EU CAP NETWORK

Competitive and resilient mountain areas

Focus Group Final Report

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Executive summary and concluding remarks

This report presents an overview and synthesis of information compiled through the EU CAP Network Focus Group (FG) on competitive and resilient mountain areas, which was launched in November 2023 and completed its work in June 2024. Mountainous areas cover a wide range of European territory, and possess abundant natural resources, stunning landscapes, unique biodiversity, and rich cultures and traditions. The Focus Group of 20 experts has sought to draw attention to mountain areas and further explore innovative approaches and innovations linked to agriculture, forestry and bio-economy that can foster the competitiveness, socio-economic and environmental resilience of such regions. The key findings from the deliberations of the Focus Group on 'Competitive and resilient mountain areas' are:

- The main challenges facing mountain agriculture and forestry are unfavourable production conditions, lack of information and advice, lack of access to agricultural markets, abandonment of agricultural activities, depopulation, lack of training centres, conflicts of interest, climate change, environmental degradation, lack of a common long-term strategy and lack of infrastructure.
- However, there are also opportunities to strengthen the competitiveness and resilience of mountain areas. The most important of these are growing markets for specialised local niche products, together with the production of high-quality mountain products, autochthonous breeds, sustainable tourism, a quiet and remote environment, green care and social farming activities, the existence of beautiful landscapes, unique biodiversity, and a range of further common goods as well as living traditions and historic buildings.
- To meet the challenges and opportunities of mountain areas in a long-term and resilient way, innovative approaches are a key element of their further development. Agriculture, forestry and the bio-economy in mountain areas operate in a complex and dynamic human-nature system, and long-term and transformative solutions are needed to increase resilience at the regional level. In addressing these issues, social innovation can play a key role in this transformation, alongside the innovation linked to products, processes and marketing. Good practices of innovations (including applied examples) are collected by the experts and presented in the accompanying so-called Mini Papers drafted by the experts.
- The success of innovation in rural (mountain) areas is challenged by the lack of scale in terms of population and industrial bases, and the distance from economic partners and centres of consumption, which makes the diffusion of innovation and knowledge more difficult. The drivers for innovators and the public policies to guide innovation are not yet fully understood. To unlock this knowledge, the members of the FG have identified several factors that are responsible for the successful implementation of innovations in mountain areas, in terms of organisation, strategic planning and management, as well as access to infrastructure, funding and other resources.

Finally, research and knowledge needs as well as innovative ideas have been identified by the experts within the framework of the FG and can be summarised as:

- Research needs: cost-benefit analysis for public goods and short value chains, marketing of mountain products, analysis of emigration and immigration in mountain areas, the relationship between rural and urban backgrounds, collaborative networks, climate resilience, and further development of information technology systems.
- Ideas for innovation include: developing mini-processing units adapted to mountain areas, attracting young people to mountain areas, creating market access for mountain agricultural products, promoting cooperation between stakeholders, developing auction platforms, identifying specific shortcomings in the CAP, and forming a farmers' coalition against forest fires.

Introduction

Mountainous areas cover approximately 30% of the EU's territory, and are home to 18% of farm households (Gløersen et al., 2012). These areas possess abundant natural resources, stunning landscapes, diverse biodiversity, and rich cultures and traditions. Agriculture and forestry are often responsible for maintaining these services, and are the mainstay of the local economy and bio-economy in mountainous regions. However, mountain communities face significant environmental, societal, economic, and migratory challenges, which render them ecologically and socially vulnerable and fragile. Therefore, mountain agriculture and forestry must embrace these new realities and look for innovative ways to remain competitive and resilient in the long term.

This report presents the results of the EU CAP Network Focus Group (FG) 'Competitive and resilient mountain areas' which includes 20 experts from across Europe. The FG addressed the following main question:

Which innovative approaches and innovations linked to agriculture, forestry and bio-economy can foster the competitiveness and socio-economic and environmental resilience of mountain areas and their communities?

The purpose of the FG was to take stock of the innovative and practical solutions, as well as to disseminate knowledge on existing best practices. The main tasks of the FG were:

- Identifying challenges and opportunities to enhance the competitiveness and resilience of mountain areas.
- Identifying the factors that contribute to the success and/or failure of innovations in mountain areas, and collecting and highlighting innovative approaches and inspiring success stories.
- Explore the role of social innovation and ways to increase social resilience, and reinforce social communities in mountain areas.
- Identify the needs to support innovation in mountain areas.
- Propose ideas for potential Operational Groups (OG) and other innovative projects.
- Identify research needs coming from practice and possible gaps in knowledge.

The FG took into account the diversity of mountain areas across Europe, and had two separate meetings. The first meeting took place in Zagreb (Croatia) on 21-22 November 2023, the second in Cluj-Napoca (Romania), on 6-7 March 2024.

This report is a summary of the results from the work carried out by the FG, and presents an analysis of mountain areas in Europe, including their products and services, competitiveness, and resilience. It also highlights the main challenges and opportunities for strengthening these areas. The following chapters discuss innovation approaches, including success and failure factors, and provide examples of good practices.

