



Drivers of change affecting resilience in mountain areas: MOVING project

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XII European Mountain Convention. Sila National Park



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What is MOVING?



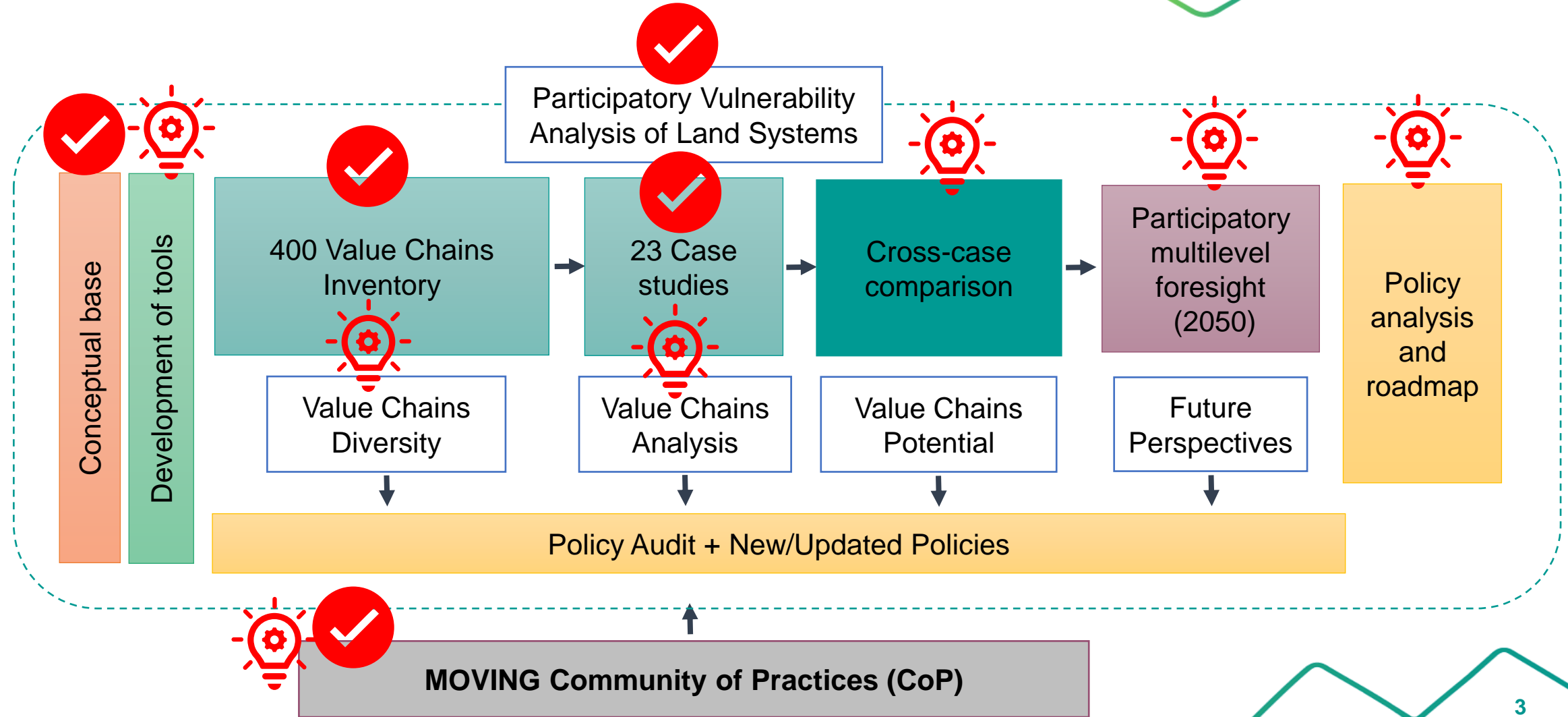
MOVING (MOUNTAIN Valorisation through INterconnectedness and Green growth) – is a four-year project (2020-2024) gathering 23 partners and coordinated by University of Córdoba, Spain. The project is funded by the **Horizon 2020** programme.



The **project main objective** is to build capacities and co-develop relevant policy frameworks across Europe for the establishment of value chains that contribute to the resilience and sustainability of mountain areas to climate change.



