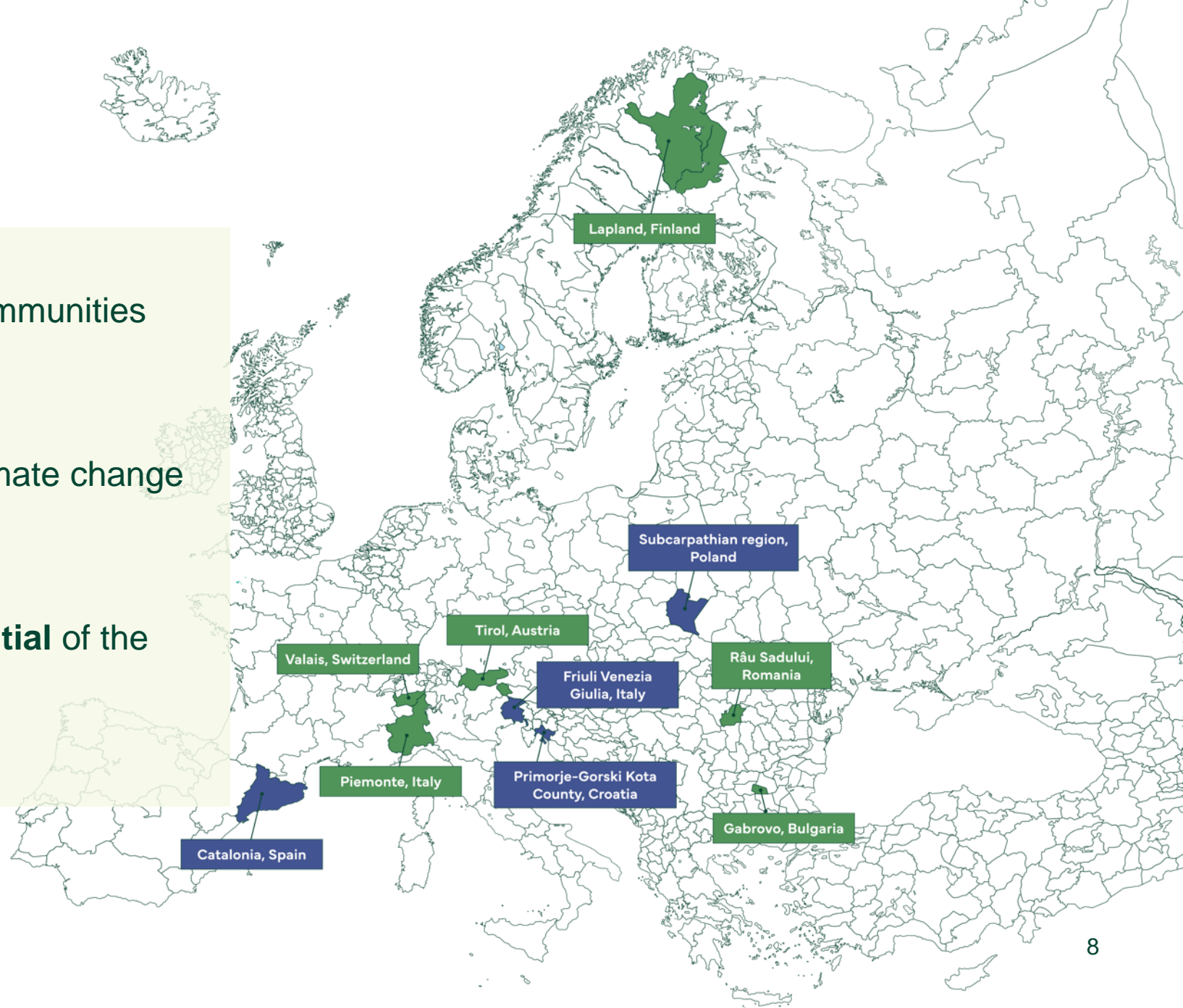
 **6** Regional demonstrator sites

 **4** Regional replicator sites



Approach

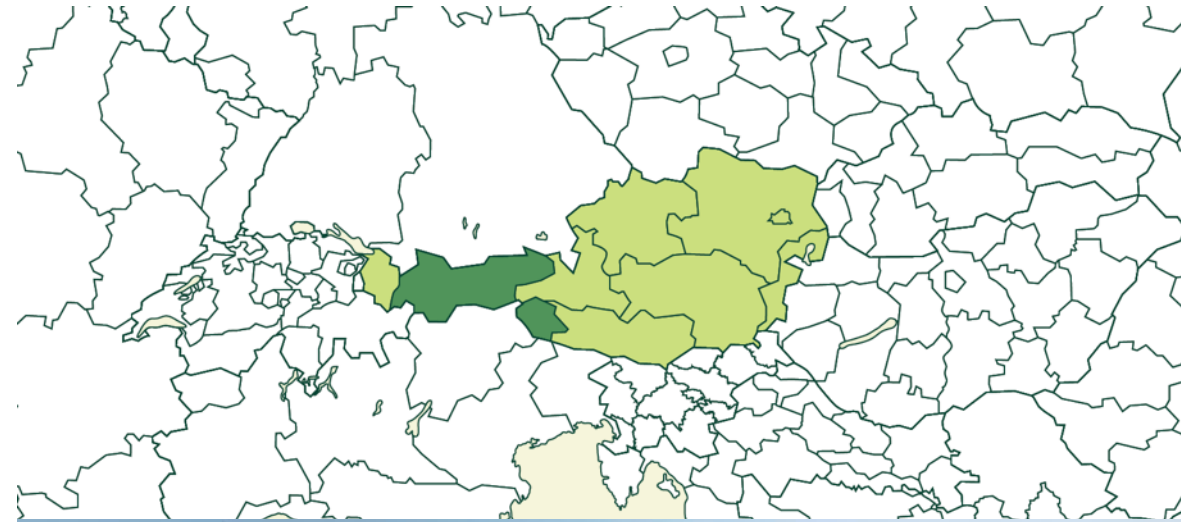
- **Variety** of European regions and communities covered
- **Place based** approach
- Portfolio of heterogeneous **CCA** (climate change adaptation)
- **Community of Practice**
- Maximize the **re-applicability potential** of the project



REGIONAL DEMONSTRATORS

Tirol, Austria

- Tourism connected to nature → highly sensitive to changes in climate
- Activities:
 - Development and expansion of a policy-instrument “Platform for Climate, Energy and Circularity”