Complementary to this report, the experts of the FG developed the following four short papers, so-called "Mini Papers" (MP):

- Mini Paper 1: Good governance for managing sustainability and resilience in mountain areas.
- Mini Paper 2: Social resilience in mountain areas.
- Mini Paper 3: Agroecological approaches for sustainable agriculture and forestry for competitive and resilient EU mountain regions.
- Mini Paper 4: Value-chains innovations for competitive and resilient mountain areas

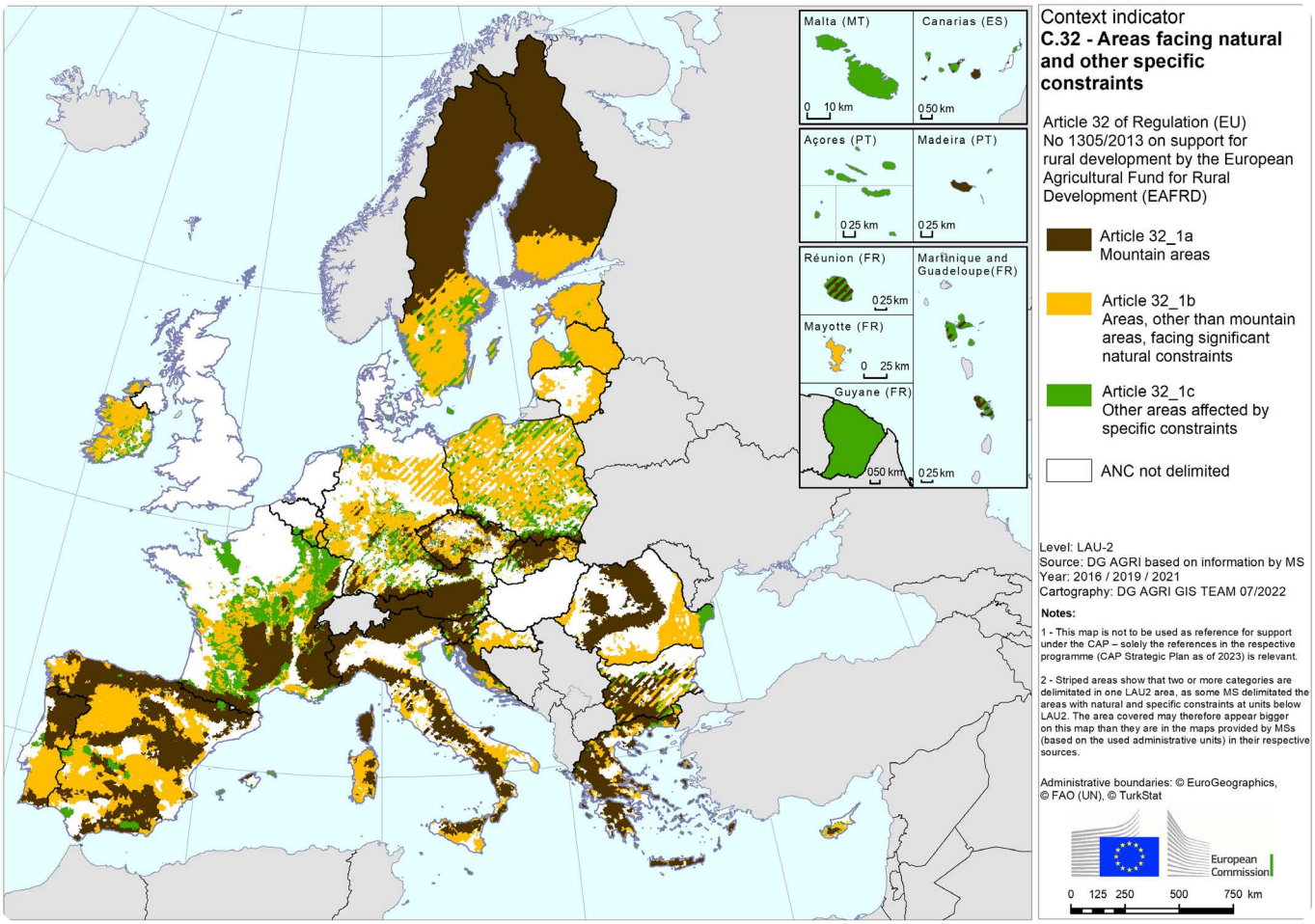
The FG members with the Mayor of Beliș and staff of the Apuseni Natural Park, Romania, March 2024

Framing key issues

1. Mountain areas in Europe and their products and services provided for society

Mountain areas are found across Europe and are grouped around mountain ranges. The most prominent and highest mountain ranges in Europe are the Alps, the Pyrenees, the Carpathians, the Scandinavian Mountains (Scandes), the Apennines, the Dinaric Alps, the Sierra Nevada, the Scottish Highlands and the Rhodopes. Although there is no universal definition of a mountain region, mountain regions in Europe are usually defined on the basis of geological, topographical and administrative criteria: altitude and relief, geological characteristics, administrative boundaries, remoteness, climatic conditions, vegetation and ecosystems, and cultural and historical significance. In addition, under the Common Agricultural Policy, Member States have designated these areas (Fig. 1), which, in some instances, may include payments for mountain areas, areas facing natural and other specific constraints (ANC).

Figure 1: Spatial designation of areas facing natural and other specific constraints.



Source: https://agridata.ec.europa.eu/extensions/IndicatorsEnvironmental/LessFavouredAreas.html

Mountain areas in various European countries are characterised by major differences, such as in the income levels in the Alps and cities near large ski centres in other areas, as compared to much poorer areas in the Balkans, but they also share common features, especially in social matters. Population ageing, departure of young people, part-time inhabiting depending on the seasonality of tourism jobs or farming, gradual limitations to accessing good health and education, as well as local unemployment in specific social groups are some of the factors seeking to find solutions to the total or major abandonment of mountain areas and the consequential adverse effects. From an agricultural perspective, this includes all areas where the relief, the local climate and the limitations of the land play a role, regardless of whether the areas are classified as high or low mountain ranges. Agriculture has always been important in mountain areas. However, the situation has shifted in the last century. While tourism was initially an additional source of income for farmers, in many places it is now the main activity and agricultural production is a supplier for tourism and second

homeowners. Some valleys have been industrialised during this time, and are struggling with de-industrialisation. However, even where agriculture still dominates, a change in function has taken place. This corresponds to the commuting practices of other occupational groups (see MP2).

