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ADDENDUM 3

TASK MANAGER REPORT ON CHAPTER 13 OF AGENDA 21

MANAGING FRAGILE ECOSYSTEMS:

SUSTAINABLE MOUNTAIN DEVELOPMENT

prepared under the coordination of

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INTRODUCTION

1. Mountain ecosystems contain an integrated complex of natural resources that are closely linked in space and time. Those who inhabit the mountains generally depend directly on many of these resources for their livelihoods and tend to utilise and manage them through a combination of land use practices such as agriculture, forestry and livestock production. With these characteristics, sustainable mountain development is directly linked to “integrated planning and management of land resources”, the sectoral theme for CSD8. The present report was prepared within this context and describes progress made in the implementation of chapter 13 of Agenda 21 (Managing fragile ecosystems: sustainable mountain development) since the last report on this chapter was issued to CSD5 in 1997.

2. At an institutional level, the way in which chapter 13 has been organized and the mechanisms that have developed over recent years to promote collaboration and cooperation in achieving its objectives, have been an important means of integrating a variety of sectoral concerns and approaches, as well as different types of institutions, including NGOs, governments and inter-governmental organizations. Improved cross-sectoral cooperation and inter-institutional collaboration have resulted in many initiatives that address both conservation and development concerns together.

Progress on major themes

3. Chapter 13 contains two programme areas for action: (A) Generating and strengthening knowledge about the ecology and sustainable development of mountain ecosystems; and (B) Promoting integrated watershed development and alternative livelihood opportunities. Although each area has its own particular significance, they are often dealt with together in the framework of an integrated ecosystems approach to sustainable mountain development. This section of the report will briefly discuss progress made under major themes related to chapter 13.

4. Mountains, rural development and food security: Mountain communities have been counted among the world’s poorest and face a number of difficult development challenges due to specific mountain-related conditions, including limited land resources, marginal agricultural conditions, isolation and scant equipment and infrastructure. Food insecurity is a serious problem in some mountain regions and a major impediment to achieving other development and conservation objectives. Thus eliminating poverty and ensuring food security in mountain areas is a high priority of chapter 13.

5. Mountain areas are the origin of a number of important cultivated species that contribute substantially to the world’s food basket. They continue to be an important source of genetic resources with good potential for improved agriculture and food production. The linkages between mountain food security and rural development are being approached from various view points that aim to improve agriculture and food production, storage, distribution and exchange. They include i) exploiting the vast potential of mountain plant and animal resources; ii) improved management and use of water resources; and iii) the social organization of mountain communities.

6. Agriculture and food production are expected to benefit significantly from research on biological diversity in mountain areas through initiatives such as Diversitas, described below. Many current efforts to improve management of water resources for food production are building on a number of traditional technologies and practices. Initiatives to inventory and assess these technologies are being undertaken in many countries. CSD 6 has largely covered the issue of water resources and
progress in cooperation and management is likely to happen at national, regional and international levels.

7. Livestock production and management in mountain areas is also an important contributing factor to food security and rural livelihoods. Many of these issues were recently explored during the International Symposium on Livestock in the Mountain/Highland Production Systems, (7-10 December 1999 in Pokhara, Nepal), organized by ICIMOD, ILRI and FAO.

8. Regarding rural development and economic development in general, mountain communities have been calling for a necessary balance between conservation and development. Mountain ecosystems should serve both. In Europe, mountain municipalities, in particular in France, have been adamant about the need to sustainably develop and use mountain resources, in particular forests. And many EU initiatives have served not only to recognise the importance of local traditional agricultural products, but also to protect them and facilitate their distribution. Many developing countries (e.g., Mexico, Bolivia, Nepal, Peru and Yemen) have been active in integrated mountain watershed management and development projects. Some major regional programmes are now contributing to develop alternative sustainable livelihood systems in mountain watersheds, including CONDESAN’s work in the Andes, ICRAF’s African Highlands Initiative and ICIMOD’s comprehensive programme for the Hindu-Kush-Himalaya. These consider the whole range of interventions from natural resource husbandry, the conservation of basic ecological processes, the use of local technologies and overall support to local community development in the framework of national economies.

9. Conservation of Biological Diversity: Mountain areas are known to be important but fragile reservoirs of biological diversity. In the tropics they often contain a greater concentration of genetic resources than lowland forest ecosystems with typically higher levels of endemism. The issue of how to conserve and sustainably use these resources in a variety of settings in both industrialized and developing countries is a major challenge today. The issues are very different depending on the context. In some areas, rapid economic development with little concern for environmental impacts is posing a real threat to biological diversity. Mounting poverty and increasing population growth in some developed as well as developing countries is creating unsustainable pressure on already endangered plant and animal species. The illegal animal trade is also having a major impact in some mountain regions, and is more difficult to control in rough mountain terrain where accessibility is often poor.