 - Innovative solutions for adaptation in the tourism sector
 - Innovative solutions for adaptation of buildings and settlements
 - Cross-sectoral innovation based on digital solutions, new indicators, and instruments of financing/incentives to foster sustainable NB CCA measures



REGIONAL DEMONSTRATORS

Piemonte, Italy

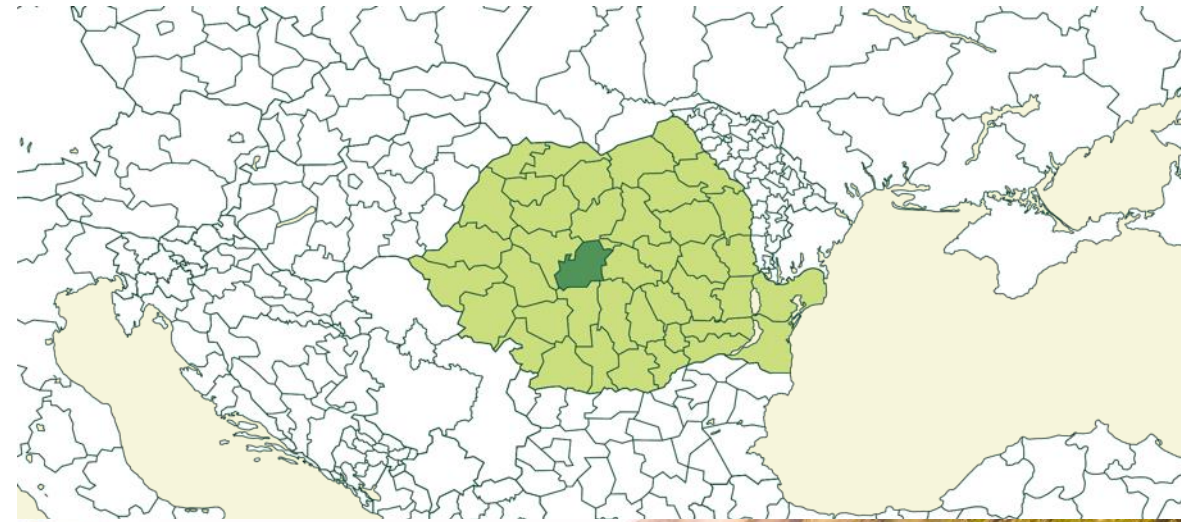
- Mountains as water towers for agriculture → climate impact on farming and irrigation
- Activities
 - Create an integrated platform
 - Application to integrate existing information with the use of irrigation water at farm scale
 - Decision support tool to identify the best solutions for CCA at district scale