Mountain areas provide a wide range of unique products and services, which can be both essential for local livelihoods and economies, as well as valuable at regional and even global scales. These are some of the key products and services from agriculture, forestry and bio-economy provided by people and ecosystems of mountain regions:

- Economic activities: e.g. food, timber and wood products, recreation, mountainous wildlife.
- Natural resource management: e.g. landscape, water resources, energy production, biodiversity, climate regulation and protective function.
- Cultural value: e.g. traditional knowledge, cultural significance.

2. Competitiveness and resilience of mountain areas

To ensure continuous provisioning of the above-described products and services, both the competitiveness and the resilience of agriculture, forestry and the bio-economy in mountain areas are of critical importance. Competitiveness has a strong focus on economic advantages and the productivity performance of farms and other agriculture businesses, forestry and bio-economy. The resilience approach focuses on their ability to resist and transform in the face of unexpected disturbance, uncertainty, or insecurity, and subsequently improve their pre-shock development. Within the context of unexpected economic turbulences and ecological uncertainty, the concept of resilience has gained prominence both in political rhetoric and in research (Darnhofer et al., 2016). This report focuses on the concept of social-ecological resilience, as it emphasises the interdependency of social and ecological dynamics – two key aspects of farming, forestry and bio-economy. Social resilience is about keeping a society's social fabric stable and healthy over a longer period of time, and being able to withstand internal and external shocks. In mountain regions, this means finding ways to overcome the structural disadvantages of sparsely populated areas with steep topography. This can be achieved through the intensification of cooperation and the pursuit of a balance of interests in the event of conflicting goals, including the pull of migration and external investor pressure. Additionally, it necessitates the identification of support at a higher level for locally formulated development goals. (see MP2).

Even though both competitiveness and resilience are mutually dependent and interconnected, they are, at first sight, contradictory. For example, actions for increasing the competitiveness of farms may harm the environment and increase their vulnerability; and vice versa, strategies for increasing resilience may decrease their competitiveness. This is because competitiveness is mainly measured from the short-term perspective, while the demand for resilience arises from awareness of potential or visible crises, and demands a long-term view. However, the clear evidence of connectivity between both may help to develop business and regional development models that balance economic assets for competitiveness with sustainability and ecological awareness to increase the resilience of the economic units (Borsekova et al., 2022). This requires the identification of interests, needs, limitations and objections of all involved stakeholders regarding economic, social, natural, cultural and political aspects (Stotten et al., 2021).

Therefore, to achieve the overall objective of this FG, the most relevant challenges and opportunities for strengthening the competitiveness and resilience of mountain areas were identified. These challenges and opportunities are grouped under the following headings; Economic, Social, Environmental, Cultural and Governance.

a. Challenges

Economic challenges

- Due to the small-scale character and unfavourable conditions in mountain areas, producing agricultural and forestry products is associated with **high production costs and challenging conditions**. This poses a challenge in a low-price world market for standard commodities. Markets for environmentally friendly small-scale products are limited.
- Some of these areas suffer from a **lack of information and advisory services**, hindering their overall development, and creating obstacles for sustainable practices.
- A significant challenge is the **access to agricultural markets** in these mountainous regions, posing a barrier to economic growth and market participation. The absence of a market for public goods further complicates the situation, limiting opportunities for the sustainable development of these areas and their unique resources.
- The **abandonment of agricultural activities** in these regions not only results in economic setbacks but also leads to the loss of local or niche varieties of crops and livestock breeds, contributing to a decline in genetic biodiversity. Moreover, the disappearance of natural breaks in forests and dense shrub lands, due to abandonment, increases the risk of large wildfires.
- The threat of any kind of concentration on certain economic activities (e.g. **"over"-tourism**, along with uncontrolled and unregulated tourism), poses significant risks to the environmental and cultural integrity of these mountainous regions.

Social challenges

- The most significant challenge is the selective **depopulation** of mountain areas, particularly with young people leaving, leading to a loss of knowledge and an aging population. Next to this, the demographic change results in challenges for the remaining population, who may be lacking incentives and public support.
- People owning **second or third homes** in these areas may also be less active in contributing to maintaining mountain resources (landscape, traditions, etc) and therefore potentially disrupting local communities and their traditional way of life.

- **Education** is identified as a critical factor, specifically the absence of training centres or specialists, and a lack of tailored education focused on the mountain contexts. To adapt to climate changes, new skills, strategies, techniques, cropping and livestock systems, as well as crop and animal varieties, are deemed necessary. Further, traditional artisanal skills need to be updated, especially those in the food-producing value chain (Lucatelli et al., 2022).
- There is a **deficiency in specialised education and expertise** related to conflict management among various actors, such as farmers, forest owners, hunters, local populations, and nature conservationists. This requires teachers and trainers with specialised skills and learning methods.
- **Conflicts of interest** arise from land use changes, intensification of land cultivation, and land abandonment, impacting ecosystems and biodiversity. These conflicts involve farmers seeking increased farm income, pressure on land use from the energy sector, conflicts with biodiversity, nature conservationists, hunting, and wild animal population increase, resulting in divided societies and blocked developments in mountain areas.

Environmental challenges

- **Climate change** affects mountain areas in various ways, including forest fires, soil erosion, drought, flooding, pests and disease, as well as biodiversity loss. The scale and speed of climate change pose significant challenges for both ecosystems and inhabitants, and therefore reinforce the challenges in other categories.
- **Environmental degradation**, including soil erosion and habitat destruction, can result in irreversible damage to mountain ecosystems and businesses in agriculture, forestry, and the bio-economy.
- The increase in **large carnivore** populations leads to unsustainable conditions, impacting farmers and foresters.