MOVING Approach



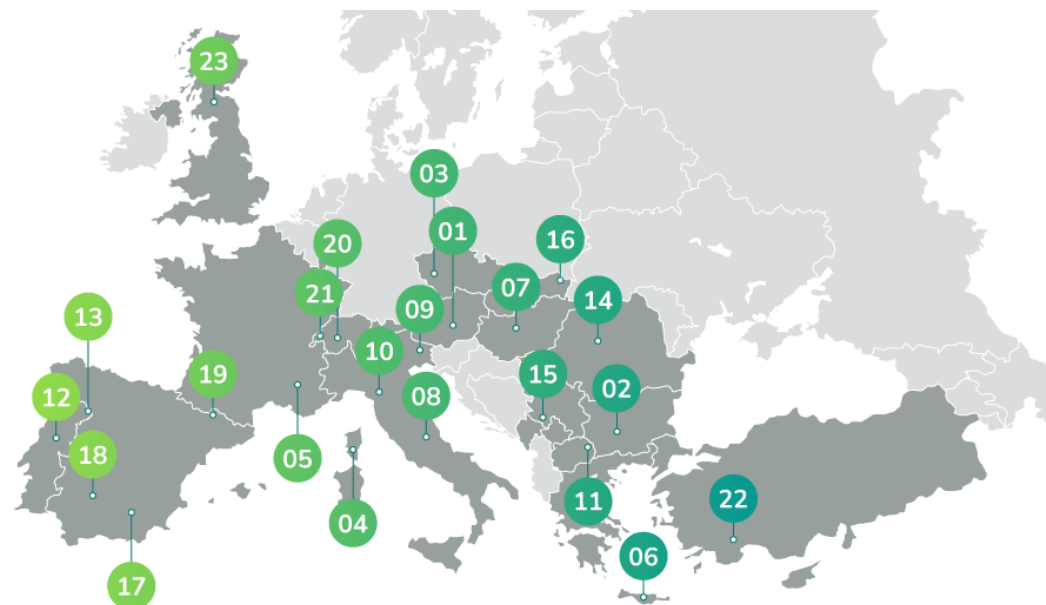
MOVING Reference Regions



23 Mountain Reference Regions distributed in 16 European and neighbouring countries.

The characterisation of the studied mountain areas allows:

- the **establishment of linkages between the region specific land use systems and expected changes** driven by new large scale environmental conditions.
- **transferability of** place-based research to **understanding** processes of change **in similar areas**.



23 case studies

23 vulnerability matrixes locally atuned

Main MOVING outputs



**Inventory 453
Value Chains**



**23 Case studies
23+23 vulnerability matrixes
(Land Use & Value Chain)**



**Conceptual & Analytical
Framework. MOVING App**



28 foresight exercises



**Susceptibility/vulnerability
maps**



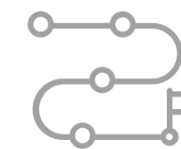
**Community of
Practice**



**Policy
recommendations**



Policy Roadmap



Multi-actor and multi-scale analysis



- Strong stakeholder's interactions
- Role of women and youngsters
- Socially responsible enterprises
- Social innovation

SCALE AND SCOPE

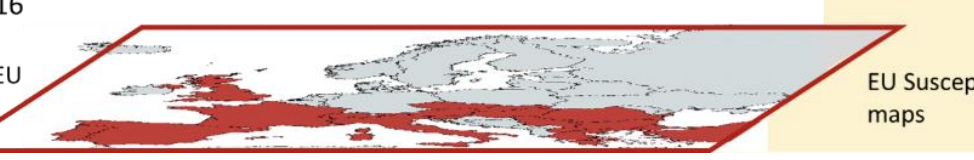
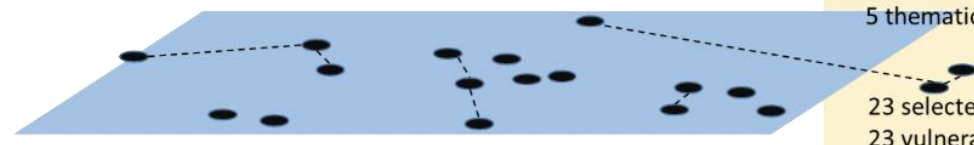
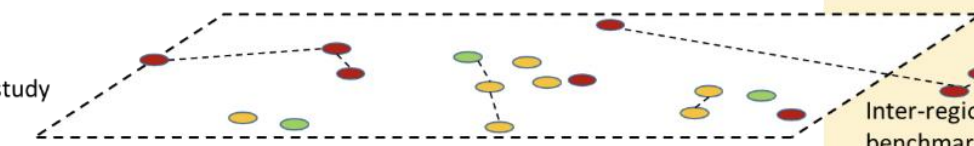
ASSESSMENT
Participatory approach

CROSS-CASE
5 thematic clusters
Grouping the 23 cases of study

REFERENCE REGIONS
23 cases of study

EUROPE
Inventory of 400 mountain VCs

EUROPE: 23 regions in 16 countries
But accounting for global EU diversity



MAIN RESULTS

Policy Roadmap and Policy design tools
Foresight of vulnerability/ opportunities for 2050

