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### Sustainable development

## Sustainable mountain development

### Report of the Secretary-General

#### *Summary*

Covering around one quarter of the Earth's land surface, mountain areas are crucial for sustaining life on the planet and are home to rich biodiversity. As the "water towers" of the world, glaciers and mountains play a unique and indispensable role in the global water cycle. However, these ecosystems face accelerating threats from climate change, land degradation and disasters, which disproportionately affect mountain communities that are also facing poverty, food insecurity and limited access to basic services.

To achieve the Sustainable Development Goals, mountain areas must be prioritized through targeted actions that address their unique vulnerabilities and harness their potential. It is essential to strengthen regional cooperation, integrate mountain-related topics into global climate and development forums and promote inclusive decision-making in order to support adaptation efforts and build resilience in these fragile ecosystems. Bridging the science-policy gap is critical to ensuring that evidence-based research informs policy design. Improving the collection of disaggregated data, developing mountain-specific policies, and financing and investing in local capacities will not only enhance livelihoods, but will also enable the long-term conservation and restoration of mountain environments.

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## I. Introduction

1. The present report of the Secretary-General has been prepared pursuant to General Assembly resolution [77/172](#) by the Food and Agriculture Organization of the United Nations (FAO) and the Mountain Partnership Secretariat, with input from Governments, United Nations agencies and other relevant organizations.

2. A decade after the adoption of the 2030 Agenda for Sustainable Development, mountain areas continue to face growing challenges as a result of climate change, biodiversity loss, land degradation and persistent vulnerabilities. In the present report, key emerging issues, and actions taken by the United Nations system and its partners to enhance the resilience of mountain populations, are highlighted, and recommendations to promote sustainable mountain development are set out.

3. Advocacy efforts and initiatives to raise public awareness of mountain issues have played an important role in promoting sustainable mountain development. Initiatives such as International Mountain Day, Five Years of Action for the Development of Mountain Regions (2023–2027) and the declaration of 2022 as the International Year of Sustainable Mountain Development, 2024 as the International Year of Camelids, 2025 as the International Year of Glaciers' Preservation and 2026 as the International Year of Rangelands and Pastoralists provide platforms for enhancing the visibility of, mobilizing political support for and encouraging investment in sustainable mountain development.

4. In the present report, the key areas that require multi-stakeholder action to accelerate the implementation of the 2030 Agenda in mountain areas and for mountain communities are highlighted. The report also serves to take stock of the progress made halfway through the Five Years of Action for the Development of Mountain Regions.

5. Mountains are vital ecosystems that cover around 27 per cent of the world's land surface and provide essential goods and services to the entire planet. They support the livelihoods of approximately 1.2 billion people, 15 per cent of the global population.<sup>1</sup> Mountains supply 60–80 per cent of the Earth's fresh water, benefiting both mountain communities and roughly 2 billion people living in connected lowland regions.<sup>2</sup> In addition, they are home to 25 per cent of terrestrial biodiversity,<sup>3</sup> underscoring their importance for global ecological balance.

6. Currently, there is a concerning trend whereby the conditions of mountain populations around the world are not improving and, in some cases, are getting worse.

7. In 2017, half of the rural mountain population in developing countries – 346 million people – was estimated to be vulnerable to food insecurity. Vulnerability to food insecurity in mountain areas steadily increased between 2000 and 2017.<sup>4</sup>

8. Poverty, conflicts, migration, inequalities and limited access to such basic services as transport, education, healthcare and markets reduce the resilience of people living in rural mountain areas to crises and shocks.<sup>5</sup>

<sup>1</sup> FAO, *Mountain Population: Demographics and Trends* (forthcoming).

<sup>2</sup> Daniel Viviroli and others, "Increasing dependence of lowland populations on mountain water resources", *Nature Sustainability*, vol. 3 (2020).

<sup>3</sup> Thomas Kohler and others, eds., *Green Economy and Institutions for Sustainable Mountain Development: From Rio 1992 to Rio 2012 and Beyond* (Bern, Centre for Development and Environment and others, 2015).

<sup>4</sup> FAO, *Mountain Population: Demographics and Trends*.

<sup>5</sup> Rosalaura Romeo and others, *Vulnerability of Mountain Peoples to Food Insecurity: Updated Data and Analysis of Drivers* (Rome, FAO and United Nations Convention to Combat Desertification, 2020).

## II. Mountains and the 2030 Agenda for Sustainable Development

9. The 2030 Agenda for Sustainable Development includes the following three targets that directly address sustainable mountain development:

(a) Target 6.6: By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes;

(b) Target 15.1: By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements;

(c) Target 15.4: By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, to enhance their capacity to provide benefits that are essential for sustainable development.

10. In a 2023 report<sup>6</sup> on Sustainable Development Goal indicator 15.4.2 (Mountain Green Cover Index), FAO shows that land use and climate change are the strongest drivers of mountain landscape transformation. Between 2000 and 2021, mountain green cover decreased from 83.0 to 82.2 per cent. Changes in land cover and land use are key causes of biodiversity loss in mountain ecosystems.

11. In its resolution 76/129 of 16 December 2021, the General Assembly declared 2022 the International Year of Sustainable Mountain Development. In the resolution, which was spearheaded by the Government of Kyrgyzstan and adopted by consensus, the Assembly called for global awareness and collaboration, and invited the Mountain Partnership,<sup>7</sup> in collaboration with all relevant organizations, to facilitate the observance of the International Year.

12. In its resolution 77/172 of 14 December 2022, the General Assembly proclaimed the period 2023–2027 as Five Years of Action for the Development of Mountain Regions in order to enhance the international community's awareness of issues affecting mountain countries and to give new impetus to efforts aimed at addressing the challenges facing those countries.

