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Sustainable Mountain Development

Report of the Secretary-General

Summary

The present report was prepared in response to General Assembly resolution 64/205, in which the Assembly requested the Secretary-General to report to it at its sixty-sixth session on the status of sustainable development in mountain regions. The report describes the status of sustainable mountain development at the national and international levels, including an overall analysis of the challenges that lie ahead, and provides suggestions for consideration by the Assembly as to how to continue to promote and effectively sustain development in mountain regions around the world within the existing policy context, including chapter 13 of Agenda 21, the Plan of Implementation of the World Summit on Sustainable Development (“Johannesburg Plan of Implementation”), the Millennium Development Goals, and the upcoming United Conference on Sustainable Development. The report was prepared by FAO in collaboration with Governments, relevant agencies of the United Nations system and other organizations.

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I. Introduction

1. At its fifty-third session, the General Assembly adopted resolution 53/24, in which it proclaimed 2002 the International Year of Mountains (IYM). The resolution encouraged Governments, the United Nations system and all other actors to take advantage of the Year in order to increase awareness of the importance of sustainable mountain development (SMD). The Food and Agriculture Organization of the United Nations (FAO) prepared a report on the achievements of the year, which was transmitted to the General Assembly by the Secretary-General (see A/58/134).

2. The IYM in 2002 built on chapter 13 of Agenda 21, which focuses on mountain issues, and was dedicated to protecting mountain ecosystems and improving the well-being of mountain people. IYM acted as a catalyst for long-term, effective action to implement chapter 13: it achieved much by raising awareness of the importance of mountains to life and the need to improve mountain environments and the livelihoods of mountain people; supported the establishment of 78 national committees for country-level action; and strengthened partnerships with stakeholders in mountain issues, which culminated in the launch of the Mountain Partnership (MP) at the World Summit on Sustainable Development (WSSD), held in Johannesburg, South Africa, from 26 August to 4 September 2002.

3. IYM led to the adoption of resolution 57/245, in which the General Assembly designated 11 December as International Mountain Day (IMD), as from 2003, and encouraged the international community to organize events at all levels on that day to highlight the importance of SMD. The General Assembly recommended that the provision of development assistance to poor mountain countries should be included in the current agenda of the General Assembly. It was also suggested that debt relief be considered an important means of fighting poverty in those regions.

4. In its resolution 59/238, the General Assembly decided to consider at its sixtieth session, under the agenda item entitled "Sustainable development", a sub-item entitled "Rendering assistance to poor mountain countries to overcome obstacles in socio-economic and ecological areas". In accordance with resolution 58/216, the Secretary-General submitted a report entitled "Sustainable Mountain Development" (A/60/309) to the General Assembly at its sixtieth session.

5. In its resolution 60/198, the General Assembly requested the Secretary-General to report to it at its sixty-second session on the status of sustainable development in mountain regions under a sub-item entitled "Sustainable Mountain Development" of the item entitled "Sustainable development". A report entitled "Sustainable Mountain Development" (A/62/292) was prepared and submitted by the Secretary-General to the General Assembly at its sixty-second session.

6. In its resolution 62/196, the General Assembly requested the Secretary-General to report to it at its sixty-fourth session on the status of sustainable development in mountain

regions under a sub-item entitled “Sustainable Mountain Development” of the item entitled “Sustainable development”. A report entitled “Sustainable Mountain Development” (A/64/222) was prepared and submitted by the Secretary-General to the General Assembly at its sixty-fourth session.

7. The present report is submitted in accordance with General Assembly resolution A/64/205, in which the Assembly requested the Secretary-General to report at the sixty-sixth session on the status of implementation of sustainable development in mountain regions under a sub-item entitled “Sustainable Mountain Development” of the item entitled “Sustainable development”. The report was prepared by FAO in collaboration with Governments, relevant agencies of the United Nations system and other organizations.

II. Background and Challenges

8. There is increasing awareness that mountains are fragile ecosystems of global importance, as the source of most of the Earth’s freshwater, repositories of rich biological diversity, popular destinations for recreation and tourism and areas of important cultural diversity, knowledge and heritage. Covering about one quarter of the world’s land surface, mountains provide a direct life-support base for about 12 percent of the world population, as well as essential goods and services to more than half of humankind. Yet many of the world’s most impoverished and food-insecure people live in mountain regions. Consequently, there is a need to ensure the ecological health and the economic and social improvement of mountain areas for the sake of both mountain inhabitants and people living in lowland areas.

9. Awareness of the importance of mountain ecosystems and communities has increased since the adoption of chapter 13 of Agenda 21, entitled “Managing fragile ecosystems: Sustainable Mountain Development”. Commitment and will were strengthened during IYM and mountains have gained an increasingly high profile on agendas at all levels. WSSD resulted in the adoption of the Johannesburg Plan of Implementation, paragraph 42, which describes actions required to address sustainable development of mountain regions; along with chapter 13 of Agenda 21, it serves as the overall policy framework for SMD.

10. Despite increased recognition of mountain issues and tangible results, significant constraints remain to alleviating poverty, averting environmental degradation and attaining sustainable development in mountain regions in line with the Millennium Development Goals (MDGs).

11. Nine years on from IYM, many of the challenges remain. Mountain communities and their environments are still vulnerable to growing demands for water and other natural resources, expanding tourism, greater rates of out-migration, disproportionate incidences of conflict and the pressures of industry, mining and agriculture in an increasingly globalized world. The global economic slowdown, paired with soaring food prices, has dramatically

increased the number of hungry and undernourished people, and mountain people are particularly vulnerable to food shortages. The threats and consequences of climate change provide new challenges for mountains and mountain peoples that require urgent attention and concerted efforts. There is a clear need for higher levels of funding and investment in mountain areas, enhanced coordination and collaboration, and a stronger enabling environment with more supportive laws, policies and institutions.

