



**MOUNT  
RESILIENCE**

**Accelerating transformative climate change  
adaptation for higher resilience in European  
Mountain Regions**



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## 47 partners

Mountains are admired for their breathtaking landscapes and as perfect sites for relaxation. Moreover, mountains play a much more significant role in our daily lives as they provide vital ecosystem and community services.

## 10 Mountain Regions

However, mountain ecosystems are highly vulnerable to the impacts of climate change (CC), and their adaptation responses have been insufficient so far. Thus, **MountResilience** has been formulated to tackle these challenges by increasing the adaptation capacity of mountainous regions and communities to strengthen climate resilience.

## 1 Project

**MountResilience** is a project in line with the EU Mission on adaptation to Climate Change, led by the Department of Agricultural and Environmental Sciences (DISAA) - UNIMONT - University of Milan and involves 47 partners from 12 European Countries. The duration of the project is 54 months.

# OBJECTIVES

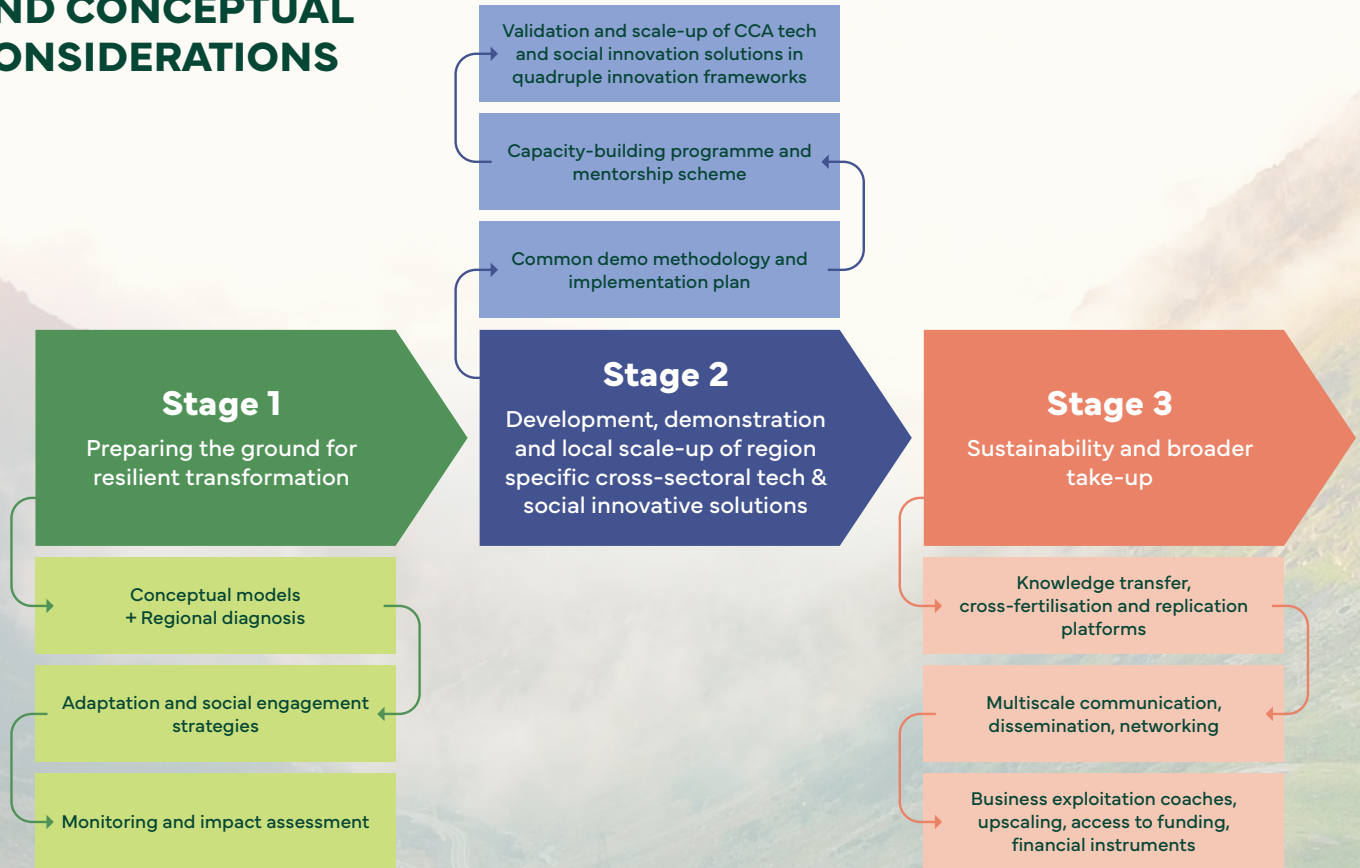
## Core Objectives

Support European regions and communities located in mountainous areas in increasing their climate change adaptation (CCA) capacity and their transition to a climate-resilient society by developing, testing and scaling up multi-level, multidimensional and re-applicable innovative CCA solutions in their regional and local settings.