Governance challenges

- There is often a **lack of a common and long-term strategy**, involving all actors, for the entire mountain region. Furthermore, it neglects policy towards supported mediation and conflict management, to tackle the conflicts described above, in many areas. Developments, such as increasing energy demand or climate change, heighten these conflicts and require new rules.
- There is also the issue of **land tenure systems** and land management that hinder competitive and resilient developments in mountain areas.
- Many mountain areas in Europe are challenged by a total lack of **infrastructure**. In particular, proper road and communication networks, as well as public services, are absent. This may hinder access to innovation systems and institutionalised innovation developments.

Cultural challenge

- Place-based cultures, languages, buildings and traditions are at risk due to outmigration and a reduced understanding of mountain areas to be a mere place of recreation. Old practices become isolated or musealised, resulting in a **lack of cultural diversity**.

View of the mountain area of Dealu Botii within the Apuseni Natural Park, Romania. (European Commission)

b. Opportunities

Economic opportunities

- There are **growing markets for specialised local niche products** from small-scale production for a certain target group, in particular for unique and autochthonous food products, wood types (particularly useful for future housing solutions) but also for other natural products (e.g. biochar and mushrooms from forests), resulting in increased diversification options for farmers and foresters. Diversification may increase their income, and lead to an improvement in their resilience.
- The **high quality of mountain products** is increasingly recognised by consumers, and there is a growing market for such products. In particular, there is an increasing trust for small-scale production. Stronger certification schemes could be a good opportunity to further increase this trust.
- **Autochthonous breeds in livestock and varieties of plants**, as well as sustainable production systems, can be an opportunity to ensure a resilient development of the production systems in mountain agriculture and forestry.
- In general, **sustainable tourism** is a great opportunity to valorise the services provided by agriculture and forestry. In particular, mountain areas attract many people who do not live there (e.g. urban inhabitants). For them, life in the mountains is like taking a holiday. However, as mentioned earlier, the development of tourism should happen in a sustainable manner.

Social opportunities

- Mountain areas offer a **quiet and distant environment** with fresh air and clear skies, providing opportunities for relaxation, rehabilitation and social distancing when needed. Green care and social farming activities may take advantage of this.
- **Green care and social farming activities** for the elderly and young people will be a great opportunity to diversify farm income.
- Social opportunities also include the creation of long-term living business models, the digitalisation of work and services, as well as the integration of new residents.

Environmental opportunities:

- The **beautiful landscapes and unique biodiversity** in mountain areas attract people for living or holiday purposes.
- **Adapting to and mitigating climate change** presents opportunities for farmers and foresters to develop specific and unique production systems, creating new business models and market options.
- Mountain areas often have high potential for **renewable energy sources**, especially biomass and small-scale hydroelectric, wind and solar power, providing greater independence for these regions. Agriculture and forestry can contribute to renewable energy production. Solar power installations at higher altitudes have a positive proportionate productivity.

Governance opportunities

- **Good leadership** may be a resource for long-term transformation within the governance system. New governance models may increase the resilient development of agricultural and forestry holdings, as well as the entire mountain region. So-called resilience ambassadors could act as innovation brokers to increase acceptance of these transformations within society.
- **New (digital) communication and service channels** are an opportunity to simplify existing and establish new governance systems (e.g. social media democracy) or logistic solutions. However, the opportunity of easy access to distance communication might increase immigration from outside and result in the disruption of existing community cultures.
- Life and (agricultural and forestry) production in mountain areas are based on the use of **common goods** (e.g. water). Community-based institutions for the management of these common goods, as well as innovative approaches to sharing these, can increase the resilience of these regions.

Cultural opportunities

- **Practised traditions** (the cultivation of the cultural landscape) and **historic buildings** (e.g. churches, farms, factories) form a cultural heritage which offers a good opportunity for regional cohesion and attracting visitors, as well as setting up business models and value-added creation for farmers and other actors in mountain areas (Fig. 4). It opens the opportunity for co-operation between education, training centres, science and (agro-)tourism.



Local niche products of Apuseni Natural Park that the FG experts visited during their second meeting in Cluj-Napoca, Romania. (European Commission)

The role of innovation

To face mountainous areas' challenges and realise the opportunities in a long-term and resilient way, innovative approaches are a key element of their further development (OECD). An innovative approach can be described as "a new idea that proves successful in practice" (EC, 2023) which may be a key driver for economic growth and job creation (Aoyama and Horner, 2011), and should translate into economic, social, or environmental benefits in practice. Innovative approaches can include new or improved products or services for new markets (product innovation), new ways of producing existing products, such as regional value chains or individualisation of products (process innovation), new ways of marketing and selling existing products, such as regional brands, and online platforms (marketing innovation), as well as new recombinations or reconfigurations of social practices to solve societal problems (social innovation) (Kratzer and Ammering, 2019).

Agriculture, forestry and bio-economy in mountain areas act in a complex and dynamic human-nature system, and long-term and transformational solutions are necessary to increase resilience on a regional level. By addressing these issues, **social innovation** may play a key factor in social change in general in the future, just as technology did in the 20th century (Dobarrio Machado Ciccarino and Serrano Fernandes Rodrigues, 2023). Ideas of social innovation are based on meeting social needs, creating social relationships, and leading to the formation of new collaborations. The primary goal of social innovation is to generate innovative solutions that go beyond temporary fixes and create long-lasting systemic change (Landel and Koop, 2018). It focuses on enhancing social outcomes, fostering social inclusion, promoting sustainable innovation, and aims to improve the well-being of individuals, communities or society as a whole (Polman et al., 2017). It is also a process for coming up with new ideas and enabling people to have a say in the fundamental choices made by society, i.e. a question of governance. There are several studies suggesting that social innovation may contribute to a growth-independent society or region (Mayer et al 2021, Tschumi et al. 2020) and territorial development (Ravazzoli et al. 2021). These aspects are of high relevance in mountain areas.

