PARDYP: A Regional Watershed Management Project of Global Importance with Strong Linkages to Chapter 13

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Abstract

During the UNCED-Conference in Rio de Janeiro in 1992 the mountain areas of the world received special attention: Chapter 13 of Agenda 21 is entitled "Managing Fragile Ecosystems—Sustainable Mountain Development". In 1998 the UN General Assembly declared 2002 as the International Year of the Mountains (IYM). FAO is Task Manager for Chapter 13 as well as the lead agency for the International Year of the Mountains. The ICIMOD People and Resource Dynamics Project (PARDYP) is highly relevant for the global mountain agenda. Through its regional work in five watersheds, the comparative approaches, the interdisciplinary concept, the large range of stakeholders involved, and the search for best practices in the utilisation and development of resources in mountain watersheds, the project is making a significant contribution to the implementation of Chapter 13 and to the preparations for the celebration of the International Year of the Mountains. The continuation of PARDYP into a second phase with the same number of watersheds is highly recommended.

Chapter 13: An Introduction

What is Chapter 13?

In June 1992, the world summit on environment and development was held in Rio de Janeiro. The most important output of this conference was the Agenda 21, which was signed by 181 member countries. The document reflects a broad consensus that sustainable development towards a human future has to be based on partnership and can only be achieved through joint efforts in which ecological principles play a central role. Agenda 21 is described in 40 chapters (see Box 1); it highlights the key problems, formulates approaches in order to find solutions, and proposes strategies for action.

The mountain areas of the world receive particular attention in Agenda 21. The rationale for Chapter 13, entitled 'Managing Fragile Ecosystems – Sustainable Mountain Development' was as follows: "Mountains are an important source of water, energy and biological diversity. Furthermore they are a source of such key resources as minerals, forest products and agricultural products and of recreation. As a major ecosystem representing the complex and interrelated ecology of our planet, mountain environments are essential to the survival of the global ecosystem. Mountain ecosystems are, however, rapidly changing. They are susceptible to accelerated soil erosion, landslides and rapid loss of habitat and genetic resources. On the

BOX 1

The 40 chapters of Agenda 21 (Source: The United Nations 1992)

Chapter 1: Preamble

Section 1: Social and Economic Dimensions

Chapter 2: International cooperation to accelerate sustainable development in developing countries and related domestic policies
Chapter 3: Combating poverty
Chapter 4: Changing consumption patterns
Chapter 5: Demographic dynamics and sustainability
Chapter 6: Protecting and promoting of human health
Chapter 7: Promoting sustainable human settlement development
Chapter 8: Integrating environment and development in decision-making

Section 2: Conservation and Management of Resources for Development

Chapter 9: Protection of the atmosphere
Chapter 10: Integrated approach to the planning and management of land resources
Chapter 11: Combating deforestation
Chapter 12: Managing fragile ecosystems: Combating desertification and drought
Chapter 13: Managing fragile ecosystems: Sustainable mountain development
Chapter 14: Promoting sustainable agriculture and rural development
Chapter 15: Conservation of biological diversity
Chapter 16: Environmentally sound management of biotechnology
Chapter 17: Protection of the oceans, all kinds of seas including enclosed and semi-enclosed seas, and coastal areas and the protection, rational use and development of their living resources
Chapter 18: Protection of the quality and supply of freshwater resources: Application of integrated approaches to the development, management and use of water resources.
Chapter 19: Environmentally sound management of toxic chemicals, including prevention of illegal international traffic in toxic and dangerous products
Chapter 20: Environmentally sound management of hazardous wastes, including prevention of illegal international traffic in hazardous wastes
Chapter 21: Environmentally sound management of solid wastes and sewage-related issues
Chapter 22: Safe and environmentally sound management of radioactive wastes

Section 3: Strengthening the Role of major Groups

Chapter 23: Preamble
Chapter 24: Global action for women towards sustainable and equitable development
Chapter 25: Children and youth in sustainable development
Chapter 26: Recognising and strengthening the role of indigenous people and their communities
Chapter 27: Strengthening the role of non-governmental organisations: Partners for sustainable development
Chapter 28: Local authorities' initiatives in support of Agenda 21
Chapter 29: Strengthening the role of workers and their trade unions
Chapter 30: Strengthening the role of business and industry
Chapter 31: Scientific and technological community
Chapter 32: Strengthening the role of farmers

Cont ...