## Specific Objectives

- ▲ Laying the foundations of transformative climate adaptation in the European mountains.
- ▲ Implementation of regional demonstrators for the development and testing of innovative CCA solutions involving a quadruple-helix approach and mobilising massive numbers of local communities.
- ▲ Transfer of know-how/knowledge and practices between project regions and beyond, enabling crossborder mutual learning and replication of climate adaptation solutions.
- ▲ Deployment of a widespread digital and face-to-face communication and dissemination campaign for increased awareness about CCA, engagement of communities, diffusing results and forging synergies with linked initiatives.
- ▲ Paving the way for further scale-up of CCA solutions and other exploitable outputs.

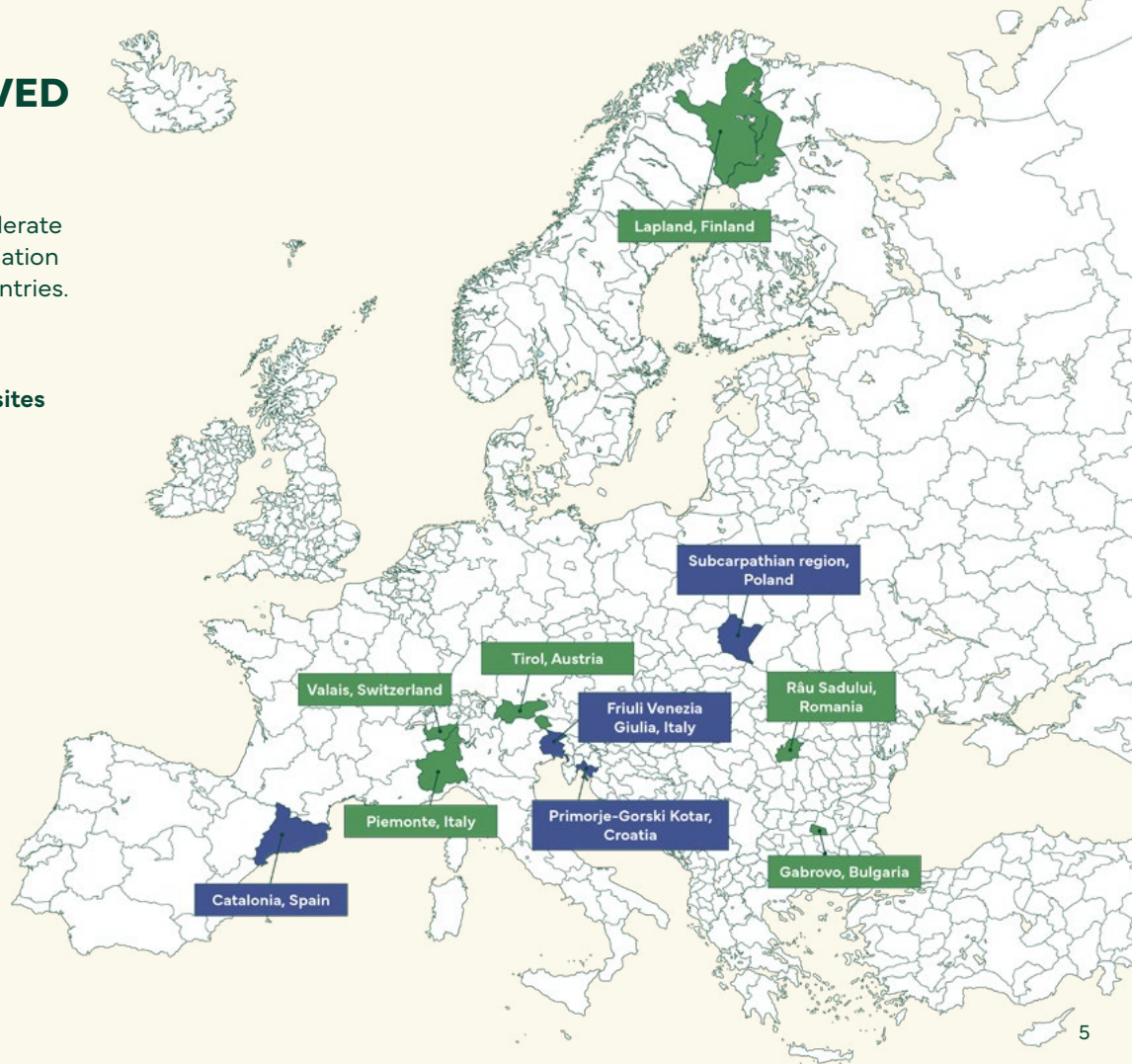
# METHODOLOGY AND CONCEPTUAL CONSIDERATIONS



# REGIONS INVOLVED

MountResilience aims to accelerate the climate resilient transformation of mountain areas of 9 EU countries.