12. The United Nations Conference on Sustainable Development (UNCSD), also known as Rio+20, offers an important opportunity to secure renewed political commitment on SMD and review the mountain agenda taking into account recent developments and current global challenges such as climate change, increasing natural disasters, water scarcity, desertification, the food and energy crisis. SMD requires and deserves a prominent place in Rio+20 processes.

13. The demand for goods and services from mountains is growing steadily. In the context of a Green Economy, new opportunities for investment are emerging, especially for renewable energy and ecosystem services (e.g. freshwater, biodiversity conservation, etc.). This offers scope for economic development, but also places increased pressure on an already fragile environment and scarce resources. The implementation of institutional arrangements, which ensure a balanced development of social, ecological and economic capital, is essential in order to guarantee that these new opportunities are beneficial and do not perpetuate the degradation of mountain social-ecological systems.

III. National Actions

14. Action at the national level is a key factor in achieving progress in SMD. It is beyond the scope of the present report to describe the multitude of activities undertaken by countries. The following sections nevertheless, provide selected examples and highlights of actions being taken at the national level:

i) Africa

15. In Morocco, a project in the Outat watershed of the High Atlas (Midelt Province) provides assistance to key stakeholders in combating desertification through watershed management. The project is implemented by FAO as a component of a Spanish-funded interregional programme. The Government of Morocco, with the support of FAO and the Mountain Partnership Secretariat (MPS), also implemented a project for improving the production of saffron in the Anti-Atlas Mountains. The project generated valuable information regarding the technical, social and economic aspects of production and processing, as well as a comprehensive overview of the saffron value chain.

16. Guinea is active in the implementation of the regional Fouta Djallon Highlands Integrated Natural Resources Management Project, funded by the Global Environmental Facility (GEF). Guinea hosts the Regional Project Coordination Unit, wherein 18 of the 29

project pilot sites are located in the country. A baseline survey and a watershed management plan have been developed for all pilot sites and interventions related to improving natural resources management and enhancing local livelihoods that will be initiated in the fall of 2011.

ii) Asia

17. Kyrgyzstan, with support from GEF, the United Nations Environment Programme (UNEP) and the United Nations University (UNU), is operating the Sustainable Land Management in the High Pamir and Pamir-Alai mountains (PALM) project. Mountain communities received small grants to mitigate the pressure on environment, land degradation, soil erosion and wild-life conservation. Many international organizations and non-governmental organizations (NGOs) have been working with local municipal authorities in mountain areas to support the recently adopted “Pasture Law” (2009).

18. Since 2009, China has implemented a number of SMD plans and policies, which have been incorporated into the twelfth Five-year Plan for Forestry Development, aiming to raise the forest coverage and improve the forest carbon-sink capacity. The major national plans and strategies being jointly supported by competent ministries and governmental agencies are: the second phase of the Natural Forest Protection Program, the Three North Shelterbelt Development Program, the Wildlife Conservation and Nature Reserve Development Program, the Program of Converting Cropland to Forests and Grasslands and the Integrated Agricultural Development Program.

19. The medium-term livelihood rehabilitation project in earthquake-affected areas of Pakistan, implemented by the Earthquake Reconstruction and Rehabilitation Authority with Swedish funding and technical support from FAO, was successfully completed in June 2011. In addition to the development of 1,789 Community Livelihood Rehabilitation Plans throughout the earthquake affected areas and extended capacity-building activities, the project developed and implemented integrated and collaborative watershed management plans in 17 watersheds. Field activities included landslide stabilization, natural resource management, livelihood improvement and institutional innovation.

20. The project on SMD, being implemented since 2008 by the Government of Turkey with financial and technical support from FAO, was successfully completed in December 2010. A strategic document was developed in order to mainstream SMD in the national planning process. Whereas, at the local level a pilot project was implemented in the Yunttagi Mountains, Manisa Province to experiment and show-case SMD in a concrete field reality.

iii) Europe

21. The strong engagement and commitment of the Swiss Government for SMD, both at national and international level, is persistent. Switzerland continues to fund the Mountain

Forum and the Mountain Research Initiative (MRI) and remains the main donor for the Mountain Partnership. In preparation for Rio+20, Switzerland has initiated regional and global assessments on the progress made in SMD since Rio 1992. Switzerland will host the 'Lucerne World Mountain Conference' in October 2011, during which the reports will be presented and future challenges and opportunities for SMD discussed. During its current Presidency of the Alpine Convention, Switzerland aims to foster collaboration throughout the Alps by taking up relevant political issues and sparking debate. The Swiss Government will launch an innovative public private partnership for SMD. One of its components will be a novel forum celebrating IMD to be launched in 2011 in four regions in the South and North including Verbier in Switzerland.

22. In the Sudety mountains of Poland, due to important projects implemented during last 5-6 years promoting the idea of SMD and financed by FAO, GEF, the European Commission Programme EQUAL and some private foundations, local NGOs successfully established a real mountain alliance with a number of partners, including local and regional governments, agricultural universities, mountain culture centres, national and landscape protected areas. This alliance serves as a model to other mountain provinces in Poland.

23. In Italy, a continuous and consistent use of European Union (EU) funds to support research and cooperation projects in mountain areas has facilitated work on a wide range of issues, primarily climate change effects, natural hazards, integrated risk management, climate-proof spatial planning, ecological networks and sustainable tourism. At the international level, Italy continues to actively participate in activities of the Mountain Partnership and provides financial support to its Secretariat. The Italian Development Cooperation supports a number of projects in mountain areas, for example the SHARE-ABC project, jointly implemented by UNEP and the Ev-K²-CNR (Italian National Research Council) Committee. Italy is strongly committed to ensure that mountains receive adequate attention in key international processes, including post-UNCSD/Rio+20.

iv) Latin America

24. Since 2009, the Committee for Sustainable Development in Mountain Regions of Argentina (CSDMR) has been very active, both nationally and internationally. A national and provincial mountain platform targeting dialogue in the various mountain zones was established, while existing dialogues with different regions and provinces have been improved. The CSDMR has launched local and provincial mountain committees capable of involving the southern countries of the Andes and enhancing regional contacts and joint activities with mountain frameworks. In June 2011, CSDMR, jointly with MPS, organized an international workshop of the southern Andean countries with representatives from mountain mechanisms of Europe.