Section 4: Means of Implementation

Chapter 33: Financial resources and mechanisms
Chapter 34: Transfer of environmentally sound technology, cooperation and capacity-building
Chapter 35: Science for sustainable development
Chapter 36: Promoting education, public awareness and training
Chapter 37: National mechanisms and international cooperation for capacity-building in developing countries
Chapter 38: International institutional arrangements
Chapter 39: International legal instruments and mechanisms
Chapter 40: Information for decision-making

human side, there is widespread poverty among mountain inhabitants and loss of indigenous knowledge. As a result, most global mountain areas are experiencing environmental degradation. Hence, the proper management of mountain resources and socioeconomic development of the people deserves immediate action." (The United Nations 1992; some extracts from the original text of chapter 13 are presented in Box 2).

Within Agenda 21, Chapter 13 shows some unique features—unlike most of the other chapters, which have a strong sectoral orientation (see Box 1), the mountain chapter follows an integrated, holistic approach addressing all the driving forces active in a landscape like hydrology, geomorphology, erosion, hazards, agriculture, forestry, cultural diversity, biodiversity, recreation, trade, climate change, and participatory management of resources. Described thus, the implementation of Chapter 13 is particularly challenging and requires interdisciplinary approaches.

The Development of Chapter 13 from 1992 to 2002

The formulation of Chapter 13 in 1992 initiated a dynamic process of activities related to mountain issues of which just a few important elements are highlighted below. For a detailed account of this development we refer to the Task Managers Report (Price 1999).

- Under the umbrella of FAO, inter-governmental meetings were held in all continents to draw the attention of political authorities to the importance of mountain areas and their resources.
- A number of inter-agency meetings and NGO-consultations were organised.
- In 1995 a global Mountain Forum of NGOs was founded. It is coordinated by The Mountain Institute (TMI) in Virginia and currently has three regional nodes: the International Centre for Integrated Mountain Development (ICIMOD), Kathmandu, for Asia; the Centro Internacional de la Papa (CIP), Lima, for Latin America; and the International Union for the Conservation of Nature (IUCN), Gland, for Europe. Regional nodes for North America and Africa will hopefully follow soon. These nodes have started to establish networks for the exchange of information and the learning process across continents.

BOX 2

Extracts from the original text of Chapter 13 (Source: The United Nations 1992)

CHAPTER 13: PROGRAMME AREAS

A. Generating and strengthening knowledge about the ecology and sustainable development of mountain ecosystems

Basis for action

13.4. Mountains are highly vulnerable to human and natural ecological imbalance. Mountains are the areas most sensitive to all climatic changes in the atmosphere. Specific information on ecology, natural resource potential and socioeconomic activities is essential. Mountain and hillside areas hold a rich variety of ecological systems. Because of their vertical dimensions, mountains create gradients of temperature, precipitation and insolation. A given mountain slope may include several climatic systems - such as tropical, subtropical, temperate and alpine - each of which represents a microcosm of a larger habitat diversity. There is, however, a lack of knowledge of mountain ecosystems. The creation of a global mountain database is therefore vital for launching programmes that contribute to the sustainable development of mountain ecosystems.

Objectives

13.5. The objectives of this programme area are:

- to undertake a survey of the different forms of soils, forest, water use, crop, plant and animal resources of mountain ecosystems, taking into account the work of existing international and regional organizations;
- to maintain and generate database and information systems to facilitate the integrated management and environmental assessment of mountain ecosystems, taking into account the work of existing international and regional organizations;
- to improve and build the existing land/water ecological knowledge base regarding technologies and agricultural and conservation practices in the mountain regions of the world, with the participation of local communities;
- to create and strengthen the communications network and information clearing-house for existing organizations concerned with mountain issues;
- to improve coordination of regional efforts to protect fragile mountain ecosystems through the consideration of appropriate mechanisms, including regional legal and other instruments;
- to generate information to establish databases and information systems to facilitate an evaluation of environmental risks and natural disasters in mountain ecosystems.