- Regional demonstrator sites
- Regional replicator sites

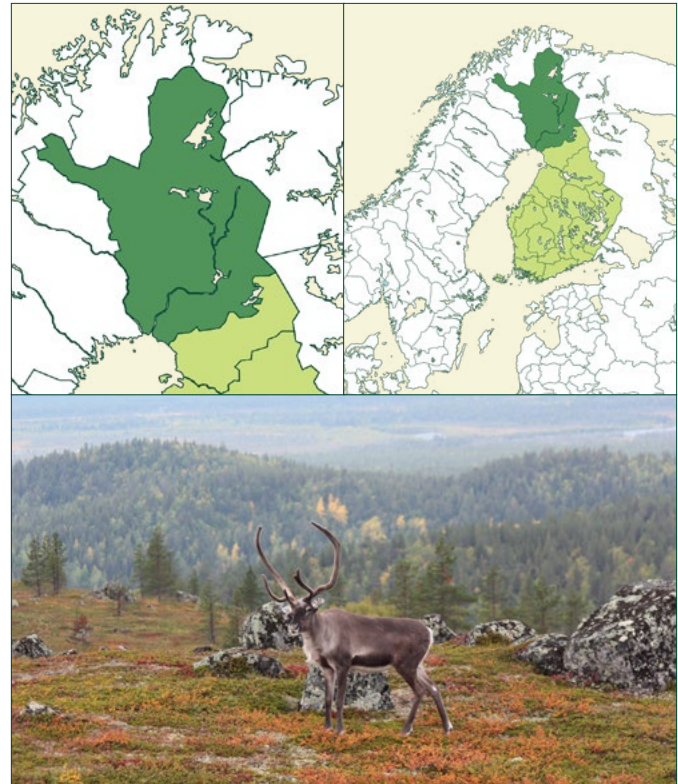


# REGIONAL DEMONSTRATORS OVERVIEW

**6 of the regions/communities will develop and test transformative climate change adaptation solutions on various key community systems (e.g. tourism, water consumption in agriculture, land use)**

## Lapland, Finland

The objective is to strengthen the adaptability of the region's nature-based livelihoods and the entire economic structure so that the area can find a balance between the key nature-based livelihoods suitable for future natural conditions. Additionally, the demonstrator seeks to reinforce the ability of entrepreneurs in the region to identify the climate risks of their own business and to strengthen companies' ability to anticipate and adapt to the effects caused by climate change. The following activities will take place: 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.



# REGIONAL DEMONSTRATORS OVERVIEW

## Tirol, Austria

A portion of the region's summer and winter tourism is connected to nature and consequently highly sensitive to changes in climate. For snow-based tourism products, climate change causes a later start and earlier end of the season at low altitudes and thus leads to a shorter season overall. In Tirol, the following activities will take place: further development and expansion of the newly established policy-instrument "Platform for Climate, Energy and Circularity; prototyping and testing innovative solutions for adaptation in the tourism sector; prototyping and testing of 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 OVERVIEW



## Piemonte, Italy

The demonstrator will create a framework to gather information from previously unconnected sources (soil data, meteorological registration, surface and groundwater monitoring, land use at the parcel level, satellite Sentinel photos), link them together, and create an integrated platform. In Piemonte, the activities will take at two scales: 1) farm scale: an application will be developed to integrate existing information with the use of irrigation water; 2) local scale (sub-catchment) or District: the action at the district scale will focus on the development and testing of a decision support tool to identify the best solutions for CCA.