25. Ecuador is preparing to implement a project on the Enhancement of Participatory Management for Sustainable Development in the Andes. A GEF-funded project on the management of Chimborazo's natural resources was launched in June 2011 and GEF's

National Committee recently approved the Project Identification Form (PIF) for a project on Carbon and Biodiversity in High Andean Ecosystems, which was presented by Consorcio para el Desarrollo Sostenible de la Ecorregión Andina (CONDESAN). Implementation of a project on combating desertification and degradation through watershed management - a component of a Spanish-funded interregional program - is ongoing in the Manabi province with technical support from FAO. A FAO-funded project, implemented with the support of MPS, in the Cotopaxi area completed activities in August 2011. The project successfully developed models for sustainable mountain agricultural farms as well as development plans.

26. In Guatemala, the Forest Incentive Programme and the Smallholder Forestry and Agroforestry Vocation Incentive Programme promotes mechanisms for environmental services and public goods provided by natural and planted mountain forests. From 2009 to 2010, 12,482 hectares (ha) of forest plantations and 39,919 ha of natural forests were supervised and certified in the highlands. Guatemala invested US\$6,978,114 in incentives for forest management, generating more than 48,000 jobs and involving around 300 indigenous communities. The Vice Presidency of Guatemala has endorsed the establishment of the Interagency Commission for the Prevention and Combat of Illegal Logging and the implementation of a Pilot Action Plan aimed to strengthen forest management in the Guatemalan highlands.

27. In Peru, a multi-stakeholder National Working Group on Mountain Ecosystems (GNTEM) initiated its second phase in 2011, implementing numerous programs at national and international levels. The regional governments of Piura, Ancash, Apurimac and Cuzco are implementing Programs of Adaptation to Climate Change, while in Piura, Ancash and Huánuco the program of Sustainable Use of Biodiversity in the “Gran Ruta Inca” and the *in situ* long-term Conservation Project for local varieties of crops are under way. Together with Ecuador and Colombia, Peru is involved in the Regional Program for the Social Management of Forest Ecosystems Andean (ECOBONA) in the regions of Apurimac and Piura.

28. The Government of Mexico, through the National Forestry Commission (CONAFOR), is undertaking a project with financial support from the World Bank and GEF to improve the effectiveness of the national program for payment for environmental services (PES) in upper watersheds and mountain areas and to increase provision of ecosystem services that generate local and global benefits. This project also promotes local mechanisms for PES, with financial support from direct users of environmental services under a scheme of matching funds.

29. Chile heavily depends on mountain ecosystems for water, energy, minerals, tourism and provision of subsistence habitat for indigenous peoples. To create a National Committee for Mountains, promoted by the Ministry of Foreign Affairs, a training workshop s scheduled to be held in September 2011 for the countries of the Andean region (Argentina, Bolivia, Chile, Colombia, Ecuador, Peru and Venezuela). The focus will be on

melting snow caps and glaciers and the need for policies in order to face environmental and economic impacts of a changing climate.

IV. International Actions

A. Thematic Initiatives

i. Biodiversity conservation and mountain ecosystems

30. In 2004, the Convention on Biological Diversity (CBD) adopted the Programme of Work (PoW) on mountain biological diversity. At its tenth meeting held in Japan in 2010, the Conference of the Parties (COP10), undertook an in depth review of the programme implementation and noted that: (i) the PoW was successful in bringing together the international mountain community and improving the capabilities of institutions and organizations to promote conservation and sustainable use of biological diversity; (ii) as of 2009, about 14.4% of the mixed mountain system biomes were protected; (iii) observance of the IMD and many regional and local initiatives raise awareness on the importance of mountain biological diversity. 31. In 2010, the Protocol on Conservation and Sustainable Use of Biological and Landscape Diversity to the Carpathian Convention entered into force. To support the implementation of the Protocol, the “BIOREGIO Carpathians” project was approved under the EU South Eastern Europe Programme. UNEP Vienna – Interim Secretariat of the Carpathian Convention (ISCC) is a partner with the Austrian Slovakia cross-border project “Alpine Carpathian Corridor” (AKK) that aims to re-establish the ecological corridor between the Alps and the Carpathians.

31. The Global Mountain Biodiversity Assessment Programme (GMBA) of DIVERSITAS contributes to policy on the conservation and sustainable use of biodiversity in mountain regions. In 2010, GMBA launched its portal on Mountain Biodiversity allowing a mountain specific access to primary biodiversity data. In July 2010, GMBA organized an international conference on "Functional significance of mountain biodiversity" in Switzerland. With the support of the Swiss Agency for Development and Cooperation (SDC), GMBA prepared a booklet on “Mountain Biodiversity and global change” for the CBD COP10.

32. During the CBD COP10, the MPS organized a side event to explore a more effective implementation of the PoW on mountain biological diversity. The International Centre for Integrated Mountain Development (ICIMOD) organized two side events on a) Facing the Challenges of Mountain Biodiversity Conservation and Management in a Changing Climate across the Hindu Kush-Himalayan (HKH) Region and b) Transboundary Cooperation for Biodiversity Conservation: A Strategy towards ‘Ecosystem Approach’ of CBD and Adaptation to Climate Change.

33. The Ev-K2-CNR Committee has successfully launched its project “Social, Economic and Environmental Development of Central Karakorum National Park and buffer zone”

(SEED) in the north of Pakistan with funding from the Governments of Italy and Pakistan. This project aims to support local authorities and stakeholders build capacity in natural resource management in the park and its buffer zone with a scope on poverty reduction. The Committee collaborates with Karakorum International University, the World Wildlife Foundation (WWF), the Aga Khan Rural Support Program (AKRSP) and several local and national NGOs.