B. Promoting integrated watershed development and alternative livelihood opportunities

Basis for action

13.13. Nearly half of the world's population is affected in various ways by mountain ecology and the degradation of watershed areas. About 10 per cent of the Earth's population lives in mountain areas with higher slopes, while about 40 per cent occupies the adjacent medium- and lower-watershed areas. There are serious problems of ecological deterioration in these watershed areas. For example, in the hillside areas of the Andean countries of South America a large portion of the farming population is now faced with a rapid deterioration of land resources. Similarly, the mountain and upland areas of the Himalayas, South-East Asia and East and Central Africa,

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Box 2: cont.

which make vital contributions to agricultural production, are threatened by cultivation of marginal lands due to expanding population. In many areas this is accompanied by excessive livestock grazing, deforestation and loss of biomass cover.

13.14. Soil erosion can have a devastating impact on the vast numbers of rural people who depend on rainfed agriculture in the mountain and hillside areas. Poverty, unemployment, poor health and bad sanitation are widespread. Promoting integrated watershed development programmes through effective participation of local people is a key to preventing further ecological imbalance. An integrated approach is needed for conserving, upgrading and using the natural resource base of land, water, plant, animal and human resources. In addition, promoting alternative livelihood opportunities, particularly through development of employment schemes that increase the productive base, will have a significant role in improving the standard of living among the large rural population living in mountain ecosystems.

Objectives

13.15. The objectives of this programme area are:

- by the year 2000, to develop appropriate land-use planning and management for both arable and non-arable land in mountain-fed watershed areas to prevent soil erosion, increase biomass production and maintain the ecological balance;
- to promote income-generating activities, such as sustainable tourism, fisheries and environmentally sound mining, and to improve infrastructure and social services, in particular to protect the livelihoods of local communities and indigenous people;
- to develop technical and institutional arrangements for affected countries to mitigate the effects of natural disasters through hazard-prevention measures, risk zoning, early-warning systems, evacuation plans and emergency supplies.

- Through worldwide research initiatives, many projects and larger programmes with a significant regional collaboration in mountain areas have started.
- A number of key publications have been issued such as the volume 'Mountains of the World–a Global Priority' (Messerli and Ives 1997), a brochure focusing on the water resources of the world (Mountain Agenda 1998), and the proceedings of an e-mail conference on sacred mountains (TMI 1998).

In 1997, five years after UNCED, the UN Commission on Sustainable Development and the UN General Assembly held special meetings to review the implementation of Agenda 21. This conference clearly showed that the five years after Rio have been essential in successfully transmitting the message of the mountains as important areas of resources for the next century. More and more it was recognised that mountain areas have a global importance: mountains as resources for freshwater, as centres of biological diversity, as recreation areas, and as very sensitive indicators of climate change. It also recognised that the initiatives launched so far were very positive but not sufficient: the difficult challenge of implementing the results on a political level and in a concrete form within the framework of field projects lies ahead.

Through the initiative of the Republic of Kirgistan in proposing the year 2002 as the International Year of the Mountains (IYM), Chapter 13 received a new impetus. In 1998 the

matter was presented to the Economic and Social Council of the United Nations (ECOSOC) where it was strongly supported. In November 1998 the proposal was discussed by the UN General Assembly and passed without vote. This decision is an outstanding chance and challenge for Chapter 13. It provides a unique opportunity to reinforce the long-term process begun at Rio of raising public awareness and ensuring adequate political, institutional, and financial commitments for concrete action on sustainable mountain development, that will hopefully last far beyond the year 2002. International organisations, NGOs, politicians, research institutions, donors, individuals, whoever is dealing with mountain related issues, are challenged to help shape this process and to bring about a highly successful IYM.

Chapter 13 and FAO

The programme on 'Watershed Management and Sustainable Mountain Development' has a long history in FAO and originally focused on purely technical aspects related to protection, forest management, and watershed hydrology. Over time, however, it has adopted a much more integrated view of watershed management and a more comprehensive approach to mountain conservation and development. This includes, for example, a greater emphasis on human development activities in addition to technical concerns such as soil and water conservation, and the recognition of the importance of the participation of local people in planning and implementing upland conservation and development activities. As a result of its long tradition and experience in watershed management and upland conservation, in 1993 FAO was given the Task Manager Role for Chapter 13. In addition, in the resolution of November 1998, the UN General Assembly declared FAO as the lead agency for the IYM.