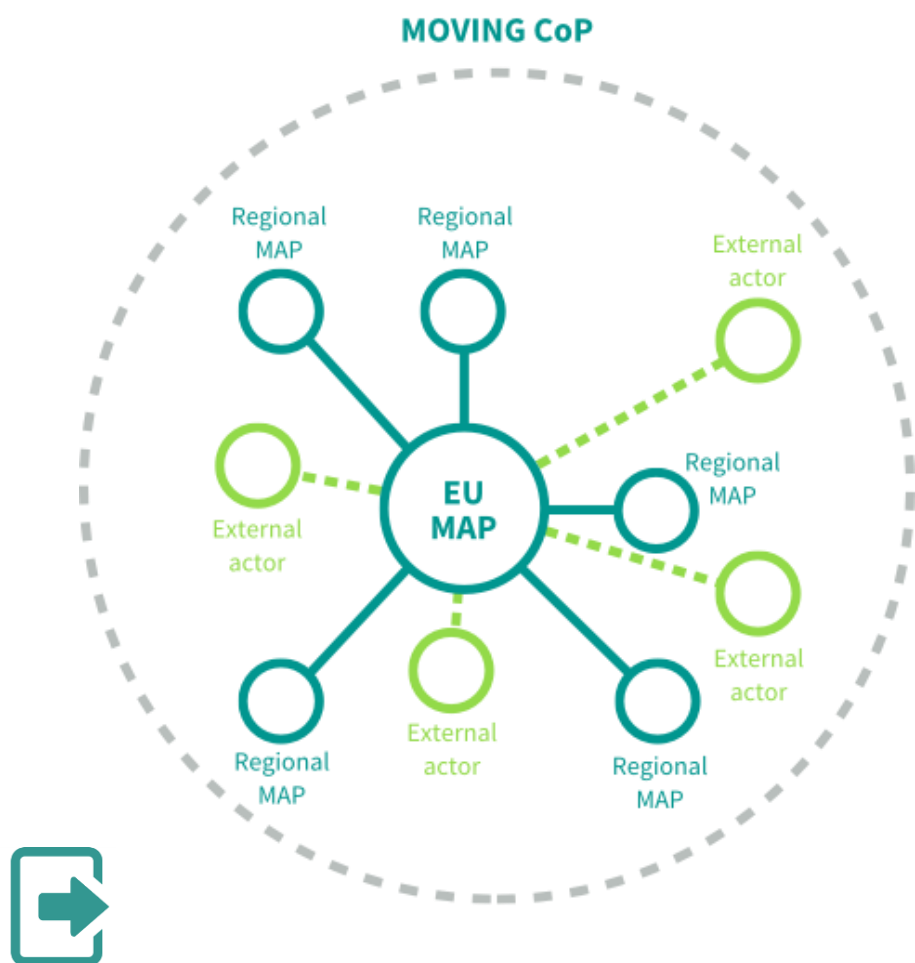
Inter-regional comparison and benchmarking
5 thematic clusters

23 selected study cases
23 vulnerability matrix locally attuned

400 VCs- characterised

EU Susceptibility/ vulnerability maps

MOVING Community of Practice



European-wide Science-Society-Policy interface and **nested structure** built upon:

- 23 regional MAPs established in the 23 Reference Regions
- 1 European-level Multi-Actor Platform (EU MAP)

OBJECTIVES

1. Co-creation and validation of key research outputs and results delivered by MOVING;
2. Exchange of knowledge and experience
3. Build a long-lasting community

MOVING EU MAP



The **European-level Multi-Actor Platform** (EU MAP): stakeholders interested to exchange, learn and interact at the EU level on resilience to climate change of mountain value chains.



The EU MAP seeks to **engage external stakeholders from policy, research and relevant practice groups working in other Member State or at EU level.**