13. In 2024, in response to a request made at the 174th session of the FAO Council, the Mountain Partnership Secretariat, in collaboration with FAO technical units and decentralized offices, developed the Global Action Plan on Mountain Region Development.<sup>8</sup>

## III. Challenges

### A. Climate change

14. Mountain habitats are highly sensitive to climate change and mountain agriculture is particularly vulnerable; drivers of food insecurity in mountainous

<sup>6</sup> FAO, *Tracking Progress on Food and Agriculture-related SDG Indicators* (Rome, 2023).

<sup>7</sup> See [www.fao.org/mountain-partnership/en](http://www.fao.org/mountain-partnership/en).

<sup>8</sup> FAO, "Global Action Plan on Mountain Region Development: supporting the implementation of the Five Years of Action for the Development of Mountain Regions 2023–2027", 2024. Available at <https://openknowledge.fao.org/items/95e01f77-7320-4384-b7c5-4aeda60b7ae9>.

regions include climatic variability, extreme weather events and disasters triggered by natural hazards.<sup>9</sup>

15. These challenges affect not only mountain farmers, but also irrigated agriculture downstream, where water supply is becoming increasingly erratic.<sup>10</sup>

16. The twenty-eighth session of the Conference of the Parties to the United Nations Framework Convention on Climate Change was held in Dubai, United Arab Emirates, from 30 November to 12 December 2023. Mountains were referenced several times in the first global stocktake,<sup>11</sup> and designated as a thematic priority for 2024 under the United Nations Framework Convention on Climate Change Nairobi work programme on impacts, vulnerability and adaptation to climate change. Mountains continued to be a priority at the twenty-ninth session of the Conference of the Parties to the Convention, which was held in Baku in November 2024.

17. The sixtieth session of the subsidiary bodies of the United Nations Framework Convention on Climate Change was held in Bonn, Germany, from 3 to 13 June 2024. As requested in the global stocktake, the Chair of the Subsidiary Body for Scientific and Technological Advice convened the first-ever expert dialogue on mountains and climate change. The expert dialogue, which was attended by over 130 participants representing both mountainous and non-mountainous countries, was held on 5 June 2024. Participants called for data and research gaps to be bridged and emphasized the importance of Indigenous knowledge and transboundary cooperation in promoting adaptation and resilience in mountain regions.

18. To promote cooperation among mountainous and non-mountainous countries, in 2023 the Government of Kyrgyzstan revitalized the negotiating group of States Parties to the Convention known as the Group of Mountain Partnership (formerly the Group of Mountainous Landlocked Developing Countries).<sup>12</sup>

19. Scaling up adaptation in mountain regions is key to addressing cascading climate risks, as shown in the *Adaptation Gap Report 2023* of the United Nations Environment Programme (UNEP).<sup>13</sup>

20. Ecosystem-based solutions for mountain adaptation are being documented and scaled up through regional initiatives. UNEP has assessed, and compiled a list of, context-specific practices in different mountain regions, and has launched a small grants scheme aimed at facilitating the transfer of these solutions and strengthening national adaptation policies in the East African Community and the South Caucasus.<sup>14</sup>

21. Understanding the effects of climate change on mountain tourism is key to shaping resilient destinations, as reflected in the Agenda for Europe of the World

<sup>9</sup> United Nations Educational, Scientific and Cultural Organization (UNESCO) and others, *The United Nations World Water Development Report 2025: Mountains and Glaciers – Water Towers* (Paris, UNESCO, 2025).

<sup>10</sup> FAO, *Promoting Innovation and Tradition: Solutions for Climate Change Adaptation in Mountains* (Rome, 2024).

<sup>11</sup> United Nations Framework Convention on Climate Change, decision 1/CMA.5 (see [FCCC/PA/CMA/2023/16/Add.1](https://unfccc.int/process-and-meetings/parties-non-party-stakeholders/parties-party-groupings)).

<sup>12</sup> The Party groupings are available at <https://unfccc.int/process-and-meetings/parties-non-party-stakeholders/parties-party-groupings>.

<sup>13</sup> The importance of strengthening adaptive capacity and addressing loss and damage in vulnerable highland areas is emphasized in such case studies as “Mountains in silent thaw: losses and damages from the disappearing ‘frozen heartbeat’ of Earth”, in *Adaptation Gap Report 2023: Underfinanced. Underprepared.* (Nairobi, United Nations Environment Programme (UNEP), 2023).

<sup>14</sup> *Mountains ADAPT solutions* booklets for the East African Community and the South Caucasus, a *Resilient Mountains* publication for the Hindu Kush Himalaya and a *Climate Resilience in the Andes* booklet for South America.

Tourism Organization. A survey conducted in January 2025 on the impacts of climate change was used to help to identify challenges, adaptation strategies and successful practices. The findings of the survey will be presented at the thirteenth World Congress on Snow, Mountain and Wellness Tourism, to be held in 2026.

## B. Disaster risk management in mountains

22. Mountain communities are exposed to natural hazards, such as avalanches, floods, flash floods, debris flows, landslides and, increasingly, glacial lake outburst floods, all driven by glacier retreat and climate change.<sup>15</sup>

23. Forests cover an estimated 40 per cent of mountain areas and help to protect against natural hazards by stabilizing steep slopes, regulating flows to groundwater, reducing surface run-off and soil erosion, and mitigating the potential for landslides and floods.<sup>16</sup>

24. In the *Global Assessment Report on Disaster Risk Reduction 2025: Resilience Pays: Financing and Investing for Our Future*, the United Nations Office for Disaster Risk Reduction details the enormous losses due to hazards that cripple tourism and local economies, as well as affecting the water supply and damaging sanitation infrastructure.