Social innovation may be combined with other concepts of innovation. This can lead to more inclusive, equitable, and sustainable societies in mountain regions, by finding creative and effective ways to tackle the challenges described above. Furthermore, it is important to balance economic development with environmental awareness and cultural preservation to ensure the long-term sustainability of mountain areas.

1. Good practices

This chapter lists good practices with regard to the above-mentioned innovation categories. The good practices are supported by various applications, of which examples are provided. Most of the examples mentioned have been provided by the FG experts and serve as inspiration for diverse discussions. Check the relevant Mini Paper (MP) for more information on some of the examples.

Table 1: Good practices and examples regarding product innovation.

Good practice	Examples
Introduction and marketing of new key products	Fungo borgotaro, Italy (see MP3), Enhancement of the Apple Limoncella and sustainable meliculture in the rural areas of the Dauni mountains, Italy
Preservation and marketing of (ecosystem) services of a region	Value added mountain farming - valorisation of ecosystem-services, Austria

Source: European Commission

Table 2: Good practices and examples regarding process innovation.

Good practice	Examples
Active and effective management of protection of mountain regions	Natura 2000 sites, Europe
Breeding and marketing of autochthonous breeds and plant varieties	Autochthonous livestock breeds, Greece, El Hato y El Garabato Boutique Winery, Spain (see MP4)
Territorial agro-food systems	Foodalternatives, Austria/Switzerland
Agroforestry systems	AlVelAl, Spain (see MP3)
Agroecology and the integration of conservation and production	Wild Atlantic Nature LIFE, Ireland (see MP3)
Technology for sustainability systems	Sustainable Uplands Agri-environment Scheme, Ireland
Multi-functional approaches	Styrian Vulkanland, Austria
Cooperation for better access to markets	Styrian Vulkanland, Austria
Implementation of a mountain law for the 're-organisation' of mountain area governance	Romania, Europe (see MP1)
Development of an ecosystem for mountain villages to improve the quality of community life and rural environment	Smart Villages, Europe (see MP1)

Source: European Commission

Table 3: Good practices and examples regarding marketing innovation.

Good practice	Examples
Valorise the region through special marketing of existing mountain local products	Innovative management practices and promotion strategies for dairy products of mountain summer farms, Italy; Valor Jarmelista, Portugal; EcoMuseum of Tara Motilor, Romania
Digital tool for connecting farms with tourists and consumers	Urlaub am Bauernhof, Austria; Tastes of Lika, Croatia; Explore Lika, Croatia
Digital tool to crowdsource support for business start-up	start.cro, Croatia and wownature, Europe
Developing a food hub that collects local products	Nod Verde, Romania (see MP4)
Labelling products for their "quality" based on local traditions and ancient knowledge, connected with geological heritage which is characterising each territory	GEOfood, Global (see MP4)

Source: European Commission

The EcoMuseum (Apuseni Natural Park, Romania)

The EcoMuseum is an open platform for the involvement and collaboration of local communities. It brings together several different producers, e.g. of textile and wood handcrafts, dry fruits, cheese, traditional dairy products, jams and vegetable preserves, juices and other drinks, traditional pancakes, and hunting products. It is located in the Apuseni Natural Park, Romania.

The link between the Ecomuseum and the natural park is the landscape. Its protection is the goal of the management of a natural park, but the real conservation of biodiversity requires the protection of local communities and their traditional culture.

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Table 4: Good practices and examples regarding social innovation.

Good practice	Examples
Education and training of (young) people	Rural Action for Innovative and Sustainable Entrepreneurship for Youth, Croatia and the Catalonian Shepherd's school, Spain and Mountain pasture school of Sulens, France; MAIs - Women farmers in the inner territories, Portugal (see MP2)
Connecting regions and mobility programs	Alpine-wide network for shepherds, Europe
Promoting innovation associated with rural women	PAGE – Farm and Food Landscapes with innovative women, Portugal
Social Entrepreneurship	Business Incubator - Gotse Delchev, Bulgaria and SiParte, Italy
Innovative governance in agriculture, forestry and rural development	SIMRA, Europe
Green Care	Time-Out Farms, Austria
Collective management of commons- community as a natural resource	The "Bergwiesn Verein", Austria
Promoting collective action as social innovation for demographic and economic stability	Rural Equal project, Portugal & Spain; Bieraria Tschlin, Switzerland, see MP2
Inclusion of vulnerable groups	Association to support the inclusion of Migrants, Portugal, see MP2

Source: European Commission

2. Success factors

Innovations can be described as iterative social processes, with outcomes that are highly dependent on the context in which they develop. The success of innovations in rural (mountain) areas is challenged by the lack of scale in terms of population and industrial base (McCann and Ortega-Argilès, 2015) and the distance of economic partners and centres of consumption, which makes the diffusion of innovations and knowledge more difficult (Naldi et al., 2015). In addition, the success or failure of innovations depends not only on the new idea itself, but also on other factors such as market opportunities, the willingness of the sector to adopt it, cost-effectiveness, knowledge, and the perceptions of all involved stakeholders. For mountain areas with limited population density, it is crucial that stakeholders (who often have diverging and sometimes competing interests) find a way to cooperate in mobilising the resources of "untraded interdependencies" (Storper, 1995). Nevertheless, there are remaining external factors which cannot be coped with on a regional level.

Notwithstanding this, the drivers for innovators and public policies to push innovation have not yet been completely understood. Unlocking this knowledge will help rural areas (mountain areas) improve their growth prospects and support reforms to shift rural policy towards place-based innovation beyond a subsidy and sector-specific approach (OECD). To unlock this knowledge, the FG members have identified several factors responsible for the successful implementation of innovations in mountain areas. These factors can be categorised in terms of organisation, strategic planning and management, as well as access to infrastructure, funding and other resources.