10. Protected areas play a critical role in the conservation of biological diversity in mountain regions - almost one-third of the designated natural World Heritage Sites are mountain protected areas. While protected area management activities in mountainous regions have been reinforced in many countries, the establishment of parks and protected areas without adequate attention to rural development concerns has too often led to a failed attempt at conservation. There are today an increasing number of innovative examples of more integrated approaches to biodiversity conservation; and these new approaches combine both human development and natural resource conservation, and give local populations a real stake, economic and otherwise, in sustainably managing biological diversity. IUCN’s Mountain Protected Area Network, together with many international and national NGOs have done a lot to promote and facilitate this. The following examples illustrate some of these approaches:

- The People, land management and environmental change (PLEC) programme managed by UNU, has developed participatory and sustainable models of in-situ agrobiodiversity management, based on small farmers’ traditional knowledge. In participation with local farmers, demonstration sites have been established in mountain ecosystems of China, Ghana, Guinea, Jamaica, Kenya, Papua New Guinea, Tanzania and Thailand.
- The Global Environment Facility (GEF) is currently funding biodiversity conservation projects in mountain areas in some 21 countries. The GEF Transcarpathian Biodiversity Protection Project, in which Poland, Slovakia and Ukraine cooperate, is particularly innovative in approach and includes training of staff and the involvement of the local people in sustainable revenue
generation through tourism, forestry and hunting; in 1998 it has received international recognition as the first tri-lateral biosphere reserve under the UNESCO’s Man and the Biosphere (MAB) Programme.

- In the Altai mountains of Central Asia a transboundary biosphere reserve is being developed following the 1998 Altai Declaration of Urumqi. It involves the Altai Republic in Russia, Eastern Kazakhstan, the Altai Region of Xinjiang, China; and Bayan Ulgi aimak, Western Mongolia.
- A key programme of the Central American Commission on Environment and Development (CCAD), is the Meso-American Biotic Corridor linking protected areas in the mountains of seven countries in this region. Building on this initiative, and other mountain corridor projects such as Yellowstone-to-Yukon, the Wildlife Conservation Society with collaboration from IUCN has recently begun an ambitious program of developing a Biological Corridor of the Americas from Tierra del Fuego to Alaska along the mountain backbone of the two continents. This will connect the existing series of protected areas.
- In the Hindu-Kush-Himalaya region ICIMOD is running a project entitled “Conservation of biological diversity in mountain ecosystems” with activities centred on biodiversity assessment, management and applied ethnobotany. ICIMOD and UNEP also jointly developed two models for integrated management of Himalayan Ecosystems.
- The Mountain Institute (TMI) has also been active in community-based biodiversity conservation, including support to programmes in the Himalayas in Nepal, the Tibet Autonomous Region of China, and in India, and in the Andes, centred in Peru and in Ecuador. Also in the Andean region, CIP and UNEP have started an analytical study on in-situ conservation of agrobiodiversity.
- Efforts to link biodiversity conservation with cultural and spiritual values have resulted in a UNESCO led initiative with financial support from the German Government for a project on “Sacred Sites - Cultural Integrity and Biological Diversity”.

11. An important global research effort is currently underway that is attempting to carry out a major assessment of mountain biodiversity. The Diversitas Programme and the Swiss Academy of Sciences created a Global Mountain Biodiversity Assessment research network and project in 1999. This global assessment is expected to enhance the knowledge base and identify gaps for further research, ultimately contributing to improvements in areas such as food production, pharmaceutical products, etc.

12. Freshwater: The importance of mountain regions for sustainable supply and quality of freshwater has been increasingly recognized as a central issue in recent years. In its 1998 review of strategic approaches for freshwater management, CSD-6 emphasized the vital role of mountain regions as sources of water for a large proportion of the world’s population, and the need to fairly compensate mountain inhabitants for their contributions to ensuring the quantity and quality of water supplies. The Commission stressed the need for an integrated approach with priority on the social dimension of freshwater management, and identified mountainous regions and other fragile ecosystems as “particularly sensitive areas” where incentives may be necessary to promote land use practices appropriate to local conditions in order to protect or rehabilitate freshwater resources. A Swiss-supported publication entitled “Mountains of the world: water towers for the 21st century”, was prepared for CSD6 and provided a number of case studies illustrating various issues and challenges from throughout the world.