25. The United Nations Development Programme (UNDP) supported a project in Kyrgyzstan<sup>17</sup> aimed at reducing the risk of glacial lake outburst floods and improving flood management and early warning systems. The project benefited over 30,000 people.

26. In the Plurinational State of Bolivia, FAO took anticipatory action to mitigate drought impacts, including by providing water harvesting systems, animal feed, health services and drought-tolerant seeds to safeguard mountain livelihoods.

### Glaciers, snow, cryosphere and water

27. Almost 70 per cent of the Earth's fresh water is stored as snow or ice. In mountainous areas, this water supports agriculture, ecosystems and food security. However, climate change has caused widespread shrinking of the cryosphere, with mass loss from ice sheets and glaciers and reductions in snow cover and permafrost, altering the timing and availability of water in glacier-fed basins and contributing to water scarcity and declining agricultural yields in some highland regions. Glaciers are critical indicators of climate change; as glaciers retreat, water access and the cultural traditions tied to these landscapes are increasingly under threat.<sup>18</sup>

28. By its resolution 77/158 of 14 December 2022, the General Assembly proclaimed 2025 the International Year of Glaciers' Preservation in order to foster global awareness, scientific cooperation and action to protect glaciers, which are critical climate regulators and sources of fresh water.

29. The United Nations Educational, Scientific and Cultural Organization (UNESCO) and the World Meteorological Organization are leading efforts to promote the International Year of Glaciers' Preservation. The Mountain Partnership Secretariat is leading Task Force 1 under the International Year of Glaciers' Preservation, which

<sup>15</sup> Adaptation at Altitude, "Leave no mountain behind: disaster risk reduction for all", issue brief, June 2022.

<sup>16</sup> UNESCO and others, *The United Nations World Water Development Report 2025*.

<sup>17</sup> See [www.undp.org/kyrgyzstan/press-releases/project-reduce-risks-glacial-lake-outbursts-kyrgyzstan](http://www.undp.org/kyrgyzstan/press-releases/project-reduce-risks-glacial-lake-outbursts-kyrgyzstan).

<sup>18</sup> UNESCO and others, *The United Nations World Water Development Report 2025*.

is responsible for the global campaign for the International Year; its role is to coordinate communication and outreach activities. As part of the International Year initiative, 21 March was also designated World Day for Glaciers, starting in 2025.

30. In August 2024, the General Assembly adopted resolution [78/321](#), proclaiming 2025–2034 the Decade of Action for Cryospheric Sciences. The Decade is aimed at strengthening global scientific cooperation, enhancing cryosphere monitoring and improving climate policy in view of the critical role of snow, glaciers and permafrost in regulating the climate, sustaining water resources and supporting vulnerable communities.

31. In *The United Nations World Water Development Report 2025: Mountains and Glaciers – Water Towers*, published by UNESCO on behalf of UN-Water, attention is drawn to the importance of mountain waters, including alpine glaciers, for the development of mountain regions and downstream communities. In chapter 3, “Food and agriculture”, the authors recommend stronger governance, targeted policies, sustained investment and better knowledge systems to safeguard water and support resilient mountain farming with a view to ensuring food security from highlands to lowlands in the face of climate change.<sup>19</sup>

32. Adaptation responses in mountains commonly consist of changing farming practices; developing infrastructure, such as water storage facilities; applying Indigenous knowledge; strengthening community capacity; and implementing ecosystem-based adaptation, which may draw on traditional practices, such as terrace farming and community forestry.

33. In southern Kyrgyzstan, FAO is supporting the construction of artificial glaciers to address water scarcity. Under the project, which is funded by the Peacebuilding Fund, ice structures that melt in summer are being built to supply irrigation and household water, benefiting over 500 hectares across rural Kyrgyz communities.<sup>20</sup>

### C. Biodiversity conservation and ecosystem restoration

34. Mountain ecosystems are rich in biodiversity, hosting about half of the world’s biodiversity hotspots, 30 per cent of all key biodiversity areas and around a quarter of terrestrial species, many of which are endemic.<sup>21</sup> They also contain vital genetic resources for locally adapted crops and livestock.<sup>22</sup>

35. Mountain biodiversity is increasingly threatened by climate change, altered precipitation patterns, land use change and hazards.<sup>23</sup> Protecting and restoring mountain biodiversity is essential also for ensuring the continued provision of critical ecosystem services, such as water regulation, soil fertility and climate resilience, which benefit both highland and lowland communities.

36. Dryland mountains contribute to global food security; however, extreme events have variable impacts on their ecosystem services as a whole, including on the

<sup>19</sup> Ibid.

<sup>20</sup> FAO, “Shared prosperity through cooperation in border regions of Kyrgyzstan and Uzbekistan”, project code UNJP/KYR/026/PBF+UNJP/UZB/014/PBF. Available at [www.fao.org/evaluation/list/ongoing-project-evaluations/project-detail/shared-prosperity-through-cooperation-in-border-regions-of-kyrgyzstan-and-uzbekistan/en](http://www.fao.org/evaluation/list/ongoing-project-evaluations/project-detail/shared-prosperity-through-cooperation-in-border-regions-of-kyrgyzstan-and-uzbekistan/en).

<sup>21</sup> UNESCO and others, *The United Nations World Water Development Report 2025*.

<sup>22</sup> FAO, “Mountain biodiversity matters. Let’s protect our future!”, 2020.