Organisation

- **Bottom-up approach of governance**. The implementation of an innovative governance form and the monitoring process cannot depend only on a top-down mechanism but should be combined with bottom-up participation (see MP1).
- **Catalyst person or organisation:** Having a catalyst person or organisation (key actor) can drive positive change and innovation. Involving schools as key actors, teaching and implementing new social and economic models through service learning, plays a crucial role.
- **Leadership at the local level:** Effective leadership at the local level, with a key actor taking responsibility, is essential for successful implementation (see Social Entrepreneurship, Bulgaria and Innovations and challenges in small-size dairy farming in Romanian Carpathians, Romania).

- **Stakeholder and community engagement:** The active participation and co-development with the local stakeholders and the community committed to the project is crucial for success. This approach strengthens the links and trust between the administrations, institutions, and stakeholders and the outside world (see MP1, MP3 and MP4, as well as Bergwiesn Verein, Austria).
- **Strong internal and external networks:** Establishing strong internal and external networks enhances the overall effectiveness of rural development initiatives in mountain areas (see Territorial agro-food systems, Austria/Switzerland).
- **Multi-sector cooperation:** Collaborating across different sectors contributes to a holistic and well-rounded approach. However, concerns arise regarding the sustainability of these business models and their compatibility with production systems, which may jeopardise the survival of unique agricultural and landscape systems, particularly when confronted with extensive infrastructure development for new activities such as tourism. (see MP1).
- **Diverse actors from different backgrounds:** Involving actors from diverse backgrounds promotes a comprehensive and inclusive approach. A one-size-fits-all approach to governance usually does not deliver good results. (see MP1 as well as SiParte, Italy).
- **Open platform/digital media:** Utilising an open platform/ digital media for involvement and collaboration fosters community engagement (see Rural Equal project, Portugal; EcoMuseum of Tara Motilor, Romania).
- **Advisory systems:** Implementing effective advisory systems, as seen in Austria, supports informed decision-making in agriculture, forestry and bio-economy.
- **Experience and know-how:** Experience and know-how of the organisations involved is necessary to be successful in the long term (see Rural Equal project, Portugal).
- **Flexibility and local adaptability:** The innovative form of governance (e.g., rotation between the representatives of the main stakeholders) leads to the enhancement of the concept of local leadership as well as that of solidarity. Consensus (or reaching such an agreement through dialogue etc) may be adequate to implement integrated decisions. (see MP3 as well as Territory without long-term unemployed "Coeur de Savoie", France).
- **Private sector engagement:** Involving the private sector (e.g. local firms) in the approach may increase acceptance in the region and funding possibilities.

Strategic planning and management

- **Market study:** Conducting thorough market research is essential to understand the sector's willingness to adopt new approaches.
- **Cost-effectiveness:** Ensuring cost-effectiveness is a critical factor in successful innovative approaches.
- **Long-term policy and vision:** Adopting a long-term policy, vision and thinking is crucial for sustainable and impactful outcomes.
- **Diversification beyond tourism:** Focusing, not only on tourism and monetary gain, but also diversifying production toward special products unique to mountain areas enhances resilience (see MP1).
- **Autochthonous and traditional breeds and varieties:** Diversification of production towards special regional products with comparative advantages for mountain areas creates unique selling points and may increase product prices. (see MP4 as well as El Hato y El Garabato Boutique Winery, Spain and Sir, Portugal).
- **Communication and dissemination:** Developing effective communication and dissemination strategies is vital for project success.
- **Greenwashing awareness:** Being aware of greenwashing practices is essential to avoid potential risks and ensure the genuine value of initiatives.
- **Combination of value chains:** Actors work with multiple chains at the same time in order to obtain synergies between different products and value chains (see MP1).
- **Holistic land management:** A holistic approach to land management ensures a sustainable utilisation of resources. Exploring alternative ways for land consolidation, particularly addressing issues like parcel fragmentation and access to land, is crucial.
- **Traditions and landscape conservations:** Ensuring the sustainable use of natural resources and maintaining the resilience of ecosystems as essential conditions in landscape conservation will be directly reflected in ensuring and maintaining the resilience of local communities, as part of a socio-ecological system at the level of the entire territory. That contributes to the resilience of unique agrifood systems, respecting their landscapes, traditions, crops and agricultural practices, and population, even when facing ageing, lack of generational succession, land abandonment, lack of financial resources, migration and other climate change effects. The system meets the requirements of sustainability, proximity, and governance demanded by territorialised systems.

Access to infrastructure, funding and resources

- **Broadband accessibility:** Ensuring broadband accessibility is essential for facilitating communication and connectivity in mountain areas.
- **Long-term funding sustainability:** Securing long-term funding, provided by well-targeted EU CAP measures for mountain areas among other sources, is critical for the sustained success of innovative approaches (see MP4).
- **EU funds at local level:** Ensuring smooth transitions of EU funds to the local level is essential for effective implementation on the ground.
- **Involve society in funding:** Use crowd or direct investment possibilities in order to involve the local community.
- **Policy makers' recognition and support:** Gaining acceptance from policymakers regarding the specific needs and resources of mountain areas is crucial for overcoming bureaucratic challenges.

Research needs

The following research and knowledge exchange – knowledge development needs were identified within the frame of the FG:

Economic topics

- **Cost/benefit analysis of public goods**
  There is a need to develop a simple but, at the same time, scientifically sound methodology able to incorporate the positive externalities of the mountain products in the final price. Currently, stakeholders often overlook the benefits of providing public services in these areas, leading to misallocation of resources. Research is needed to identify public goods, estimate costs, and propose fair policies as well as new business models. Understanding the economic benefits of agroecology activities and diversifying traditional practices can enhance competitiveness and resilience.

