



MOVING
MOUNTAIN VALORISATION THROUGH
INTERCONNECTEDNESS AND GREEN GROWTH

Policy Brief

CLUSTER N

Nature and Ecosystem Services



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 862739

Policy Brief Cluster “N”: Nature and ecosystem services

MOVING is a 4-years Horizon 2020 funded project whose main objective is to build capacities and codevelop relevant policy frameworks across Europe for the establishment of new or upgraded/upscaled value chains that contribute to the resilience and sustainability of mountain areas, using a bottom-up participatory process that engages value chain actors, stakeholders, and policymakers. The project is developed in 23 European mountain regions. Some additional objectives are:

- Establish a European-wide Community of Practice (CoP) on Mountain Value Chains, including actors from the Agricultural Knowledge and Innovation System (AKIS), value chain and policymaking stakeholders and society.
- Develop a conceptual and analytical framework based on the understanding of mountains as Social-Ecological Systems, describing and interpreting the diversity of mountain value chains, and assessing their contribution to the sustainability and resilience of mountain areas and population.
- Provide visual tools to raise awareness of the Agricultural Knowledge and Innovation System (AKIS), value chains actors, civil society, and policymakers on the diversity of land use and production systems of mountain areas, the threats they face, the bio-physical assets they can mobilise, their sustainability, and their resilience to climate change.
- Study the configurations, strategies, dynamics, and value distribution of different value chains in the main European mountainous areas to assess their contribution to sustainability and resilience.
- Develop in-depth, participatory, critical benchmarking of clusters of mountain value chains to identify enablers and blocking factors affecting the sustainability and resilience.
- Carry out foresight exercises to capture and anticipate the long-term trends affecting mountain areas, co-constructing shared visions and strategies for a balanced mix of public and private goods.
- Elaborate an evidence-based and performance-focused policy roadmap and policy design toolkit for the next generation of policy interventions to enhance the connectivity, sustainability, and resilience of mountain regions.

During the project development, an in-depth analysis of a value chain in each mountain area was conducted to determine its contribution to sustainability and resilience. Subsequently, the 23 value chains were categorised into five distinct clusters for cross-comparison and benchmarking. Each cluster aimed at addressing a specific challenge: Social and Demographic aspects (S), Innovation and infrastructures (I), Governance, Territoriality and cooperation (G), Nature and ecosystem services (N), and Value and quality products (V). To facilitate the analysis, seven common objectives were established (see Fig. 1), and various participatory activities were carried out. These included a cluster workshop involving stakeholders from all value chains within the cluster and a questionnaire answered by experts from each value chain. This Policy Brief serves as a synthesis overview of the results obtained in Cluster S (Social and Demographic aspects).



Figure 1. The 7 common objectives of MOVING

1. Synthesis of Cluster N in mountain areas of Europe

Cluster N is focused on mountain regions, which are typically characterised by significant territorial capital stemming from natural resources and unique ecosystems. This capital is actively used by farmers and other rural stakeholders in diverse ways. Within this cluster, there are instances where regions intentionally strengthen the connection between extensive farming systems and the conservation of high biodiversity in agricultural landscapes, exemplified by the concept of High Nature Value Farming. In this context, agriculture assumes a distinctive role in providing ecosystem services. Farmers often adopt highly extensive agricultural methods to contribute to public goods, relying on financial support from the State. But other actors, like tourists or tourism businesses also use these resources. Despite the focus on ecosystem services, farms in these regions also play a crucial role as producers. Abundant natural assets enable farmers to enhance the value of their production, often through specific certification schemes such as organic farming or mountain products certification.

For each of the value chains belonging to Cluster N (Figure 8) we analysed their performances within the framework of three objectives. The analysed objectives were:

- Sustainable utilization of local assets
- Ecological resilience
- Attractiveness and wellbeing

These objectives were analysed using the selected indicators based on benchmarking of data gathered within WP4 and especially Task T4.3. Validation and completion of information was done at the Cluster workshop held in November 2023 in Hungary, where regional stakeholders attended.

The overall outcomes of the analysis (a more detailed description is in Deliverable 5.1) can be summarised as follows. The complex analysis of data available shows that there is a trade-off between the sustainable use of local assets, biodiversity, and high nature value of the areas in general on one side and the attractiveness of the areas for residents (especially young people) and the ability or willingness of locals to participate in decision making on the other hand. This could be result of restriction for production function of agriculture within the high nature value of mountain regions and support of ecosystem services provision. This is also acknowledged by the discussion of these issues among local actors at cluster workshops. The data and information gathered at cluster workshops show that the provision of public goods in the form of maintaining a cultural landscape and ecosystem services could threaten the production function of agriculture and, thus the attractiveness of these areas for young people.