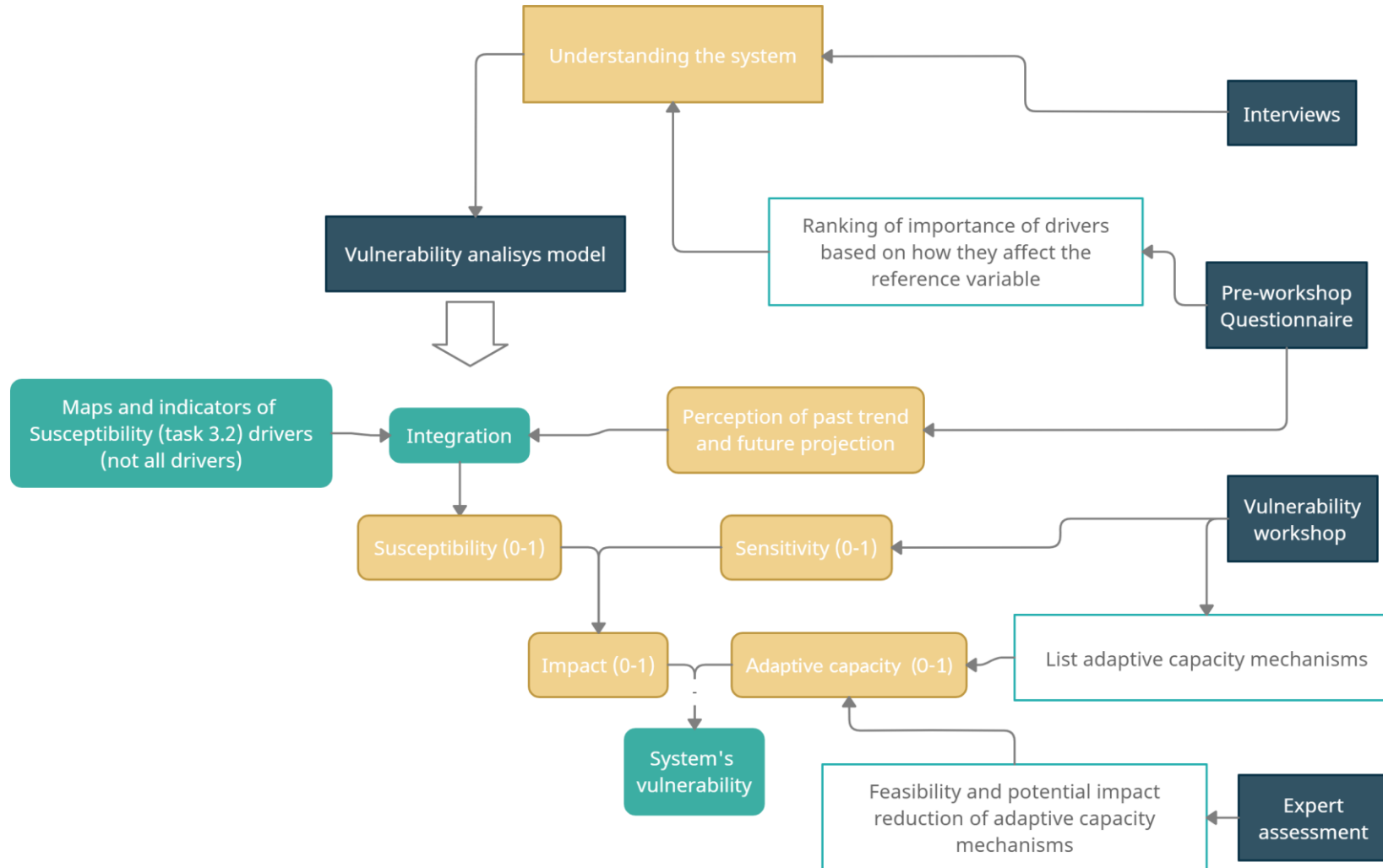
The EU MAP will also support **peer-to-peer exchanges on additional topics** relevant for the members and for the regional MAPs.



**NOVEMBER 8, 2022, 9.30 - 1.15 (CET)
ONLINE**

<https://www.moving-h2020.eu/event/moving-eu-map-webinar-european-quality-schemes-the-added-value-for-mountain-value-chains/>

Land Use System. Vulnerability conceptual framework



Vulnerability: Biophysical drivers of change



Exogenous	
Climate change - precipitation	Changes in precipitation regime (rain or snow) with potential impact in the hydrological system (rivers and groundwater), soil and vegetation.
Climate change - temperature	Increase in mean temperature seasonal or annual. (average, maximum and minimum temperatures)
Climate change - extreme events	Changes in intensity, frequency, or timing of flooding, heat waves, storms (wind) hail and frost periods.
Climate change – wildfire	Intensity, frequency, or timing of wildfires (forest and soil)

Endogenous	
Land-use and land-cover change	Complete changes in land-cover such as conversion from forest to agriculture linked to climate change or other driving forces Changes in vegetation cover such as reduction of tree cover or shrub encroachment.
Soil physical degradation	Soil physical degradation through loss of organic of the soil,
Over-exploitation of resources	Water extraction (river or groundwater) Overgrazing – Livestock and wildlife density
Pests, diseases, and invasive species	Changes in intensity and frequency of pest and diseases, either native or invasive
Pollution	Contamination of soil, water (surface and groundwater), or the atmosphere by the discharge of harmful substances.
Demographic changes	Demographic changes such as population decline or immigration that produce changes in management practices and land-use abandonment. This driver could be a cause of land-use and land-cover change

Overall impact and vulnerability per region



MRL	Impact	Vulnerability considering Scenarios of adaptation		
		Vulnerability (all mechanisms)	Vulnerability (medium feasibility mechanisms)	Vulnerability (High feasibility mechanisms)
Beydaglari	0.7	0.2	0.2	0.3
Stara Planina	0.6	0.2	0.2	0.2
Cordilheira Central	0.6	0.4	0.4	0.4
Sierra Morena	0.6	0.2	0.3	0.3
Central Apennines	0.6	0.2	0.2	0.3
South Carpatians	0.6	0.1	0.1	0.1
Drôme Valley	0.5	0.4	0.4	0.5
Jura	0.5	0.2	0.2	0.2
Pyrenees	0.5	0.1	0.2	0.3
Crete	0.5	0.1	0.1	0.1
Maleshevski mountains	0.5	0.1	0.1	0.1
Slovak Carpathians	0.5	0.2	0.2	0.3
Austrian Alps	0.4	0.1	0.1	0.3
Transdanubian mountains	0.4	0.1	0.1	0.1
Maciço Noroeste	0.4	0.1	0.1	0.2
Northern Apennines	0.4	0.2	0.2	0.3
Eastern Alps	0.4	0.1	0.1	0.2
Speyside	0.3	0.1	0.1	*
Corsica	0.3	0.0	0.0	0.0
Betic systems	0.3	0.0	0.0	0.0
Šumava - Český les	0.2	0.1	0.1	0.1
Dinaric mountains	0.2	0.1	0.1	0.1
Swiss Alps	0.1	0.0	0.0	0.0