13. A number of national and regional initiatives and actions have been taken to join forces and plan the development and conservation of common key mountain ranges and watersheds for water resources development and sharing. In central Asian states the importance of linkages between mountainous areas and dryland areas downstream has been stressed in many cases. These linkages are also very relevant in other areas such as the Fouta Djallon highlands, where a ministerial conference in West Africa focuses on supporting conservation and development efforts in the area’s major watersheds, aimed at protecting and ensuring sustained water resources for the entire region.
14. An important issue related to fresh water is hydro-power production in mountain areas. Large hydro-power schemes have become quite controversial with increased public awareness of the potential danger to valuable and unique habitats and socio-economic disruption associated with the displacement of local populations. Consequently, monitoring of such impacts has increased with newer hydro-power projects. Also there is greater recognition that decentralized, small scheme hydro-power production in mountain areas may in some cases be more appropriate than centralized hydro-power production in large and more vulnerable power plants. This is particularly true in developing countries and areas with high seismic activity. Hydro-power production in mountain areas can positively influence watershed management as it may lead to increased conservation efforts in the respective watershed including forest protection or afforestation programmes. It can also have a positive connection with agricultural production through irrigation.

15. **Forests:** The importance of forests and trees in mountain ecosystems has increased in awareness and received greater attention over the past few years. The two most recent sessions of the IFF have in fact drawn specific attention to mountain forests, in addition to those of other fragile areas, as deserving special attention in light of the critical role they play. Public awareness of the potentially damaging effects of deforestation in mountainous areas has increased with the media reports of recent disastrous floods in China and other parts of the world. Awareness of the environmental, social and economic roles of mountain forests has also been heightened through an electronic conference organized by the Mountain Forum on “Mountain people, forests and trees”. This e-mail conference brought together experiences from mountains around the world, with a view towards contributing to global knowledge of how mountain forests and trees are important not only for mountain people, but also for the many people living in lower-lying regions.

16. Recent efforts have been making headway to improve understanding and knowledge of tropical montane cloud forests, an increasingly threatened mountain ecosystem. The Tropical Montane Cloud Forest Initiative was initiated in 1999 in a partnership including IUCN, WWF, UNESCO, UNEP, WCMC and IUCN-Netherlands. Its aim is to focus greater attention on this unique ecosystem and to promote more funding for research and development programmes. The International Hydrological Programme of UNESCO is currently producing a popular document on montane cloud forests in an attempt to create greater public awareness.

17. **National forest programmes,** as defined by the CSD Intergovernmental Panel on Forests recognize the importance of considering the specific characteristics and needs of forests in mountains and key watersheds. Synergies between the various frameworks that are related to forestry (IFF, CBD, CCD, etc.) must be strengthened at national level to ensure that action in forestry in mountain areas is coherent and maximizes the potential benefits of each of these processes. A number of mountainous countries are already engaged in the process of formulating national forest programmes.

18. As part of its continuing information series on mountain topics prepared for each session of the CSD since Rio +5, the Swiss government has prepared its most recent brochure on the topic of mountain forests. The document is planned for presentation at a side meeting during CSD8.

19. **Tourism:** Tourism has become a major issue for mountain areas in both developing and industrialised countries. As pointed out at UNGASS, it is one of the world’s largest industries and fastest growing economic sectors. Although the impacts of tourism in mountain areas can be very positive in economic terms, the environmental and social consequences can be very damaging if not carefully managed. Ecotourism activities are gaining importance in many mountain regions and provide an opportunity for diversification of sources of income and sustainable livelihoods for the mountain population.

20. The UN General Assembly has declared 2002 not only the International Year of Mountains but also the International Year of Ecotourism. The report of CSD7 noted that there are obvious linkages between these two. It stated that “mountain regions represent a significant portion of
the tourism industry. These remote, fragile and highly biodiverse ecosystems are homes to unique cultures and traditions which draw tourists from an increasingly urbanized world”.

21. Examples of practical action include the development of an Ecotourism Management Plan for the Huascaran National Park in Peru, with the assistance of The Mountain Institute. They are also supporting work in Sikkim, India and in Nepal, on biodiversity conservation through ecotourism, by promoting village enterprises. The Mountain Forum hosted an electronic conference which resulted in a publication entitled “Community-based mountain tourism: practices for linking conservation and enterprise”. The World Mountaineering and Climbing Federation (UIAA) Working Group on Access and Conservation organized a seminar in Barcelona, Spain in May 1998, in cooperation with IUCN, which focused on the means of monitoring, assessing and minimizing the environmental impacts of climbing and mountaineering. The working group is presently considering the follow-up to this activity and the issue of maximising the economic benefits of mountaineering and trekking to mountain communities.