- **Cost/benefit analysis of short value chains**
  Understand cost and benefit at different chain levels in a comparative approach, i.e. showing the advantages and disadvantages of short (regional) and long (global) value chains. Such results can help stakeholders better engage in collective short production and marketing chains.

- **New business models**
  Analysis of needs, testing diversified business models, seeking innovative solutions for sustainable development and increased income, and optimising natural and human resources are required. This is necessary as agricultural holdings in mountains face specific challenges of competitiveness, profitability and market access challenges due to higher production costs and lower implementation of technological innovation (see MP3 and MP4).

- **Marketing for mountain products**
  Persuading customers to pay a premium for mountain products, which offer greater quality, authenticity, sustainability, health advantages and cultural value, is a challenge for producers in mountainous areas. The producers lack the expertise, information, aptitude, and skills necessary to research, evaluate, comprehend, and ultimately affect consumers' purchasing decisions. In order to overcome these obstacles, producers will need evidence-based research findings to assist them in transferring soft skills and knowledge and receiving communication and marketing training. This will enable them to capitalise on the perceived quality of their products and make well-informed business management decisions.

- **Willingness to pay for mountain products**
  Assess customer willingness to pay for mountain products and associated positive externalities. Consumers will remain loyal only if authenticity and quality will justify a territorial solidarity. EU-wide studies about how consumers value the positive externalities associated with mountain products are mostly missing and should be undertaken.

- **Economic models of small-scale processing facilities**
  Propose replicable models of small-scale processing facilities adapted to short value chains. In mountain areas, farmers work in remote areas and the farms are usually smaller in terms of size in comparison with lowland farming. The existing solutions for processing are not adapted to local needs in different regions and countries.

- **Participatory methodologies governing mountain communities.**
  Addressing the knowledge gap on participatory methodologies and their use, including Participatory Action Research (PAR), Participatory Rural Appraisals (PRAs), Rapid Rural Appraisals (RRAs), Participatory Needs-Based Assessments, Community Asset Assessments and Participatory Governance, is essential for fostering inclusive, resilient and effective engagement processes in farming communities.

Social and cultural topics

- **Analysing emigration and immigration in mountain areas**
  Surveying mountain area migrants to identify reasons for leaving their homelands and assess their quality of life compared to expectations. It should explore succession by young farmers, long-term experiences of migrants across social statuses and life stages, and strategies for integrating forcefully distributed migrants into mountain communities.

- **Relation between rural and urban milieus**
  Addressing the challenge of balancing the demands for recognition of mountaineers' work with the need for ecological preservation amid urban demands. It should question how to shift regional development strategies from product multiplication to demand-oriented approaches, focusing on safe, sustainable food production. It should also explore the integration of second-home owners into permanent residents' daily lives, and foster their engagement as active citizens in community affairs.

- **Collaborative networks**
  Understanding how to build and foster collaboration and knowledge exchange among stakeholders, including farmers, researchers, policymakers, and industry representatives, is essential to facilitate learning and innovation in agro-ecological diversification in mountain areas (see MP3).

- **What can we do to ensure generational succession in agricultural and livestock farms?**
  Resolving the problem of generational replacement in the primary sector has become recurrent. But, interestingly, it seems that we have not found effective solutions, or at least solutions that significantly improve the current problem. Starting from effective examples, we must look for standardised but adaptive models (see MP2).

- **Gender and Youth Mainstreaming**
  Incorporating gender and age considerations to address diverse needs and roles throughout several project cycles. Analysing gender norms and age impacts helps mitigate inequalities. Developing Education and Training tools is crucial for successful implementation, involving all stakeholders from the Commission to the community (see MP1).

- **Implementation of a modern way of life without damaging traditional and seemingly "retro" agro-ecological and cultural practice**
  Mountain communities benefit from modern civilisation, but face challenges such as youth migration to urban areas, resulting in the loss of traditions and cultural values. Rural and Alpine gentrification (Perlik, 2011; Phillips, 1993), fuelled by property purchases by outsiders, threatens local culture. Research is required to guide mountain development, preserving regional identity and values. Incorporating local knowledge and sustainable agricultural practices can mitigate environmental impact while maintaining cultural heritage (see MP1).

Other topics

- **Climate resilience**
  Assessing how agro-ecological practices can help mitigate climate-related risks such as extreme weather events, pests, and diseases. This is because further investigation and analysis of the potential of introducing climate-resilient species of crops and adaptation of management practices are required for the agriculture and forestry sectors in mountain contexts.

- **Develop information technology systems**
  Testing more and better information technology systems and Artificial Intelligence (AI) that can support sustainable agriculture and forestry in mountain areas. This includes precision agriculture technologies, GIS and remote sensing mapping for land use change and climate disaster impact, agroforestry systems, and value-added processing techniques tailored to the specific conditions of mountain regions (see MP3).

- **Long-term monitoring and evaluation of sustainable initiatives in mountain area integration**
  Monitoring the long-term impact of initiatives which promote balanced development, conserving resources, and enhancing well-being in mountain communities. Assessing their success in fostering cooperation, exchanging best practices, and addressing shared challenges is vital. Research should develop new monitoring programs to track outcomes, evaluate strategies, identify successful case studies at national and EU levels and adjust policies for sustainable development in EU mountain regions (see MP3).

- **Comparative analysis of governance models**
  Comparing governance models in mountain regions is crucial for tailored strategies addressing challenges such as biodiversity conservation and disaster risk. It aims to foster sustainable development, resilient economies, and cross-border collaboration, while considering emerging policies impacting agro-ecology (see MP1).