REGIONAL DEMONSTRATORS

Râu Sadului, Romania

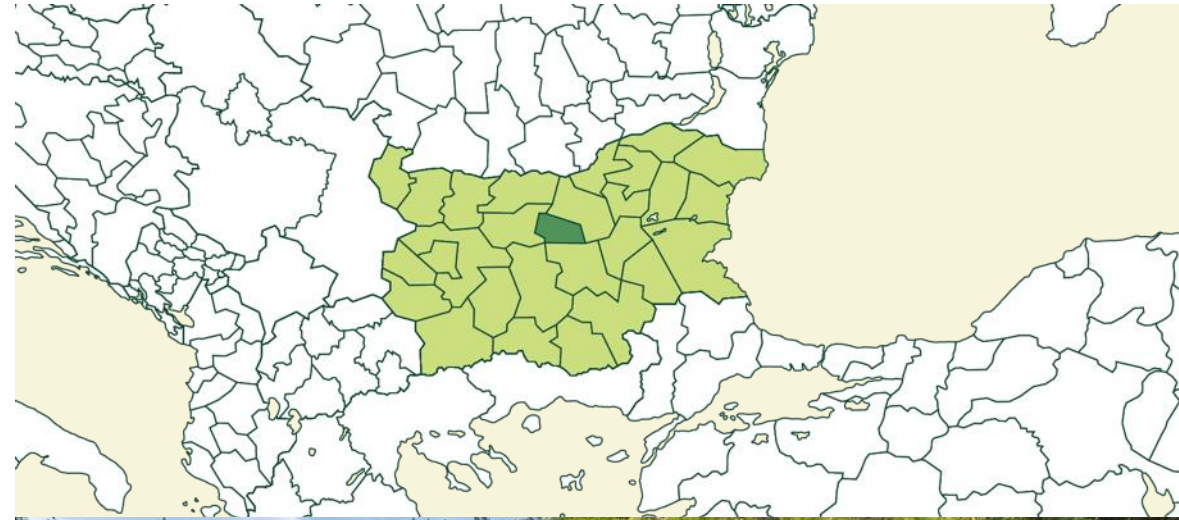
- Pastoral activities dependent on meadows nutritional value → climate impact on rainfall, temperature and flora
- Activities
 - Restoring mountain meadows
 - New ways to scan the field with an equipped drone
 - Special seeding and fertilizing machines for meadows with irregular terrain and stiff slopes.