34. In 2010, the Mountain Group of the United Nations Educational, Scientific and Cultural Organization's (UNESCO) Man and the Biosphere (MAB-6) programme - hosted at the Institute of Geography, Russian Academy of Science - joined the Katunskiy Biosphere Reserve and International Union for Conservation of Nature's (IUCN) World Commission on Protected Areas (WCPA) Mountains Biome Network, to hold an international workshop in Altai entitled "Climate Change and Connectivity Conservation of Biodiversity in the Altai-Sayan eco-region". The workshop adopted a plan of actions for the Transboundary Altai-Sayans-Baikal Connectivity Conservation Management initiative (Russia, Kazakhstan, China and Mongolia).

ii) Climate change

35. As revealed by the rapid retreat of glaciers worldwide, mountains are early indicators of climate change. It is vital to study and monitor the biological, physical and environmental health of mountains in an effort to better understand, manage and mitigate the negative effects of climate change.

36. The Ev-K2-CNR Committee launched the SHARE (Stations at High Altitude for Research on the Environment) project to study climate and environment in mountain regions. Currently, the SHARE monitoring network includes 14 sites around the world. The installation of the highest automatic weather station at Mount Everest South Col (8,000 m) and the supraglacial automatic weather stations (AWS) at 5,700 m on Changri Nup Glacier strengthened the atmospheric monitoring in the Himalayas through the study of the climatic impacts on glacier dynamics, including the effects of black carbon in the atmosphere and its deposition on snow-ice melting processes.

37. In June 2009, MRI co-sponsored a side event with GermanWatch and the German Umweltbundesamt at the United Nations Framework Convention on Climate Change (UNFCCC) meeting in Bonn on "Adaptation in Mountain Regions: Current directions and research needs for adaptation to climate change in mountain regions". MRI collaborated with the Mountain Partnership, the Government of Liechtenstein and SDC to present a side event at the UNFCCC COP15 to highlight the challenges posed by climate change to mountain regions.

38. The GMBA of DIVERSITAS prepared a report on "Impacts of climate change on mountain biodiversity in Europe" for the Council of Europe. The report gives an overview

of recent literature about expected future climatic changes, discusses impacts of climate change on mountain biodiversity and furnishes recommendations on adaptation measures.

39. The Global Observation Research Initiative in Alpine Environments (GLORIA) aims to establish and maintain a site-based network for long-term surveillance of climate change impacts on fragile alpine ecosystems and its biodiversity in high mountain systems around the world. GLORIA is particularly active in the Andean region supporting a regional monitoring system of ten sites to assess the impacts of climate change on biodiversity in the high Andes.

40. MPS actively promotes better awareness about the threats posed by climate change to mountain areas and facilitates the work of its members in this context. A document was prepared by SDC for UNFCCC COP15 in the context of the Mountain Partnership on "Mountains and Climate Change – from understanding to action". During the UNFCCC COP16, MPS organized jointly with member countries, two side events on a) Adapting to the impacts of climate change in mountain areas: innovative approaches at local and national level and b) regional approaches for climate change adaptation in mountain areas.

41. In June 2011, a meeting was organized by FAO and MPS with participation from Armenia, Bhutan, Colombia, Kyrgyzstan, Lesotho, Morocco, Nepal, Peru, Slovenia, Tajikistan, Bangladesh, ICIMOD and the UNFCCC Secretariat to discuss two major initiatives on mountains: the Government of Nepal's Mountain Initiative which was announced in 2009 at UNFCCC COP15 by the Prime Minister of Nepal to establish a stronger political lobby for mountain issues in the UNFCCC; the Group of Mountain Landlocked Developing Countries which was formally established by the Governments of Armenia, Tajikistan and Kyrgyzstan.

42. In June 2011, MPS along with ICIMOD received a grant from the World Bank to support a Strategic Initiative on Climate Change Impacts, Adaptation and Development in Mountain Regions. This initiative will focus on raising awareness on the relation between mountains and climate change amongst members of UNFCCC National Delegations as well as politicians, scientists and practitioners in climate change policy. The Strategic Initiative will empower National Delegations and experts to negotiate and mobilize international support to promote climate change adaptation for the mountain ecosystems.

43. In December 2010, Germany's Federal Ministry for the Environment, Nature Conservation and Nuclear Safety announced support of ten million Euros for the UNEP, UNDP, IUCN Ecosystem-Based Adaptation Programme and its joint project in **Mountain regions**. The pilot phase of the Programme will focus on the mountain regions of Nepal, Uganda and Peru for a period of four years (2011 – 2014).

iii) Desertification

44. Dryland mountain ecosystems represent more than one third of all mountains and provide up to 90 percent of the fresh water supply in those areas. Poverty and food

insecurity appear to be particularly exacerbated in dryland mountains. More than one quarter of the world's biodiversity hotspots are located in arid zone mountain areas. MPS, the United Nations Convention to Combat Desertification (UNCCD) Secretariat and SDC are preparing a joint publication entitled "Highlands and Drylands: Mountains, a source of resilience in arid regions" to promote greater attention and an SMD agenda in these fragile, arid ecosystems.

45. DESIRE, an integrated research project of 26 international partners funded by the EU sixth Framework Programme (2007-2012), has developed and tested sustainable land management (SLM) strategies for areas vulnerable to desertification. Eleven of the 16 DESIRE sites, in the Mediterranean and across the world, are located in mountainous or hilly environments where desertification threats are aggravated by degradation and erosion. Within DESIRE, the Centre for Development and Environment (CDE) of the University of Bern has developed a participatory methodology to identify, evaluate and select the most promising SLM strategies based on local contexts. **Mountain water**

46. Mountain water resources are increasingly under pressure, with serious implications for both mountain and lowland areas. Greater attention is being paid to this critical issue through events, scientific publications and research programmes around the world, but more concerted efforts are required to face the growing challenges of adequate water quality and supply.