# REGIONAL DEMONSTRATORS OVERVIEW

## Râu Sadului, Romania

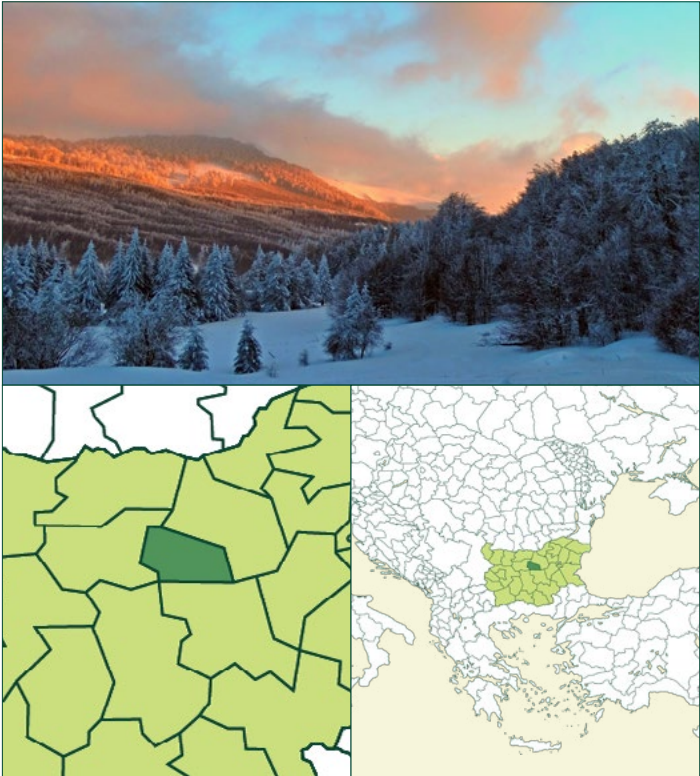
The main objective is to develop sustainable solutions for maintaining and using mountain meadows to help farmers face the challenges caused by CC. The demonstrator also plans to demonstrate new ways to scan the field with an equipped drone with NDVI sensors and an HD camera. The demo will use special seeding machines for over-seeding on meadows with flat terrain or smooth slopes and with drones equipped with a seed spreading system for meadows with irregular terrain and stiff slopes. Lastly, it is also intended to spread fertilizers with a drone.



# REGIONAL DEMONSTRATORS OVERVIEW

## Gabrovo, Bulgaria

Demonstrator project 1: Innovative solutions for Green Infrastructure. This pilot project integrates technological and social innovations such as: map of urban green environment in Gabrovo or concept of new Green Infrastructure (GI) strategy. Demonstrator project 2: Early-Warning and Monitoring System (EWMS). This pilot focuses on the development of an EWMS for risk management and involves several activities.



# REGIONAL DEMONSTRATORS OVERVIEW

## Valais, Switzerland

The demonstrator will be developed on the topic of water. The objective is to deliver both generic tools and methodologies, demonstrating the impact of the ecosystem, the digital platform and the associated methodologies and implement specific practices and technologies supporting the nature based solution (NbS). It involves: natural fertilization for local farming through glacier water monitoring; inclusive anticipatory ecosystem to support co-creation and decision-making at regional level on water; NbS river bed and shore design; new digital platform for inclusive dialogue, co-creation and decision-making on water; new sensors systems for the measurement of CO<sub>2</sub> in glacier water for natural fertilization by alpine water.



# REGIONAL REPLICATORS OVERVIEW

4 regions will serve as “replicator” regions, repurposing climate change adaptation solutions and lessons learned from the demo regions in their regions through special initiatives to improve their adaptive capacity.



## Catalonia, Spain

Catalonia is a region in the northeastern part of the Iberian Peninsula, with an area of 32,108 Km<sup>2</sup> and a population of 7.6m people. Mountains are 46% of the total area. The main economic sectors in the mountain regions include tourism, sport and leisure, and agriculture and farming.

## Friuli Venezia Giulia, Italy

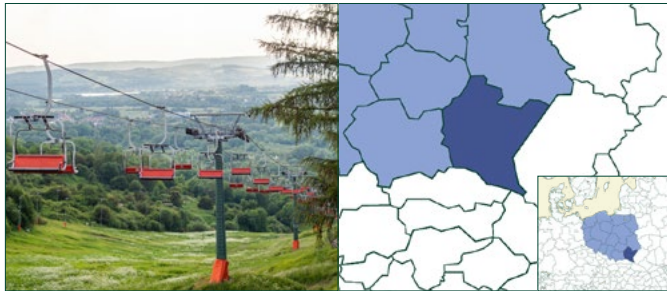
The Friuli Venezia Giulia region shows a complex territory that encompasses different environments, such as sea, swamps, plains, hills and an Alpine area with particular characteristics.



# REGIONAL REPLICATORS OVERVIEW

## Primorje-Gorski Kotar, Croatia

Primorje-Gorski Kotar (County) represents a relatively large area of 7,931 km<sup>2</sup> and is the sixth largest region in Croatia with 266 503 inhabitants (2021). The county consists of three microregions: the coastal area, islands and mountain area of Gorski Kotar.



## Subcarpathian region, Poland

Podkarpackie (Subcarpathian region) is a region in the southeastern corner of Poland, at the eastern border of the EU, in the northeastern outer part of the Carpathian Mountains, with an area of 17,846 Km<sup>2</sup> and a population of 2.1m people. Mountains consist of 46% of the total area.