22. Climate change: High mountain ecosystems are generally considered as being particularly sensitive to global warming. They increasingly appear to be useful indicators of climate change effects, as impacts on alpine vegetation are expected to be more pronounced than on vegetation at lower altitudes, and human land use, which could mask climate-related change, is often negligible in high mountain regions. Consequently, there has been a recent increase in mountain research related to climate change and in national attention to this issue. In Switzerland an important element of the climate change discussion relates to the potential damaging impacts that global warming could have on winter tourism. Researchers and decision makers are looking more seriously at the possibility that increased winter temperatures could result in less snowfall at lower elevations, forcing many ski resorts to close down and resulting in huge economic losses and significant employment problems.

23. In the area of research, the GLORIA programme was recently initiated in Austria at the University of Vienna. This initiative is looking at evidence of climate-induced upward-migration of mountain plants. The current proposal calls for a global observation network in high mountain ecosystems. This would contribute to the implementation of the Mountain Initiative of the International Geosphere-Biosphere Programme (IGBP), which originated with a workshop in Kathmandu in 1996 and was endorsed in 1999. This will involve four of the core projects of the IGBP. One of these is the Land Use/Cover Change core project which is being implemented jointly with the International Human Dimensions Programme (IHDP).

24. Culture and traditional knowledge: As discussed above, there is new interest in the inventory, assessment, defence and enhancement of the cultural wealth and traditional knowledge of mountain communities. Such activities can be carried out individually by international organizations or included in integrated rural development activities being developed in the field. In Yemen, for instance, with UNDP and FAO support, a major project on managing environmental resources is inventorying the knowledge and practices of local communities in the very relevant area of water, soil and plant resources conservation. Morocco is developing a number of activities for the cultural and economic development of mountain regions and communities, with emphasis on the cultural dimension. The FAO-Italy global project on Participatory Upland Conservation and Development has been very attentive in capitalizing on local human resources and their traditional practices. Also an important FAO implemented, Dutch funded regional project in Asia, working in particular in the Himalayas (the Participatory Watershed Management Training in Asia project) has been documenting with interested governments and putting to practical use, the huge wealth of land husbandry and soil conservation practices available in the region. Similar initiatives are being developed elsewhere in Africa (within the ICRAF led African Highlands Initiative and other initiatives of ILRI) and in Latin America (with CIP-CONDESAN).

25. The cultural heritage of mountain communities is well covered in the activities of the UNESCO World Heritage Convention and also in the framework of the UNESCO MAB programme’s project on mountain ecosystems. Initiatives already taken by countries such as Italy and France for
the preparation and observance of the International Year of Mountains, are an indication of the importance that the cultural dimension of mountain communities will have for all countries in observing the Year.

26. **Research considerations:** Research efforts under chapter 13 have recently begun to receive greater attention compared to the initial years following UNCED. In 1996 IUFRO established a Task Force on Forests in Sustainable Mountain Development which is preparing a state of knowledge report on this topic that is expected to help orient research and development efforts in the coming years. A IUFRO Interdivisional meeting on Forest ecosystems and land use in mountainous areas was also held in Seoul, Korea in September 1998.

27. The second phase of ICRAF’s African Highlands Initiative, is now being implemented dealing with research on food security and income generation, covering Ethiopia, Kenya, Madagascar, Tanzania and Uganda. This is one of the components of the CGIAR’s Global Mountain Initiative, a global ecoregional research programme for sustainable agricultural development in mountain areas led by the International Potato Center in Peru. Within its Second Regional Collaborative Programme (RCP-II, 1999-2002) ICIMOD continues to carry out research on mountain resources management and social organization in the Hindu-Kush-Himalaya and on other internationally relevant mountain issues.

28. The Alpine Observation and Information System (Ispra, Italy) had projects in 1997-98 on environmental and socio-economic indicators, communications, information, research systems, data sources and a thesaurus and mapping. The EC, within the Environment and Climate Programme has a collaborative research project in the Alps and other mountain ranges evaluating the effects of land use changes on mountain ecosystems and a concerted action on arctic-alpine ecosystems. Other projects consider the responses of remote mountain lakes and timberlines to environmental change, the effects of climate change on alpine and arctic streams and desertification in Mediterranean mountains. The Mountain Institute has established a dedicated research and demonstration center, recently designated a Biological Field Station, on its Spruce Knob Mountain Research Center in Appalachia.

