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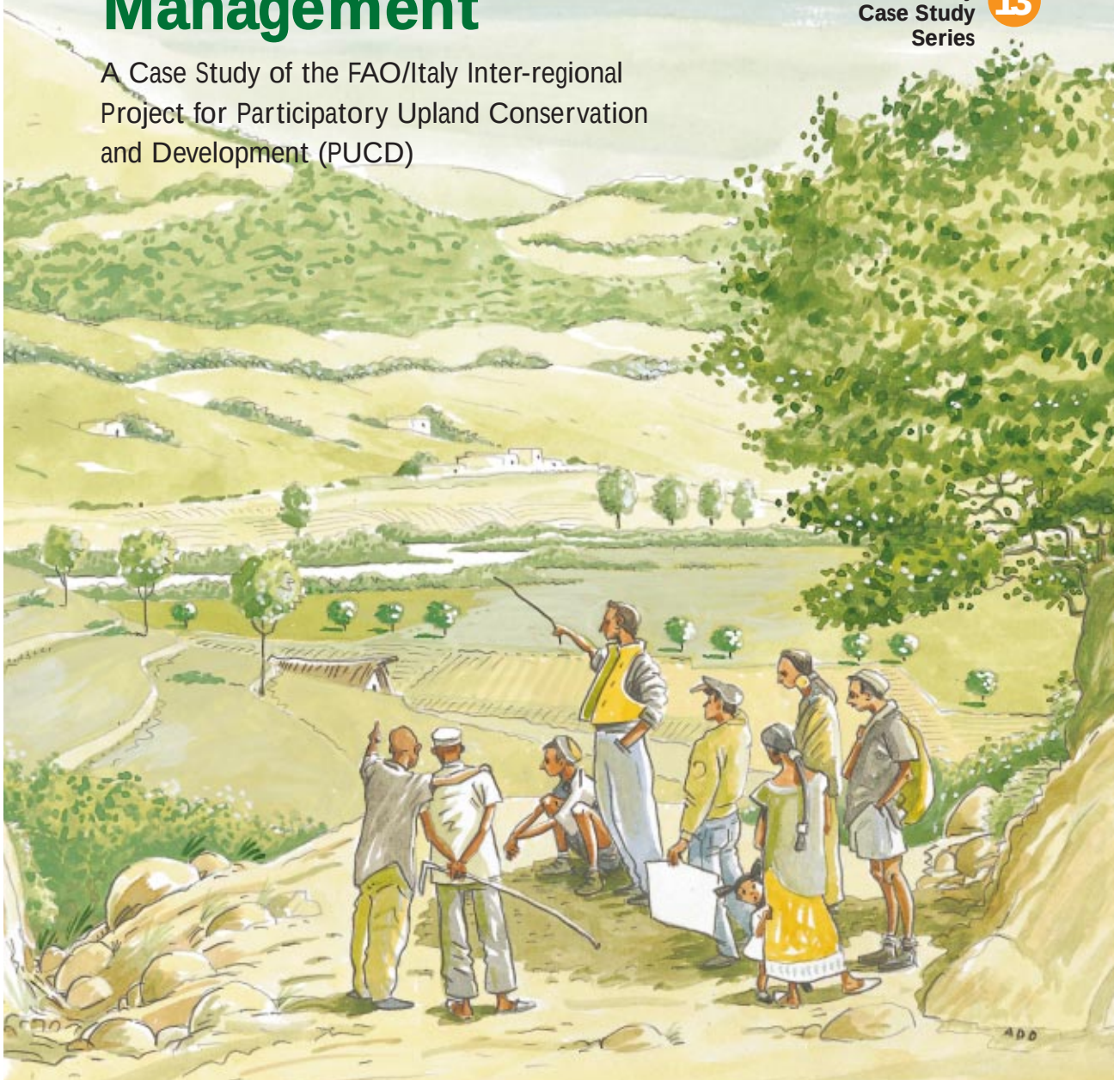
Developing Participatory and Integrated Watershed Management

A Case Study of the FAO/Italy Inter-regional Project for Participatory Upland Conservation and Development (PUCD)

Community Forestry Case Study Series 13



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Developing Participatory and Integrated Watershed Management

A Case Study of the FAO/Italy Inter-regional Project for Participatory Upland Conservation and Development (PUCD)

by Patrizio Warren

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

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Preface

This document is the result of collaboration between two FAO participatory natural resource management initiatives: the Forests, Trees and People Programme (FTPP) of the Community Forestry Unit and the FAO/Italy Inter-regional Project for Participatory Upland Conservation and Development (PUCD project). The PUCD project was designed to experiment on a wide scale with the adaptability, effectiveness and impact of participatory methodologies for natural resource management, many of which had been developed and refined under FTPP.

The case study originated from the PUCD project's need for a systematic review of its experiences over five years of promoting collaborative watershed management in five different regions of the world, and received FTPP support as part of this programme's wider analysis of participatory natural resource management approaches and policies.

This study organizes and interprets the project's field experience using the framework developed in the *Overview of the Participatory Process for Supporting Collaborative Management of Natural Resources*, part of a larger set of FTPP materials on the participatory process currently being prepared by the Community Forestry Unit. Following the structure of the *Overview*, the PUCD project experience is presented in three major phases:

- the *building of a support programme* for collaborative watershed management;
- the *provision of support at selected sites* by facilitating iterative participatory appraisals, planning, implementation, monitoring, evaluation and replanning cycles; and
- the *process of withdrawing support*, still an ongoing process in the PUCD project's field components.

In the context of the PUCD project's special focus on sustainable upland and mountain development, this document examines *participatory and integrated watershed management* as a specific example of collaborative natural resource management. This will make it of particular interest to people working in

mountain development, especially in poor areas. It will also be of interest to a wider audience, as many aspects of this experience and of the lessons learned from it are highly relevant to other collaborative natural resource management contexts.

This case study is the result of many people's interest and efforts, brought together under the leadership of Luca Fé d'Ostiani, coordinator of the PUCD project, and Katherine Warner, FAO Senior Community Forestry Officer. Further related work currently being carried out both by the project and by the Community Forestry Unit will enhance the usefulness of the present study.

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The present case study is the result of a joint effort between the Forests, Trees and People Programme (FTPP) and the FAO/Italy Inter-regional Project for Participatory Upland Conservation and Development, GCP/INT/542/ITA (the PUCD project).

The document is based on an in-depth review of the PUCD project's internal documents, interviews with project managers, staff and participants, as well as participant observation of field activities. The collection of this information has been made possible by the interest all PUCD project colleagues and friends showed in sharing their experiences and documentation. Special thanks go to the Inter-regional Project Manager, Luca Fé d'Ostiani, for having made available the institutional support and resources needed to carry out fieldwork and archive research, and for his personal contribution.

FTPP's complementary technical and financial support has made it possible to complete and fully develop the study. In this connection, warm thanks go in particular to Daniel Shallon for having supported the incorporation of this study into FTPP's editorial plan and to Katherine Warner and Douglas McGuire for having enthusiastically endorsed and steadily assisted the initiative.

The analysis of field materials profited especially from discussions with several colleagues from the PUCD project and FTPP, including: Luca Fé d'Ostiani, Antonella Tomasin, Javier Escobedo, Ricardo Roca, Andrés Coimbra Eduardo Seminario, Frits Ohler, Deepak Raj Chapa, Basanat Kumar Rimal, Shah Rehman, Marco Miagostovich, Paolo Mori, Marilee Kane, Karim Nawaz, Lamine Toumia, Ali Ben Mabrouk, Asma M'Hamdi and Andrea Ambroso from the PUCD project; and Katherine Warner, Daniel Shallon, Douglas McGuire, Andrew Ingles, Arne Musch, and Helle Qwist-Hoffmann from FTPP.

The above colleagues also commented on an earlier draft of this document. Comments were also given by Jon Anderson, Alice Carloni, Michelle Gauthier, Peter Qwist-Hoffmann, Florence Egal, John Rowse and Amrit Lal Joshi. Mark Kanieff conducted the final copyediting of the manuscript. Anna Sherwood (from FTPP) has provided steady editorial assistance in the preparation of this publication.

This case study is dedicated to the men, women and children of Rúnyinia (Agatorobwe watershed, Rwanda) who, having worked so hard to make the PUCD project their own success story, underwent the tragic events that befell the country in 1994. It is hoped that the experience gained in participatory and integrated watershed management will somehow contribute to their search for a better future.

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Executive Summary

Integrating activities for conservation and development through people's participation and collaboration among different institutional and social actors is being increasingly recognized as the most promising approach to sustainable natural resource management. This document describes and discusses the experience in this area of the Inter-regional Project for Participatory Upland Conservation and Development (PUCD project), promoted in the framework of the FAO/Italy Programme.

The PUCD project originated from the increasing interest in sustainable development of upland and mountain areas that resulted from the discussions and actions related to Chapter 13 of UNCED's Agenda 21 and its subsequent follow-up (the "Mountain Agenda" forum). The project started in 1992 and, until 1997, was implemented in selected areas of Bolivia, Burundi, Nepal, Pakistan and Tunisia. A two-year follow-up phase (1998–2000) is currently being conducted in Bolivia, Nepal and Tunisia, with the aim of facilitating the institutionalization of project experience at the national level.

Throughout its course, the PUCD project's main objective was, and still is, to identify and field-test methods and techniques for promoting and consolidating people's participation in the sustainable management of upland watersheds. Its immediate objectives were to:

- start-up and consolidate a pilot process for participatory and integrated watershed management in each of the selected countries;
- incorporate the participatory and integrated watershed management approach into national policies for rural development and natural resource conservation, and into decentralized planning systems; and
- disseminate information on the methods, techniques and tools validated by field projects and to replicate them in other areas, through communication and training initiatives.

The project was conceived as a pilot process-oriented initiative aimed at using practical experiences to develop methodological lessons on integrated and par-

ticipatory watershed management. At the national level, project management was, to the greatest possible extent, based on the principles of action-learning. Within the framework of a flexible Project Document (ProDoc), yearly work-plans were prepared by each National Field Team (NFT) through participatory assessment, planning, implementation, evaluation and replanning exercises, which involved a variety of local stakeholders such as communities, grassroots organizations, the private sector, government line agencies, local authorities, non-governmental organizations (NGOs) and other development institutions. The role of each NFT was essentially that of facilitating this process and ensuring that the lessons learned could be applied both within and outside the project areas. The small budget available to directly support field operations (ranging from US$ 50 000 to US$ 80 000 annually for each field component, not including staff remuneration) was used to catalyze the mobilization of additional local resources, including materials and labour from the local communities, and additional funding from local line agencies, NGOs or other international projects.

Especially at the beginning of the project, there were many unknowns and uncertainties concerning the specific environmental and socio-ecomonic situation of each project area. Therefore, information gathering was deemed to be necessary before launching the participatory process. Specifically, information gathering included the following activities: reviewing available information (complemented, when necessary, by the rapid assessments of specific environmental or social issues); tentatively selecting the communities and sites within each project area most suitable for implementing the participatory and integrated watershed management process; and, to validate the selection of communities, conducting a preliminary visit.

Following this information gathering, an initial participatory appraisal was launched in the selected sites. The main objective of this appraisal was to support community members in better assessing their situation and identifying the most important and urgent goals to be pursued through collaborative action. Most of the information collected was generated by the interaction among small groups of participants and members of the NFT. Task-sharing was based on the participants' individual interests, competence and preferences.

Participatory appraisals ended with a one- or two-day participatory planning workshop (or a series of shorter meetings) during which participants were given feedback on the information gathered during the exercise. Other activi-

ties carried out during these workshops included: identification, analysis and prioritization of problems; identification of possible solutions; and drafting a tentative community action plan.

Ideas for action developed during the participatory planning workshop were subsequently reviewed by project management and field staff and interest groups through a participatory feasibility analysis, aimed at assessing the extent to which these ideas were technically, economically and socially viable and sound. This assessment included: priority-setting exercises, technical studies, on-site investigations and conflict management initiatives. Following the feasibility study, detailed terms of reference for joint implementation were negotiated among local actors, leading to the definition of collaborative implementation agreements.

In all PUCD field projects, the responsibility for implementing the agreed-upon activities was largely entrusted to interested community members. They provided most of the labour and the local resources needed for the initiative and were in charge of day-to-day management. The role of the project and other institutional partners was almost always limited to providing selected services or inputs, such as capacity-building, technical assistance, microcredit, selected materials and transportation. This approach was instrumental in achieving two basic objectives regarding the process of participatory implementation: *empowering communities* and *ensuring social sustainability.* To achieve these objectives, all PUCD field projects adopted a strategy that included strengthening grassroots organizations, meeting basic needs, and promoting environmental awareness and building natural resource management capacity.

In all countries, significant efforts were made to facilitate the formation and development of grassroots organizations, including small, informal interest groups. Activities carried out by PUCD project to strengthen the structure and operational capacities of these organizations included: assistance in internal operations, managerial capacity-building, microcapitalization, the facilitation of linkages among groups and organizations, assistance in legal issues, and communication activities.