Mountain-related Activities of FAO

With all these responsibilities, the FAO programme on watershed management and sustainable mountain development covers three main areas of work.

- Task Manager for Chapter 13 and Lead Agency for the IYM 2002

In addition to reporting responsibilities, the Task Manager role involves promoting and facilitating follow-up activity in the areas of information exchange, inter-agency consultation, catalysing joint activities and programmes, and developing common strategies. FAO has attempted to make the reporting process for Chapter 13—one of the primary task manager responsibilities—a collaborative effort by involving a number of other UN agencies, as well as NGOs, in the drafting and review of reports. This partnership approach has been greatly enhanced by the establishment of an ad hoc inter-agency group for Chapter 13 which first met in early 1994 and which has the aim of enhancing cooperation and collaboration in mountain development and conservation. The group is made up of various UN agencies and a number of international NGOs involved in mountain issues. The inclusion and active participation of organisations from outside the UN system has provided the opportunity for a wide range of views and perspectives to be considered in the on-going implementation of

Chapter 13, thus enabling a more balanced and equitable approach. Strengthening partnership, building capacity, and enhancing communication and information sharing have all been important aspects of FAO's work as Task Manager. In future a significant amount of FAO staff time and resources will be devoted to the preparation and observance of the International Year of the Mountains.

- The Normal Work Programme in Watershed Management and Sustainable Mountain Development

FAO's normal Mountain Programme has a number of important functions including generating and disseminating knowledge and information (Figure 117). The programme is involved, for example, in carrying out studies that aim at gaining a better understanding of various ecological, economic, and social processes. Developing and testing new technical guidelines, best practices and methodologies, and tools is another aspect of the programme's work. The FAO Conservation Guide series is one of the main vehicles used to achieve this. Conservation Guides have been published on a wide variety of topics, including both technical titles (e.g., 'Computer-assisted watershed planning and management') and titles more focused on socioeconomic issues (e.g., 'Income generation from non-wood forest products in upland conservation'). Training material aimed at building capacity is also developed for different levels of users, from policy makers to local communities. Enhanced capacity, at both local and national levels, is an important goal of the programme and an integral part of the approach to sustainable resource management and development in upland areas. Another aspect of the normal programme is the role FAO plays as the secretariat of the European Forestry Commission's Working Party on the Management of Mountain Watersheds—a body it helped establish in 1951. The group meets every two years to discuss technical issues relevant to watershed management in Europe.

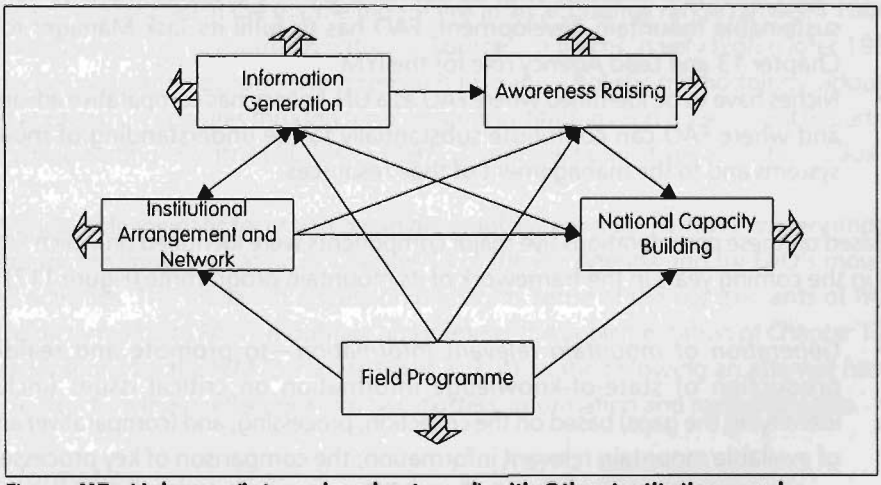

Figure 117: **Linkages (internal and external) with Other Institutions and Programme**

- Field Programme Activities

The operational side of FAO's work in sustainable mountain development and watershed management is an integral and essential part of the overall programme. Technical support is provided to a variety of field projects involved in natural resource conservation and management (like soil, water, forests, and biodiversity) and human development activities in mountain and upland areas. This is done, for example, through strengthening of local capacity, training in a variety of topics from appropriate technologies to participatory methodologies, and enhancing information exchange. FAO's Technical Cooperation among Developing Countries (TCDC) programme is allowing for greater South-South exchange in upland conservation and development work by facilitating the use of developing country experts in what can be a less costly and in some cases more appropriate alternative to international technical assistance coming primarily from the North.