<sup>23</sup> Carolina Adler and others, “Cross-chapter paper 5: Mountains”, in *Climate Change 2022: Impacts, Adaptation and Vulnerability – Working Group II Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*, Hans-Otto Pörtner and others, eds. (Cambridge University Press, 2022).

availability of water for people and economies.<sup>24</sup> Restoration of dryland mountains areas can improve water availability and soil fertility and strengthen local food systems by enhancing agricultural productivity and resilience.

37. The Convention on Biological Diversity is serving to strengthen cooperation among global and regional mountain platforms aimed at promoting biodiversity conservation and climate change adaptation in mountain ecosystems. The Kunming-Montreal Global Biodiversity Framework,<sup>25</sup> adopted in December 2022, offers a road map for halting and reversing biodiversity loss by 2050. The Framework sets out the goal of maintaining, enhancing or restoring the integrity, connectivity and resilience of all ecosystems, substantially increasing the area of natural ecosystems by 2050.

38. In 2023, the Carpathian Biodiversity Framework was adopted under the Framework Convention on the Protection and Sustainable Development of the Carpathians (the Carpathian Convention), in order to support the Kunming-Montreal Global Biodiversity Framework. In the same year, States Parties to the Convention on Biological Diversity, the Alpine Convention and the Carpathian Convention renewed their trilateral memorandum of cooperation aimed at protecting and restoring biodiversity in mountain regions.

39. At the sixteenth session of the Conference of the Parties to the Convention on Biological Diversity, held in Cali, Colombia, a high-level event hosted by the Andean Mountain Initiative and the Government of Colombia served to highlight the link between mountain biodiversity and climate action. The event resulted in a road map on finding common ground for nature and climate in the run-up to the thirtieth Conference of the Parties to the United Nations Framework Convention on Climate Change, to be held in Belém do Pará, Brazil, in November 2025. The road map is aimed at building synergies across the three Rio conventions (Convention on Biological Diversity, United Nations Framework Convention on Climate Change, and United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa).

40. The secretariat of the Convention on Biological Diversity, together with Armenia, which will hold the presidency of the seventeenth session of the Conference of the Parties to the Convention, will ensure that the Conference provides a platform to discuss mountains. It will also continue to collaborate with UNEP, the Mountain Partnership Secretariat, the International Centre for Integrated Mountain Development, the Consortium for the Sustainable Development of the Andean Ecoregion and the secretariats of the Alpine and Carpathian Conventions to strategically review and potentially update the programme of work on mountain biological diversity under the Convention on Biological Diversity.

41. An FAO pilot project in the Peruvian Andes led by the Asociación Centro Indígena para el Desarrollo Sostenible is being scaled up to develop a regional biocentric restoration plan for the Southern Andean Corridor. Developed in coordination with national and local authorities, the project supports the achievement of Target 2 of the Kunming-Montreal Global Biodiversity Framework.<sup>26</sup>

<sup>24</sup> FAO and UNEP, *Restoring Mountain Ecosystems: Challenges, Case Studies and Recommendations for Implementing the UN Decade Principles for Mountain Ecosystem Restoration* (Rome and Nairobi, 2023).

<sup>25</sup> See <https://www.cbd.int/gbf>.

<sup>26</sup> The plan is designed to restore key Andean ecosystems in areas including the Titicaca Lake provinces of Arequipa, Cusco, Puno and Moquegua, in coordination with the Ministry of the Environment and the Ministry of Agriculture Development, local Indigenous authorities of the regions involved and over 20 local governments.



42. In January 2024, a permanent secretariat for the UNESCO world heritage site “Ancient and Primeval Beech Forests of the Carpathians and Other Regions of Europe” was established in Bratislava, Slovakia. Encompassing 94 forest sites across 18 European countries, it is the largest serial site on the UNESCO World Heritage List. The operation of the secretariat is based on cooperation among three heritage countries: Austria, Belgium and Slovakia.

43. The Global Snow Leopard and Ecosystem Protection Programme and UNEP are actively addressing the threats that climate change poses to endangered species and mountain ecosystems.

44. In 2022, the Kurdistan Regional Government initiated efforts to protect the rare and endangered Caucasian oak tree on Hasan Bag mountain in Erbil, Iraq. Threats to this species include deforestation and illegal logging for fuelwood, overgrazing by livestock and increasing forest fires, intensified by climate change.

45. Italy, which leads the Alpine Biodiversity Board of the Alpine Convention, carried out activities and negotiations that led to the development of the document entitled “Biodiversity in the Alps: policy brief”.<sup>27</sup> The brief contains strategic guidance for the preparation of an Alpine biodiversity action plan, which will serve to translate the Kunming-Montreal Global Biodiversity Framework into regional objectives. For the period 2025–2026, Italy holds the presidency of the Alpine Convention.

46. To support and accelerate global efforts to restore degraded ecosystems, the General Assembly, in its resolution 73/284, declared 2021–2030 the United Nations Decade on Ecosystem Restoration. The Decade is being co-led by UNEP and FAO. A task force on best practices<sup>28</sup> was established to strengthen knowledge-sharing and capacity development, and a publication on restoring mountain ecosystems was issued.<sup>29</sup>

47. UNEP and the secretariats of the Carpathian Convention and the Mountain Partnership established the Multi-country Mountain Flagship initiative in order to highlight efforts in Africa, Asia-Pacific and Europe that are strengthening mountain resilience for both people and wildlife.

48. Chile is advancing integrated restoration efforts through various mountain-related strategies, including a national biodiversity strategy and a national landscape restoration plan, and refining its climate change adaptation plan for biodiversity. These steps complement the ongoing establishment of a national biodiversity and protected areas service.