REGIONAL DEMONSTRATORS

Gabrovo, Bulgaria

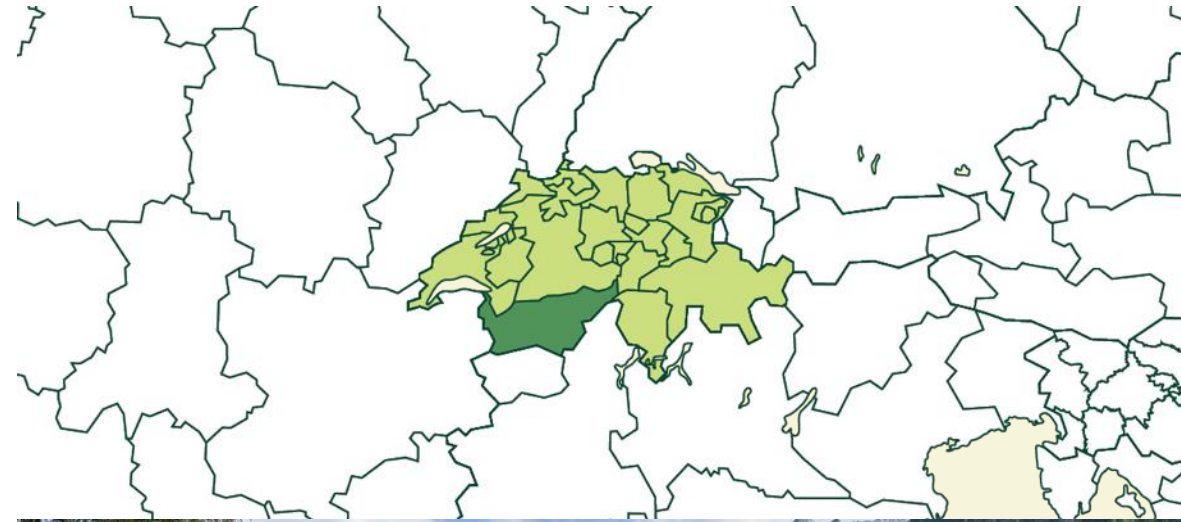
- Mountain valley city → impact of climate extreme events
- Activities
 - Innovative solutions for urban Green Infrastructures
 - Early-Warning and Monitoring System for climate events



REGIONAL DEMONSTRATORS

Valais, Switzerland

- Mountains as freshwater providers → climate impact on water supply and dependent activities
- Activities
 - Digital platform for co-creation and decision-making
 - Technologies supporting nature-based solution (NbS)
 - New sensors systems of water quality



REGIONAL DEMONSTRATORS

Lapland, Finland

- Region with nature-based livelihood → entire economic structure impacted by climate change
- Activities
 - Help regional entrepreneurs identify climate risks, anticipate and adapt
 - Develop the use of new Public Participation Geographic Information Systems (PPGIS)
 - Develop a model for regional adaptation plan
 - Develop company-specific adaptation plans
 - Develop adaptation coaching