These results imply challenges that should be addressed by development policies. The main challenges include not only climate change, but also, in the case of Cluster N, the diverse interests of the different land-use actors in the Cluster N regions and their cooperation among themselves.

There are six mountain regions and value chains considered in Cluster N:

N°	Mountain	Value Chain	Country
01	Austrian Alps	Lamb from Weiz region	Austria
02	Stara Planina	Public Goods for High Nature Value Farming	Bulgaria
03	Sumava – Cesky Les	Beef production	Czechia
05	Drome Valley	Sheep meat	France
15	Dinaric Mountains	Sjenica lamb PDO	Serbia
20	Swiss Alps	Mountain grain	Switzerland

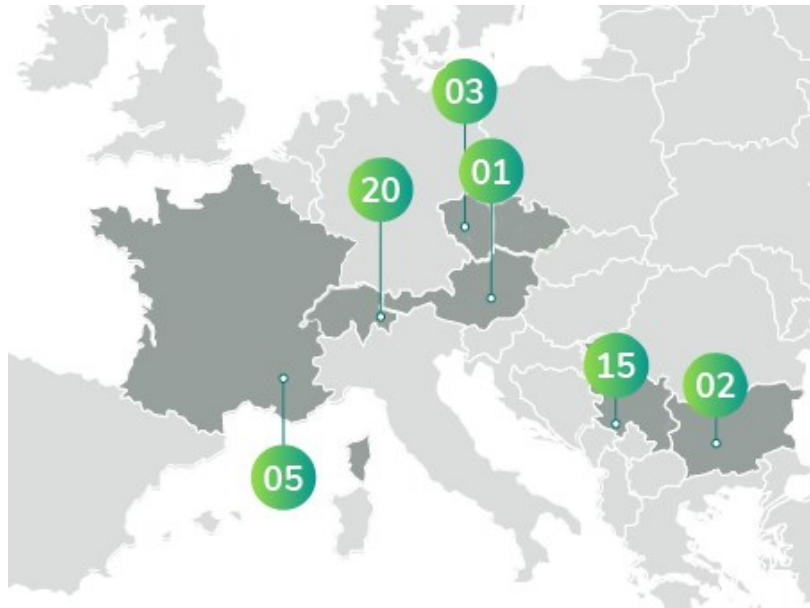


Figure 2. Reference regions that are part of the Nature and ecosystem services cluster: Austrian Alps (01), Stara Planina (02), Sumava (03), Drome Valley (05), Dinaric Mountains (15) and Swiss Alps (20) regions. Source: MOVING 2020

2. Challenges addressed

2.1. Diverse interests - productivity vs biodiversity

We identified conflicts of interest between different actors in mountain regions. While Natural protected sites and tourists aim to preserve ecosystem services and attractiveness of the landscape as a cultural heritage, farmers' interest is to utilise the land for cultivation and economic purposes. This leads, in some cases, to overgrazing and following destruction of ecosystem services, which leads to less attractive landscape for local inhabitants and tourists. On the other hand, the increased protection of the areas causes increased tourist interest. This could lead to increased damage, waste and exploitation of some areas with high nature value. Moreover, increased protection of the area may lead to greater abundance of large predators that challenge farmers by attacking their herds.

Sustainable visitor management for protected core zones, sensitive areas had been put in place. Example of implementation of "slow tourism" strategies, or sustainable visitor management such as infrastructure favouring communal transport in sensitive areas. French policy "Grands Sites de

France” balances between preservation of high-quality sites and with good practices. Or French Canigou mountain, landscape is preserved thanks to forbidden entry by car, while horse rides, trekking with donkeys and use of electric bikes are encouraged. Furthermore, synergies between farmers and natural protected sites are necessary, the services have to be visible and should be communicated to public, such as animal welfare, positive impacts of organic agriculture and related management, preservation of biodiversity.

2.2. Lack of cooperation among different land users

Synergies between farmers are essential to reach economic and other advantages. Cooperative pasture management supports possibility to cope with big predators. Adding value to products through joined processing facilities and joined marketing, decreased work for individual farmer.

Example – Romanian union of associations, where each product from mountain regions has its own association, the union of associations closely cooperates with natural protected areas, and above that with professionals such as architects, medics to spread the knowledge about their products.

However, we have identified a general lack of willingness to cooperate among the farmers and among farmers and other important actors, namely tourists, local inhabitants, and natural protected sites. The barriers are different production methods, and lack of incentives to add value to production.