The PUCD project was also committed to supporting activities for meeting basic needs not directly related to natural resource management. These included income generating activities, improving local infrastructure, and strengthening health, sanitation and education services. The project paid special attention

to initiatives promoting the economic independence of women, decreasing their workload and improving their living conditions.

However, natural resource management was the core component of the PUCD project's implementation strategy. This included two main areas of activity: improving farming systems and managing common property resources (CPRs). Most project-supported initiatives for improving farming systems developed out of negotiations between participants, who wanted to have better yields, earn a higher income and save time, and the project's staff, who were concerned about the conservation of water, soil and vegetation cover. Therefore, these initiatives were 'conservation by use' activities that sought to reach a healthy balance between environmental and economic needs. In most cases, obtaining a balance between these sometimes contrasting needs entailed a long-term action-learning process. Four main types of actions and inputs facilitated this process: training, incentives, on-farm trials and extension activities.

Initiatives for managing CPRs were more or less directly associated with farming systems improvement. However, three main types of activities specifically focusing on CPRs can be identified: the regeneration of public forests and rangelands, including the devolution of management responsibility to local communities; the control of the effects of erosion, such as landslides and gullies, which were causing major agricultural and property damage; and the management of streams through small-scale, community-based civil works.

Participatory implementation also involved the progressive testing and validation of organizational and technical solutions to problems identified through participatory planning. This problem-solving process would not have been possible without a steady flow of information allowing stakeholders to monitor implementation, evaluate its progress and outcomes, and plan a new implementation cycle based on evaluation findings. To this end, all NFTs developed some form of participatory monitoring, evaluation and replanning (PME) at the community level.

Towards the end of its second phase, the PUCD project increasingly focused its efforts on institutionalizing the experience gained at the local and the national level. To this end, the promotion of ownership by local communities and institutions, and the creation of an enabling policy environment, became the main goal of the project's implementation strategy. This process, which is still in progress, included: building local stakeholders' capacity to autonomously con-

duct the cycle of iterative planning, implementation, monitoring, evaluation and replanning at the community level; creating among local institutions a group of professionals and field workers sensitized to the participatory and integrated watershed management approach; establishing or strengthening forums for negotiation and decision-making involving all watershed stakeholders (grassroots organizations, local governments, line agencies, NGOs, international projects, the private sector, etc.); and promoting the incorporation of methodological elements validated by the project into national or regional (subnational) policies on natural resource management and sustainable development.

The review of the methodological itinerary above described allowed a number of lessons learned to be extracted from the project's experience. (A comprehensive list of lessons learned by the PUCD project is presented in the Appendix.) It also led to a new perspective on the practices of participation, integration and watershed management (on which project implementation was based).

- The PUCD experience showed that participatory processes for sustainable development and natural resource management should not exclusively focus on rural communities and grassroots organizations; rather, all local social actors and institutions (including, the local government, line agencies, NGOs, the private sector, etc.) should be involved in a power-sharing scheme, based on negotiations and conflict management. Given the complexity of these processes, no single approach or method can be said to be the most appropriate one. Rather, a variety of approaches and methods are to be pragmatically used and adjusted according to specific circumstances.

- Integrated development usually means collaboration among different sectors (agriculture, natural resource conservation, health, education, etc.). Though intersectoral collaboration has not been neglected, in the PUCD project, integration has entailed an attempt to *incorporate development and conservation goals into a comprehensive sustainable development strategy*. This approach has led the project to promote an open-ended search for a socially acceptable and environmentally sound trade-off between short-term actions (aimed at improving people's livelihoods and social welfare) and long-term actions (aimed at protecting the resource base from overexploitation). This has involved abandoning both the vision of social devel-

opment as a process independent from environmental concerns and the concept of conservation as a goal abstracted from people's economic, social and political conditions. In fact, the project addressed *natural resources as a social capital*, which should be used to produce immediate benefits for the people, and, at the same time, kept as whole and diversified as possible to allow future generations to enjoy the same, or even increased, benefits.

- Finally, field experience has led the project to address watersheds more as geopolitical territories (defined on the basis of their governance and social dimensions) than as hydrological units (as in conventional watershed management initiatives). This shift from an 'hydraulic' to a 'territorial' approach required that the scope of watershed management be redefined. In fact, project experience suggested that watershed systems cannot be analysed or managed only through the methods and tools of natural sciences, which in the past have inspired engineering-led watershed conservation policies). Rather, a *political ecology approach* is needed to holistically tackle the environmental and social dimensions of sustainable development.

Introduction

Integrating conservation and development activities through people's participation and collaboration among different institutional and social actors is increasingly being recognized as the most promising approach to sustainable natural resource management. Throughout the world, programmes and projects inspired by this approach are currently being implemented by the United Nations, bilateral cooperation agencies, and non-governmental organizations (NGOs), with the support of national governments. However, due to the incipient state of most of these initiatives, there is a lack of systematic documentation on how to effectively promote integration, participation and collaboration.

The present document contributes to meeting the need for documentation by describing and discussing in-depth one of these initiatives: the Inter-regional Project for Participatory Upland Conservation and Development (PUCD project) promoted by the FAO/Italy Programme during the 1990s. The document focuses on the PUCD project's experience in establishing participatory and integrated (collaborative) watershed management schemes[1] in selected locations in five developing countries (Bolivia, Burundi, Nepal, Pakistan and Tunisia).

This document originated from the PUCD project's need to systematize its methodological experience. It was originally intended to be a description of the methods, techniques and tools used in the project's various national components. However, the scope of the document was expanded once it became clear that a manual or methodological guidelines would be insufficient for fully capturing the process implemented in the framework of the PUCD project. The methodology was obviously a fundamental aspect, yet the interaction among actors on natural resource conservation and development was found to be even more important. This interaction was actually a *process of social change*, in which the project, with its specific agenda, methods and means, was a novice actor working among many other experienced actors, each with its own agenda, methods and means. Thus, it was decided that this document would describe and analyse how the project managed to 'survive' and achieve meaningful results in such a complex environment, rather than focus on the technicalities of the participatory method.

Thus, a document that was initially conceived as a manual has now become a comparative case study, aimed at analysing common themes and particular variations in the experience of the five project sites, with the ultimate goal of eliciting lessons learned on participatory and integrated watershed management.

To this end, a comprehensive review of project materials was carried out in the summer of 1997. This review complemented the interviews with project actors, and the participant observation of project activities, carried out during the author's field missions to PUCD project sites in Bolivia, Nepal, Pakistan and Tunisia, or during the project's interregional meetings and workshops.

Upon completion of this review, in October 1997, the author began preparing the writing of this document. As with any report aiming to present a vast amount of information, the challenge of writing this document lied in organizing an enormous quantity of material into a comprehensible and logical whole. To this end, the author decided to follow project-cycle categories: start-up, appraisal, planning, implementation, evaluation and phasing-out. This choice was encouraged by the author's collaboration with staff from FAO's Community Forestry Unit (CFU) and Forests, Trees and People Programme (FTPP), who were adopting the same categories for preparing a methodological overview of the participatory process for supporting collaborative natural resource management. The informal collaboration that took place with the CFU/FTPP encouraged the author to organize the description of the integrated and participatory watershed management process into three parts, as illustrated in Diagram 1.

Part 1, which includes Chapter 1, begins with a description of the history of the PUCD project, highlighting the process that led the donor government, FAO and the national counterparts to identify the institutional and territorial settings in which the project operated. The project design is also presented. Furthermore, Part 1 describes the creation of the National Field Teams (NFTs) in charge of project implementation and their initial tasks in preparing to promote the participatory and integrated watershed management process.

Part 2, which consists of Chapters 2, 3 and 4, describes the methods adopted by the PUCD project's field teams to start-up and support the participatory and integrated watershed management process, including activities for both natural resource management and development. Chapter 2 describes the identification

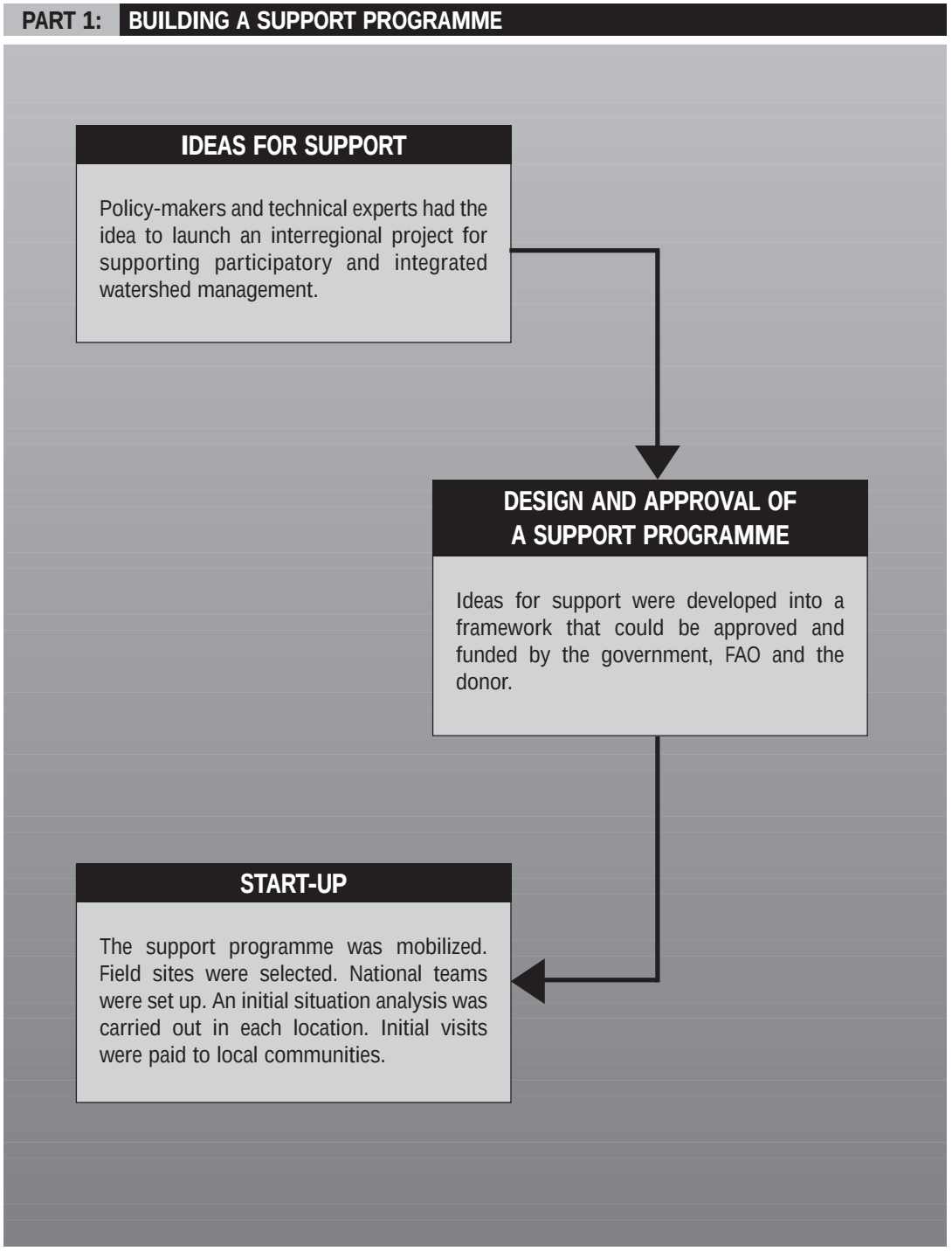
of goals and actions by local actors. Chapter 3 focuses on implementation and its preliminary outcomes. Chapter 4 addresses participatory monitoring, evaluation and replanning.

Part 3 of the case study, which corresponds to Chapter 5, deals with the ongoing process of withdrawing international support. The chapter reviews the strategy developed by the project for ensuring the continuity and the institutionalization of the experience, focusing on the following four complementary aspects: the consolidation of local actors' self-reliance; the development of local human resources; the establishment and consolidation of institutional forums for collaborative watershed management; and the assistance in local policy-making. In Chapter 6, the concepts of 'participation', 'integration' and 'watershed management' are discussed and redefined in light of project experience.

Two simple analytical procedures have been used throughout the document to organize field information. When possible, a general description is given of the experience of all PUCD project national components under consideration (Bolivia, Burundi, Nepal, Pakistan and Tunisia). This is usually followed by a review of variations among national components. On this basis, a number of lessons learned are elicited and discussed as generalizations on the participatory and integrated watershed management process to be drawn from the PUCD project's field experience. The main text is complemented by a number of real-life examples (presented in boxes), highlighting either cases of good practice or critical accidents.