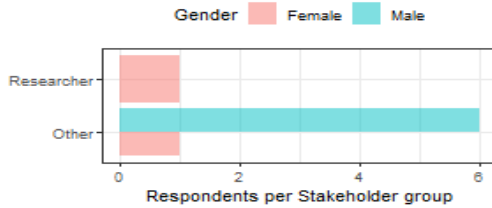
- Six regions showed high impact level (>0.5) covering wide geographical area from West to East Mediterranean.
- Some Mediterranean regions seem rather resistant to the drivers of change studied here (e.g., Betic and Crete).
- Regions covering alpine and central European ranges showed moderate to low impact.

Southern Romanian Carpathian Mountains

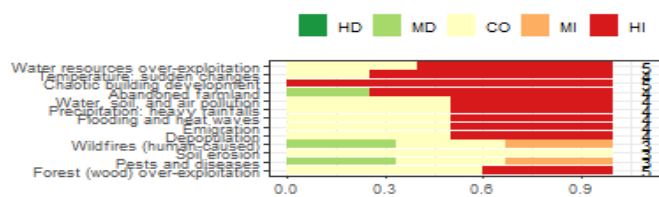


MOVING
MOUNTAIN VALORISATION THROUGH
INTERCONNECTEDNESS AND GREEN GROWTH

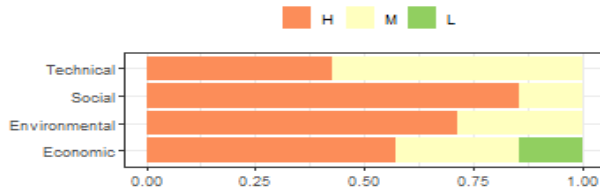
RO-SouthCarpatians



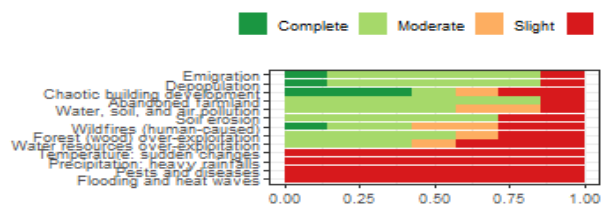
Trend



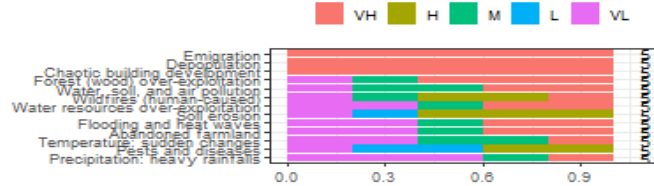
Feasibility



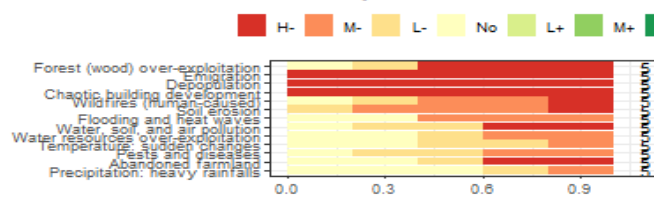
Adaptation mech. reduction



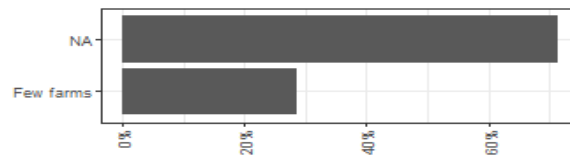
Ranking



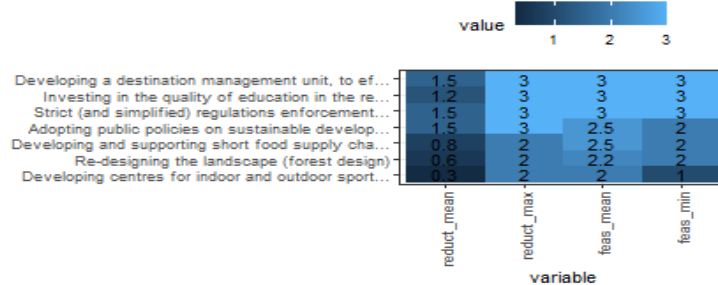
Sensitivity



Implementation



Vulnerability Matrix



Ranking

- Not relevant VL
- Slightly relevant L
- Moderate relevant M
- Very important H
- Extremely important VH

Trend in the last 20 years

- High decline HD
- Medium decline MD
- Constant CO
- Medium increase MI
- High increase HI