Planning Towards the IYM: Some Preliminary Ideas of FAO

FAO is currently going through an intensive planning process to shape its programme on watershed management and sustainable mountain development for the years leading up to the IYM. The reflections are driven by the following.

- FAO's mountain programme has to be an open system. Its activities have to be carried out in close collaboration with other groups inside FAO and with key partners world-wide that are involved in mountain-related issues.
- The overall goal of all efforts made towards 2002 and beyond must be to make national governments aware of the importance of their mountain areas and to promote the implementation of strategies, best practices, and legislation for sustainable mountain development.
- Apart from and together with its normal work in watershed management and sustainable mountain development, FAO has to fulfil its Task Manager role for Chapter 13 and Lead Agency role for the IYM.
- Niches have to be identified where FAO as a UN Agency has comparative advantages and where FAO can contribute substantially to the understanding of mountain systems and to the management of their resources.

Based on these considerations five major components were identified on which FAO will focus in the coming years in the framework of its mountain programme (Figure 117).

- *Generation of mountain relevant information*—to promote and realise the production of state-of-knowledge information on critical issues (including identifying the gaps) based on the collection, processing, and (comparative) analysis of available mountain relevant information; the comparison of key processes, key problems, driving forces, and similar of different mountain systems of the world is a very important element

- *Institutional arrangement and networks*—to map out the institutional landscape (global and regional levels), to understand the activities and roles of major partners, to facilitate and service key processes and networks
- *Awareness raising, including preparation for observance of the International Year of the Mountains*—to raise the awareness of major stakeholders (including policy level, public administration, general public, NGOs, universities, schools) of the importance of sustainable mountain development and watershed management
- *National capacity building*—to make available substantive materials, tools, and training packages to member nations to help them plan and implement sustainable mountain development and watershed management programmes at national/sub-national level
- *Field programme support and collaboration*—to technically support watershed management relevant projects under the FAO field programme in the whole project cycle to collect, process, analyse, and disseminate their experiences

From March 10 to March 12 1999, the Inter-Agency Group on Chapter 13 will convene at FAO headquarters in Rome in order to start a coherent and well organised planning process for the IYM with principal collaborators in the Mountain Agenda. During this meeting, visions for the IYM will be brainstormed, priority issues defined, job sharing discussed, and a funding strategy initiated. FAO's current, very preliminary, visions for the celebration of the IYM are compiled in Box 3. It is hoped that the ideas will be further complemented, specified and modified during the Inter-Agency Meeting in March.

The People and Resource Dynamic Project (PARDYP) and Its Relevance for Chapter 13

PARDYP is an interdisciplinary watershed management project which operates in four of ICIMOD's partner countries along an east-west transect through the Himalayas. All the watersheds are located in the middle mountains in an altitudinal range between 1000 and 3000 masl, where the pressure on natural resources, in places, is very high (Hofer 1998). It approaches watershed dynamics and research through a holistic methodology, adopting a nested approach. It operates through focal research institutions and government departments in the collaborating countries (ICIMOD 1997). The project objectives are listed in Box 4.

With its wide thematic focus and broad geographical coverage, PARDYP is a very important element for the implementation of Chapter 13 of the Rio Agenda and for FAO's mountain-related activities. The following discussion highlights some of the key elements of PARDYP which directly feed into FAO's mountain programme, the implementation of Chapter 13, and the preparations for the IYM (compare Boxes 2, 3, 4). In the following an attempt has been made to structure these reflections into two clusters: information and methodologies.