**INSTITUTIONAL SETTING: NETWORKING, COLLABORATION, PARTNERSHIP**

**Intergovernmental mechanisms**

29. Inter-agency collaboration and cooperation, a mainstay of chapter 13, have continued and remain strong. Two meetings of the Inter-agency Group on Mountains were held in 1999 (March and October) with the main purpose of discussing preparations for the International Year of Mountains. The group has expanded its membership to include major actors from sectors that were not initially represented when the group was first established in 1994. The World Mountaineering and Climbing Federation (UIAA), for example, is now an active member of the inter-agency group, representing more than 2.5 million members of the federation world-wide and bringing to the group the perspective of a major interest group that has a significant impact on mountain environments and populations. The inter-agency group continues to play an important role in steering and advising on chapter 13 implementation and the IYM. It has served to forge new and innovative partnerships among NGOs, inter-governmental organizations and governments and to consolidate and focus action and attention in areas of strategic importance to chapter 13 implementation.

30. FAO, as task manager of chapter 13 and in its recently expanded mandate as lead agency for the International Year of Mountains, has re-activated the Organization’s inter-departmental working group on mountains. The group meets on an ad hoc basis to provide multidisciplinary support in addressing key concerns and issues of mountain development and conservation and ensures that the complete range of FAO expertise and resources – related to food security, poverty alleviation, rural development, natural resource conservation, etc. - are being fully mobilized in this effort.
Major groups: international and regional networking

31. Overall, some of the most significant recent progress in implementing the Mountain Agenda has been in the area of networking and information exchange. The Mountain Forum was established in 1995 and has become the main institutional mechanism for networking on mountains. Its membership has grown to more than 1300 for the global node alone, not including those who are subscribed exclusively to one of the regional nodes of the network. The Mountain Forum continues to rapidly expand, mainly through a decentralized process through which regional nodes have been established in Asia/Pacific, Latin America, Africa, Europe, and North America. Sub-regional nodes also exist in several areas. The network has promoted greater awareness of critical mountain issues, through enhanced exchange and debate, and fostered mutual support for greater action at the local level. The Mountain Forum offers services including electronic conferences, discussion lists, an online library and documentation centre, membership contact information and an updated calendar of key mountain-related events.

32. At the international level, an important mountain conference, entitled the “World Mountain Forum”, will be held in June 2000 in France. The event is meant to provide an opportunity primarily for representatives of mountain communities from throughout the world to meet and discuss issues of common interest and establish networking connections for continued exchange.

33. Since Rio, the mountain theme of IUCN’s World Commission on Protected Areas has nourished a network of managers, researchers and major users of mountain protected areas. It currently reaches 425 individuals in 65 countries.

34. Another key mechanism at the global level for dissemination of mountain related research and raising public awareness since 1981 has been the journal 'Mountain Research and Development', jointly published by UNU and the International Mountain Society (IMS). The editorial structure and format of the journal have recently been revised, including addition of a new section on mountain development issues, with the aim of attracting a wider, more diversified readership while still maintaining the high academic and scientific standards the journal has come to be known for.

35. At the regional level, a great deal of activity is occurring to establish new and innovative mountain networking and collaborative mechanisms and to reinforce existing ones. In Latin America the Andean Mountains Association – developed with assistance from UNU - is playing a more active role in mobilizing Andean scholars, educators and researchers to address sustainable mountain development issues. The group organized an important symposium in December 1998 in Quito, Ecuador, which in addition to the normal membership, also included a number of representatives from development and conservation organizations working at the field level. The FAO-supported Technical Cooperation Network on Watershed Management in Latin America and the Caribbean is another important regional group that has served over the past several years to assist governments to exchange technical know how and experience in watershed management. The group has recently revised its mandate toward a more practical and field-based approach that links projects and field activities in addition to promoting exchange among government representatives working in this area. The Consortium for Sustainable Development of the Andean Ecoregion (CONDESAN) also continues as an important partner in the Latin America region.

36. In Africa, major issues, needs and activities in mountains and highlands still need to be further documented and publicized. This is happening progressively as governmental and non-governmental initiatives take hold in various mountainous or highland areas, including the Maghreb, Fouta Djallon states, Central Africa and Eastern and Southern Africa. The African Mountains Association was established in 1987 with assistance from UNU to look into African perspectives on mountain ecosystems and continues to actively pursue and inform on African mountain research and development. The most significant recent development in terms of networking and collaboration has
been the establishment of the African node of the Mountain Forum at a workshop of key
organizations and stakeholders in August 1999. This was the culmination of a long process supported
by FAO, UNEP, ILRI and ICRAF. Through an initial agreement, ICRAF will temporarily host the
node. Identifying adequate funding to maintain this regional network and gaining a more thorough
knowledge and understanding of the institutional landscape of mountain organizations in Africa are
key immediate concerns.

37. North America had faced a similar situation until recently when a workshop similar to
the one held in Africa was convened at the Banff Centre for Mountain Culture in Canada in
September 1999, laying the ground work for a major mountain meeting for North America and for
establishing a regional Mountain Forum node to serve Canada, the USA and Mexico.