49. Between 2022 and 2025, targeted plastic pollution projects led by the secretariats of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade and the Stockholm Convention on Persistent Organic Pollutants in mountain regions in Kazakhstan, North Macedonia, Peru, Tajikistan and Uzbekistan have improved waste collection, enabled the installation of new infrastructure and informed national plastic waste strategies.<sup>30</sup>

<sup>27</sup> Alpine Convention, “Biodiversity in the Alps: policy brief”, 2024.

<sup>28</sup> See [www.fao.org/in-action/forest-landscape-restoration-mechanism/un-decade/taskforce-on-best-practices/taskforce-on-best-practices/en](http://www.fao.org/in-action/forest-landscape-restoration-mechanism/un-decade/taskforce-on-best-practices/taskforce-on-best-practices/en).

<sup>29</sup> FAO and UNEP, *Restoring Mountain Ecosystems*.

<sup>30</sup> The project has now expanded to cover five more countries: Argentina, Chile, Eswatini, Lesotho and Rwanda.



50. Through a UNDP Global Environment Facility project in the western Tien Shan region of Kyrgyzstan, an automated electronic pasture committee information management system has been established to support sustainable pasture management practices.

#### **D. Innovation in mountains**

51. Innovations in mountain regions drive solutions to environmental and socioeconomic challenges, helping to build resilience. Ensuring access to these innovations for communities with limited resources remains critical.

52. The first Mountain Innovation Fair,<sup>31</sup> held in Bolzano, Italy in 2023, was hosted by UNEP, the Global Mountain Safeguard Research programme, the Centre for Development and Environment of the University of Bern and others. The Fair offered an interactive and collaborative workspace for practitioners, decision makers and researchers to learn about and gain access to mountain innovations with a view to replicating them in various regions and contexts.

53. In celebration of International Mountain Day 2024, the Mountain Partnership Secretariat launched the Mountain Future Award to recognize transformative projects focusing on youth, adaptation and innovation.

### **IV. Mountain economies, livelihoods and agrifood systems**

#### **A. Agrifood systems**

54. Mountain communities are vital to the preservation of traditional knowledge that is essential for resilient agrifood systems. Small-scale farmers and pastoralists manage diverse crops and livestock across varied altitudes and terrains. This agricultural diversity supports climate adaptation and global food security by maintaining a rich gene pool of resilient species.<sup>32</sup>

55. The United Nations Decade of Family Farming<sup>33</sup> (2019–2028) provides a framework for strengthening the resilience of family farms. Efforts associated with the Decade have resulted in the adoption of 16 national and 3 regional action plans and over 360 supportive policies, as well as the active engagement of around 2,600 stakeholders. The aims of the Decade include promoting inclusive and sustainable mountain agrifood systems.

56. Agroecology is a key approach to climate change adaptation and mitigation in mountain regions. Promoting agroecology through sustainable farming practices, such as cover cropping, mulching and composting, helps to improve soil health, enhance carbon storage and reduce greenhouse gas emissions.

57. The Scaling up Climate Ambition on Land Use and Agriculture through Nationally Determined Contributions and National Adaptation Plans programme,<sup>34</sup> jointly implemented by FAO and UNDP, supports 12 countries in advancing transformative climate action through localized, participatory approaches. Key activities include climate risk analyses, territorial observatories and the co-creation

<sup>31</sup> See <https://www.eurac.edu/en/institutes-centers/center-for-global-mountain-safeguard-research/news-events/mountain-innovation-fair-2023>.

<sup>32</sup> Valeria Barchiesi and others, “Inclusive and resilient mountain food systems: opportunities and best practices”, 2022.

<sup>33</sup> See [www.fao.org/family-farming-decade/home/en/](http://www.fao.org/family-farming-decade/home/en/).

<sup>34</sup> See [www.fao.org/in-action/scala/en](http://www.fao.org/in-action/scala/en).

of Community Climate Action Laboratories that promote adaptation practices, such as recovering native crops, improving irrigation and strengthening community nurseries.

58. Albania, Algeria, China, the Lao People's Democratic Republic, Nepal and Switzerland have integrated mountain agrifood systems into their national pathways for food systems transformation. The second United Nations Food Systems Summit Stocktake, held in July 2025, was a key opportunity to assess progress and strengthen cross-sectoral alignment, investment and governance with a view to building sustainable, inclusive and resilient agrifood systems by 2030.

59. The Mountain Partnership Products initiative is a certification and labelling system that is designed to support mountain communities, economies and ecosystems.<sup>35</sup> By promoting ethical and fair value chains for organic mountain products, the Mountain Partnership Products label contributes to the protection of agrobiodiversity.

60. The Business Incubator and Accelerator for Mountains and Islands, managed by the Mountain Partnership Secretariat with the support of the Global Environment Facility Small Grants Programme, supports sustainable livelihoods for small-scale producers in 10 countries: Dominican Republic, Ethiopia, Fiji, Guatemala, Kyrgyzstan, Mongolia, Nepal, Peru, Philippines and Uganda. Grants, technical support and capacity-building are provided through the initiative.

## B. Migration

61. Human mobility in mountain areas is severely affected by climate change. Sudden natural hazards and slow-onset changes are making mountain communities more vulnerable to disasters, which, in turn, are driving varied mobility patterns, such as displacement and migration.<sup>36</sup>

62. In a report entitled "Human mobility in mountain areas in a changing climate", the International Organization for Migration (IOM) and the Mountain Partnership Secretariat examine how climate change is affecting human mobility in mountainous regions. In the report, which draws on evidence from Ecuador, Kyrgyzstan and Tajikistan, the authors highlight how mountain communities are responding to climate-induced pressures.