Sensitivity

- Total positive effect H+
- Severe positive effect M+
- Partial positive effect L+
- Does not affect No
- Partial negative effect L-
- Severe negative effect M-
- Total negative effect H-

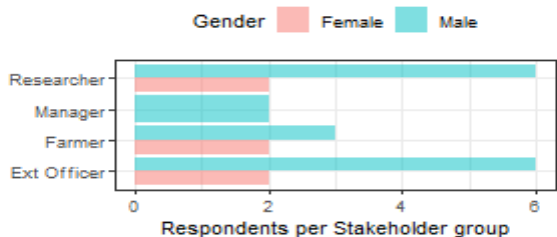
Feasibility

- High H
- Medium M
- Constant L

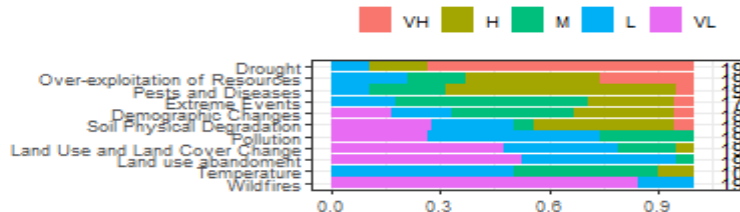
Sierra Morena (Spain)