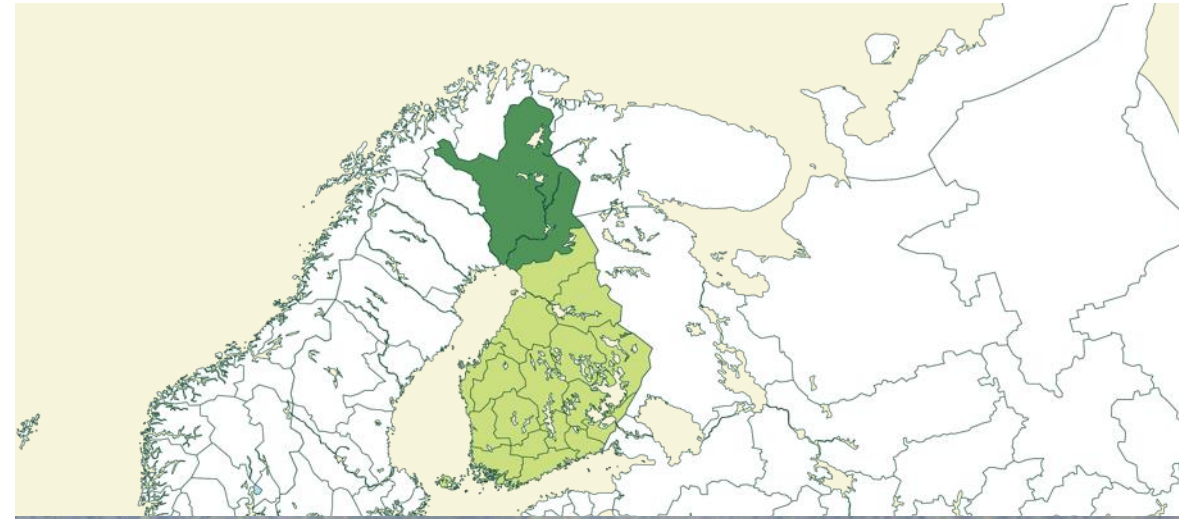


Image: Lapin materiaalipankki

Climate impacts and challenges in the region

Climate impacts: increasing temperatures, snow and ice cover changes (especially during spring and autumn), permafrost melting, species diversity and distribution shifts, precipitation pattern, flooding, hazards (forest fires)

Vulnerabilities: Reindeer herders, tourism industry, municipalities, socio-economic, indigenous people, manage agriculture- and forest, institutional (lack of knowledge).