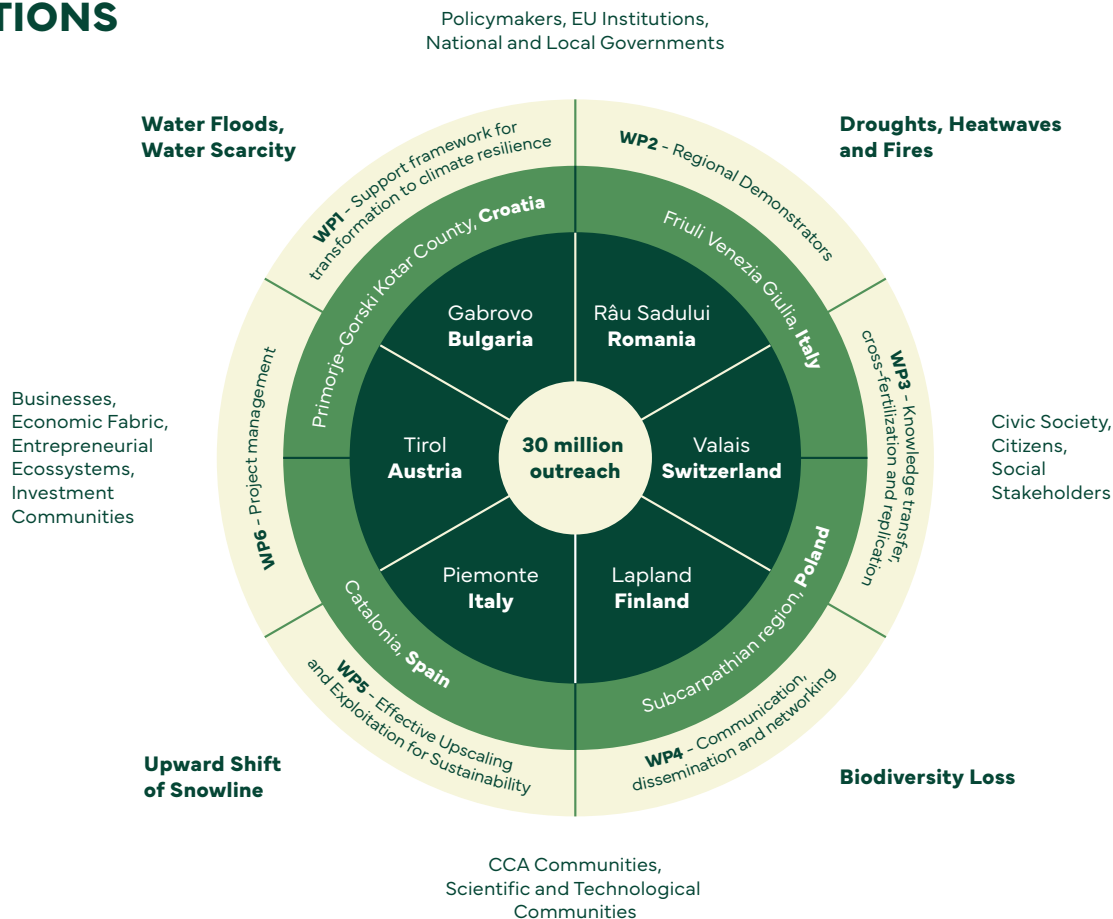
# SOLUTIONS

The climate change adaptation solutions will address policy, governance, societal needs and behaviours, technological requirements, public and financing targets, and climate change risks typical of mountainous areas.

## **MontResilience addresses several systemic CCA solutions:**

- ▲ Restoration of ecosystems and the establishment of ecological corridors.
- ▲ Climate resilience agriculture.
- ▲ Better management of water scarcity and impacts of droughts or to better management of water flooding (greening infrastructures, etc).
- ▲ Regeneration of (public) spaces to create climate resilience neighborhoods (heat-waves, floods, etc).
- ▲ Inclusion of digital solutions and services to better predict, monitor and report climate events.
- ▲ Economic analysis and business models.

# SOLUTIONS



## WORK PACKAGES

The MountResilience objectives will be achieved through 6 interconnected work packages implemented by an experienced high quality consortium.

**WP1** Provides a support framework to enable climate resilient regional transformation, setting the conceptual basis, providing a baseline analysis, and formulating strategies for the project regions, as well as creating and implementing tools for monitoring and impact measurement.

**WP2** Ensures the design, capacity-building, set-up, and deployment of the regional demonstrators, developing and testing tech and social innovations for CCA, and mainstreaming NbS.