DIAGRAM 1

A SUPPORT PROGRAMME FOR PARTICIPATORY AND INTEGRATED WATERSHED MANAGEMENT



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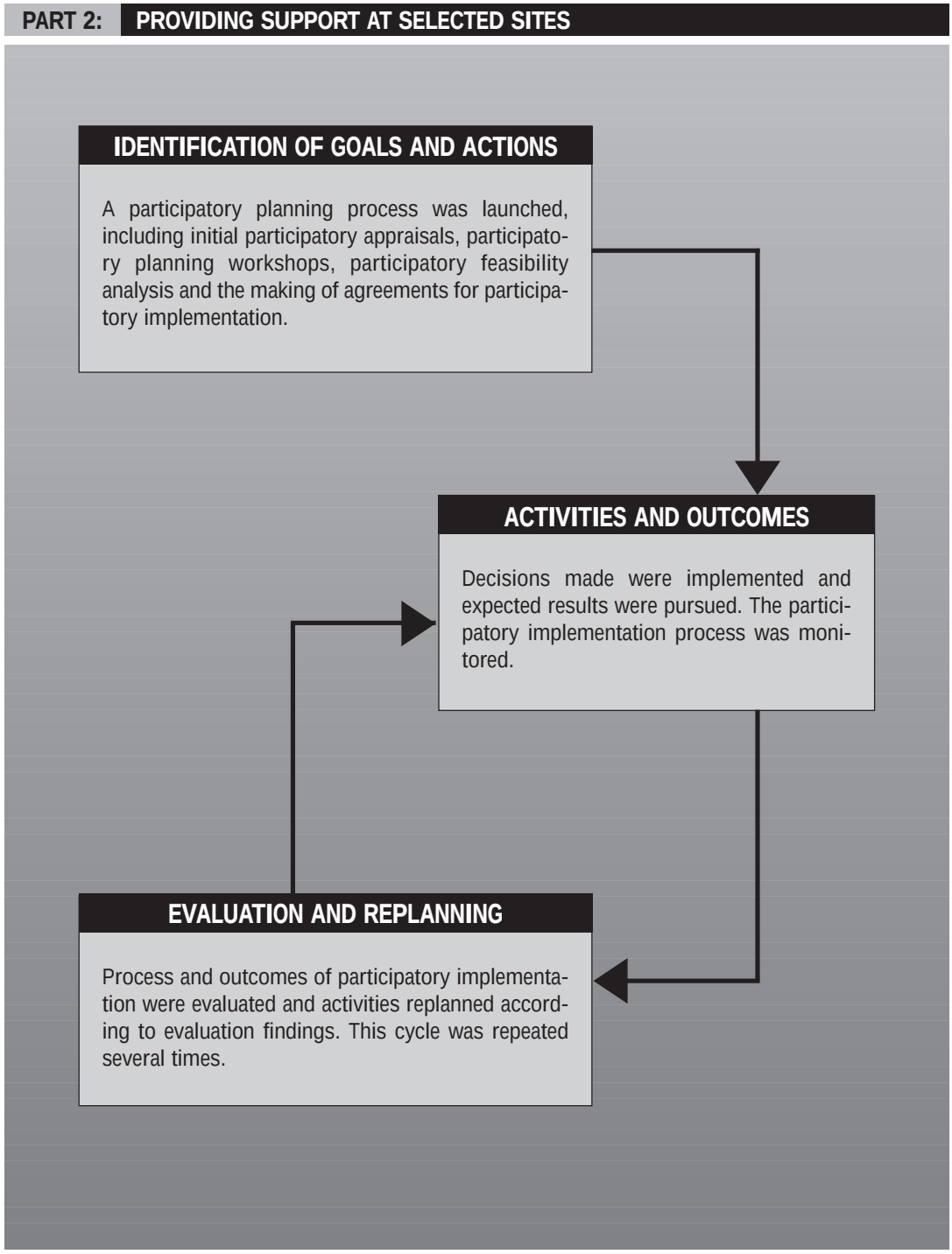

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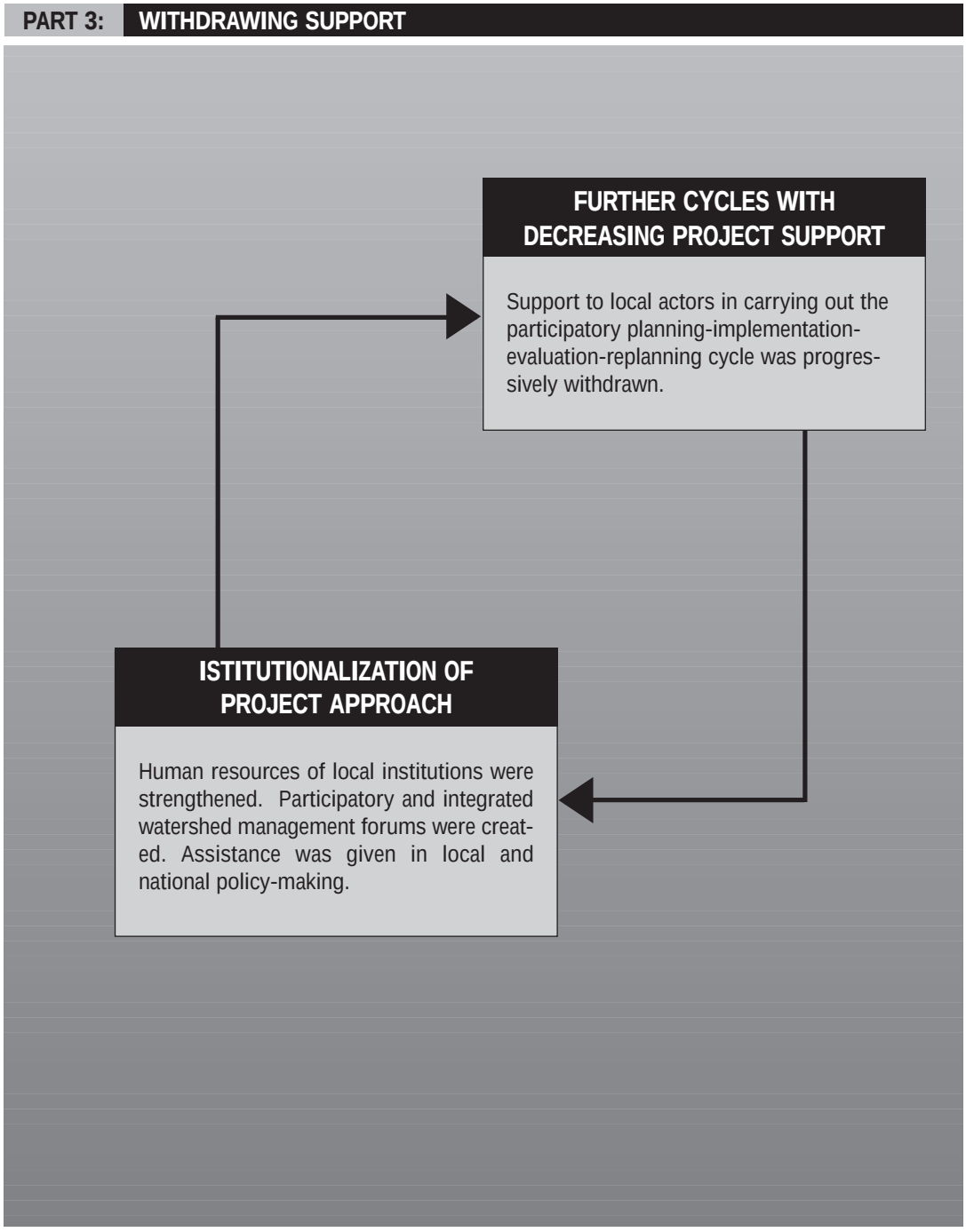

Based on Ingles, Musch and Qwist-Hoffmann, 1998

1. A watershed management scheme is hereby defined as a set of legal rules, socio-economic practices and technical measures allowing for sustainable use of natural resources (water, soil, forest) within an area of land that drains water to a shared destination, such as a major river. *Participatory (or collaborative) watershed management* refers to the idea that such a scheme should be set up with the participation of the local civil society, including communities, local government and national line agencies. *Integrated watershed management* refers to the fact that the scheme is to be developed taking into consideration both natural resource conservation and socio-economic development needs (i.e. environmental and human factors). A more in-depth discussion of participatory and integrated watershed management is provided in the final chapter of this document, according to elements arising from the description and analysis of the PUCD project experience.

PART 1

BUILDING A SUPPORT PROGRAMME

Chapter 1

Designing and Starting-up the PUCD Project

The United Nations and most agencies for international aid and rural development have recognized the need for actions having the threefold goal of meeting basic needs, protecting the environment and promoting the participation of local people and institutions in shaping a better future. Since the late 1980s, the Italian Cooperation has been promoting, through bilateral and multilateral channels, a number of initiatives aimed at developing and field-testing new work methods for putting into practice these ideas.[1]

In this framework, the FAO/Italy Programme launched a number of projects in 1991, which, despite their differences in scope, operational structure and geopolitical setting, shared a common concern for addressing, in an integrated manner, natural resource management, the improvement of livelihoods and the enhancement of the participation of civil society. The PUCD project is one of these initiatives,[2] whose distinguishing features are its focus on the unique situation of upland areas and the systematic application of a participatory and integrated approach to watershed management. As such, the PUCD project can be considered as one of the earliest attempts to implement the ideas endorsed in 1992 by Chapter 13 ("Sustainable Mountain Development") of UNCED's Agenda 21 (see Box 1).

1.1. Origins and history of the PUCD project

Several collaborative initiatives in upland conservation and development carried out during the 1980s by FAO and the Italian Cooperation prepared the ground for the PUCD project. In particular, FAO's Forestry Department and the FAO/Italy Panel conducted two studies on 'people and environment' in the Himalayas and the Andes, and the Italian-Latin-American Institute, the University of Padua and the Trento Province[3] developed an international post-graduate course on integrated watershed management. Based on the informa-

BOX 1

The current situation of upland areas and the Mountain Agenda

Throughout the world, mountains and uplands are an important source of water, energy and biological diversity. They are a source of key resources such as minerals, timber and fuelwood and contribute to food security by providing important agricultural products. Furthermore, they host approximately 10 percent of the world's rural population and have an economic, recreational or religious significance for millions of people living in lowland regions.

In spite of their environmental, economic and socio-cultural importance, most mountain and upland areas have been excluded from the mainstream of development over the last 50 years. At the same time, their natural resource base has been depleted. Poverty and environmental degradation are now widespread in upland rural communities, especially in developing countries.

Some of the most important factors contributing to this situation include:

- the fragility of upland ecosystems
- population growth
- a shortage of arable land and low agricultural yields
- disadvantaged market conditions
- limited job opportunities
- a lack of infrastructure and services
- a lack of political influence
- top-down conservation policies

These factors highlight the vicious cycle in which mountain communities are currently trapped: the lack of opportunities for social development leads to the unsustainable exploitation of natural resources, which leads to top-down interventions, which in turn lead to the further misuse of resources (resources that could be instrumental in promoting environmentally sound development initiatives).

Based on these considerations, most experts currently believe that the sustainable improvement of the situation in upland areas can only result from a participatory and integrated approach to watershed management, combining actions that enhance living conditions and protect the environment. In 1992, Chapter 13 of UNCED's Agenda 21, which addresses the issue of sustainable mountain development, advocated the implementation of programmes based on such an approach (United Nations, 1992). Since then, FAO, other United Nations agencies and several international NGOs participating in the initiative known as the "Mountain Agenda" have also promoted participatory and integrated watershed management.

tion and ideas generated by these initiatives, in 1988, FAO's Forestry Department and the FAO/Italy Technical Panel developed a proposal for a three-year interregional project on integrated upland watershed management, focusing on two Himalayan countries and three Latin American countries.

Two years later, in part to better meet the donor's requisites for assistance, a new project proposal was prepared, covering five countries for an initial period of two years, with a total budget of US$ 3 800 000. It was agreed that the initial two-year implementation period would serve as the foundation for a longer-term commitment. The list of participating countries negotiated beforehand with the donor included Bolivia, Burundi, Nepal, Pakistan and Rwanda.

The Project Document (ProDoc) for the PUCD project's first phase was approved in September 1991. Based on positive findings of the Tripartite Review Mission, and considering the particularly favourable policy environment generated by the Rio Summit and the Mountain Agenda, in 1994 the project was extended for an additional three years and provided with a budget of about US$ 6 200 000. This second phase (1994–1997) included all of the first phase countries except for Rwanda, which, due to prevailing security conditions, was replaced by Tunisia, considered by the donor government to be a high priority country.[4] Finally, a third phase covering the period 1997–2000 was approved, with a total budget of US$ 2 000 000; this phase focuses on Bolivia, Nepal and Tunisia, the countries showing the greatest potential for effectively institutionalizing the project's approach and experience.

1.2. Design of the PUCD project

Throughout its three phases, the PUCD project's main objective was to identify and field-test methods and techniques for promoting and consolidating people's participation in the sustainable management of upland watersheds. Its immediate objectives were to:

- implement and consolidate a pilot participatory and integrated watershed management process in each selected country;
- incorporate the participatory and integrated watershed management approach into policies for national rural development and natural resource conservation, and into decentralized planning systems; and
- disseminate the methods validated by the field projects, through communication and training initiatives.

The interregional dimension of the project was meant to validate, in a variety of national and local settings, the ideas on which this initiative was based. To this end, throughout the entire course of the project, a small Coordination Unit provided the national field components with operational assistance and technical backstopping, and facilitated exchanges among field teams, linkages with FAO technical units, and networking with other international organizations and NGOs. This Coordination Unit continues to play a major role in systematizing and disseminating the methodological findings and the lessons learned from the overall project experience.

