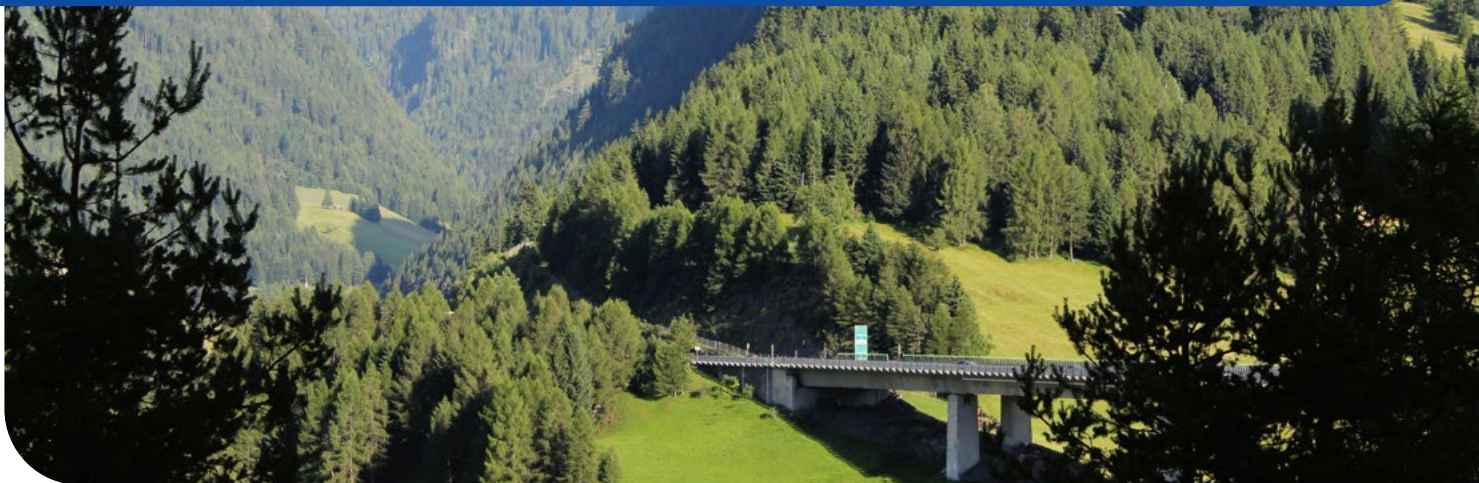


Delivering the EU Climate Adaptation Mission: Increasing the Adaptation Capacity of Mountainous Regions

Policy brief:

Contribution to the Preservation and Adaptation of Mountainous Regions through
Multidimensional Actions



Key Messages

- The Danube Region's mountains provide vital resources, yet their availability is threatened by climate change.
- Increasing mountain areas' capacity for climate resilience requires a multifaceted approach, focusing on policy frameworks, use of innovative nature-based solutions, and public engagement. All stakeholders play a decisive role in ensuring the sustainability and adaptability of mountainous regions.
- National governments in the Danube Region should seek opportunities for collaboration in order to achieve the expected preservation of mountains.

Policy Problem

Mountainous regions comprise approximately 35% of Europe's total land area, and serve as an indispensable source of freshwater, raw materials and agricultural goods. Home to both exceptional biodiversity and a significant portion (17%) of Europe's population, they are now heavily and disproportionately affected by the consequences of climate change. Accelerated warming, glacier retreat, changes in precipitation and snow cover, habitat loss, and natural hazards are increasingly evolving into imminent threats. The Danube Region, specifically, is surrounded by several major mountain ranges – the Alps, the Carpathians and the Balkans, all of which are vulnerable in the face of environmental deterioration.

Regional and EU-level frameworks currently contribute toward the adaptation of the Danube Region's mountains to climate change; the Carpathian Protection Convention, the EU Timber Regulation and the Lower Danube Green Corridor Agreement are among the numerous initiatives which have been devised to protect mountainous regions. Nonetheless, to ensure the continued survival of natural habitats, the preservation of resources and the protection of local residents, adaptation responses must be immediate, comprehensive and replicable.