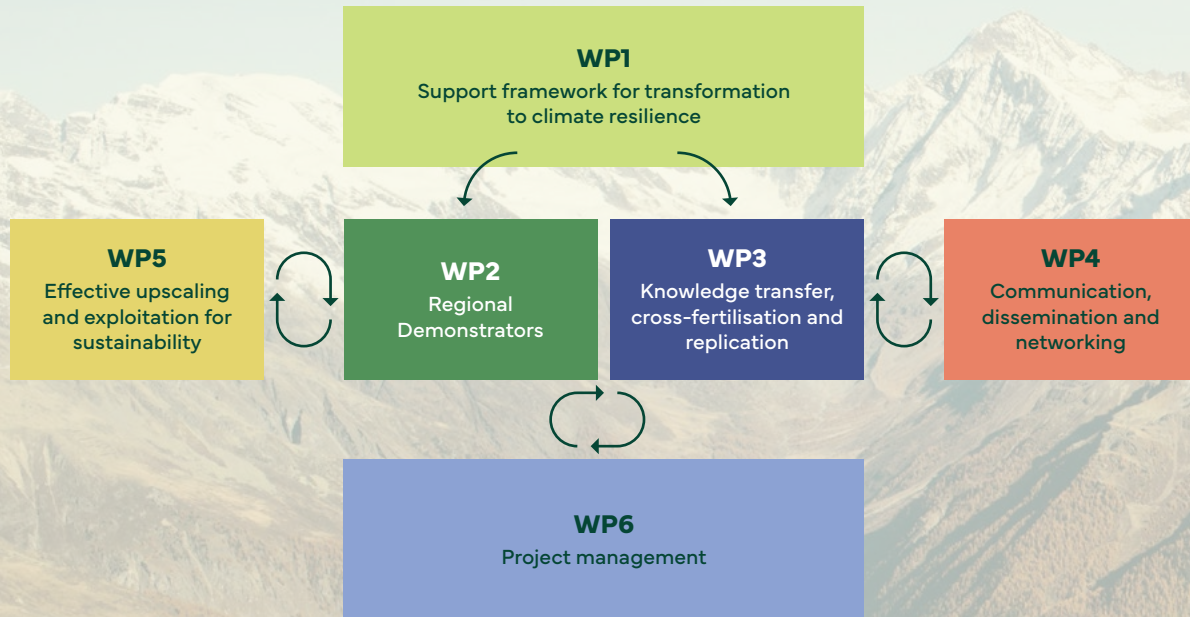
**WP3** Occupies itself as a center for knowledge transfer, cross-fertilization and replication, linking demo regions, replicators and a larger group of mountainous territories. This WP is fed by WP2 and the regional strategies developed in WP1.

**WP4** Interacts with the public and society to encourage greater societal awareness and receptivity of CCA and understanding of novel and innovative CCA solutions, it will contribute to mobilizing stakeholders and synergies with linked initiatives.

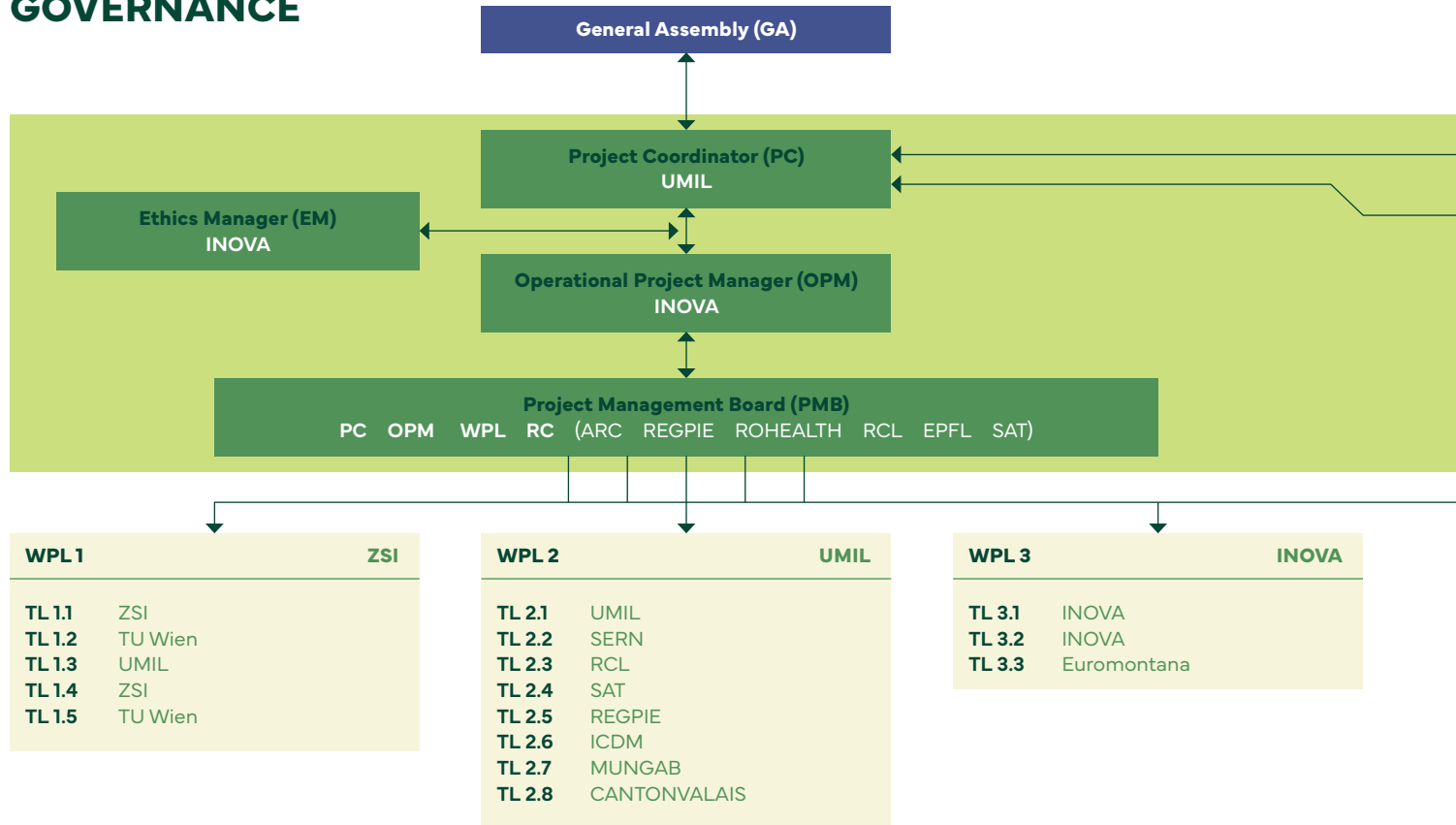
**WP5** Encompasses the effective upscaling and exploitation of results, exploring and promoting sustainable pathways, including access to funding.