38. In Europe networking on mountain issues has become quite active over the past few
years. The European Mountain Forum, established in 1998 with support from Switzerland and IUCN,
has grown quickly with a membership of nearly 300 by mid-1999. The network covers mountain
ranges throughout Europe, with decentralised local nodes operating in the Carpathians, the Caucasus,
the Mediterranean mountains, and the middle mountains of Western and Central Europe. Mountain
forests have been dealt with at the European level, mainly through the follow-up process to resolution
S4 of the European Ministerial Conference for the Protection of Forests in Europe. This process is
now led by the European Observatory on Mountain Forests (EOMF), in collaboration with FAO and
IUFRO.

39. Mountain networking in Asia has been mainly through the Asia Pacific Mountain
Network (APMN), which has been operating since early 1995 and has nearly 400 registered members.
Its secretariat is based in the International Centre for Integrated Mountain Development (ICIMOD),
Kathmandu, Nepal. APMN has organised several regional consultations, conferences and meetings on
sustainable mountain development. It has several networking and information sharing activities such
as the APMN Home Page, Mountain Forum-Asia Electronic Discussion List, and a biannual
newsletter. It will be organising its first regional electronic conference shortly and has started a Small
Grants Programme to facilitate capacity building on networking and information sharing in the region.
In Central Asia, APMN is also supporting a networking capacity building initiative for sustainable
mountain development in the newly independent Central Asian Republics. The book “Mountains of
the World. A Global Priority” was translated into Russian and published in 1999 in Moscow with
financial support from SDC, the Aga Khan Foundation and the Vernadskii Foundation. The MAB-6
Russia network has also continued to contribute in the area of networking and information exchange
and the Eurasia Mountain Newsletter has been launched in Russian with a distribution to some 200
members. Another regional network in Asia for human resource development in participatory
watershed management is the Asian Watershed Management Network which was established through
a Netherlands/FAO regional project on watershed management education and training. It is active in
10 countries of Asia.

PROGRESS IN IMPLEMENTATION

Action at national and regional levels

40. One of the most important challenges for chapter 13 is to translate the ideas and
concepts of sustainable mountain development into real and concrete action, in particular at the
national and sub-national level. The achievement of practical and lasting results on the ground in a
way that positively affects mountain inhabitants at the household level, is the main criterion that will
be the basis for evaluating the real success in implementing chapter 13.

41. There has been progress in this direction since chapter 13 was last formally reported
on at CSD5, although the pace and extent of action has been less than what is needed to effectively
and adequately meet the challenges. A noteworthy exception is the case of Mexico, which was one of
the first countries to embark on a national planning process to formulate a sustainable mountain
development programme for the country. This process, supported through the FAO Technical Cooperation Programme, began in 1997. It encompassed all the elements of a sustainable national mountain programme, including participation of all stakeholders, training and capacity building at different levels, and development through pilot activities.

42. China has recently devoted increased resources and attention to mountain development and conservation which is resulting in significant action on the ground. In 1996 a major three year national demonstration project on “Integrated Mountain Development” was launched in 114 counties in 30 provinces throughout China and is developing actively with the direct involvement of 11 ministries and the Bank of China in project coordination. In Russia, the institutional setting to address mountain issues has evolved with the establishment of the Institute of Sustainable Mountain Development at the North Caucasus State University, Vladikavkaz, North Ossetia-Alania Republic. This same Republic has also passed a mountain law in 1998.

43. The experience of the FAO/Italy Interregional project for participatory upland conservation and development was first reported on at the third session of the CSD in 1995. This project achieved a great deal in terms of its overall contribution to knowledge and understanding of the use of participatory methodologies and an integrated watershed management approach to conservation and development in mountain regions. The impact of this experience has already spread to areas beyond those originally covered by the project. In Burundi, for example, 12 of the country’s 16 provinces are currently using participatory planning for integrated watershed management based on the project’s original pilot experience and the approach has been institutionalized in the responsible ministry.

44. At the regional level, examples of action include, in Europe, the 21st session of the FAO/EFC Working Party on the Management of Mountain Watersheds which was held in Marienbad, Czech Republic, 6-11 October 1998 and had as its main theme Integrated Watershed Management. Also of significance was a series of seminars organized by EUROMONTANA in 1999 (St. Etienne, France; Victoria Gasteiz, Spain and Cracovia, Poland) on high value products and sustainable mountain development, which linked mountain associations in 20 countries, leading to discussion at a conference in Trento, Italy scheduled in March 2000.