2.3. Climate change

Among the factors recognised as a problem and a challenge are changes in precipitation and changes in distribution of precipitation, warmer winters, more pests and diseases, lack of water supply for irrigation, introduction of invasive species (e.g. Japanese beetle or erigeron annuus). Especially worrying is continual degradation of permafrost and glaciers, extreme weather events, soil erosion and degradation of soil microbiology and soil organic matter. Seasons start at a different time, which on one hand invites longer vegetation periods and new possibilities to grow plants (extended grazing season, however, with lower quality feed available) especially fruit production is severely affected by the changing seasons. Climate change enables to grow crops in higher altitudes; however, this collides with nature protectionism and preservation of landscape attractiveness, local inhabitants are unhappy about the use of chemical pesticides in higher altitudes. These factors threaten changes of landscape and composition of plants and overall changes and loss of biodiversity valued by tourists and nature protectionists. Conflicts over the use of water are rising among different actors with competing interests (use of water for ski resorts, use of water for tourists and local inhabitants vs use of water for agriculture irrigation), water shortages occur increasingly. Farmers have noticed decreased yields and inferior quality of yields (often in wine production, corn, olive production, etc.), and in increasing incidents of total loss of crops. Old and local varieties are disappearing. Climate change exacerbates damage to private properties, public infrastructure and threaten human lives.

These aspects lead to abandonment of land and farms and ultimately to loss of cultural heritage and landscape.

3. Policy recommendations

- Although there are existent subsidy schemes and incentives, there is requirement for more targeted funds for farmers and pastoralists in mountain areas that would not only provide financial cover of the expenses, but also help design and establish water retention projects (landscaping design) and sustainable irrigation infrastructure, water recuperation and especially water storage facilities.
- Resiliency of mountain farms on large degree stems also on whether farmers can mobilize resources internally from within their locality and/or farms and limit dependency on external resources (energy, fertilizers, pesticides, etc.). Linking subsidies with principles and requirements of circular economy applied to farm management would nudge farmers to adopt and integrate more principles and practices of regenerative farming and circular economy into their management. An important aspect is also targeted dissemination of the principles and know-how.
- Farmers from mountain areas repeatedly call for holistic and interdisciplinary approach to development of resilient farming systems that would require more structured and complex link with the climate scientists and agriculture advisors knowledgeable or trained in the climate and other sciences. Farmers would benefit from establishing support/advisory group, which would collect data from the farmers' own experiences and provide them with model scenarios of development of climate change and expected future climate trends, adaptive species and varieties. Necessary step would be establishing an environment and opportunities for sharing and exchange of knowledge and experiences among farmers and agriculture advisors.
- Subsidies are primarily aimed at individual farms; however, they should be also directed as an incentive to increase cooperation and collective action among farmers, and among farmers and other local actors, local associations in which both farmers and representatives of protected sites and the tourism industry are brought together.
- One of the recognized weak spots of the farming is lack of diversity of species and varieties, especially uniform rootstock in grapes and fruit trees across the EU, thus vast quantity of plants is susceptible to new diseases and pests. Subsidies should reflect on this and incentivize adoption of crop diversity, research on resilient wine/fruit trees rootstocks and adoption of locally resistant and context – focused genetic material.
- European Commission already recognized that “Cooperatives have played and continue to play a very important role in the agriculture sector in the whole Europe” (European Commission 2004). However, the tools, methodology and support for establishing and further developing cooperatives in mountain regions, has not been sufficiently disseminated. Filling this gap would require raising targeted awareness and creating incentives to help local actors develop cooperation and co-ops and engage in collective action towards defining common goals and implementing adequate strategy to fulfil those goals. Mediators or intermediaries are necessary to help local actors define their goals and their fulfilment.

Expected impact on Cluster N objectives

The above-mentioned recommendations go in line with the objectives linked to Cluster N.

Recommendations focusing on an interdisciplinary approach, cooperation among farmers and climate change experts and knowledge sharing target the objective of sustainable utilisation of local assets. Promoting species diversity also targets this objective. It is the greater diversity of crops grown and their selection in the light of climate change (using cooperation with experts) that can have a significant impact on sustainable utilisation of local assets of mountain areas.

Recommendations aimed at linking subsidies to compliance with the principles of the circular economy and more precise targeting of these subsidies aim at the objective of strengthening ecological resilience. Support for water retention projects, water storage facilities and water recuperation, among others, makes farmers in mountain areas with high natural value less vulnerable to climate change. Dissemination of these principles and know-how is also proving to be very important.

Recommendations aimed at fostering cooperation not only between farmers among themselves but also with other local actors involved in the development of mountain areas target the objective of attractiveness and wellbeing. Cooperation among farmers, protected sites managers, the tourism industry and other local actors is an important factor in the attractiveness of mountain areas with high natural value. Support for local associations is also aimed at the same objective.

Authors: *Jakub Husak (CZU) & Tomas Uhnak (CZU)*

More information at www.moving-h2020.eu