63. In Kyrgyzstan, IOM led an initiative aimed at including internal migrants in green renovation efforts by piloting climate-resilient housing designs, conducting capacity development activities for key stakeholders and supporting the development of policies for more inclusive, sustainable mountain settlements.<sup>37</sup>

<sup>35</sup> See <https://www.fao.org/mountain-partnership/projects/mountain-partnership-products-initiative/en#:~:text=High%2Dquality%20mountain%20products%20%E2%80%93%20such,local%20economies%20in%20mountain%20regions>.

<sup>36</sup> FAO, International Organization for Migration (IOM) and Mountain Partnership, "Human mobility in mountain areas in a changing climate", 2024.

<sup>37</sup> See IOM, "Promoting the inclusion of internal migrants in green renovation in Kyrgyzstan", project ID NC0117. Available at [www.iom.int/project/promoting-inclusion-internal-migrants-green-renovation-kyrgyzstan](http://www.iom.int/project/promoting-inclusion-internal-migrants-green-renovation-kyrgyzstan).

## C. Inclusive sustainable mountain development

64. In their joint publication *Mountain Women of the World: Challenges, Resilience and Collective Power*,<sup>38</sup> FAO and the Mountain Partnership Secretariat outline the vital role of women in conserving mountain ecosystems and their key contributions to resource management and water and food security at the household and community levels.

65. Utah Valley University in the United States of America and Osh Technological University in Kyrgyzstan advocated for the rights of mountain women at the sixty-seventh, sixty-eighth and sixty-ninth sessions of the Commission on the Status of Women.

66. The Indigenous Peoples' Biocentric Restoration global programme,<sup>39</sup> implemented in mountain areas around the world as part of the United Nations Decade on Ecosystem Restoration, draws on Indigenous agrifood systems and spiritual knowledge to help to restore mountain ecosystems.

67. Young people are essential to securing a sustainable future for mountain regions. Ensuring that they have access to education, employment and leadership roles is key to unlocking young people's potential to support mountain development.

68. The Mountain Youth Hub was launched in 2023 to advance the Five Years of Action for the Development of Mountain Regions. Over 250 Hub members worldwide contribute to global discussions and seek to advance youth priorities in relation to mountains.

69. Through its Junior Farmer Field and Life Schools programme,<sup>40</sup> FAO is providing agricultural and life skills training to vulnerable young people in mountain areas in Honduras.<sup>41</sup> This helps to reduce risks, such as child labour and unsafe migration, while promoting resilience and sustainable livelihoods.

## D. Tourism

70. Agritourism offers a promising pathway to more resilient, inclusive and sustainable agrifood systems in mountain areas by integrating agriculture, tourism, culture and local economies. Following the United Nations Food Systems Summit in 2021, FAO has been supporting Albania to develop its agritourism sector through capacity-building, multilevel dialogues and technical assistance.<sup>42</sup>

71. UNDP has supported the development of ecotourism infrastructure in mountainous areas of Kyrgyzstan, including eco-trails in Alatai, Kan-Achuu and Saimaluu-Tash. Local communities, including women's groups in Osh and Jalalabad, have been empowered to participate in the sustainable tourism industry through targeted grants and technical assistance.

<sup>38</sup> FAO, *Mountain Women of the World: Challenges, Resilience and Collective Power* (Rome, 2022).

<sup>39</sup> See [www.fao.org/indigenous-peoples/pillars-of-work/indigenous-peoples--knowledge-and-climate-change/indigenous-peoples--biocentric-restoration/](https://www.fao.org/indigenous-peoples/pillars-of-work/indigenous-peoples--knowledge-and-climate-change/indigenous-peoples--biocentric-restoration/).

<sup>40</sup> See [www.fao.org/farmer-field-schools/ffs-overview/youth/en/](https://www.fao.org/farmer-field-schools/ffs-overview/youth/en/).

<sup>41</sup> FAO is currently piloting the Junior Farmer Field and Life Schools approach in mountain areas and communities of Honduras within the framework of a European Union-funded project entitled "Ending child labour in supply chains: addressing the root causes of child labour in supply chains through an area-based approach (CLEAR Supply Chains)".

<sup>42</sup> United Nations, "Albania: investing in agritourism as an engine for shared prosperity", 25 March 2024.

72. In 2022, the International Climbing and Mountaineering Federation established a climate change task force to support the implementation of its 2024 Climate Action Plan for global federations and mountain users, including climbers, hikers and skiers. The Plan is part of the Federation's broader strategic vision for 2025–2028, which is aimed at reinforcing sustainability in mountain sports.

## **E. Education and extension services**

73. Established in 2008, the International Programme on Research and Training on Sustainable Management of Mountain Areas, organized by the Mountain Partnership Secretariat, the University of Turin and the University of Tuscia, continues to offer a platform for participants to explore key challenges and opportunities for sustainable development in mountain regions. A Latin American edition of the Programme was launched in 2021 and is held every other year.

74. "Agrobiodiversity in a changing climate: Sustainable production, fragile ecosystems, and resilience to global changes"<sup>43</sup> is an annual training programme organized by the Mountain Partnership Secretariat in collaboration with the Sapienza University of Rome and Bioversity International.

75. The Zero Water Day Partnership promotes inclusive education to deepen understanding of mountain challenges and responsibilities. Its Saving the Water Towers of the World campaign<sup>44</sup> is aimed at integrating this approach into national education policies.

76. The establishment of the Global Mountain University is a key initiative under the Five Years of Action for the Development of Mountain Regions. The University will serve as a platform for academic exchange and research collaboration on critical issues affecting mountain communities.