Climate risks and challenges: Climate risks and challenges: winter tourism (seasons), Invasive species, Reindeer herding becomes more difficult, Lack of know-how, Land use conflicts

The super-fast warming of the Arctic

1979-2021 warming trend for the globe as a whole, and solely for the Arctic region. Data represent anomalies in comparison to the 1951-1980 base period.

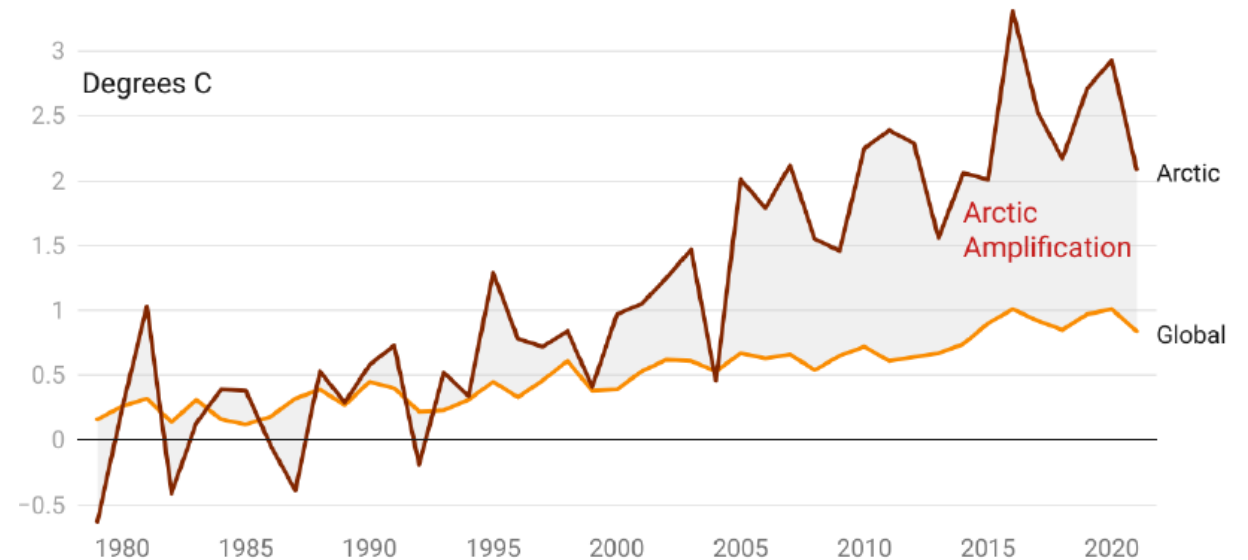
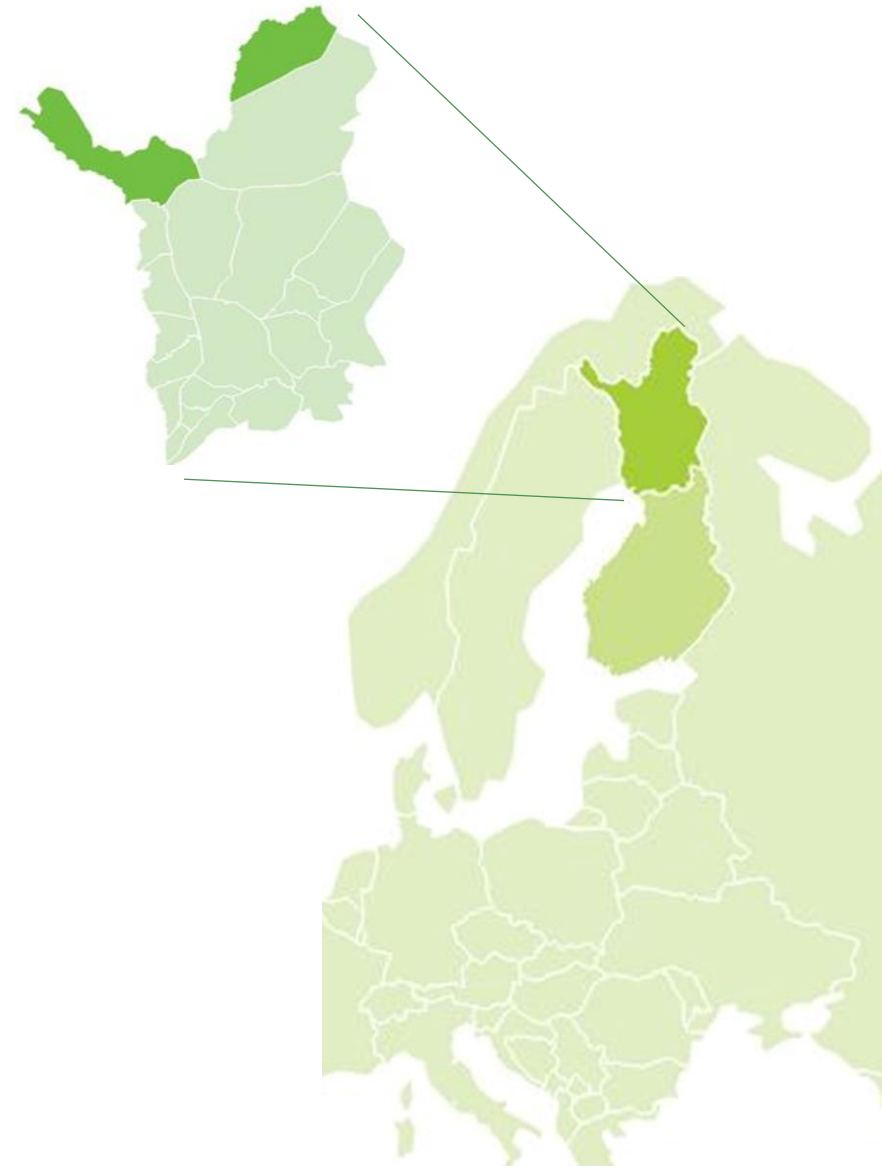