45. In Africa progress has occurred in several areas including participatory watershed management activities in Morocco through a UNDP/FAO assisted project and an active process in developing a national strategy for the conservation and development of mountain areas. On going efforts in the Fouta Djallon region for integrated upland development and resource management aim to protect the water supply of the West African rivers that depend on this massif as their source. Other activities are being developed in Central Africa, East and Southern Africa, as well as in Madagascar, in conservation and development. The Rwenzori Mountains conference organized and hosted by Makerere University, Uganda in 1996 was an important African mountain initiative. A Mountain Resource Centre has since been established at Makerere University.

46. In Asia, significant action has occurred through a number of regional processes supported by a strong institutional context. ICIMOD has continued to focus research and development activities in the Hindu-Kush-Himalaya region, in addition to the strong support to networking already described above. A noteworthy interdisciplinary watershed management initiative being carried out in four of ICIMOD’s partner countries along a west-east transect through the Himalayas is the People and Resource Dynamics Project (PARDYP). It is being implemented in areas where there is generally high pressure on the natural resources, and aims, through monitoring and increased understanding of various processes, to develop guidelines for policies and programmes in this field. Also, in Pakistan a new Himal conservation strategy that extends from the summits to the Bangladesh coast is being implemented with the support of IUCN.

47. The International Board for Soil Research and Management (IBSRAM, Bangkok) is also supporting work in Asia leading to the development of methods and concepts focused on urgent
land degradation problems, including in hilly or mountainous terrain, in particular on the sustainable management of sloping lands. Community forestry and the development of participatory approaches and tools for mountain areas in Asia continues to be facilitated by the work of the Regional Community Forestry Training Centre (RECOFTC), especially through the development of curricula and training materials.

48. Latin America has witnessed good progress overall in mountain development through a variety of regional programmes and projects, supported and assisted by CIP, CONDESAN, FAO and a number of donor and non-governmental organizations. The Andean Mountains Association (AMA) held an important symposium in December 1998 in Quito, Ecuador on sustainable mountain development in the region that brought together researchers, practitioners and donor representatives to discuss a wide variety of issues and help orient future work. The Mexican experience referred to earlier in national planning for mountain areas has now been shared with other member countries of the FAO-supported Technical Cooperation Network on Watershed Management in Latin America and the Caribbean to stimulate and facilitate similar exercises in the region.

49. Although real progress has been achieved since 1997, there is a commonly felt need for more action and further cooperation to carry out mountain development and conservation activities that result in meaningful change at the community and household levels. Awareness raising continues to be an important issue, but many countries also require capacity building and technical assistance to ensure that the concepts of chapter 13 are translated into concrete activities. Additionally, there remain significant gaps in knowledge and information on the extent to which progress is being made, especially at country level.

**Funding and Financial mechanisms**

50. Investment in the sustainable development of mountain areas is still inadequate, in terms both of domestic public spending and ODA. Funding through global and regional mechanisms such as the Global Environment Facility and the regional development banks needs to be increased and mobilised in ways that address more directly the specific needs and concerns of mountain regions, rather than through more traditional funding approaches that simply include mountain areas among others in national development initiatives. There is also a need to look at the potential of using more innovative mechanisms such as debt for nature swaps which have already proven to be a very useful and practical approach.

51. A main topic attracting increased attention is the question of financial mechanisms and incentives. The problem of inequities between highland and lowland regions has been discussed in many of the consultations held during the reporting period. CSD-6 in 1998, in reviewing strategic approaches for freshwater management, emphasized the vital role of mountain regions as sources of water for a large proportion of the population of the Globe, the need to fairly compensate mountain inhabitants for their contributions to ensuring the quantity and quality of water supplies, and the importance of water for the quality of life. Some of these issues were examined.

52. Funding mountain development and conservation is needed not only at the global, regional and national levels, but is particularly important at the community level in support of activities aimed at the conservation of watersheds at community level, the funding of infrastructure to facilitate access and communications between communities, and general rural development in local communities.

**International Year of Mountains**

53. One of the most significant political decisions regarding mountains since 1997 was the UNGA resolution in November 1998 declaring 2002 the International Year of Mountains. This has served to place the core issues of chapter 13 in an even brighter international spotlight and provides an unparalleled opportunity to implement sustainable mountain development on a practical
and concrete level that effectively reaches mountain households. Preparations to observe the year began shortly after the resolution was passed when FAO convened in March 1999 the fifth ad hoc meeting of the Inter-Agency Group on Mountains to brainstorm on activities to be envisaged during the IYM. This meeting was attended by 13 international governmental and non-governmental organizations and by permanent representatives of FAO member governments and many observers. It produced a wealth of ideas and programme elements which will be incorporated in the preparation process of the IYM. Since funding from international agencies would be insufficient to cover the needs for the IYM, it was suggested to adopt a combination of international public funding, bilateral and multi-lateral funding and private interventions and initiatives. It was agreed that a concept paper should be prepared to clarify the overall strategy, approach and substance of the programme.