Information

- PARDYP produces much disciplinary, in-depth information on a large number of issues, for example hydrology, meteorology, soil erosion, soil fertility, conservation,

BOX 3

Some Ideas Among Those Considered by the FAO Mountain Team for the Celebration of the International Year of the Mountains

Categories	Ideas for Specific Activities
Meetings, events	• International conference on mountain ecosystems • 'Food security in the mountains of the world' (topic for the World Food Day 2002) • 23rd session of the EFC Working Party • Training seminars: best practices in sustainable mountain development • Briefing workshop for journalists
Publications	• Definitions: mountains; sustainable mountain development • Conservation guides • Guidelines on best practices in sustainable mountain development • Guidelines for policy-makers • Mountains of the world in comparison: key processes, key problems, and driving forces • A collection of information material on mountains, either regionalised or world-wide or both
Awareness rising	• Film • TV/radio broadcasts • Essay competitions • Popularised brochures on key issues in mountain areas • Planning game on sustainable mountain development with different scenarios • Curricula for schools and universities
National capacity building	• Guidance to the formulation of appropriate mountain policy and legislation • Guidelines for mapping out the institutional landscape • Indicative mountain development programme; operational review of Agenda 21 Chapter 13
Field activities	• Pilot project on highland-lowland interactions established and in operation • Network of watershed management projects linked world-wide, common ideas coordinated

rehabilitation of degraded areas, agronomic systems and initiatives, horticulture, forestry, cooperation, and people's participation. The generation of a solid knowledge base is a very strong focus in the original text of Chapter 13.

- Through its holistic approach PARDYP produces a lot of knowledge regarding linkages between different elements and driving forces in a watershed: for example erosion, and sediment and nutrient loss on a plot as a function of rainfall, slope, aspect, elevation, soil characteristics, crop type, land preparation and management, season, indigenous practices for prevention of excessive surface runoff, and soil

BOX 4

The Objectives of PARDYP

Objectives

The main objectives of this programme will be to develop a comprehensive monitoring system for people and resource dynamics in selected watersheds of the Hindu Kush-Himalayas, to develop a better understanding of these processes, and to develop guidelines for policies and programmes in this field.

The specific objectives of the project are:

- to generate relevant and representative information and technologies about water balance and sediment transport related to degradation on a watershed basis;
- to identify technologies and strategies to improve soil fertility and to control erosion and degradation processes in a farming systems' approach;
- to generate socioeconomic information on resource management and degradation;
- to systematically apply community-based participatory generation, testing, and evaluation of natural resources' management strategies and technology;
- to strengthen the capacity of project partners;
- to make accessible to stakeholders relevant project information on project outputs;
- to effectively and efficiently manage the project as a regional collaborative research and development undertaking.

(Sources: ICIMOD 1996; ICIMOD 1998)

loss. This knowledge base is particularly well developed in the Jhikhu Khola watershed of Nepal, in which the activities go as far back as 1989 (see also Schreier *et al.* 1995; Brown 1997; Carver 1997).

- In each watershed a unique nested approach is applied, quite different to the approach used in other watershed management projects. Information is generated for the plot level, for the household/farm level, for the sub-catchment level, and for the whole watershed. This approach provides information on how results are modified and how driving forces change at different scales.
- Through project work in five watersheds in different ecological zones of the Himalayas, and the approach of using common methodologies, PARDYP provides a lot of scope for comparison over rather long distances. A lot of information will be generated about commonalities and differences, about key processes, about driving forces, and about general as well as regionally specific strategies and best practices for the rehabilitation of degraded lands and for sustainable use of the resources in the watersheds.
- The project has a very strong field base. The information generated in the project is primary, original data collected in the field and not data compiled from secondary sources.

Methodologies

Apart from the large amount of information relevant to Chapter 13 that PARDYP is creating, many methodological aspects are being developed through the unique set up of

the project. Such methodological experiences are as important for Chapter 13 as information.