47. ICIMOD has been designated as the Asia Pacific Knowledge Hub for Water Management in Asian Mountain Regions by the Asia Pacific Water Forum. ICIMOD is also the Knowledge Partner of the Abu Dhabi Dialogue Forum on Himalayan Water. With World Bank support, ICIMOD launched a Small Grant Research Programme on Sharing Benefits from Water Management from the Rivers of the Greater Himalayan Region.

iv) Watershed management

48. The follow-up to the FAO-led global review of watershed management experiences has received considerable attention since 2009. The technical resource book entitled "The new generation of watershed management programmes and projects" and the policy document titled "Why invest in watershed management?" continue to be widely disseminated. Recommendations from the global review are being applied in several field projects, such as in Pakistan, West Africa, Ecuador, Guatemala, Mauritania and Morocco.

49. In 2010, the twenty-seventh session of the European Forestry Commission Working Party on the Management of Mountain Watersheds was held in the Slovak Republic and entitled "Integrated forest and water management of mountain watersheds: experiences and perspectives". The twenty-eighth session of the working group will take place in September 2011 in Turkey on the topic "water for forests – forests for water".

50. ICIMOD is focusing on capacity-building for integrated watershed management practices in the HKH region. International training courses on participatory integrated

watershed management are regularly held and constantly customized to incorporate emerging thematic issues. Climate proofing of community watershed plans has been implemented with a focus on high-altitude agribusiness value chain development linking good practices to future a Green Economy. In March 2011, ICIMOD and FAO co-organised a workshop to discuss a long-term program to implement and field-test the new generation of watershed management in the Asia Pacific Region.

51. The Latin American Technical Cooperation Network on Watershed Management (REDLACH) aims to increase technical capacity in watershed management, focusing on exchanges of experience, knowledge management and transnational cooperation. The Network continues to play a key role in monitoring and foster collaborative actions and sharing of experiences in Latin America.

v) *Disaster risk management*

52. Disaster risk management in mountain areas is receiving increased attention, particularly in the context of the impacts of climate change. The growing risks of glacial lake outburst floods (GLOFs) in the Himalayas and of rockfalls in the Alps are only two examples.

53. The Integrated Management of Natural Disaster Risks Project, carried out by Central Asian Mountain Partnership (CAMP) Alatau in Kyrgyzstan, allowed mountain communities living in the pilot villages to be better prepared for natural disasters, acquiring new knowledge and skills to build new bridges and dams.

54. The second World Landslide Forum, being organized by the International Consortium on Landslides and its partners, will take place in October 2011 at FAO Headquarters and has 25 thematic sessions on its agenda. The focus of this important global event is “putting science into practice”.

55. ICIMOD, in collaboration with the World Meteorological Organization (WMO), has launched a Programme on Regional Flood Information System with a goal to minimize the loss of lives and property by reducing flood vulnerability in the Himalayan region. ICIMOD and WMO are jointly working to improve data quality, effective data collection and dissemination and regional cooperation.

vi) *Indigenous peoples issues*

56. Indigenous groups living in less-favored areas, such as mountains, are among the poorest in the world owing to socio-economic and political marginalization. Yet, many lessons can be learned from their approaches to and experiences in managing and conserving mountain ecosystems.

57. The World Mountain People Association (WMPA) aims to make the voice and needs of mountain peoples heard. It proposes to create regional centres for their interaction and

cooperation with national policy-makers, funding agencies and international actors. WMPA is elaborating a Global Charter Communities, Territories and Natural Resources Management and is organizing an assessment on progress made related to chapter 13 of Agenda 21 in preparation for Rio+20.

58. Yachay Wasi, based in Peru, is an indigenous NGO that focuses on the protection of biodiversity in the Andes and aims to raise the voice on indigenous issues at the global level. In 2008, after completing the first phase of an Environmental Project Recovery of the Circuit of Four Lakes in the provinces of Acomayo and Canas, Yachay Wasi launched the Million Native Trees Campaign.

vii) Gender

59. Mountain women face many of the same challenges faced by women throughout the developing world, but those challenges are further accentuated by altitude, steep terrain and isolation.

60. Women Organizing for Change in Agriculture and Natural Resource Management (WOCAN) implemented a project entitled “Rural Women’s Leadership” to strengthen the role and voice of women leaders in rural organizations at all levels and to promote participation of representative women farmers’ organizations in the strategic policy dialogue and negotiation arena at the national, regional and global levels. To date, the project has trained over 35 farmer leaders in Nepal and 30 in the Philippines who have further trained over 200 rural women.

61. ICIMOD has organized a number of events on a variety of issues related to gender, climate change adaptation and development. One of the major problems in the Himalayan region is the growing feminization of mountain agriculture due to the massive male migration, which has increased women’s workload and drudgery.

viii) Payment for environmental services

62. Mountain regions have a significant potential for the deployment of innovative financing mechanisms such as payment for environmental services (PES) schemes, given the global importance of their resources.

63. Since 2009, the Albertine Rift Conservation Society (ARCOS) in collaboration with WWF-US, the University of Cambridge and various local institutions, has sought to assess the stock of environmental goods and services coming from the Greater Virunga Region, a transboundary area between Uganda, Democratic Republic of the Congo and Rwanda. The team produced a series of maps depicting the distribution and relevance of four major ecosystem services: water yield, carbon sequestration, timber and non-timber forest products and tourism. The outcomes clearly show the major importance of high-altitude natural ecosystems in the Virungas, such as Virunga Volcanoes and Rwenzori Mountains, for providing environmental services to the lowland areas.