The project was conceived as a pilot process-oriented project aimed at extracting, from practical experiences, methodological lessons on integrated and participatory watershed management. At the national level, managing the project was, to the greatest extent possible, based on the principles of action-learning. Within the framework of a flexible ProDoc, yearly workplans for the five national field components were produced through participatory assessment, planning, implementation, evaluation and replanning exercises, which involved a variety of local stakeholders (communities, grassroots organizations, government line agencies, local authorities, NGOs and other development institutions). The role of each National Field Team (NFT) was essentially that of facilitating this process and ensuring that the lessons learned could be applied both within and outside the project areas. The small budget available to support field operations (ranging from US$ 50 000 to US$ 80 000 annually for each field component) was used to catalyze the mobilization of additional local resources, including local materials and labour from the communities and additional funding from local line agencies, NGOs or other international projects.

In addition to the specific results to be produced in each project area, each national component was expected to contribute to identifying a methodological itinerary for integrated and participatory watershed management. During the first phase and the first half of the second phase, this methodological search mainly focused on fieldwork at the grassroots level, including:

- identifying and testing techniques and tools for participatory research and decision-making that allow local people to better analyse their own environmental and social situation and to prepare an initial plan to be implemented in partnership with the project and/or other concerned local institutions;

- developing a comprehensive and participatory implementation strategy covering the wide range of development and conservation issues identified through participatory planning exercises; and

- establishing a participatory process for project monitoring, evaluation and replanning that allows participants to draw lessons from project implementation and to apply them to further decision-making.

In the last year of the second phase and during the ongoing third phase, the PUCD project's strategy was expanded to promote the *collaborative* dimension of participatory and integrated watershed management (i.e. to facilitate the development of legally acknowledged partnership schemes among local communities and institutions). This entailed shifting the focus of the project's activities from the community level to an intermediate administrative level (e.g. district, province, municipality) and to national-level policy-making. This shift was deemed necessary to ensure the continuity of project experience after withdrawal of international support. This included:

- identifying and testing measures that would enable local institutions to continue providing effective support to the local participatory process;

- promoting, within decentralized planning systems, forums for discussion and decision-making that would facilitate the coordination of natural resource management and development initiatives undertaken by local communities and institutions at the entire watershed level; and

- assisting in the progressive incorporation of the approach to participatory and integrated watershed management into national policies and legislation.

1.3. Starting-up the interregional project

In the early 1990s, little experience existed at the international level in implementing similar participatory processes. The terms 'participation', 'integrated natural resource management' and 'sustainable development' were already part of the development jargon, but little was known about practical methods for putting these concepts into practice.[5] Pilot projects were being conducted in different areas of the world, but their preliminary findings were only erratically disseminated, and most practitioners were unfamiliar with them.

Thus, the PUCD project began by reviewing the existing knowledge and experience. A ten-day seminar on participatory and integrated watershed manage-

ment was held in Rome at the end of 1991. The seminar was facilitated by staff members of FAO's Community Forestry Unit (CFU) and Forests, Trees and People Programme (FTPP), who also made available their expertise on participatory methods. The staffs of FAO's Forest Conservation, Research and Education Service (FORC) and Land and Water Development Division (AGL) contributed their expertise on technical issues and issues regarding policy. The workshop was attended by potential candidates for the posts of Chief Technical Adviser (CTA; a watershed management expert) and International Sociology Consultant (an expert in people's participation, usually a woman). Participants in the workshop were preselected from FAO and Italian Cooperation rosters, taking into special consideration the candidates' experience and interest in the project's approach, as determined during preliminary contacts. At the end of the workshop, some of the candidates were appointed as mid-term consultants to the above positions.

Field operations were only fully begun some time after appointing the international staff. This was due to the complexity of the final negotiations with the five interested national governments and to the related clearance procedures. Identification of suitable national counterparts was a major issue in this process. To facilitate implementation of an integrated approach, the project sought, when feasible, to create links with agencies with a multisectoral mandate and operational capacity. This was successful to a certain extent in Bolivia (where the Servicio de encauzamiento y regularización de aguas del río Piraí (SEARPI), the Piraí River Watershed Authority, was identified as the project's national counterpart), and in Burundi (where a promising collaboration had already been established between the Ministry of Agriculture and the Ministry of the Environment). However, identification of a counterpart with a comprehensive mandate was not feasible in Nepal or Pakistan; thus the national governments eventually appointed conservation-oriented line agencies as project partners.

At the beginning of 1992, the Inter-regional Project Manager, supported by consultants from the Coordination Unit, visited the five countries to definitively select the implementation sites and to set up the organization and logistics of the field projects. Sites were selected in a relatively brief period of time, since the project was looking for something that is very common in mountainous areas of developing countries: a relatively small upland watershed, inhabited by a low-income and marginalized rural population, with a critical

TABLE 1: PUCD PROJECT NATIONAL FIELD COMPONENTS

COUNTRY	COUNTERPART INSTITUTION	REFERENCE WATERSHED	SIZE ha	ALTITUDE (RANGE)	NATURAL VEGETATION	POPULATION (no.)	DENSITY	TYPE OF SETTLEMENT	ECONOMIC ACTIVITIES	AV. FARM SIZE	ETHNIC GROUPS
Bolivia	SEARPI (Piraí River watershed authority)	Upper Piraí River	97 000 ha	1 200 — 2 400 m	Shrubs, prairies, forest	8 500	8.7/km^2	Villages, scattered households, semi-urban	Subsistence and market agriculture, cattle breeding, tourism	10 — 20 ha	Vallegrandinos, Quechua (migrants)
Burundi	Ministry of Environment, Ministry of Agriculture	Rwaba River	10 600 ha	1 000 — 1 800 m	Patches of forest and grassland	11 800	98/km^2	Scattered households, clustered by hills and sub-hills	Subsistence and market agriculture, animal breeding	1 ha	Hutu and Tutsi
Nepal	Department of Soil Conservation of the Ministry of Forestry and Soil Conservation	Bhusunde Khola and Maudi Khola	4 800 ha (3 200 ha + 1 600 ha)	500 — 1 700 m	Patches of forest	16 000	367/km^2	Scattered clusters of households	Subsistence agriculture and animal breeding	0.8 ha	Brahmins, Chettri, Gurung, Kumal, Sarki, Kami and others
Pakistan	Forest Department of Balochistan	Kanak Valley	40 000 ha	1 600 — 2 500 m	Perennial shrubs (degraded)	30 000	50/km^2	Villages	Subsistence and market agriculture, animal breeding	2 — 20 ha	Brahui
Tunisia	Direction of Water and Soil Conservation, Ministry of Agriculture	Oued Sbaihya	6 800 ha	400 — 700 m	Patches of forest, shrubs	1 400	20/km^2	Scattered clusters of households	Subsistence and market agriculture, animal breeding, seasonal migration	5 ha	n/a

environmental and social situation. However, the areas had to show some socio-economic potential for development (they could not be too degraded) and to be relatively accessible and visible, as pilot demonstration areas. These very general criteria allowed the preferences of the national counterparts and the donor to be fully taken into consideration in the final site selection, considering, in particular, the existence of a supportive institutional environment at the local level. This led to the project areas being clearly heterogeneous in terms of their size, population and environment (see Table 1). This heterogeneity, however, allowed the project to gain experience in a highly diversified sample of environmental and social settings (which will be important for validating the methodology of the PUCD project in other areas).

During these initial missions, detailed agreements were also made about staff, premises, and equipment to be seconded by the national counterparts. This allowed the project to start its field operations as soon as the official clearance for international staff was obtained, without having to go through the lengthy procedures for the final posting of resident experts.

1.4. Establishing National Field Teams

According to the PUCD ProDoc, each national field component was to be implemented by a National Field Team (NFT). Each NFT was led by a National Project Director (NPD), usually a forester or an expert in soil conservation, with the support of an international Chief Technical Adviser (CTA), a technical expert with previous experience in participatory management of natural resources. NFTs also included a sociologist or an expert in community-level capacity-building (either international or from the host country), and a number of local field workers (rangers, extensionists, group promoters, etc.), seconded from the counterpart agency or directly hired by the project. During the course of the project, in certain cases, other local partner institutions (line agencies, NGOs, etc.) provided additional personnel on a full-time and/or part-time basis.

In each country, the NFT included both men and women. In Pakistan, and later in Tunisia, two separate men's and women's teams were set up to make the project more responsive to the sharp gender differentiation prevalent in the local culture. In both of these countries, a senior expert in women in development was appointed as the leader of the women's team.

An integrated vision of natural and human ecology and the capacity to facilitate a participatory process were essential requisites for NFT members, what-

ever their background or gender. However, these requisites were found to be rare among institutions and professionals from the host countries. Thus training of NFT members was required in both areas, especially at the beginning of the project.

This initial training was strongly integrated with the start-up of the participatory process (i.e. organized as workshops with brief classroom sessions followed by fieldwork). International or national consultants with a background in participatory methods and adult education usually provided this training. A major lesson learned from this experience was:

- **Adult education and experiential learning approaches, including interactive learning methods immediately followed by application in practical settings, are the most effective means of promoting the acquisition of the knowledge, skills and attitudes needed to facilitate a participatory and integrated watershed management process.**

Initial intensive training actually helped local staff to become familiar with the main principles of the PUCD project approach. However, it was also clear that acquiring practical expertise would require time and reinforcement. Thus, NFTs engaged in a process of continuing education, which developed throughout the entire course of the project. Training was provided on a variety of subjects, such as participatory methods, community forestry, communication for development, legal frameworks for people's participation, farming systems research, the formulation and management of income generating projects, rural credit and cost-benefit analysis, gender issues, post-harvesting techniques, and marketing. To this end, the project organized on-site workshops and seminars during international consultancies and facilitated the participation of selected staff in relevant training events in the host country or abroad. Study tours were also conducted.

An additional lesson learned was:

- **Continuing education is essential in making local staff capable of applying participatory methods and envisaging conservation and development issues in an integrated manner. Moreover, continuing education is a powerful incentive to enhance commitment to the project's mission.**

1.5. Preparing to start the participatory process

Though some of the local professionals and field workers already had some knowledge of, and experience with, the local setting, to avoid preconceptions all NFTs made efforts to maintain a receptive and open frame of mind. Indeed, especially at the beginning of the project, there were many unknowns and uncertainties about the environmental and social situation of the project areas. Therefore, information gathering was considered necessary before launching the participatory process. This preparatory activity included:

- a review of existing information, complemented, when necessary, by rapid appraisals of specific environmental or social issues;
- a tentative identification of the communities and sites in the project area that, in light of both technical and political considerations, were the most suitable for implementing the process of participatory and integrated watershed management; and
- a preliminary visit to the short-listed local communities, aimed at validating the initial choice.

At the beginning of the project, a period of three to six months was devoted to accomplishing these tasks. Shorter periods were needed when new areas and communities were identified later in the project's duration. In fact, information gathering and making contacts with new communities continued throughout the entire project and followed the progressive expansion of the project's coverage.

Reviewing existing information and complementary studies

Gaining an understanding of the environmental, social and institutional situation of the project area was obviously essential for identifying the key issues, opportunities and constraints to be considered in designing and organizing subsequent phases of the participatory and integrated watershed management process.

To this end, the NFTs considered the following basic information:

- the general physical and environmental features of the area: size, altitude, rivers, climate, rainfall, slopes, soil, vegetation, natural resource degradation, etc.
- population trends: size, natural growth rates, migration, density, type of settlements, etc.

- the social and economic situation: social stratification, indigenous social organization, cultural background, literacy, the status of women, food security, health conditions, land tenure, farming systems, off-farm activities, etc.

- infrastructure and social services: roads, communications systems, credit, health, education, etc.

- the institutional setting: line agencies, NGOs, grassroots organizations, rural banks, ongoing development initiatives in the area, etc.

These data came from a variety of existing sources, including censuses, maps, statistics provided by line agencies, and environmental and social research conducted in the area. NFTs also collected qualitative information through field trips, informal discussions with local people and meetings with development managers and field workers.

At the beginning of the project, most teams found that it was not necessary to carry out more structured preliminary inquiries. However, at a later stage, the validity and accuracy of the project's background information was often criticized as being too superficial to support informed decision-making. Project staff working in the field sometimes questioned the biophysical and demographic data gathered from existing sources, including maps. Furthermore, major gaps were often found in the information regarding community social organization, farming systems and local knowledge. A basic lesson learned in this regard was the following:

▶ **While it is essential to take advantage of existing information to the fullest extent possible, this information, when available, should be viewed critically, because it is often out of date, unreliable or incomplete.**

To obtain sounder information, both conventional and Rapid Rural Appraisal (RRA) methods were used to carry out complementary studies according to specific needs (see Box 2). The focus of these studies differed among the project's national components. However, there were three common areas of research: farming systems research, environmental analysis, and social and anthropological surveys (which included some forms of stakeholder analysis).

BOX 2

RRA survey of User Groups and common resources in Nepal

During its initial phase, the PUCD project in Nepal was able to establish a partnership with village representatives at the ward level. Common efforts focused on implementing small-scale public works (water source protection, trail improvement, small-scale irrigation schemes) and some income generating activities. Due to political interference in participatory decision-making, by the beginning of the project's second phase, the NFT felt the need to establish a direct relationship with informal grassroots User Groups in the Bhusunde Khola watershed and to place more emphasis on improving practices in natural resource management. To meet both of these needs, the NFT decided to launch a new participatory appraisal and planning exercise in selected locations in the project area.