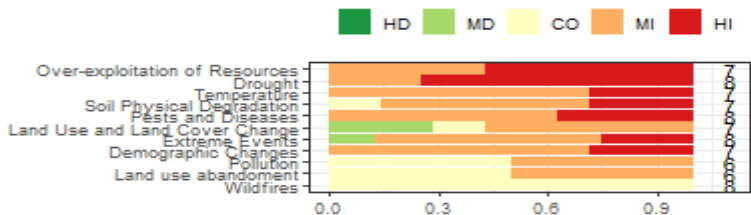
ES-SierraMorena



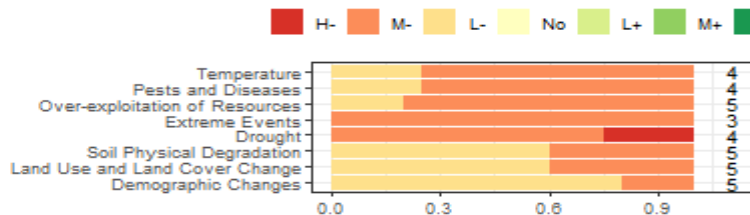
Ranking



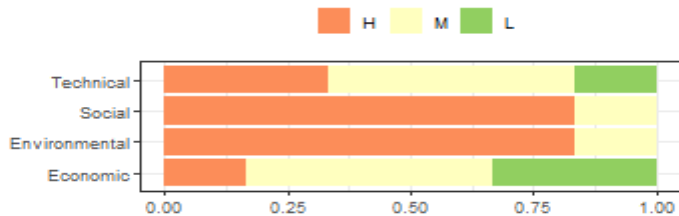
Trend



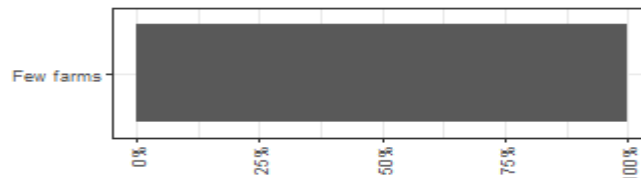
Sensitivity



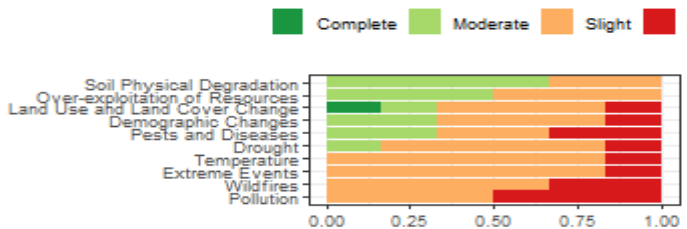
Feasibility



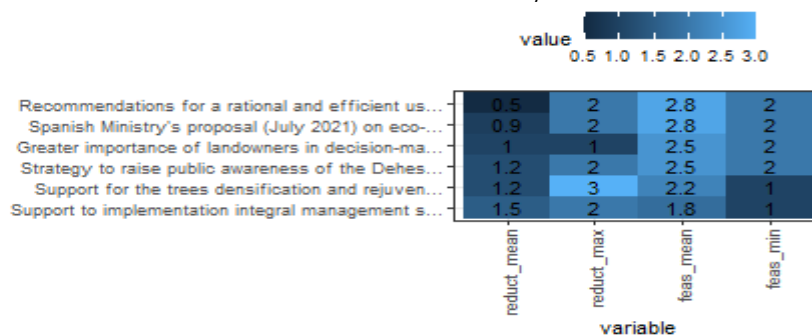
Implementation



Adaptation mech. reduction



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Feasibility

- High H
- Medium M
- Constant L

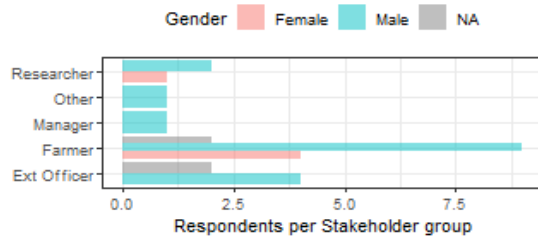


Austrian Alps

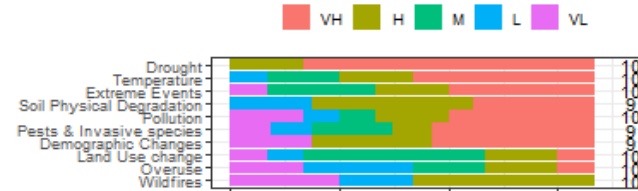


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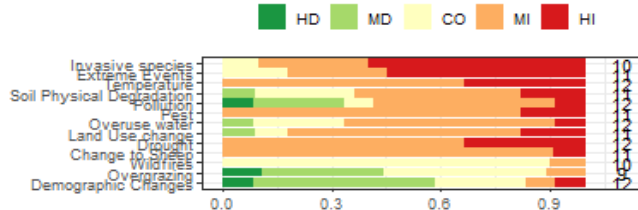
AT-Alps



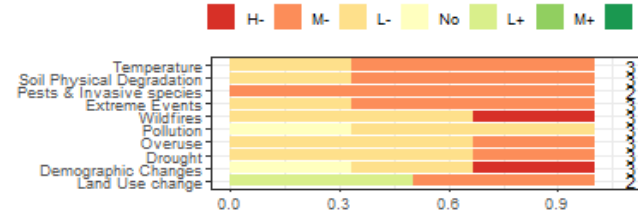
Ranking



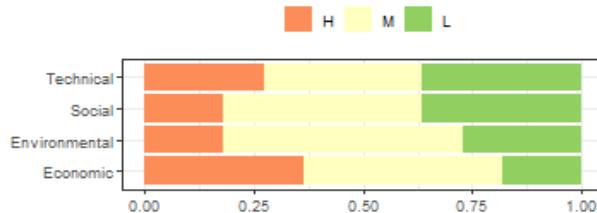
Trend



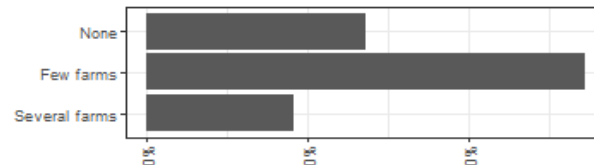
Sensitivity



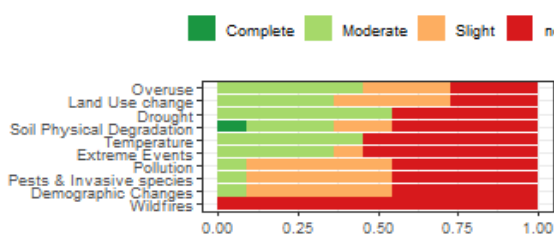
Feasibility



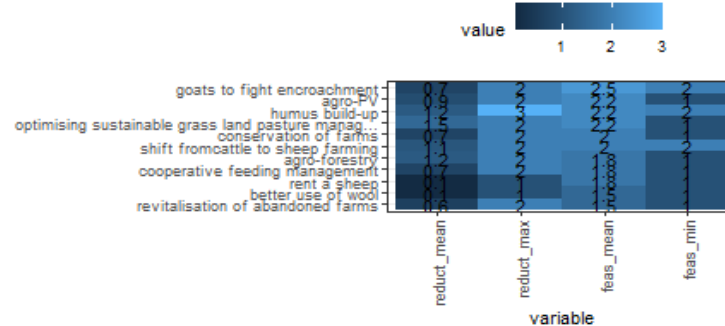
Implementation



Adaptation mech. reduction



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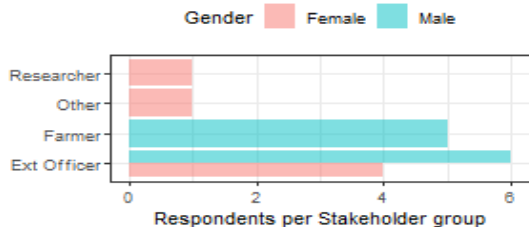
Feasibility