## **V. Governance and policy**

### **A. National laws and strategies**

77. Kyrgyzstan is integrating mountain-specific issues into national strategies, including its national biodiversity strategy and action plan, its national adaptation plan and its nationally determined contribution. UNDP has provided support to Kyrgyzstan in developing and implementing the Five-Year Action Plan for the Development of Mountain Regions, and coordinates efforts through the Office of the Special Envoy of the President of Kyrgyzstan for effective policy implementation.

78. Romania is advancing mountain governance through nine Massif Committees and a National Mountain Council. It is finalizing its strategy for the integrated development of the mountain area and chairs the Working Group for Sustainable Agriculture and Rural Development under the Carpathian Convention.

79. At the Sagarmatha Sambaad 2025, held from 16 to 18 May, Nepal presented its third nationally determined contributions report<sup>45</sup> and its biennial transparency report. The third nationally determined contributions report serves as the national climate

<sup>43</sup> See the training programme of the Mountain Partnership Secretariat entitled "GROW – Agrobiodiversity in a changing climate". Available at [www.fao.org/mountain-partnership/our-work/capacity-development/grow/en](http://www.fao.org/mountain-partnership/our-work/capacity-development/grow/en).

<sup>44</sup> See <https://www.fao.org/mountain-partnership/members/detail/zero-water-day-partnership-zwdp/en>.

<sup>45</sup> See [www.mofe.gov.np/uploads/uploads/notices/ndc-30nepalpdf-7106-2511747376152.pdf](http://www.mofe.gov.np/uploads/uploads/notices/ndc-30nepalpdf-7106-2511747376152.pdf).

action plan and includes a commitment to achieve net-zero emissions by 2045. The Sagarmatha Sambaad 2025 was focused on climate change in mountain areas.

80. On 24 and 25 April 2025, the Global Mountain Dialogue for Sustainable Development: Towards the Bishkek+25 Summit was held in Bishkek. Participants discussed the priorities of sustainable development in mountain regions in the face of global challenges, including climate and biodiversity issues. At the conference, the foundations for the agenda of the second Global Mountain Summit, which will be held in Bishkek in 2027, were laid.

81. The Andean Mountain Initiative strengthens mountain policy through national laws, regional cooperation and knowledge-sharing. It supported the development of the national policy on glaciers and mountain ecosystems of Peru, the paramos management law in Colombia and the Declaration for the Andean Mountain Ecosystems,<sup>46</sup> which was presented at the sixteenth session of the Conference of the Parties to the Convention on Biological Diversity, held in Cali, Colombia.<sup>47</sup>

## **B. Partnerships, transboundary cooperation and conventions**

82. The Mountain Partnership is the global United Nations voluntary alliance of partners dedicated to mountains and people living in mountain areas. By facilitating the sharing of experience, knowledge and expertise among its members, the Mountain Partnership addresses challenges facing mountain regions at the global level. As at 20 May 2025, the alliance had grown to 636 members, 68 of which are States Members of the United Nations. The Mountain Partnership Secretariat is hosted by FAO.

83. In South America, the Andean Mountain Initiative adopted a five-year action plan aimed at strengthening governance, enhancing knowledge management, supporting capacity development and raising awareness of the value of mountain ecosystems.

84. In East Africa, through the Adaptation at Altitude programme, the Albertine Rift Conservation Society, in partnership with UNEP and the secretariat of the East African Community, established the Climate Change Technical Working Group and the East Africa Mountains Stakeholder Platform<sup>48</sup> to provide policy and technical support to the thematic working groups of the East African Community.

85. The African Mountains Regional Forum serves as a platform for stakeholders to advance the sustainable mountain development agenda. The 2024 Forum resulted in the Kigali Declaration on Sustainable Mountain Development in Africa, in which the participants in the Forum advocate for strengthened mountain governance in Africa.<sup>49</sup>

86. The Regional Adaptation Dialogue in the South Caucasus,<sup>50</sup> which brings together Armenia, Azerbaijan and Georgia, promotes voluntary regional cooperation

<sup>46</sup> See <https://iam-andes.org/wp-content/uploads/2024/06/DECLARATION-FOR-THE-ANDEAN-MOUNTAIN-ECOSYSTEMS-IAM-2024.pdf>.

<sup>47</sup> The Declaration was issued by Andean Mountain Initiative member countries during their annual meeting, in Bogotá, from 2 to 4 July 2024, and presented on 23 October 2024 at the sixteenth session of the Conference of the Parties to the Convention on Biological Diversity in Cali, Colombia.

<sup>48</sup> Arcos Network, “East Africa partners establish the East Africa Mountains Stakeholder Platform”, 30 March 2022.

<sup>49</sup> See [https://greatervirunga.org/wp-content/uploads/2024/12/Kigali-Declaration\\_ARMF-2024\\_Final\\_Dec24.pdf](https://greatervirunga.org/wp-content/uploads/2024/12/Kigali-Declaration_ARMF-2024_Final_Dec24.pdf).

<sup>50</sup> See <https://adaptationaltitude.org/knowledge-base/event/regional-adaptation-dialogue-in-the-south-caucasus-meeting/>.

on climate risks and adaptation, informed by the *Caucasus Environment Outlook* published in 2024 and participatory environmental monitoring.

87. In 2022, the Swiss presidency of the Alpine Convention led the development of a new multi-annual work programme<sup>51</sup> of the Alpine Convention for the period 2023–2030, which serves to define a cooperative approach between all Alpine countries.

## **VI. Recommendations for sustainable mountain development**

88. The recommendations set out below seek to address persistent gaps and accelerate sustainable development in mountain areas, and to strengthen the resilience of mountain ecosystems and communities.