To prepare for this exercise, the national expert in capacity-building, his assistant and local group promoters carried out a systematic Common Resources and User Groups Inventory throughout the Bhusunde Khola watershed using simple RRA techniques such as semi-structured interviews and ranking exercises.

The objectives of this inventory were as follows:

- to identify all existing and potential User Groups, their nature (e.g. Forest User Groups, Women's User Groups), size, past and present activities, training and financial situation; and

- to identify all common property resources (primarily forest, water and pasture) that could benefit from the management activities of existing or soon-to-be formed User Groups.

The Common Resources and User Groups Inventory allowed for a rapid review of local participation capabilities and of the type of support needed in common property resource management throughout the project area. In the opinion of the local staff, the Inventory proved to be so important in the preparation of the project's subsequent phases that it should be considered as an integral part of the process. In particular, the NFT found that the Inventory:

- provided detailed field knowledge that enabled the project to identify and select appropriate sites (hamlets or groups of hamlets) of more or less homogeneous communities for participatory appraisal and planning;

- helped to identify key informants and available social services (existing credit schemes, presence of line agencies, NGOs, etc.);

- provided information useful for the design and implementation of the subsequent participatory appraisal and planning exercise; and

- facilitated relations with villagers, who interpreted the staff's interest in the local situation as proof of a genuine willingness to establish a partnership with their village.

Based on Chapa et al., 1997

Short-listing communities

All NFTs found it appropriate to start the participatory process by working intensively with a small number of local communities. Thus, throughout the course of the project they implemented several start-up exercises involving different clusters of communities until coverage extended over the entire watershed.

At the beginning of the project, NFTs attempted to select participating communities according to strictly technical and managerial criteria, such as high environmental risk (degraded upland zones generally received a higher priority), and relatively strong community organization (the existence of grassroots organizations that could potentially become project partners was considered an important asset). However, it quickly became clear that the NFTs could not adhere strictly to these criteria. The policies of counterpart organizations or other institutional partners needed to be considered, as did the actual willingness of the communities to begin collaborating with the project.

Cultural sensitivity, attentive listening and communication skills were found to be essential in dealing with this micropolitical dimension of selecting communities. In particular, kinship structure, ethnic or caste interests, and affiliation with political parties and groups proved to be elements strongly influencing the final decision about where to start the participatory process and who to involve. The following is a major lesson learned by the project:

- **The selection of communities to be involved in a participatory and integrated watershed management process entails a complex series of mediations among technical factors, national policies, the administrative structure of the area and local power sharing. The role of facilitation teams in this process should be one of diplomacy, tact and respect for local actors' criteria and priorities, without, however, neglecting the project's agenda.**

Initial visits to short-listed communities

An especially important element in site selection was the initial visit that NFTs made to the short-listed communities, with the threefold aim of:

- exploring the community's interest in collaborating with the project;
- identifying potential actors in starting the participatory process (grassroots organizations, interest groups, concerned individuals); and
- making organizational arrangements for subsequent phases of the participatory process.

Depending on the availability of staff and other contingencies, the NFTs' preliminary visits differed in terms of the activities conducted. In some cases, field workers made introductory visits of one or two days to the communities. On other occasions, these visits continued over a longer period of time, often through informal contacts with community members. Despite these differences, most visits included the following three core activities:

- *Formal visits to community leaders and influential people.* Staff members presented the project to local authorities and expressed their intention of establishing a partnership with the community. Existing community development activities were reviewed and people in charge were identified. The community's problems were also discussed, and the interest of community leadership in collaborating with the project was explored.

- *Informal interviewing.* Conversations with individuals and spontaneous discussions with groups of people (i.e. groups of people met during the visit, such as men engaged in public works, women fetching water or young men playing football) often provided important insights into the local situation, the problems at stake, the basic features of social organization and potential sources of conflict. They were also essential in creating a list of grassroots organizations and groups in the community that could become actors in the participatory process and in identifying key informants (i.e. knowledgeable and talkative men and women) to be consulted during subsequent phases of the process (see Photo 1).

- *Community assemblies*. At the end of the visit, community-wide meetings were held with the support of local leaders. In these meetings, project staff presented the rationale and purpose of participatory appraisal and planning exercises and asked participants to consider implementing one in their community. If interest was shown, the staff identified those willing to collaborate in the exercise, and organizational arrangements were agreed upon (time, locations, logistics).

Gender was a major consideration during the initial visits, allowing the project to promote the involvement of women in the subsequent phases of the participatory process.

Photo 1
Informal interviewing in Nepal

The social and cultural gap between project staff and the local population, and the legacy of poor relationships between development agencies and local communities, often contributed to making preliminary visits an especially sensitive intercultural communication exercise (see Box 3). The project staff learned a major lesson concerning these visits:

- **The staff responsible for preliminary visits must make major efforts to convey a clear and straightforward message about the project's goals and approaches and to understand people's reactions towards the project's proposal for collaboration.**

BOX 3

Rules for effective communication with local communities

Based on experiences during preliminary visits to Kanak Valley communities, the members of the NFT in Pakistan developed the following rules for effective communication with rural villagers:

- The staff in charge must be clear about the project's mandate before conducting the introductory meeting. In particular, it should be clear what the project could offer to the community and what the community is expected to contribute. Lack of clarity could shatter confidence later on.

- Staff should explain the project's mandate and approach in detail and emphasize the ways in which the project and the community can collaborate. The staff should carefully prepare these topics beforehand.

- Presentation of the above information should proceed slowly and allow for interruptions for questions and discussions.

- Staff should make all inquiries in a completely open-ended manner. To the greatest extent possible, they should avoid using 'yes/no' questions and expressing their own preconceptions about the local situation. Issues discussed should not be limited to those of immediate interest to the staff.

- In all interactions, staff should create an open environment that encourages a feeling of participation, belonging and collaboration. To this end, staff must pay attention to the settings of community interactions and use body-language appropriately.

- Staff should ensure that meetings be set at times and places convenient for all participants.

- During meetings, open discussions should be encouraged as much as possible. Project staff should listen, observe interactions and, if needed, gently guide the discussion to avoid digressions.

Based on Palmeri, 1993

1. In the 1980s and early 1990s, a number of innovative initiatives for implementing the participatory approach were carried out in the framework of the Italian Cooperation with Latin American countries, such as the Salud, medio ambiente y lucha contra la pobreza an América Latina (SMALP) and the Programa de desarollo para los refugiados y desplazados en América Central (PRODERE) programmes, which included a strong 'people and environment' component. Moreover, Italian Cooperation policy-makers and experts were engaged in a discussion about a new integrated development approach called 'Primary Environmental Care' (PEC), whose basic tenets ('empowering people', 'meeting needs' and 'protecting the environment') were very similar to those of the PUCD project. A link exists among the above experiences and the PUCD project; this link is strengthened by the personal history of several collaborating consultants.

2. The other initiatives include: "Forestry and Food Security in the Near East" (GCP/INT/439/ITA); "Forestry and Food Security in the Sahel" (GCP/RAF/303/ITA) and "Communication for the Environment" (GCP/INT/541/ITA).

3. The involvement of the local government of the Trento Province in this process is of particular importance. In this area of the Italian Alps, for centuries, particular historical conditions have allowed a participatory and integrated approach to upland watershed management to spontaneously develop. Today, areas like the Fiemme Valley are witnessing how the apparently contrasting needs of natural resource-base conservation and socio-economic development can be successfully met when local people and governments are made responsible for the integrated management of their land.

4. The project's experience in Rwanda was quite brief and was greatly affected by the ongoing turmoil in this country. For this reason, the work done by the PUCD project in Rwanda is not presented in this document.

5. Although in development circles there has been much talk of people's participation, by the early 1990s, PRA was still developing from RRA and farming systems research. Very few field practitioners were actually skilled in implementing participatory action-research on natural resource management. However, within FAO, several initiatives were being conducted in this area based on the experience of the People's Participation Programme carried out in the previous decade. In particular, CFU/FTPP was already engaged in disseminating the new approach through the publication of manuals and case studies and the organization of workshops and training courses.

PART 2

PROVIDING SUPPORT AT SELECTED SITES

Chapter 2

Identifying Goals and Actions

2.1. Initial participatory appraisal

The main goal of the initial participatory appraisal exercise was to support community members in better assessing their situation and identifying the most important and urgent goals to be pursued through collaborative action. A secondary objective was to collect additional, and more detailed, information on the local environmental, social and economic setting, according to the indigenous (local) perception.

To carry out the exercise, a participatory appraisal team was formed, which included staff members from FAO and the national counterpart. When possible, representatives of other local partner institutions were also involved (line agencies, NGOs). This permitted the creation of a facilitation team that represented different institutional interests and areas of professional expertise. These teams typically included the project's sociologist (and/or an expert in women in development), mid-level technical staff (agronomist, forester, communication officer) and extensionists, rangers or group promoters.

A consultant with solid experience in participatory action-research provided technical assistance to the team, especially at the beginning of the project. The consultant acted both as a trainer and as a team coordinator. This was highly instrumental in later allowing local team members to acquire the necessary skills for conducting similar exercises on their own.

Initial participatory exercises tended to be comprehensive, covering the community's environmental, social and economic conditions. Based on preliminary studies, field visits and the consultant's inputs, team members identified specific topics to be addressed. A typical list of topics included:

- the community's population and social organization
- income generation and the distribution of wealth
- education and literacy
- gender issues
- accessibility and use of social services (education, health, transport, credit, etc.)
- the community's infrastructure (roads, bridges, public buildings, storage facilities, etc.)
- the functioning and productivity of farming systems
- the management of common natural resources (soil, water, forests, rangeland)

At the beginning of the project, this comprehensive approach was adopted with the aim of facilitating an open-ended and inductive identification of the needs shared by the community members participating in the exercise. This was considered necessary for allowing participants to progressively systematize their development goals and visions, and for facilitating the staff's understanding of these goals and visions. However, it was later found that these '360 degree' appraisals often led participants to concentrate excessively on social and economic aspects, with insufficient attention paid to environmental issues. Therefore, initial appraisals carried out during the second phase of the project tended to be more focused on major natural resource management issues affecting the economic and social life of the community or area, for example, consequences of water table lowering on agriculture (in Pakistan), impact of deforestation and human-induced erosion on household economy (in Bolivia), insufficient carrying capacity of local farming systems (in Burundi), and sustainable use of public forests and rangelands (in Tunisia).

The following is a major lesson that can be drawn from this experience:

▶ **In participatory and integrated watershed management, there should be a balance between comprehensiveness and specificity in the initial appraisal. The exercise should be sufficiently open-ended to allow local people to review all the meaningful aspects of their situation, yet at the same time sufficiently focused on environmental issues to promote people's awareness of the links between practices in natural resource management and socio-economic conditions.**

Photo 2
Transect walk in Tunisia

Interaction among small groups of participants and members of the facilitation team generated most of the information for participatory appraisal. Task-sharing was based on the participants' individual interests, competence and preference. Women's groups often addressed 'social' topics (e.g. education, health services and household economics), whereas men concentrated on environmental and agricultural issues. To some extent, this may reflect the gender roles and interests prevailing in indigenous communities, in which women are generally made totally responsible for household problems. In some cases (Pakistan and to a lesser extent Tunisia), this may also be related to the limitations and constraints in women's mobility outside the compound. However, the facilitators of the exercise may have unconsciously projected urban gender stereotypes on the rural environment, resulting in this division of tasks among men and women, which seems to understate the major role that women play in agriculture and natural resource management in most rural areas.

A number of participatory research and action-learning techniques were used in the framework of these exercises, including:

- *Thematic group discussions* based on a list of topics or on an open-ended questionnaire. This was the most popular technique, widely used by all teams to deal with almost all of the subjects covered by the appraisal. Thematic group discussions also provided the setting in which most of the other tools were applied.

- *Time-line analysis.* Interviews with participants in the thematic group discussions provided a summary of significant environmental, social and insti-

Photo 3
Participatory mapping in Bolivia

tutional events in the community's history. To collect information on events occurring in the far past, project staff often asked community elders to take part in the exercise or interviewed them separately.

- *Transect walks.* Observational walks (see Photo 2) were made along a significant route (across a valley, a river or a slope), and significant environmental and agricultural features were plotted on a transect representation. This tool generally was used to describe land use patterns at the community level.

- *Participatory mapping.* Participants prepared maps of the community's territory, the village or a sample of farms, which highlighted important environmental, social or agricultural features (see Photos 3, 4, 5 and 6). This tool was especially useful in identifying common property resources (environmental mapping), in providing a census of the local population (village or social mapping), and in describing land use at the farm level (farm mapping) and land tenure at the community level (land tenure mapping). In Bolivia, as a complement to participatory mapping, satellite photos of the community territory were jointly interpreted by local people and the facilitation team, with the support of technical resource people.

- *Ranking exercises.* Project staff asked participants to prioritize crops, species, social groups, etc. This tool was instrumental in identifying the comparative advantages of natural resources or agricultural practices known by the community and in defining wealth groups in the community.