64. The pasture ticket, newly introduced in Kyrgyzstan, is an innovative PES tool. The pasture renting system was replaced by this system, where pasture use is paid in livestock units instead of hectares. The pasture ticket is an economic instrument for farmers to regulate livestock numbers depending on seasonal pastures' carrying capacity and, thus, contributes to decrease pasture degradation.

ix) High-quality mountain products

65. The promotion, processing and marketing of high-quality mountain products are becoming increasingly important for the improvement of mountain communities livelihoods around the world.

66. In 2011, a manual about organic production of Andean crops was published by FAO together with MPS in the context of a project in the Cotopaxi area (Ecuador) to provide technical information about traditional and innovative cultivation techniques without using chemicals. The project demonstrates that these traditional mountain products not only contribute to family food security and a balanced diet, but can also significantly increase the family income if sold in appropriate markets. In Morocco, a technical manual on saffron good practices was issued as a result of the FAO–MPS project on the saffron value chain.

x) Tourism

67. Tourism in mountain areas is a potential long-term source of income that can create positive effects and could be channeled towards both conservation and benefit-sharing.

68. The World Tourism Organization (WTO) has developed a set of indicators to assist managers make informed decisions regarding issues of particular concern to mountain environments, for example, loss or degradation of flora and fauna, erosion, water quality, seasonality and the economic benefits of tourism activity.

69. In 2011, the draft text of the Protocol on Sustainable Tourism to the Carpathian Convention was elaborated with the assistance of the WTO and was adopted and signed in the margins of the third Meeting of the Conference of the Parties to the Carpathian Convention.

xi) Policy and law

70. The Fouta Djallon Highlands Integrated Natural Resources Management Project, funded by GEF, is jointly implemented by the African Union, FAO and UNEP. The Project involves eight countries in West Africa (Gambia, Guinea, Guinea-Bissau, Mali, Mauritania, Niger, Senegal and Sierra Leone). One important component of the Project is to mitigate the causes and negative impacts of land degradation through the establishment of a regional legal and institutional framework for cooperation in transboundary natural resources management, as well as through the adaptation and harmonization of conservation laws within participating countries.

71. Since 1991, the European Association of Elected Representatives from Mountain Regions (AEM) promotes participation of regional and local decision-makers in the formulation of European policy for mountain issues, particularly related to regional, environmental and transport matters. Its main objective is to ensure that the specificities of mountain regions are reflected and considered in EU policies. AEM currently includes members from 10,000 municipalities, 100 provinces and 50 regions from 11 National Members. AEM also participates in a number of European projects.

xii) Education

72. The International Programme on Research and Training on Sustainable Management of Mountain Areas (IPROMO) was launched in 2007 by MPS, UNESCO and the Faculty of Agriculture of the University of Turin, Italy. The training programme is funded by the Piedmont region, local authorities, CONDESAN, ICIMOD and SDC. In 2010, the training course focused on Protecting Mountain Biodiversity and in 2011 on Natural Hazards and Disaster Risks Management. Each year around 30 experts from developing countries are trained.

73. UNESCO has prepared a teaching resource kit for mountain countries with funding by the Flemish Government of Belgium. The kit targets schoolteachers and students in secondary schools of mountain countries worldwide. It offers a creative approach to environmental education and is designed to stimulate students' curiosity and allow for a better transmission of scientific information and environmental knowledge.

74. The University of Central Asia recently established the Mountain Societies Research Centre, dedicated to supporting and enhancing the resilience and quality of life of mountain societies through research on the sustainable development and management of physical, social, economic and cultural assets. The Centre's Fellowship Program builds Central Asian capacity to conduct research to inform policy and practice that promotes SMD.

76. The Centre for Mountain Studies (CMS) at Perth College in Scotland, which since 2009 hosts the UNESCO Chair in SMD, has run an on-line Master of Science in Managing SMD since 2004. Building on this experience, the Centre is developing Masters-level courses in collaboration with institutions in Asia.

xiii) Research

75. In 2011, in collaboration with MPS, MRI has promoted the development and support of a network of scientists focused on global change research in the mountains of Sub-Saharan Africa contributing to the activities leading to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), Rio+20 and Conferences of the Parties of the UNFCCC, CBD and UNCCD. With support from SDC, MRI brokered an agreement between FAO and the University of Pretoria to create a coordination unit for the Global Change Research Network for African Mountains.

76. UNESCO, through its MAB Programme, continues to implement its worldwide project "Global Change in Mountain Sites - Developing Adaptation Strategies in Mountain Biosphere Reserves" (GLOCHAMOST). The project studies key drivers for and impacts of global and climate change in the fields of biological diversity, availability of water resources, land use change and mountain economies. The results will provide a better understanding on how change will affect mountain environments and livelihoods.

77. CMS coordinated an integrated assessment of Europe's mountain areas for the European Environment Agency, which was published in September 2010. CMS organized an international conference on Global Change and the World's Mountains in Scotland, bringing together 450 participants from 60 countries and five continents. The Centre is also responsible for the mountain aspects of the two-year GEOSPECS project, funded by the European Observation Network for Territorial Development and Cohesion (ESPON), aiming to provide a coherent framework to characterize past trends and state to map out potential future developments of geographical specificities for territorial policy and regional development.

78. MRI has implemented two synthesis workshops, one on climate change and mountain water resources and the other on drivers of food security in mountain regions. Workshops are in preparation on urban growth in mountain regions; building resilience in coupled human-natural systems in mountains; and the vulnerabilities and management of ecosystem services in mountains.

79. Together with MRI, the Chinese Academy of Science has developed and promoted the Third Pole Environment (TPE), an international project focused on investigating the nature and impacts of global change on the Tibetan Plateau and the surrounding mountain ranges. Since 2009, the Academy has organized annual TPE workshops to develop a strategic Science Plan that will organize research efforts by groups from all of the countries in the region and Europe.