54. A draft concept paper was subsequently prepared by FAO and was discussed at the 6th meeting of the ad hoc Inter-Agency Group on Mountains in Cusco, Peru on 2 October 1999. The framework for the IYM is based on Agenda 21 chapter 13 and the objectives and the institutional, thematical and managerial set-up, as well as the core activities and fund-raising needs are clarified in this paper. The FAO-managed core programme of the IYM observance has been estimated to require extra-budgetary funding of the order of US$5 million. The need to enlist donor government support has been emphasized.

55. Countries have already begun to prepare their observance of the International Year of Mountains. Italy has established a national committee for the observance of the Year, based on the work of a group of Italian mountain researchers working in the Himalaya which brought together Italian scientists, environmentalists, politicians and others to join together in helping Italy prepare for the IYM in both domestic and international arenas. The Italian experience could serve as a potential model for other countries in preparing for the IYM.

**Emerging Issues and Challenges ahead**

56. Conflict: Especially in recent times, mountain areas are increasingly the site of social conflict, ethnic strife and war, resulting from the combination of very complex issues. Conflict in mountain areas can be caused by very diverse factors such as poverty, ethnic tension, competition for scarce resources and even the geographical isolation of mountain areas which makes mountainous regions likely refuges for armed opposition groups. Efforts to carry out conservation and sustainable development initiatives are often stymied by these realities. The issue of security and conflict resolution is very relevant to efforts to achieve sustainable approaches to mountain development and conservation. The IYM in fact provides a strong platform to address this issue, as promoting international peace was one of the original ideas behind observing international years.

57. Highland/lowland interaction: Mountain areas are open systems which intensively interact with their surrounding regions. Awareness about the importance and complexity of highland-lowland linkages is significantly increasing. These interactions are multi-faceted, involving not only ecological considerations, but economic, social, political ones as well. In recent years important experience has been gained in terms of the ecological dimension of these linkages in particular, but little attention has yet been given to these other aspects. Considerable efforts are required to increase the knowledge and experience about these linkages, leading to more secure rights and opportunities for the different stakeholders in a watershed, better support to watershed management groups at different geographical scales and the formulation of integrated watershed management policies.

58. Policy and Law: To support and foster action toward sustainable mountain development at the local level, adequate legal and policy mechanisms need to be developed, in particular at the national level. Although many countries have laws and policies that impact on their mountain areas, to date, relatively few countries have enacted comprehensive national mountain policies and laws which directly address the special conditions and problems of mountain regions and those who inhabit them. At the national level, there is a need for legal and policy frameworks which recognise local property rights, apply full cost pricing for mountain goods and services, afford
adequate protection for fragile ecosystems and sacred sites, protect traditional knowledge through intellectual property rights, etc. At the international and regional levels, stronger legal instruments are needed to ensure transboundary cooperation leading to better human development and ecosystem conservation in areas that straddle political borders. Regional policy frameworks are also important in this respect, and need to be further developed in the wake of the regional intergovernmental consultations which have been held in most regions since UNCED.

59. Integrated mountain planning and management in national economies and increasing action at local level: Many initiatives have been taken since UNCED relating to mountain development for the effective benefits of local communities. However one of the most urgent and daunting challenges is to continue increasing conservation and development activities at national and local levels. Encouraging framework planning of watershed management and mountain development at national and local levels can improve the situation. It is important in the period to come that more systematic programme formulation of mountain development is effected which leads to the elaboration of local mountain community development programmes within participatory and decentralised approaches.

60. Natural hazards and risks in mountain areas: Natural hazards in mountain areas such as floods, landslides, avalanches and volcanic eruptions have received greater attention in recent years. The degree to which human activities are influencing such hazards is very much debated. However, it is clear that the vulnerability of mountain communities to hazards has increased, in industrialised countries mainly due to increased infrastructure development, in developing countries due to population pressure and expansion of activities into hazard prone areas. Significant challenges lie ahead in terms of increasing knowledge about mountain hazards and of improved risk management.

61. Funding: As discussed above, a major challenge to the successful implementation of chapter 13 is the mobilisation of adequate funding. A much broader base of bi-lateral, multi-lateral and private sector funding and financing is required than has so far existed to respond to the needs of mountain regions and their inhabitants. More concerted efforts at national level could also provide significant levels of additional resources for mountain development. To date, relatively few donor organizations and countries have carried most of the financial burden of mountain development assistance. The IYM provides a renewed opportunity to mobilise the resources, both human and financial, on a sustained level, that are needed to effectively implement sustainable mountain development and conservation.