Photo 4
Watershed map in Bolivia

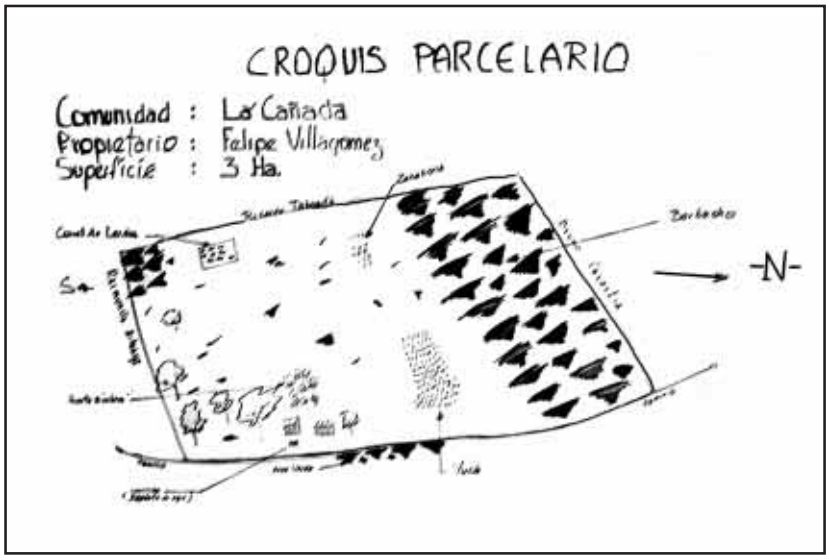

Photo 5
Land tenure map in Bolivia

Photo 6
Participatory mapping in Pakistan

- *Calendars and time profiles.* To identify time allocation patterns, staff and participants plotted, on a matrix or diagram, farming activities carried out during the year or daily routines.

To complement the findings of these exercises, project staff reviewed local records and conducted semi-structured interviews with either key informants or a sample of community members. This was highly instrumental in integrating the qualitative information generated through interactive techniques with quantitative data concerning household composition, literacy, school enrolment, the availability of health and sanitation facilities and the productivity of farming activities.

A major methodological limitation of most initial appraisal exercises was the lack of an in-depth analysis of the social and political dynamics affecting tenure of land and other natural resources. Though *Venn diagrams* were sometimes used, *stakeholder analysis* was in general quite shallow and of little use in orienting the subsequent phases of the participatory process.

After collecting data, project staff processed the information to facilitate feedback and discussion of the findings with participants. They compiled maps, matrices and diagrams to summarize qualitative information, and drew simple graphs to illustrate major quantitative trends. In some countries (Bolivia, Burundi and Tunisia), the staff produced visual documentation of the participatory appraisal activities, including drawings, pictures, slides and videos.

Project staff then used all of these materials to communicate the participatory appraisal's findings to the community at large (see Section 2.2.).

There were significant differences in the way the teams organized the participatory appraisal activities, which varied according to the number of sites to be covered, logistics and the preferences expressed by the communities during preliminary visits. In Burundi, Pakistan and Tunisia, the entire NFT carried out the appraisal in several different sites simultaneously over a period of several weeks or months. In Bolivia and Nepal, the NFTs used a more intensive approach, in which a smaller facilitation team (4–7 people) and local participants worked together intensively for a few days in each of the selected locations. The time needed to carry out the appraisal in a single community, including the summarizing of preliminary results, varied from three to ten days.

The following basic lesson learned can be drawn from this experience:

▶ **The organization and timing of the initial appraisal exercise depend on a number of conditions, such as population size, settlement patterns and accessibility. The amount of time participating communities have available, according to the agricultural calendar, should also be considered when planning an initial appraisal exercise, as should the level of expertise of the facilitation team.**

2.2. Participatory planning workshops

In all countries, the participatory appraisal ended with a one- or two-day workshop, or a series of shorter meetings, in which participants were provided with feedback on the information gathered during the exercise. The community at large and the facilitation team, and on some occasions project managers and representatives of partner institutions, usually attended these workshops.

The main activities carried out during these workshops were as follows:

◆ *Feedback of participatory appraisal information to communities.* To summarize the findings of the appraisal, project staff, using visual aids such as maps, graphs and diagrams on flipcharts, gave a presentation highlighting the most significant information (see Photo 7). In some countries, pictures, slides and videos taken during the appraisal facilitated communication with illiterate participants. Project staff adopted a lively interactive presentation style in order to stimulate discussion. This often generated additional information, which contributed to a more detailed joint analysis of the issues at stake.

Photo 7
Feedback of appraisal findings in Bolivia

- *Identification, analysis and prioritization of problems by participants.* Based on the above feedback, project staff asked participants to identify problems affecting different aspects of the community's situation. The problems elicited through this brainstorming were grouped into categories and prioritized using ranking techniques.

- *Identification of solutions.* Participants separated into small groups according to individual interests and were asked to analyse the prioritized problems in order to identify solutions that could be implemented given the existing assets and constraints. To this end, the facilitation team used problem-solving techniques such as problem-tree analysis and the Strengths, Weaknesses, Opportunities and Limitations (SWOL) analysis.

- *Drafting of a tentative action plan.* Solutions identified by the working groups were discussed and validated in plenary sessions. Those on which a wide consensus was reached were defined as activities to be conducted and were plotted on a participatory planning matrix (see Photo 8).

There were differences in the level of specification achieved in the planning workshops. At the beginning of the project, some plans were little more than lists of potential measures for solving a given problem. This led to rather vague outputs, unrealistic expectations and overplanning (i.e. an excessive number of planning commitments and overly ambitious commitments). However, there was improvement as the participating communities and the facilitation teams

Photo 8
Filling in a participatory planning matrix in Bolivia

increased their capabilities in making use of initial appraisal information. For instance, in Nepal, it was found that information drawn from calendars and time-line analysis could be used to assess when and how people could engage in more time-consuming activities. Furthermore, as a result of the experience gained over time, staff developed more detailed and operational participatory planning matrices during the project's second phase (see Box 4). These matrices covered most of the following specifications:

- who was to benefit directly from the activity's implementation;
- a tentative timetable for implementing activities (the time of year in which the activity could be carried out, the start-up date, duration, etc.);
- which members of the community were to be entrusted with the responsibility for implementation (i.e. the actual interest group);
- the resources to be made available by the community (labour, local materials, etc.);
- the type and nature of the external support needed for implementation (money, materials, skilled labour, technical assistance, training, etc.); and
- the sources of external support, including the PUCD project or, for activities falling outside the project's mandate and technical expertise (such as

BOX 4

Participatory planning matrix, Lajas, Bolivia (see also Box 5)

WHAT IS THE PROBLEM?	WHAT DO WE WANT TO DO?	HOW ARE WE GOING TO DO IT?	BY WHEN?	WHO IS IN CHARGE?	WHO CAN SUPPORT US?
Lack of latrines	Build latrines	Provide families with technical and financial support	January 1996	Luís Ribera, Zacarías Coca	Health District
Lack of staff in the health post	Ask the health authorities to assign a rural nurse	Visit health authorities and the Municipality	September 1995	Victoriano Castro	Health District, Municipality
Lack of electric light	Connect the village with the existing power line	Submit the issue to the community's Assembly	September 1995	OTB, Government delegate, Mayor	Local Government, Municipality
Bridge out of order	Repair it	Get materials and organize communal works	October 1995	The affected households	The community can do it
Water supply system out of order	Identify and fix the damage	Get technical support	September 1995	Luís Cuellar	Municipality's Water Company
Flooding of land close to the river banks	Stop deforestation of the area	Get technical assistance	September 1995	The affected households	PUCD project
Landslides threatening agricultural land	Stop deforestation of the area	Get technical assistance	September 1995	The affected households	PUCD project
Fruit-tree pests and diseases	Learn how to control pests and disease	Get technical training	October 1995	The affected farmers	PUCD project

Based on Proyecto SEARPI/FAO and Comunidad de Lajas, 1995

BOX 5

Participatory appraisal and planning, Lajas, Bolivia

In 1994, the Bolivian Government approved a People's Participation Law that, through municipal governments, made funds available to local communities to implement activities for social development and natural resource management. The basic requirements for access to this money were constitution as a legal grassroots organization (OTB, *Organización territorial de base*) and the preparation of a community development plan.

By 1995, several communities in the Upper Piraí watershed had constituted OTBs and had requested PUCD project support in preparing the relevant development plans. To this end, project staff facilitated participatory appraisal and planning exercises in a number of locations in the second phase area. Lajas was one of these communities.

Upon the request of village leaders, a team worked intensively with the community for several days to review the local situation and to identify a number of activities that could be implemented either through funding from the People's Participation Law or in partnership with the PUCD project and other local institutions.

The participatory appraisal focused on local history, the social situation, the availability of social services, basic infrastructure, farming systems and natural resource management. Most of the research activities used participatory interactive techniques, including a participatory census developed through social mapping, women's daily time profiles, a seasonal calendar of farming activities, farm and environmental mapping, and transect walks. The staff also conducted a simple and informal household survey.

Project staff systematized the findings of the appraisal exercise and provided feedback to the community at large as an introduction to a final participatory planning workshop. Based on this information, an extensive list was made of the problems affecting the community's welfare and environment. Eight main problems were selected from this list for priority action: lack of latrines, lack of staff in the health post, lack of electricity, a broken bridge, a broken water supply system, the flooding of parcels of land close to the river, landslides in some parcels of land, and fruit-tree pests and diseases.

For each of these problems, a participatory planning matrix was filled in indicating the relevant activity, the actions to be carried out, the start-up date, the people in charge and the possible source of support. During the exercise, it was agreed that community members would take action to repair the local bridge before the rainy season. The decision was also made to ask the Municipality of Samaipata for funds that had been made available through the People's Participation Law to pay a part-time nurse, to connect the community with local power lines and to improve the water supply system. It was also decided to ask the Local Health District to assist individual households in building their latrines.

Finally, technical and financial support were sought from the PUCD project for implementing water and soil conservation activities to address the environmental risks identified during the appraisal. Extension services were also requested from the project in order to learn how to fight pests and diseases affecting the community's orchards.

Based on Proyecto SEARPI/FAO and Comunidad de Lajas, 1995

the provision of educational and health services, the building of major infrastructure, institutional representation, definition of and changes in tenure arrangements), line agencies, local government bodies, NGOs and other internationally sponsored development initiatives in the area.

The following key lessons can be learned from this experience:

- **In preparing a tentative workplan, community members face the challenge of putting into action the learning process that took place during the participatory appraisal exercise. To accomplish this task successfully, responsive attitudes, mutual trust and good facilitation skills are necessary.**

- **Since establishing the above conditions requires time, the results of initial participatory planning exercises are seldom completely sound. A more in-depth analysis of the implications of the decisions made in the framework of the participatory planning workshop is necessary before implementation can begin.**

For the latter reason, in most countries, facilitation teams concluded the workshop by making it clear that the ideas for action developed during the workshop needed to be carefully reviewed by the community members and institutions concerned. Project staff stressed the fact that in order to decrease the risk of failure, the feasibility of initially proposed activities needed to be assessed; the staff also highlighted the importance of preparing a formal collaborative implementation agreement, clarifying in detail such issues as decision-making procedures, each partner's responsibilities, timing, the sharing of benefits, monitoring, etc.[1]

2.3. Participatory feasibility analysis

Through participatory feasibility analysis, project management and field staff reviewed with participating community members the ideas for action that were developed during the participatory planning workshop, with the aim of assessing the feasibility of the proposed actions in light of the existing conditions. In most cases, this required an intensive discussion with community members on technical aspects of the proposed activities, available incentives and subsidies, and requisites the community should meet for engaging in a partnership with the project. This interaction ensured that the process continued to be participatory. However, during this stage, the project's role shifted from that of facilitator of a community-driven appraisal and planning process to that of a technical adviser and/or a partner with which the community had to negotiate.[2] The major lesson learned was the following:

► **A negotiation among the community's felt needs and needs as defined by outsiders (such as project managers, technicians, local politicians and national policy-makers) takes place in participatory feasibility analysis, leading to a series of compromises acceptable to all the involved stakeholders. For this reason, participatory feasibility analysis is a less neutral stage of the participatory process than initial participatory appraisal and planning. In fact, it is at this stage that the project becomes a stakeholder in decision-making and that the process becomes truly collaborative.**

Depending on the local context and the needs identified, NFTs adopted different criteria to define the meaning of a 'feasible' activity, taking into consideration the following factors and related key questions:

- *Institutional feasibility.* Is the activity consistent with the project's or counterpart's mandate, resources and expertise? If not, is there any partner institution to which the activity could be referred?

- *Social feasibility.* Is there a consensus among all the stakeholders affected by the activity? Will participants equitably share the costs and benefits of the activity's implementation? Does the number of beneficiaries justify the activity's implementation? Would the interest group proposing the activity be a reliable partner?

- *Environmental feasibility.* What will be the impact of the activity on the community's natural environment? Will its implementation lead to a more sustainable and efficient use of natural resources? Is there any hidden environmental risk to be considered? How could this risk be managed and controlled?