Why Specific Adaptation Measures for Mountains Are Necessary

Apart from the vital role of mountains and their specific vulnerability to the effects of climate change, mountainous regions require additional attention for the following reasons:

- Due to their topographic specificity, mountains concentrate numerous different climates in geographically small areas. Each altitudinal zone requires specific actions and interventions.
- Mountain ranges span across borders and throughout countries; thus, their protection against the consequences of climate change can only be achieved through a coordinated transnational effort.
- Being popular tourist destinations, mountainous regions are placed under additional pressure due to unsustainable tourism practices, particularly concerning issues such as land use, infrastructure development and habitat disruption.

Evidence and Good Practice

The MountResilience project, under Horizon Europe's funding for Mission 1: Adaptation to Climate Change, demonstrates the significance of comprehensive and multifaceted action concerning mountain ranges, accounting for both region-specific vulnerabilities and overarching problems. The project develops nature-based solutions, devises climate change adaptation strategies, and introduces social and technological innovations, while ensuring the provided solutions are viable, scalable and replicable. Out of the six regional demonstrators, three are located within the Danube Region:

Gabrovo, Bulgaria

The flora and fauna of Bulgaria's North-Central Region is threatened by extreme climate events and hazards, including droughts, floods and forest fires. To ensure the protection of its ecosystems, Gabrovo is developing a new Green Infrastructure Strategy, encouraging the sustainable use of natural resources. The project foresees the use of nature-based solutions through a new rainwater harvesting system for irrigation of permeable green spaces in urban areas. To manage the ever-increasing climate risks in the region, the project seeks to create an early-warning and monitoring system against floods, hurricanes and forest fires.

Râu Sadului, Romania

Positioned within the Southern Carpathians, the region is threatened by biodiversity loss through increased temperatures and decreased precipitation. Râu Sadului utilizes innovative techniques to preserve mountain meadows, such as drones for field-scanning and special seeding machines for each specific terrain. Soil mixtures, seed amendments, fertilisers and bacterial mixtures are contributing to the region's revitalization, ecological resilience and productivity.

Tirol, Austria

Rising temperatures, extreme weather and the thawing of permafrost soils are apparent dangers for the Eastern Alpine Region. MountResilience thus helps the further development of Austria's policy instrument for climate and energy. Advisory services, research, monitoring and evaluation tools for climate change adaptation, and funding instruments for adaptation activities will contribute to Tirol's resilience against climate change.

Policy Recommendations for Danube Region Countries

Policy 1: Establish national-level services for research and innovation regarding the preservation and adaptation of mountainous regions

National governments would benefit from services that identify and acknowledge the specific needs of mountainous regions within their borders. Given the diversity of ecosystems, climates and challenges, as well as the differences in anthropogenic activity in each region, mountains' preservation and adaptation can be facilitated through a clear recognition of their conditions and needs.

Policy 2: Foster collaboration between national and municipal governments, academia, and the private sector for the creation of sustainable solutions

The development and implementation of nature-based solutions requires a cross-sectoral, multi-stakeholder approach. Co-creation on a national level is pivotal to addressing both region-specific and overarching issues.



Policy 3: Strengthen climate data for mountainous regions

The expansion of early warning systems to take into consideration the specific characteristics of mountain regions will contribute to sustainable planning, safety and risk reduction.

Policy 4: Facilitate transnational collaboration for the preservation and adaptation of mountain ranges

Transnational collaboration can be facilitated through awareness-raising, the provision of information and the generation of opportunities, allowing for both national governments and stakeholders to enhance the protection and adaptation of mountain ranges extending across borders.

Expected Impacts

- Fortified biodiversity in mountainous regions.
- Greater stakeholder involvement in the sustainable development of mountain communities.
- More comprehensive overview of the specific needs and challenges of mountain areas.

Conclusion

The use of the MountResilience project's activities as a foundation on which to further research, innovation and climate action is a strategic means of improving mountain areas' capacity for climate adaptation, enhancing public safety in the face of natural hazards and extreme weather, and ensuring the preservation of diverse local ecosystems. The integration of broad, overarching activities and region-specific interventions into a cohesive plan for climate mitigation and adaptation ensures that mountain areas will be better protected and more resilient.



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