80. In 2010, the Mountain Group of UNESCO-MAB-6 initiated a consortium of research institutions of the Siberian Branch of the Russian Academy of Sciences, partner universities and biosphere reserves, with the objective of developing a strategy for sustainable development and landscape diversity conservation in the Transboundary Altai-Sayans-Baikal eco-region in the context of global changes. The research is being conducted under partnership arrangements with regional research institutions in Kazakhstan, China, Mongolia and several international institutions, including UNDP, UNESCO-MAB, ICIMOD and IUCN.

xiv) Communications and networking

81. The Mountain Forum (MF) is a global network promoting SMD through information and knowledge sharing. With support from its regional networks (Asia Pacific, InfoAndina and European Mountain Forum) MF currently serves more than 7,000 individual members,

providing access to more than 5,600 digital resources. MF supports its global mountain community by serving as an information clearinghouse and providing platforms for dialogue amongst its users. The most recent e-forums were related to benefit-sharing mechanisms for hydrological environmental services in the Andes. As a CONDESAN program, InfoAndina currently supports the implementation of several policy dialogues on climate change, water management and rural innovation.

82. In 2010, the IMD theme, “mountain minorities and indigenous peoples”, highlighted the threats faced by these communities, but also acknowledged the invaluable contributions they make towards overcoming global challenges of hunger and malnutrition, biodiversity loss and climate change. The 2011 IMD will focus on mountain forests and, accordingly, will link to the International Year of Forests 2011.

83. The international peer-reviewed quarterly journal Mountain Research and Development (MRD) enhances knowledge on key SMD issues by bringing together research findings and validated development experience. Since 2009, MRD is on-line and open access. MRD also produces special issues, such as on mountain forests in a changing world, agro-biodiversity and management tools and methods for protected areas. The MRD editorial office is with the CDE.

84. The CAMP Forum 2010, a learning and knowledge sharing event titled “Mountain communities of Central Asia and Climate change - Call to action: Global challenges in local perspectives”, took place in November 2010 in Kazakhstan. It brought together more than 100 participants from Central Asia, Europe and Latin America, representing a variety of stakeholder groups.

B. Partnerships, Transboundary Cooperation and Funding Mechanisms

i) Rio+20

85. Mountain Partnership members, such as the Governments of Italy and Switzerland, FAO, the World Bank, UNEP and ICIMOD, are working together to obtain attention for mountain ecosystems and mountain peoples’ voices in the Rio+20 processes. These organizations have formed a strategic alliance to position the Mountain Partnership as an agent for transformation towards Green Growth and secure renewed political commitment for sustainable mountain development. Regional findings and global assessments on progress made in SMD since Rio Earth Summit (1992), initiated by the Government of Switzerland, and the outcomes of the “Lucerne World Mountain Conference” will be channelled into Rio+20 preparation processes.

ii) Partnerships

86. The Mountain Partnership continues to grow and currently has more than 180 members, including governments, intergovernmental organizations and major groups. In 2008, MPS began a process of decentralization to provide more effective services and

support to its members. Today, MPS consists of a Central and Decentralized Hubs hosted, respectively, by FAO in Rome (Central Hub), CONDESAN in Peru (Latin America Hub), ICIMOD in Nepal (Asia Pacific Hub), University of Central Asia in Kyrgyzstan (Central Asia Hub), as well as the Environmental Reference Centre hosted by UNEP in Vienna.

iii) *Transboundary cooperation*

87. In 2003, the Alliance of Central Asian Mountain Communities (AGOCA), an association of 41 mountain villages in Kyrgyzstan, Tajikistan and Kazakhstan, was established in the wake of IYM and the Bishkek Global Mountain Summit. AGOCA aims to improve livelihoods in mountain areas through capacity development and share experiences amongst its members and within community networks of mountain areas worldwide.

88. Argentina, Chile, Colombia, Ecuador and Peru have joined forces to promote a regional approach to the development of the Andean Region. Together these countries created an Andean Initiative in the context of the Mountain Partnership. The Paramo Andino Project is a regional initiative of Venezuela, Colombia, Ecuador and Peru, funded by GEF and executed by CONDESAN. It contributes to overcoming key barriers to biodiversity conservation and protection of Paramo hydrology. Hydrological Monitoring of Andean Ecosystems (MHEA) is a regional initiative aiming to generate, improve and share information related to Andean hydrology and impacts of global change.

89. Since 2009, CDE and its local and international partners support Tajikistan and Kyrgyzstan in a transboundary initiative on SLM in the Pamir-Alai Mountains (PALM). This GEF-funded initiative aims to address the interlinked problems of land degradation and poverty within one of Central Asia's crucial fresh water sources and biodiversity hotspots.

90. UNEP continues to lead an initiative that builds on experience sharing of the Alpine and Carpathian Convention with other mountain regions, such as the Caucasus and the Dinaric Arc and the Balkans to facilitate the development of a legal framework of regional cooperation. In the framework of the Environment and Security Initiative (ENVSEC), UNEP supports transboundary cooperation in mountain areas in border regions of the Balkans. This work contributes to stabilize the region and improves the environment. UNEP also facilitates the negotiations for a legally binding agreement of the Dinaric Arc.

91. ICIMOD, with UNEP support, has initiated a regional Mount Kailash Sacred Landscape Conservation Initiative. A draft Regional Cooperation Framework was developed for implementing conservation and ecosystem management activities within the transboundary Kailash Sacred Landscape of China, India and Nepal. An innovative and highly participatory approach was implemented to create a policy enabling environment, institutional networks and the knowledge base for regional collaboration.

vi) *Funding mechanisms*

92. A preliminary portfolio analysis of World Bank investments relevant to SMD indicates investments of approximately US\$ 66 billion globally for the period 2000-2010. SMD investments in Eastern Europe, Central Asia and Latin America lead with about US\$ 16 billion each, closely followed by investments of about US\$ 13 billion in East Asia and the Pacific. Africa and South Asia received investments in mountain regions amounting to about US\$ 8.8 billion and US\$ 8.3 billion respectively, while only small amounts were directly associated with SMD in the Middle East and North Africa.