- *Technical feasibility.* Is it actually possible to implement the activity as specified by the community? Is the relevant technical expertise available within the NFT or from other agencies? What is the opinion of the relevant technical service? Are there other similar initiatives within the area or in nearby areas that could validate the proposed technical solution?

- *Economic feasibility.* What will be the cost of implementing the activity? How will this cost be shared between the community and the project? What inputs would be needed from other projects or agencies? Is this cost accept-

able in light of the expected benefits? Will it be possible and cost-effective to implement the activity as specified by the community? Are there other, more efficient ways to achieve the same results (i.e. new technologies)?

The purpose of the participatory feasibility analysis was not to review in-depth all of these factors for every activity in the community's initial action plan, but rather to carry out a rapid and practical analysis that would allow for a decision to be made on whether or not to implement the activity in question. Rapidity in decision-making was in fact important for maintaining the momentum created by the participatory planning exercise.

Procedures commonly adopted by all teams for conducting this rapid analysis included:

- *Short-listing activities.* Very often, plans prepared during the participatory planning workshop were redundant and overly ambitious, and certain activities seemed to be technically unfeasible. Furthermore, staff often felt the need to focus on those initiatives that best responded to the project's mandate and operational capabilities, such as activities related to the management of natural resources, improvements in the efficiency and sustainability of farming systems, the diversification of income generation, the empowerment of rural women and the building of small-scale infrastructure. Staff considered other activities only if a competent partner institution was available to collaborate.

- *On-site investigations.* NFTs prepared a list of minimal conditions for implementing short-listed activities and entrusted field staff with the responsibility of verifying whether these conditions had been met on site. Field staff generally carried out this verification in a participatory fashion, with the concerned community or interest group actively involved in decision-making. Informal interviews, thematic group discussions and participant observation were the most common investigation techniques. The field teams in Bolivia, Burundi and Pakistan developed a method for participatory cost-benefit analysis for income generating activities.

- *Technical studies.* When needed (i.e. when appropriate technical packages were not already available), qualified staff or consultants carried out technical studies to enhance the design of the activities proposed by the com-

munity. These included forestry and agronomic studies, cost-benefit and marketing analyses of income generating activities, engineering projects for small irrigation schemes and civil works.

- *Mediation.* Activities outside the project's mandate and expertise were referred to other local partners for implementation (NGOs, line agencies, international projects, etc.). The PUCD project facilitated partnerships between these institutions and local communities by lobbying and providing organizational and logistical assistance.

Significant differences existed in the amount of resources and time invested by field teams in feasibility studies, which ranged from rapid appraisals lasting a few days to an in-depth technical analysis lasting several months. The approaches used depended on the nature of the activity, the availability of previous know-how and experience at the local level, and the organizational capacity of the stakeholders concerned. Nonetheless, three common lessons can be learned from the PUCD project's experience in participatory feasibility analysis:

- **Participatory feasibility analysis is essential in increasing the project's and the community's understanding of the pros and cons of the proposed activities and in determining which activity can be realistically implemented through collaborative action.**

- **Participatory feasibility analysis allows participants to become informed about the institutional assets and constraints, which may either positively or negatively affect the fulfilment of their needs. This awareness is an essential element of community empowerment.**

- **Technical consultations, potentially leading to organizational arrangements, with a variety of institutions active in the community or the project area/watershed at large are also highly instrumental in widening the array of different activities that can be implemented in the framework of the participatory process. In particular, activities outside the project's mandate and operational capabilities (such as health, education and infrastructure development activities) may become feasible when involving relevant line agencies, NGOs or projects in the participatory process. This contributes to making participatory watershed management truly integrated and collaborative.**

BOX 6

Participatory feasibility analysis in Nepal

In Nepal, by the end of the participatory appraisal and planning exercises carried out in 26 hamlets at the start of the second phase, the project and interested communities had identified 177 'physical' activities. These included: gully and landslide control, water source protection, trail improvement, the building of ponds and small irrigation schemes, forest management, the planting of trees and shrubs on private land, animal breeding, the establishment of commercial nurseries, the development of vegetable production schemes and the building of latrines and community health posts.

It was evident that some type of participatory feasibility study needed to be conducted for most of the activities in the Community Action Plans (CAPs). Mid-level technicians in forestry, engineering and agriculture, with the support of senior project staff (watershed management and soil conservation specialists, rural sociologists, etc.) carried out these studies in the following months.

The participatory feasibility analysis consisted of visits of one or two days to the communities by the technician(s) in charge, who made field observations and consulted with the User Groups concerned. The studies focused on the activity's technical, environmental and financial aspects and also stressed its social implications and the User Group's capability to engage in joint implementation.

The results of these studies led to the elimination of 81 of the 177 proposed field activities. Of these, nine were outside the project's mandate; 24 were not feasible for social, technical or financial reasons; 16 could not be conducted because the User Group was not able or willing to implement the activity according to the project's technical specifications; and 32 were postponed until the following year because the communities' workforce was not large enough.

Some activities were eliminated because of their high cost and the large amount of labour. In other cases, the number of beneficiaries was insufficient to justify the necessary investment. Some infrastructure (e.g. small-scale irrigation schemes) did not meet technical requirements. Existing or potential social conflicts negatively affected other activities. The project referred some income generating activities to a rotating fund promoted by a local NGO, except in the case of goat raising, which was retained because it was of particular benefit to women's groups. Nurseries and vegetable production schemes, proposed as income generating activities, had to be excluded due to the lack of a suitable market. Activities clearly outside the project's mandate (e.g. the building of health posts) were referred to a relevant line agency.

Based on Ohler, 1997b

2.4. Making implementation agreements

Following the feasibility study, operational agreements for implementing the activity were made by negotiating the terms of reference. Several partners were involved in this process of consensus building, including:

- community members interested in carrying out those activities assessed as feasible, which in some cases were represented by some form of grassroots organization (see Section 3.1.);
- the project management and staff, whose views at times differed; and
- other institutional partners, such as line agencies, NGOs, other ongoing programmes in the area or any other stakeholder.

Making implementation agreements basically entails making decisions about practical issues, such as the delivery and use of resources. However, as with the overall participatory planning process, it may rely heavily on socio-political factors, such as gender, kinship, ethnic affiliation, social class, political parties and religion. Negotiation takes place at all levels, leading to a progressive fine tuning of a multilateral agreement. Box 7 presents an example of how such a multilateral partnership was negotiated in Tunisia.

During this step of the participatory process, the project acted as both *partner* (for activities supported by the project's resources) and *mediator* (for activities supported primarily by other partners). Sometimes these roles were well differentiated; while in other cases, certain roles overlapped (i.e. when the responsibility for support was shared by the project and other institutional partners).

In all countries, the process of making an implementation agreement required the following:

- *Preparing the design of the activity.* Based on the results of the feasibility analysis, a technical design of the activity was prepared that included the definition of services (training, extension services), materials and incentives to be provided by the project, the contributions to be made by the interest group (labour, local materials, money and management of implementation, such as organization of labour crews, provision of skilled labour, transport of materials and equipment, record-keeping, etc.), and a tentative schedule.

BOX 7

Negotiating a reforestation programme in Tunisia

Before the PUCD project started, a large-scale programme of mechanized reforestation had begun, covering an area of 410 ha in the Sidi Salem forest in the Oued Sbaihya watershed. The programme involved planting Alep pine and forbidding grazing and fuelwood collection for a number of years.

During a participatory appraisal exercise promoted by the PUCD project, a thematic group discussion meeting with participants from the four *douars* (local, social and residential units) bordering the forest revealed that the users had serious concerns about the grazing restrictions imposed by the reforestation programme. Until that time, local communities had considered the Sidi Salem public forest as a free grazing area, where users could also collect dead wood for household consumption. For this reason, local communities perceived the implementation of the programme as a threat to their customary utilization rights.

The four communities and project staff held other meetings during the following winter to identify measures that could be proposed to the Forestry Service to make the programme more responsive to local needs. These proposals included:

- extending the existing fire-break trenches to make the upper part of the forest, which was not meant to be included in the programme, accessible to livestock; and

- planting fodder tree species instead of Alep pine. The communities expressed a preference for acacia (*Acacia cyanophylla*) a fodder species traditionally known to be exceptionally appetizing and nourishing. One factor in the choice of this species was that its rapid growth and regeneration would minimize the time during which access to the forest would be prohibited.

The project's forestry consultant subsequently analysed the possibility of incorporating these proposals into the official reforestation programme. The consultant found that acacia was an appropriate species for reforesting the area and recommended, as complementary measures, establishing plots covered by fodder prairie species, planting pine on the steeper sections of lesser grazing value and creating access paths through the plantation.

The consultant's study was presented to the Forestry Service. A team made up of local forestry technicians and PUCD project staff verified in the field the feasibility of the recommendations with positive results. Discussions with the stakeholders concerned allowed the terms of reference for community collaboration in programme implementation to be better defined. These terms of reference included:

- contracting local interest groups for the preparation and maintenance of the plantations;

- establishing experimental parcels to test the cultivation and reproduction of local fodder species;

- creating a Forestry Association, as required by Tunisian law, which would assume responsibility for forest management in the future; and

- providing credit to buy improved stoves to decrease fuelwood consumption.

After discussions and negotiations on cost-sharing and reciprocal obligations, all of these activities eventually became part of the action plans of the four *douars*.

Based on Ambroso, 1997a

- *Group strengthening.* For the sake of transparency, to promote sustainability of the interest groups and to facilitate conflict management, most NFTs helped formalize the structure and the operations of the interest groups or community organization collaborating on the activities. This usually involved establishing clear rules for membership, common savings plans, record-keeping systems and election of a formal leadership body. Fulfilment of these requirements was often stated as a condition for working with the project.

- *Negotiation of task-sharing and cost-sharing arrangements.* Project staff held one or more meetings with the concerned partners to review in detail the final implementation proposal and to amend it according to their comments and suggestions. At this time, negotiations determined the inputs to be provided by each party and established simple participatory monitoring procedures.

- *Finalization of agreements.* Based on these negotiations, the participants defined the terms of reference for reciprocal collaboration. When money was involved, this usually took the form of a written 'implementation contract' between the project and the community organization or interest group. In other cases, less formal written agreements were reached (e.g. in the case of on-farm research activities and pilot tests).

Making implementation agreements was at times a long and tiring process. In all countries, the main problem in this process was the 'non-participatory' attitude of local institutions, communities and sometimes project staff. Top-down decision-making and bureaucracy often hindered the collaboration with governmental agencies. The communities' tendency to expect to receive aid, as opposed to actively participating and collaborating (which was in large part due to a long history of relationships with conventional rural development initiatives) slowed down the building of a partnership. The project staff's lack of experience in negotiation led staff to make errors.

Despite these difficulties, in the long run, this process worked (or is beginning to work) in all countries. This probably depended on the exposure of all involved partners (including the project) to a participatory and collaborative working style; on successful and rewarding experiences; and on the increased capability of identifying and amending errors through participatory evaluation

and replanning exercises (see Section 4.3.). The following major lesson was learned by the PUCD project:

- **Sound implementation agreements require time, patience, flexibility, diplomacy and a human touch, which lead to a more solid partnership among stakeholders and a smoother collaborative implementation process.**

1. An exception to this general pattern was the experience of the NFT in Pakistan. Feasibility analysis (see Section 2.3.) was built into the initial participatory appraisal process, which, for this reason, took longer than in other countries. The results of the feasibility analysis were presented and discussed during the participatory planning workshop, which was concluded by the preparation and signing of implementation agreements.

2. This shift corresponds to the difference between the 'catalytic agent' and the 'participatory interventionist' approaches described by Ingles, Musch and Qwist-Hoffmann (1998; see also Diagram 2 in Chapter 6). The coexistence of both approaches within the PUCD project participatory process confirms that "it is possible for a (collaborative natural resource management) support programme to adopt more than a role, or to switch from one role to the other, depending on circumstances" (Ingles, Musch and Qwist-Hoffmann, 1998).

Chapter 3

Activities and Outcomes

When a Bolivian participant was asked for his opinion on the major contribution made by local people to the project's implementation, he simply answered: "Well, we did the work. Project staff supported us, but doing things was our business."

In PUCD field projects, the community members were indeed the 'owners' of the activities negotiated through the participatory planning process and the main actors in implementation. They provided most of the labour and the local resources needed for the initiative and were in charge of day-to-day management.

The role of the PUCD project and of other institutional partners was almost always limited to providing selected services or inputs, such as capacity-building, technical assistance, credit, special materials and transportation. In some cases (Nepal and Pakistan), payment in cash was provided for labour-intensive activities. The support provided facilitated the participants' work, though they were almost exclusively responsible for getting things done.

This approach was instrumental in achieving the following two basic objectives regarding the process of participatory implementation:

- *empowering communities,* that is, promoting the progressive development of people's self-reliance in dealing with their social and environmental problems through an effective use of local resources and external inputs; and

- *ensuring social sustainability,* that is, testing and developing organizational and technical solutions to these problems that communities and local

development institutions (line agencies, NGOs, etc.) could implement and replicate at an affordable social and economic cost after the withdrawal of project support.