- High H
- Medium M
- Constant L

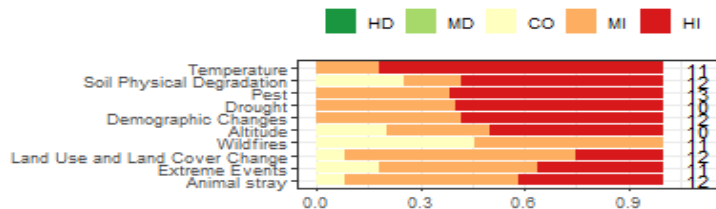
Corsica



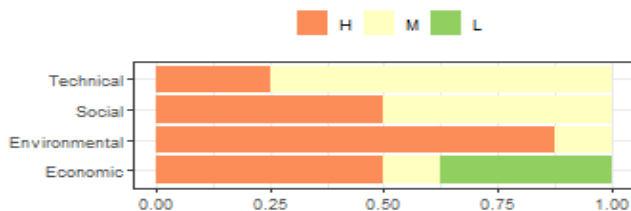
FR-Corsica



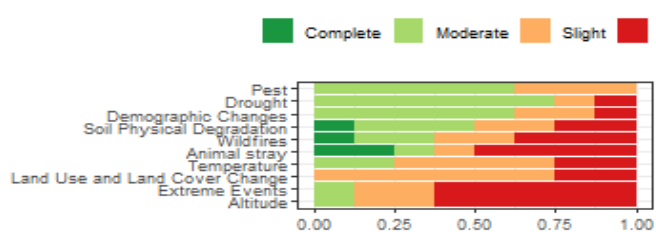
Trend



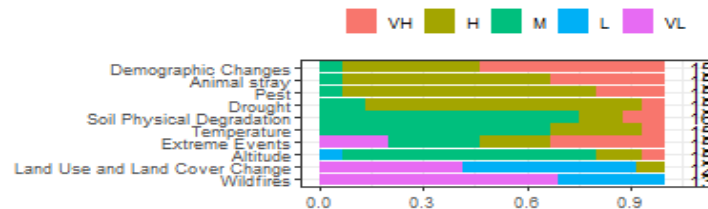
Feasibility



Adaptation mech. reduction



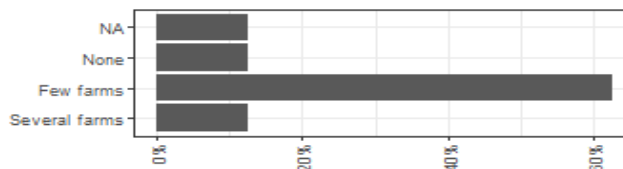
Ranking



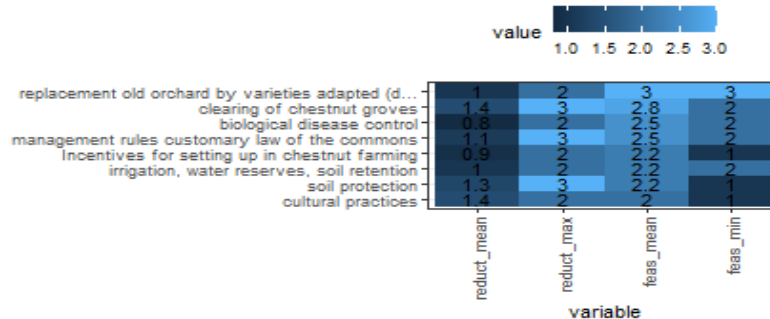
Sensitivity



Implementation



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- Moderate relevant: M
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- Extremely important: VH

Trend in the last 20 years

- High decline: HD
- Medium decline: MD
- Constant: CO
- Medium increase: MI
- High increase: HI

Sensitivity

- Total positive effect: H+
- Severe positive effect: M+
- Partial positive effect: L+
- Does not affect: No
- Partial negative effect: L-
- Severe negative effect: M-
- Total negative effect: H-

Feasibility

- High: H
- Medium: M
- Constant: L



What's next?



- **Youth** engagement workshops
- **MOVING Mountains APP** to foster engagement of people (citizens and visitors) to the resilience of the mountain regions through identification and sharing of information.
- Refine the concepts and approaches in the **Conceptual Analytical Framework**. Participatory Theory Building.
- **Visual** tools
- Value Chain **vulnerability** analysis
- Participatory **digital stories** describing the Value Chains
- **Benchmarking** and comparative assessment of Value Chains
- **Foresight analysis** at 2050 scenario
- **Policy Analysis** and **Policy Roadmap**

Final Reflections



- MOVING is identifying the **drivers of change** and **vulnerability** of the European mountains (at land use and value chain levels)
- Results show high vulnerability to **climate change effects** and **depopulation** in all the mountain regions analysed
- Results are based on **participatory analysis** and involvement of our **CoP** members (568 in the 23 MAPs and the EU MAP. Effort to engage **women** (31% in regional MAPs & 55% in EU MAP), **young people** (14 members under 25 & 135 between 25-40 in regional MAPs) and **diversified/non-agricultural business actors** (26,9% of Regional MAPs)
- **MOVING Mountains APP** will be launched by the end of the year to foster engagement of people (citizens and visitors) to the resilience of the mountain regions through identification and sharing of information.
- Next steps will be focused on identifying factors that enhance/hinder **sustainability and resilience** of mountain areas and in developing a **Policy Roadmap**

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