93. Funding economic growth, political empowerment, citizenship equality and poverty reduction of mountain peoples, forms part of the mandate of the International Fund for Agriculture Development (IFAD). The Fund supports the development of innovative (rural) financial services, such as Financing Facility for Remittance and the development of index-based weather insurance and related services, which are being piloted and tested, including in mountain areas.

V. Recommendations

94. **Since the Secretary-General last reported to the General Assembly on the topic of SMD, significant progress has been made in terms of in-field implementation, awareness raising, institutional strengthening and international collaboration. Nevertheless, much remains to be done, especially in light of current global challenges such as climate change, natural disasters, food and energy crisis, increasing water scarcity, desertification, ecosystems degradation, biodiversity loss and migration. Mountain regions and their inhabitants are disproportionately affected by these challenges, but also offer significant opportunities in the search for solutions. Mountain systems are essential building blocks for long-term sustainable development, poverty alleviation and the transition towards a Green Economy. The General Assembly, in its efforts to address those challenges in a manner that is consistent with chapter 13 of Agenda 21, the JPOI and the MDGs, may wish to reiterate some of the possible courses of action for Governments, such as:**

i) *Recommendations related to international processes:*

- a) **Renew efforts to ensure that mountain issues are prioritized within development agendas and processes dealing with poverty reduction, food security, climate change and other issues that are critical to sustainable development in mountain areas;**
- b) **Promote, where relevant, the establishment of regional mechanisms for coordinated and integrated transboundary cooperation for SMD; strengthen existing mechanisms, such as the Alpine and Carpathian Conventions, and promote the exchange of experiences and lessons learned;**

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- c) **Support the collaborative efforts of the Mountain Partnership and encourage active involvement of relevant government, civil society and private sector institutions at the national and regional levels;**
 - d) **Increase efforts to conserve biodiversity in mountain areas and encourage multi-stakeholder cooperation for a more effective implementation of the PoW on mountain biological diversity of the CBD;**
 - e) **Support better integration of mountain issues in intergovernmental discussions, particularly on climate change and combating desertification in the context of the UNFCCC and the UNCCD, respectively; take advantage of the potential of mountain forests for carbon storage and sequestration and of their consideration in Reduced Emissions from Deforestation and Forest Degradation (REDD) and REDD-plus programs;**
 - f) **Integrate SMD in the strategies towards a Green Economy and ensure that institutional arrangements are in place to allow mountain communities to benefit from these emerging opportunities and to protect mountain resources from increasing demand;**
 - g) **Foster exchange and collaboration between governments, international organizations, NGOs, research institutions and the civil society to assure that SMD receives a prominent place on the agenda of Rio+20.**
- ii) *Policy recommendations:*
- a) **Encourage the continuation of existing or the further establishment of new national committees or similar institutional arrangements, bodies and mechanisms to strengthen intersectoral coordination and collaboration for sustainable development in mountain areas;**
 - b) **Encourage greater engagement by civil society and the private sector in the development and implementation of programmes related to sustainable development in mountains;**
 - c) **Encourage the formulation and implementation of strategies, programmes, policies and laws that specifically address mountain issues and are able to urgently respond to current challenges such as climate change and soaring food prices; support developing countries and countries with economies in transition through bilateral, multilateral and South-South cooperation, as well as through non-traditional arrangements, such as decentralized cooperation;**
 - d) **Develop strategies for adaptation and mitigation of climate change that take into account the specific situation of mountain environments and communities;**

integrate those strategies into the National Adaptation Program of Action (NAPA);

- e) Enhance attention to disaster risk management in mountain areas, in particular with regard to rockfall, avalanches, GLOFs, landslides and the impacts of climate change;
 - f) Promote the conservation and sustainable use of increasingly scarce resources from mountain areas, especially water, through innovative management approaches and improved institutional mechanisms that cross administrative boundaries, as well as forward-looking political decisions that safeguard those resources for future generations;
 - g) Elaborate strategies, programmes and policies for food security in mountains, allowing for timely responses to soaring food prices and related challenges, which disproportionately affect mountain communities;
 - h) Enhance public services, particularly in health and education sectors, and improve transport and communication infrastructures in mountain areas;
 - i) Support education, extension and capacity-building programmes, in particular among local mountain communities, to further SMD at all levels;
 - j) Ensure, through more effective engagement in the decision-making process, that indigenous peoples' cultures, traditions and knowledge are fully recognized and included in development policy and planning in mountain regions; and that access and agreed-to rights to land and natural resources are respected;
 - k) Foster strengthening of the role of mountain women in planning and decision-making processes that affect their communities, cultures, livelihoods and environments.
- iii) *Recommendations related to financial mechanisms:*
- a) Increase levels of investment and funding for SMD at the global, regional, national and community levels, including through innovative financial mechanisms and approaches, such as PES payments for environmental services and opportunities offered by the Green Economy;
 - b) Promote and provide a supportive and enabling environment for the development of high-quality products and services from mountain areas as a means to improve livelihoods, to protect mountain environments and to encourage more active involvement by the private sector in the overall value chain for high-quality mountain products; improve mountain areas' access to national and international markets.

iv) Recommendations for awareness raising:

- a) **Support the continued development and implementation of communication, capacity building and advocacy programmes for SMD at all levels; take full advantage of the opportunities provided annually by IMD on 11 December;**
- b) **Increase efforts to enhance awareness of the effects of climate change, as well as the risks and hazards faced in mountain areas;**

v) Recommendations for research:

- a) **Support increased and better coordinated research efforts at all levels to gain a better understanding of environmental, economic and social drivers of change affecting mountain regions and promote the collection of disaggregated data from mountain areas as the basis for informed decision-making for appropriate policies and programmes;**
- b) **In the context of climate change, increase efforts to monitor glaciers and runoff patterns in mountain areas in order to assess future water availability; pay particular attention to the hydrological impacts of climate change in dryland mountain ecosystems.**