- **Analysing the potential for collaborations between different mountain regions with similar specificities.**
  Assessing the success of existing collaborative initiatives in European mountain areas to share common challenges and priorities. Fostering cooperation, exchanging best practices and addressing shared challenges is crucial for future efforts. Evaluating policy and institutional frameworks for cross-border cooperation is essential for identifying areas which need improvement and guidance for further research on a European scale (see MP1).

Concluding ideas for innovation

In conclusion, the following ideas for Operational Groups and other innovative actions are proposed:

1. Ideas for Operational Groups

- **Developing mini processing units adapted for mountain areas.**
  The OG would address an important challenge for the mountain areas: how to build small processing units adapted to the local conditions (remote areas; poor access to infrastructure and utilities) and the farm size (usually small), whilst respecting the sanitary-veterinary regulations. Relevant sectors to involve would be cow and sheep milk and meat production. Specific outcomes would be to create demonstrative small processing units, which could be replicated in other mountain regions, and train advisers and farmers in the demonstrative units. Specific geographical area(s) of interest of the project could be, for example, the Carpathian & Alps.

- **How to attract young people to mountain areas?**
  It would be an intergenerational Operational Group, with a multi-actor approach where young people might have a strong voice, to address individual and collective approaches (considering social, economic, cultural and educational perspectives). This would contribute first to understanding and second to promoting new mindsets and innovative ideas that allow an attractive vision for agriculture and rural territories as a way of living. The expected outcomes could be: a) the value of new perceptions towards agriculture and rural territories that might support the economic value of these territories and their activities; (b) develop and promote innovative businesses that might anchor youth fixation in rural territories; (c) social media and communication tools for a new vision of rural success and living; (d) recommendations for rural policies designed with young farmers (e.g. related with access to land). The idea could be applied for example in inner territories in Portugal.

- **Access to the market for agri-products from mountain areas**
  Usually, the agricultural products in mountain areas are of high quality, produced in a nature-friendly way and strongly connected to the cultural heritage and to nature, however, the production costs are higher and therefore the potential clients and markets more limited. The aim would be to develop a case study, work with a group of stakeholders, and develop business

models and tools to find a niche market, as well as clients who value the high quality of mountain products and the real story behind them (culture and nature) and willing to pay a higher price. The project could work on knowledge and skills in digital marketing and e-commerce, mountain label and branding, the storytelling of product-nature-people through practical trainings, field visits, and the connection with tourism.

- **Co-operations of stakeholders ("Go Associations/Go Associate")**
  Professional foresters, farmers, landowners, experts, and key stakeholders are often involved in little groups of people (associations) from mountain communities and asked to help find financial and technical solutions to realise ideas/purposes arising within the community and associations themselves to apply new methods, sometimes diversifying their existing activities. New forms of "mutual sub-contracting" by cooperation between the gastro-tourist branch and local food producers are needed.

- **Development of auction platforms ("OGtion")**
  Professional foresters and farmers often have difficulty in getting their products and services to markets. OGtion (from auction) would bring together the different stakeholders needed to set up and launch online auction platforms for sustainable products from mountain areas (from wood to wool).

2. Other innovations

- **Identify missing tasks within the CAP**
  The EU's Common Agricultural Policy (CAP) supports young farmers through initial funding to start and invest in farming businesses. However, older farmers (41-60 years) in mountain areas often rely on selling products for income and receive minimal CAP subsidies. These farmers lack support from both CAP and the banking system, highlighting the need for CAP reform towards sustainable, small-scale agriculture.

- **Farmers' coalition against wildfires**
  Countries in Southern Europe are heavily impacted by forest fires, so it would be worth exploring how to better equip farmers and forest owners to better contribute to the prevention and extinction of forest fires. Explore options, to have a better synergy with local authorities to be part of the national civil protection system, create funds for maintaining extensive grazing and agroforestry systems as fire prevention tools and basic fire extinguishment machinery, enhance education and skills to safeguard farmlands and/or livestock, etc.

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Annex 1: List of Focus Group experts

Family name	First name	Professional background	Country
Arion	Felix	Expert from an organisation, network, group or enterprise	Romania
Costa	Cristina Amaro	Researcher	Portugal
Dreer	Johannes	Farm advisor	Germany
Dzhambazova	Rositsa	Expert from an organisation, network, group or enterprise	Bulgaria
Fernández Pérez	Liliana	Farm manager or owner	Spain
Fidanska	Bozhura	Researcher	Bulgaria
Fischer	Markus	Expert from an organisation, network, group or enterprise	Austria
Jarosch	Julika	Expert from an organisation, network, group or enterprise	France
Jitea	Ionel Mugurel	Researcher	Romania
Kazoglou	Ioannis (Yannis)	Researcher	Greece
Keena	Catherine	Farm advisor	Ireland
Lazaro	Juan Antonio	Other	Spain
Lundin	Sten-Rune	Civil servant	Sweden
Mateus	Tiago	Expert from an organisation, network, group or enterprise	Portugal
Murphy	Bridget	Farmer	Ireland
O'Driscoll	Colm	Innovation support agent / innovation broker	Italy
Perlik	Manfred	Researcher	Other
Redman	Mark	Expert from an organisation, network, group or enterprise	Romania
Riguccini	Nadia	Civil servant	Italy
Stotten	Rike	Researcher	Austria

Facilitation team

Family name	First name	Professional background	Country
Kirchweger	Stefan	Coordinating expert	Austria
Guimarey Fernández	Beatriz	Task manager	Spain
Karasinski	Céline	Co-task manager	France

Annex 2: Mini Papers

Mini Paper 1: Good governance for managing sustainability and resilience in mountain areas

Mini Paper 2: Social resilience in mountain areas

Mini Paper 3: Agroecological approaches for sustainable agriculture and forestry for competitive and resilient EU mountain regions

Mini Paper 4: Value - chains innovations for competitive and resilient mountain areas

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