89. To reduce climate risks and promote adaptation and mitigation in mountains, it is recommended that Member States:

(a) Promote and scale up climate adaptation strategies that integrate data and Indigenous and local knowledge; implement effective mitigation actions to limit warming to 1.5°C; and strengthen transboundary cooperation to address climate risks and regional adaptation to climate change in mountain areas, and to reduce greenhouse gas emissions;

(b) Strengthen efforts to conserve biodiversity and protect ecosystems along altitudinal gradients, enhancing their resilience and capacity to adapt to climate change and prevent biodiversity loss;

(c) Strengthen disaster risk management in mountain areas through climate risk-informed and disaster risk-informed planning, design, operation and development of infrastructure, including for water storage and community-based early warning systems, while encouraging increased international investment;

(d) Support climate-smart energy technologies and regional cooperation to address mountain energy challenges; build resilient infrastructure and ensure equitable benefit-sharing to strengthen local livelihoods and protect ecosystems;

(e) Integrate mobility into climate adaptation plans, leveraging Indigenous Peoples' knowledge with modern technologies;

(f) Promote policies that support resilience against climate hazards and the establishment of safe migration pathways in mountain areas;

(g) Foster transboundary and multi-stakeholder engagement to strengthen security, climate resilience and justice, and sustainable livelihoods in mountain regions, especially in climate security hotspots, through capacity-building and knowledge-sharing;

(h) Integrate mountain priorities into national climate action frameworks, such as nationally determined contributions, national adaptation plans and biennial transparency reports;

(i) Support climate-vulnerable mountainous countries in accessing financing for initiatives, for example, through the Green Climate Fund, conservation trust funds, the Global Environment Facility, the Adaptation Fund and the Fund for Responding to Loss and Damage.

<sup>51</sup> See [www.alpconv.org/fileadmin/user\\_upload/Organisation/AC/XVII/AC\\_MAP\\_2023-2030\\_en\\_web.pdf](http://www.alpconv.org/fileadmin/user_upload/Organisation/AC/XVII/AC_MAP_2023-2030_en_web.pdf).

90. To conserve and restore ecosystems and to protect and sustainably use biodiversity, it is recommended that Member States:

(a) Align national and regional biodiversity strategies with global targets by integrating mountain-specific priorities and setting dedicated national targets;

(b) Scale up ecosystem-based solutions in mountain regions through structured approaches that optimize resources and support sustainable land and water management;

(c) Encourage countries to continue reporting on target 15.4 of the Sustainable Development Goals;

(d) Promote mountain ecosystem restoration as part of the United Nations Decade on Ecosystem Restoration, working closely with United Nations system organizations, regional organizations and partners in the Decade.

91. To leverage international processes in support of mountain development, it is recommended that Member States:

(a) Build on the multi-stakeholder platform of the Mountain Partnership for coordinated advocacy and action and leverage the special attention focused on mountain issues, in view of the Five Years of Action for the Development of Mountain Regions, the International Year of Glaciers' Preservation and regional mountain conventions, initiatives and forums;

(b) Advocate for mountain issues and integrate the objectives of the three Rio conventions into mountain development policies by coordinating actions for biodiversity conservation, climate change adaptation and land degradation;

(c) Build on the outcomes of the conferences held in 2025, such as the Global Mountain Dialogue for Sustainable Development in Kyrgyzstan, Sagarmatha Sambaad 2025 in Nepal and the High-level International Conference on Glaciers' Preservation in Tajikistan, to strengthen the commitment to and accelerate coordinated action for sustainable mountain development and climate resilience;

(d) Scale up projects, initiatives, and partnerships to advance sustainable transport in mountain communities during the United Nations Decade of Sustainable Transport (2026–2035);

(e) Promote wide participation in the comprehensive review of the implementation of the objectives of the Five Years of Action for the Development of Mountain Regions, to be conducted in 2026, and in the second Global Mountain Summit, to be held in 2027, as opportunities to reflect on the achievements accomplished during the Five Years of Action for the Development of Mountain Regions;

(f) Advance the mountain, water and food system nexus by building on the outcomes of the first United Nations Water Conference and the Dushanbe Water Process, a series of biennial high-level international conferences organized by the Government of Tajikistan to support the implementation of the International Decade for Action "Water for Sustainable Development", 2018–2028;

(g) Highlight the vital role of mountain ecosystems as the planet's natural water towers, which are crucial for water security, food production and climate resilience; and advocate for their protection and sustainable management within



**global water and climate policy frameworks in order to strengthen adaptation and long-term resilience.**

**92. To enhance research and data on mountain-specific issues, it is recommended that Member States:**

**(a) Disseminate available knowledge and best practices on ecosystem-based solutions in mountain regions, and prioritize action with co-benefits for livelihoods, biodiversity and disaster risk reduction through national, regional and multilateral climate finance mechanisms;**

**(b) Reinforce regional processes and governance frameworks to improve subnational and subregional resilience through the sharing of data, knowledge, policies and resources;**

**(c) Improve the availability and accessibility of disaggregated data specific to mountain regions to better monitor environmental changes, biodiversity loss and socioeconomic trends, and to inform targeted policies and adaptive response.**

**93. To improve livelihoods, reduce inequalities and strengthen mountain economies, it is recommended that Member States:**

**(a) Empower women, youth, Indigenous Peoples, pastoralists, migrants and internally displaced persons in mountain communities, through inclusive decision-making, fair representation and the recognition of traditional knowledge;**

**(b) Foster sustainable tourism, forest and agricultural entrepreneurship and the economic valuation of ecosystems services as financial resources;**

**(c) Promote sustainable agrifood systems and resilient livelihoods, tailor agricultural policies to promote sustainable farming practices and the preservation of agricultural biodiversity, and improve access to markets, innovation and technical assistance.**

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