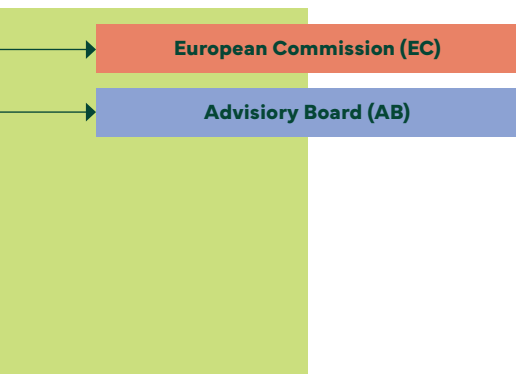
**WP6** Supports project coordination and management.

# WORK PACKAGES

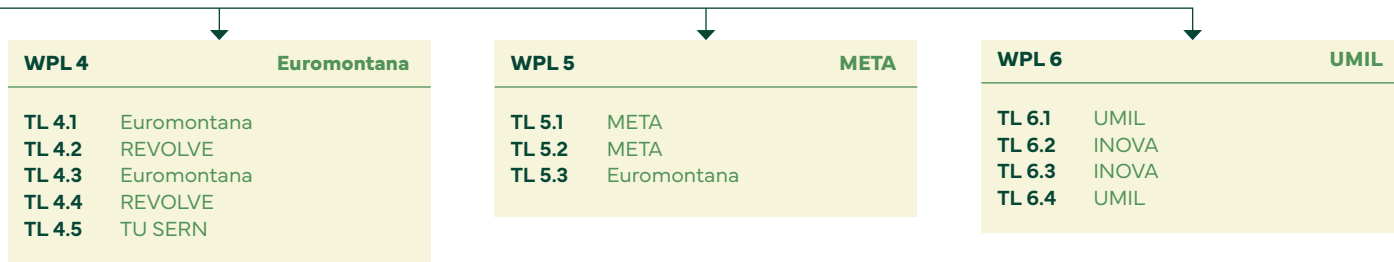


# PROJECT GOVERNANCE





A multi-layer governance structure assures an effective general management and direction of MountResilience but also creates more accountability and transparency and provides favourable settings for the consortium performance.