Chart: Chris Mooney for the Washington Post • Source: NASA and Rantanen et al, Communications Earth & Environment, 2021. • Created with Datawrapper

© Chris Mooney for the Washington Post

Territorial context and the aim

- **Lapland: northernmost part of Finland and the EU**
 - Very sparsely populated area with long distances
 - Lapland, with just under 180,000 residents (3% of Finland's population), covers a surface area of 100,366 square kilometers, which is 1/3 of the total area of Finland
- **2 municipalities as demo Partners and projects pilot areas**
 - Municipality of Enontekiö: around 1 800 residents
 - Municipality of Utsjokoki: around 1 200 residents
 - Economies primarily based on traditional nature-based livelihoods like reindeer herding and tourism
- **The overall objective:**
 - Strengthen the climate change adaptability of the region's nature-based livelihoods and the entire economic structure
 - The area can find a balance between the key nature-based livelihoods suitable for future nature climate conditions



Partners involved and activities

Partners

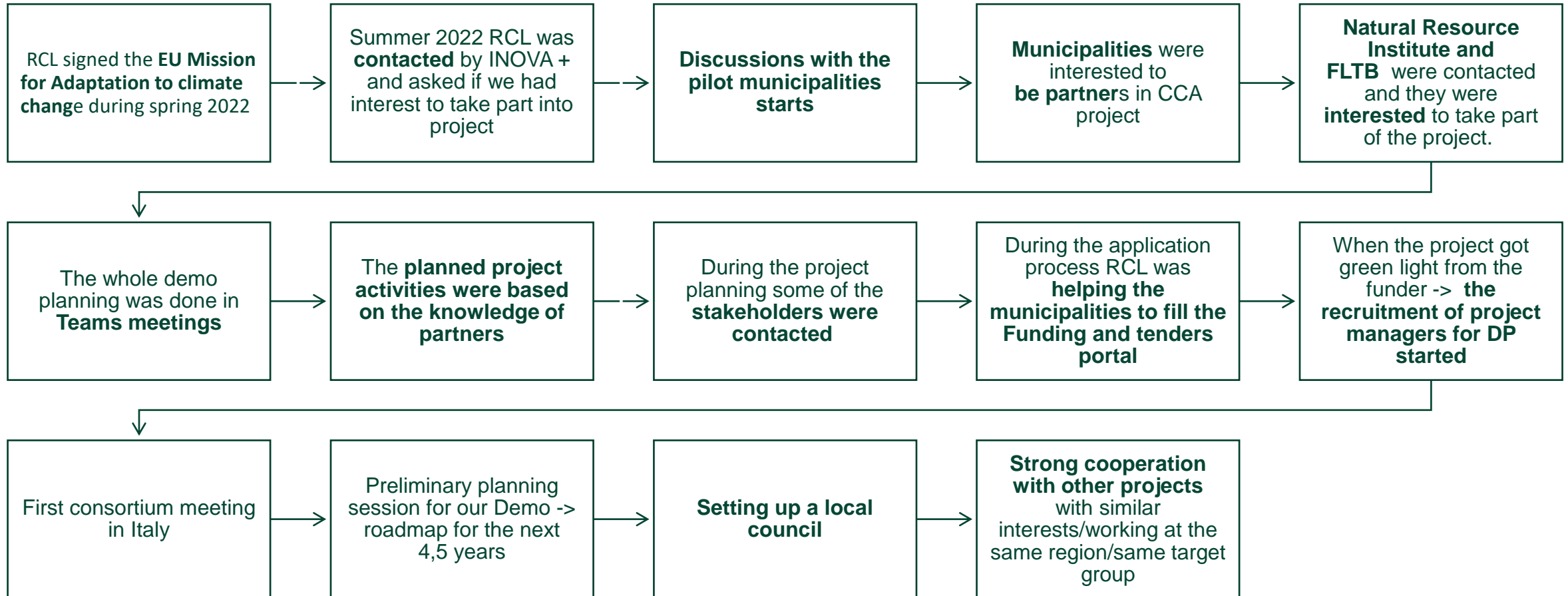
1. Regional Council of Lapland
2. Natural Resource Center of Finland
3. Finnish Lapland Tourist Board
4. Municipality of Enontekiö
5. Municipality of Utsjoki

Activities

1. Help **regional entrepreneurs** identify climate risks, anticipate and adapt
2. Develop a model for **regional adaptation plan**
3. Develop **company-specific adaptation plans** (Reindeer herding and tourism)
4. Develop adaptation **coaching**
5. Develop the use of new **Public Participation Geographic Information Systems** (PPGIS)



How was the demo built?



Challenges and benefits of this project in a rural area

1. How can we establish a 'common language' for discussing these topics?

- Demo partners come from a different sectors and with different expertise
- We collaborate closely across organizational boundaries
 - Climate change adaptation plans

2. How to manage the very first Horizon funded project?

- Easy to seek help from the local demo partners
- Continuous capacity building with the demo partners
- Learning from the international partners

3. Will the local communities and the entrepreneurs participate in our activities?

- Many crucial stakeholders are already Demo partners
 - Easy to reach out to the municipalities, communities, enterprises, policymakers, academia and researchers
- Cooperation with other projects with same topic/same target group



Image: Lotta Eriksson 2022



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Thank you for your attention!

Get in touch



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