- The strongly interdisciplinary approach has considerable scope and potential for methodological achievements: how can the large variety of physical and socioeconomic different elements active within a watershed be brought together, be linked together? How can work in complex, interdisciplinary projects be best and most efficiently distributed and coordinated? How best can work in the different disciplines be focused in order to make sure that the results fully contribute to the overall aims and the synthesis of the project and do not drift away? How can findings that are based on measurements of parameters (water flow, suspended sediments, soil erosion, rainfall) be validated and complemented with the experiences of the people acting in this environment and using the resources?
- The second major methodological challenge is to make good use of the nested approach. How can the information at the different scales be linked together? To what extent can results obtained from analysis on the plot or farm level be extrapolated to the whole watershed? What methodological problems arise while doing such exercises and how can they be solved?
- Little methodological experience is available at present for the comparison of watersheds. PARDYP also offers good scope for significant achievements in this area. What are the procedures to compare different watersheds with each other? On what level of aggregation or generalisation has the comparison to be carried out? What are the filtering mechanisms? If these exercises are carried out within PARDYP successfully, then the results will be a very important contribution to the global mountain programme—which is challenged by the comparison of different mountain systems of the world with regard to the key processes, key problems, and driving forces.
- From the beginning, the project set up included a large variety of players: local people in the field, local institutions, regional and national institutions, researchers, NGOs, development workers, and donors. This type of collaboration again has considerable potential for significant methodological achievements. How can local knowledge and experiences best be used for the development of overall strategies and best practices for sustainable management of the resources in a watershed? How can overall strategies be translated by different intermediaries into concrete action at the local level? What are the most successful and efficient approaches to raise awareness among the different stakeholders about the importance of sustainable management of resources in a mountainous watershed?

Conclusions

All the elements highlighted above, which are key features of the PARDYP-project, have a direct link to the requirements of Chapter 13 (see Box 2) and are a significant contribution to FAO's mountain programme. The regional set up, the comparative approaches, the interdisciplinary concept, the large range of stakeholders involved, and the search for best

practices in the utilisation and development of the resources, these are all unique features that fit into the central requirements of the Mountain Agenda. It is obvious, therefore, that a successful completion of the first phase of PARDYP and an equally successful second phase will contribute significantly to the preparation and celebration of the IYM as well as to those processes reaching far beyond 2002.

The close contact of PARDYP with FAO's mountain programme and FAO as Task Manager of Chapter 13 would be very desirable: FAO can only fulfil its mandate in close collaboration with other institutions involved in mountain related issues. The formulation of strategies, of best practices on sustainable mountain development, and of guidelines for policy legislation (Figure 117) will only be credible if they can be based on solid, concrete experiences from case studies in the field. These experiences may come from FAO field programmes, but they may also be imported from non-FAO projects, PARDYP being a very important example. On the other hand FAO can provide technical assistance to PARDYP if need be.

Purposely, in the above discussion a somewhat idealised picture has been given of PARDYP in order to highlight the significant relevance of the project for the global mountain agenda. It is very clear that the challenges, the expectations, and the requirements with which PARDYP is confronted are enormous. It is clear, too, that in the first phase not all of the challenges could be met in the same successful way and not each country team can tell the same success story. However, from the perspective of FAO it is essential that PARDYP continues at least into a second phase. The thematic and institutional set up of the project are clearly long-term oriented. Only in the next project phase can certain elements properly mature like, for example, the identification of the most successful strategies for rehabilitation of degraded lands, or the comparison of different watersheds. In addition, it is clear that the project has to continue with at least the existing set up of five watersheds. A reduction in the number of test areas for the second phase would destroy the unique set up of PARDYP and "degrade" PARDYP to a traditional watershed management project of which a large number already exist.

A number of hopes and requests for the next phase of PARDYP are listed below.

- It is hoped that the relevance of PARDYP to Chapter 13 has been sufficiently well highlighted, and that the title of 'PARDYP: a regional watershed management project of global importance' has been justified. This emphasises the high responsibility and the relevance of the work of each individual actor in the project. In turn it is hoped that this will motivate each country team to make a maximum contribution to achieving success during PARDYP Phase II and, where necessary, to catch up with the state of work in other test areas.
- It is strongly recommended that the high degree of interdisciplinarity and the strong field orientation of the project be maintained.
- It is recommended that particular emphasis is given to a synthesis of results and to the extension and implementation of results during Phase II.

- The comparability of methods used in the different watersheds should also be given particular attention.

As Task Manager for Chapter 13, FAO would like to convey its best wishes to the PARDYP-team for a successful continuation of the project!

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