**TL** Task Leader

**RC** Regional Coordinator

**WPL** Work Package Leader

# MOUNTRESILIENCE CONSORTIUM

## Austria

AMT DER TIROLER LANDESREGIERUNG (LANDTIROL)

ENERGIEAGENTUR TIROL GMBH (EAT)

GFG GENOSSENSCHAFT FÜR GEMEINWOHL EG (GFG)

ZENTRUM FÜR SOZIALE INNOVATION GMBH (ZSI)

TECHNISCHE UNIVERSITÄT WIEN (TU WIEN)

STANDORTAGENTUR TIROL GMBH (SAT)

KLIMABUNDNIS TIROL (KLIMABTIROL)

UNIVERSITÄT INNSBRUCK (UIBK)

## France

EUROMONTANA (EUROMONTANA)

## Belgium

REVOLVE (REVOLVE)

STARTUP EUROPE REGIONS NETWORK (SERN)

FEDERATION EUROPEENNE DE FINANCES ET BANQUES  
ETHIQUES ET ALTERNATIVES (FEBEA)

## Bulgaria

APPLIED RESEARCH AND COMMUNICATIONS FUND (ARC)

REGIONAL INNOVATION CENTER AMBITIOUS GABROVO  
(RICGABROVO)

TECHNICAL UNIVERSITY - GABROVO (TUGABROVO)

MUNICIPALITY OF GABROVO (MUNGAB)

 Demo Partners    Replicator Partners    Horizontal Partners    Regional demo Coordinator

# MOUNTRESILIENCE CONSORTIUM

## Croatia

URBANEX DOO ZA GRADEVINARSTVO (URBANEX)

ZAVOD ZA PROSTORNO UREDENJE PRIMORSKO-GORANSKE  
ZUPANIJE (ZAVODPM)

## Finland

LUONNONVARAKESKUS (LUKE)

FINNISH LAPLAND TOURIST BOARD (FLTb)

UTSJOEN KUNTA (UTSJOKI)

ENONTEKIÖN KUNTA (ENONTEKIÖ)

REGIONAL COUNCIL OF LAPLAND (RCL)

## Portugal

INOVA+ - INNOVATION SERVICES, SA (INOVA)

## Romania

INSTITUTUL DE CERCETARE - DEZVOLTARE PENTRU  
MONTANOLOGIE CRISTIAN - SIBIU (ICDM)

SOCIAL FINANCE ASSOCIATION - ASOCIATIA PENTRU FINANTARE  
SOCIALA (SFA)

HOLLAND FARMING AGRO SRL (HFA)

COMUNA RAU SADULUI (RAUSADULUI)

ROHEALTH - CLUSTERUL PENTRU SANATATE SI BIOECONOMIE  
(ROHEALTH)

## Spain

DEPARTAMENT DE TERRITORI - GENERALITAT DE CATALUNYA  
(CATALANGOV)

CENTRO DE INVESTIGACION ECOLOGICA Y APLICACIONES  
FORESTALES (CREAF)

# MOUNTRESILIENCE CONSORTIUM

## Italy

UNIVERSITÀ DEGLI STUDI DI MILANO (UMIL)

META GROUP SRL (META)

REGIONE PIEMONTE (REGPIE)

UNIVERSITÀ DEGLI STUDI DI TRIESTE (UNITS)

REGIONE AUTONOMA FRIULI-VENEZIA GIULIA (REGFVG)

UNIONE NAZIONALE COMUNI COMUNITA' ENTI MONTANI (UNCEN)

CONSORZIO DEL PESIO (CPESIO)

COUTENZA CANALI CAVOUR (CCC)

UNIVERSITÀ DEGLI STUDI DI TORINO (UNITO)

POLITECNICO DI TORINO (POLITO)

## Poland

PODKARPACKIE CENTRUM INNOWACJI SPOLKA Z OGRANICZONA ODPOWIEDZIALNOSCIA (PODKARPACKIE)

## Switzerland

APPTITUDE SA (APPTITUDE)

BLUEARK ENTREMONT (BLUEARK)

ECOLE POLYTECHNIQUE FEDERALE DE LAUSANNE (EPFL)

CANTON DE VALAIS (CANTONVALAIS)

FONDATION POUR LE DÉVELOPPEMENT DURABLE DES RÉGIONS DE MONTAGNE (FDDM)

 Demo Partners    Replicator Partners    Horizontal Partners    Regional demo Coordinator

# MOUNTRESILIENCE HIGHLIGHTS

- ▲ ≥ 53 new CCA technological and social innovations, incl. NbS 100m€ of public funding and 25m€ of private venture capital funding captured to fund CCA results
- ▲ 6 demonstrators in 6 European countries
- ▲ 4 replicators from 4 European countries
- ▲ 4 regions eligible for EU Cohesion Fund
- ▲ 5 European mountain ranges covered
- ▲ 13m€ allocated to regional demonstrators and replicators 30m citizens with higher awareness about CCA

## DID YOU KNOW THAT...

- ▲ ...mountains cover 30% of the land?
- ▲ ... mountains are the origin of 60-80% of the world's freshwater?
- ▲ ... every 6<sup>th</sup> EU citizen lives in mountainous areas?
- ▲ ... the regions involved on MountResilience include some of the highest peaks on the continent?



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AMBIENTALI

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GESDIMONT**