To fulfil these objectives, all PUCD field projects adopted a strategy that included:

- strengthening grassroots organizations,
- meeting basic needs, and
- promoting environmental awareness and natural resource management skills.

It is difficult to determine the amount of time and resources invested in each of these components of the project's implementation strategy, though efforts were probably distributed equally among them. Strengthening grassroots organizations and meeting basic needs figured prominently at the beginning of the participatory and integrated watershed management process whereas later, attention progressively shifted toward environmental issues. This trend relates to two major lessons learned by the PUCD project:

- **Natural resource management that does not have a direct impact on income is seldom considered a priority for marginalized communities, such as those settled in upland areas.**

- **Environmental awareness and natural resource management skills can be improved only if a certain level of organizational capacity is reached and if primary needs (income, water supply, education, communication services, etc.) are first satisfied to a reasonable extent.[1]**

3.1. Strengthening grassroots organizations

All PUCD field projects made significant efforts towards facilitating the formation and development of interest groups and community organizations.

Interest groups are small groups of people sharing some common social traits (gender, neighbourhood, kinship), having a direct interest in a given activity, and linked by a number of common and mutual obligations. In almost all locations, these groups were the most important actors in participatory implementation (i.e. they did the work). Most of these groups formed spontaneously dur-

ing the participatory appraisal and planning exercises and became formal structures in order to become partners with the PUCD project or a partner institution (see Section 2.2.).

Community organizations are larger organizations representing the entire community. Most of them existed independently from the project as peripheral administrative and political units (*Corregimientos* in Bolivia; *Conseil de colline* in Burundi; Village Development Committees in Nepal; *Cellules destouriennes* in Tunisia) or were legally acknowledged grassroots organizations (*Organizaciones territoriales de base* in Bolivia). Others were promoted by the project (Men's and Women's Village Associations in Pakistan) or arose from links formed among interest groups (*Fédérations de groupements* in Burundi, User Groups Associations in Nepal). With the exception of Pakistan, where Village Associations were the project's counterpart at the community level, the role of community organizations in project implementation was in general less direct than that of interest groups. However, community organizations were often highly instrumental in coordinating the activities of interest groups and in providing a local forum for the exchange of experiences among groups and individuals.

Both interest groups and community organizations were rooted in and shaped by indigenous culture and social structure. Some extreme examples were caste stratification in Nepal and 'feudal' privileges related to kinship and land tenure systems in Pakistan. These examples suggest how problematic it was to match the functioning of these groups with the Western values of participatory democracy promoted by the project, such as equality among individuals, transparency in decision-making, and equitable sharing of the costs and benefits of group activities. Thus a major lesson learned by the project was the following:

- **Actions for strengthening grassroots organizations entail a significant degree of cultural sensitivity and relativism, combined with some sort of light cultural engineering.**

Examples of the latter are the development of separate men's and women's organizations in societies where power is very disproportionately divided between genders (Pakistan, see Photo 9, and Tunisia), and the formation of User Groups that are homogeneous in terms of caste and ethnicity (Nepal, see Box 8), or wealth and cultural background (in Bolivia).

BOX 8

The formation of User Groups and capacity-building in Nepal

In Nepal, User Groups (i.e. groups of people from the same community with a shared interest in a given service or initiative) constitute the grassroots organizations through which the activities of the District Soil Conservation Office (the PUCD project's counterpart) or any other line agency are implemented. Initially, the PUCD project created 19 major ward-level User Groups in the Bhusunde Khola watershed to deliver project support. However, the operating procedures of most of these groups were often not satisfactory because the groups were too large (20–90 members) and heterogeneous, generating social conflicts.

Therefore, at the beginning of the project's second phase, the staff felt the need to identify 'true' User Groups at the grassroots level. To this end, the PUCD project established contacts with a number of small groups (10–25 members), which in the meantime had started spontaneously applying for project support. More than half of these were women's groups that wanted to take advantage of the new development opportunities offered by the project's gender policy. Forest User Groups were also formed with the specific purpose of gaining control over State-owned forests, under regulations established by the 1993 Forest Act. By the end of the initial phase, there were about 35 of these grassroots User Groups in the Bhusunde Khola watershed and by the end of the second phase, more than 70 groups were linked to the project through specific implementation agreements. All of these were 'active' User Groups that had regular meetings, a record-keeping system and common savings.

To strengthen these spontaneously formed User Groups, the PUCD project developed a comprehensive capacity-building strategy that included social communication actions (aimed at making clear to the people why User Groups were needed, what User Groups could do and how they should be run democratically), training in management skills, and participatory monitoring and evaluation exercises. In some cases, especially for women's groups and disadvantaged ethnic or caste groups, training was provided for obtaining functional literacy in order to allow their members to be more effective at running meetings, keeping records and managing the implementation of activities.

The PUCD project also developed a number of training modules for User Groups, addressing such issues as 'women's leadership', 'User Group self-reliance', and 'basic accounting'. The FAO booklet, *The Group Promoter's Resource Book*, was especially useful in this respect and was translated into Nepali for wider distribution.

Locally hired group promoters (all women), led by the national expert in capacity-building, played a major role in the strengthening of User Groups. The group promoters attended all relevant training activities, were part of the participatory monitoring, evaluation and replanning team, and provided constant support to all User Groups in their working area. They assisted User Groups in such areas as organizing and conducting meetings, defining group constitutions and keeping records.

This experience increased the capacity of User Groups to engage effectively in the joint implementation of activities. However, as the project progressed, the participants and staff felt the need for stronger cohesion and linkages among these small groups (10–25 people).

Participatory evaluation and replanning workshops held at the hamlet level, or sometimes at the ward level, provided the first opportunity for User Groups to coordinate local natural resource management and development initiatives. This was furthered by a visit of members from selected User Groups to a sister project in Nuwakot to study and discuss the structure of the community organization developed in that project. The experiences of this study tour were subsequently presented and discussed in a series of Inter-Group Linkages Workshops during which User Groups decided to form associations within their own communities.

Based on Ohler, 1997b

Photo 9
Gender awareness workshop in Pakistan

Activities carried out by the PUCD project to strengthen the structure and operational capacities of both types of organizations included:

- *Support for internal operations.* When necessary, the PUCD project supported groups and community organizations in defining their procedures for carrying out work and sharing tasks. A directorate was elected according to the local leadership-building practice, and record-keeping procedures were established. The staff in charge facilitated the group's operations, especially at the beginning. However, the project tended to withdraw this type of support as the groups progressed towards self-reliance. In exceptional cases, the project acted as a mediator to negotiate internal conflicts.

- *Managerial capacity-building.* Project staff held training courses and workshops on such topics as short-term planning, monitoring, financial management, record-keeping, leadership and communication, the management of meetings, and conflict resolution. Some teams prepared relevant manuals, leaflets and reading materials in the local language. Study tours in the country, or sometimes abroad, facilitated contacts with well-established grassroots organizations.

- *Microcapitalization.* Establishing a small common fund was considered an essential element of interest groups' self-reliance. Moreover, these common funds were found to have positive effects on the group's cohesion, commit-

ment and sense of responsibility. Microcapital was usually generated through membership fees and monthly contributions or from the 'overhead' from income generating activities, which were financed through loans. A treasurer was appointed and trained to manage these funds, and, when feasible, a savings account was opened in a local bank to familiarize people with basic banking procedures. Once a significant amount of savings was available, re-investment was encouraged, often in the form of loans to group members wanting to engage in individual income generating activities.

- *Facilitation of linkages among groups and organizations.* Workshops, social events and reciprocal visits among interest groups and community organizations in the project area provided opportunities for exchanging ideas and experiences. During the second phase, conventions addressing issues affecting the entire watershed were organized.

- *Assistance in legal issues.* When appropriate, legal support was provided to facilitate the official registration of interest groups and community organizations.

- *Communication activities.* Information on the activities and achievements of groups and community organizations was disseminated through verbal communication, posters, sign-posts and news-boards. In Bolivia and Burundi, a local bulletin was published with the active collaboration of project participants. In Bolivia, where this information was also broadcast on a local rural radio station, a training programme for community reporters was launched. All of these activities were instrumental in motivating more people to join the existing groups and organizations or to form new associations.

A major contribution to the strengthening of interest groups and grassroots organizations was provided by participatory monitoring, evaluation and replanning practices, which are more thoroughly described in Chapter 4.

3.2. Meeting basic needs

In each country, the PUCD project was committed to supporting activities aimed at meeting basic needs not directly related to natural resource management. This included income generating activities, improvements in local infrastructure, and strengthening health, sanitation and educational services. The

project paid special attention to initiatives promoting the economic independence of women, decreasing their workload and improving their living conditions.

Support for these activities was often provided through joint ventures with other institutional partners. Grants from international agencies established rotating funds to finance income generating activities. The project facilitated the access of grassroots organizations to national incentive and credit schemes for local infrastructure development; when these were not available, the project assisted local NGOs in offering soft credit opportunities to interest groups or community organizations. Health and education services were offered in collaboration with local line agencies, NGOs or international agencies.

This involvement of multiple partners provided additional expertise not available among the project's staff (e.g. in the fields of education and health) and significant additional financial input. It also contributed to building a network of local stakeholders capable of dealing with a wide range of problems, including grassroots organizations, local governments, line agencies, NGOs and international cooperation projects.

Income generating activities

Community members' needs for increasing their cash revenue was a strong incentive for the formation of interest groups. To fulfil this need, the project supported and occasionally promoted a variety of short-term income generating activities. These included both on-farm activities (such as cooperative farming, courtyard animal raising, commercial vegetable gardening and non-timber forestry production) and off-farm activities (such as cottage industries, handicraft production, and trade).

All of these income generating activities, with the partial exception of cooperative farming, were small-scale, low budget initiatives targeting the local market (i.e. the exchanges taking place in the local community or, at best, in the immediately surrounding area). Because of their small scale, the project and participants were able to start these activities with very limited initial investment and risk. However, their small scale also meant that they only generated a small income. These activities were useful for satisfying the immediate personal needs of participants, especially women, and increasing the groups' self-reliance. Only in a few cases was a significant capitalization process started through these initiatives (see Box 9).

BOX 9

The Abasangirajambo's grain mill in Burundi

In many rural areas of Burundi, women grind grain with a traditional millstone and mortar. This is a difficult and time-consuming task that could be eliminated if a mechanical mill were available at a reasonable distance from the household.

During the participatory planning exercises carried out at the beginning of the project, the women of Nyamirinzi and Keronge hills selected the acquisition of a mechanical mill as their top priority. To achieve this goal, 30 of these women decided to form a group, which they called *Abasangirajambo* (which means 'people sharing the same goals', in the local language).

A participatory feasibility analysis, carried out with the support of project staff, made the members of *Abasangirajambo* realize that, due to the high cost of the equipment and their lack of technical and administrative experience, this would be a major endeavour requiring much time, dedication and work. Nevertheless, the women were not discouraged.

They decided to start their project by creating a small fund. Initially, they raised 30 000 Burundi francs (approximately US$ 120) through association membership fees. However, this amount was insufficient for being eligible to apply for the one million francs (approximately US$ 4 000) loan they needed to establish the mill. The women thus decided to invest their capital in agricultural activities. They rented a group parcel and cultivated crops according to suggestions made by the project's extension staff. The women obtained a small loan from a revolving fund established by the project to buy improved potato seeds and fertilizers. The women also received training from the Centre international de la pomme de terre (International Potato Centre) on how to select and store high quality potato seeds for sale to other farmers.

As a result using new farming techniques and farming inputs, the women harvested high yields from their field for four agricultural seasons. The sale of potato seeds was an important source of additional income. This increased *Abasangirajambo's* fund to 200 000 francs (approximately US$ 800), the amount needed to negotiate a loan from the local rural development bank.

After two years of hard work, the time was right to implement the mill project. The women visited the Isaie community, where a similar women's group was operating a mill. During discussions with the women in Isaie, the members of *Abasangirajambo* grew increasingly confident and felt that they were prepared to undertake their own initiative. They asked the PUCD project for training in basic administration and credit management. Two women were selected for training from the National Centre for Food Technologies on the mechanical maintenance of the mill. Eventually, the group invested part of its capital to build the mill's premises.

With a loan and small grant from the PUCD project, the women bought and installed the milling equipment. Milling services were so badly needed in the area that over the next two years the women succeeded in paying back more than two-thirds of the loan that was meant to be repaid over four years. This rapid reimbursement of the loan was also supported by additional income generated through agricultural activities, which the women continued in order to support the capitalization process. As a result, part of the profits from the mill and the communal fields could be distributed among the members.

Based on Comité de rédaction de 'La Colline', 1995 and Ndaiyzeye, 1996

Small interest groups ran all of these activities. Usually, the PUCD project and/or other local partners provided external support, including technical and administrative training, extension services, selected inputs and credit.

Community infrastructure

The enhancement of the community's infrastructure was often identified as an additional need in participatory planning exercises. A number of interest groups spontaneously formed to build water supply systems, to improve trails, roads and bridges, or to construct small public buildings. Responding to the demands for support in this area often provided the PUCD project with a good entry point for establishing a partnership with the community. In some cases, these activities also played a major role in creating environmental awareness. For instance, in dry areas of Pakistan and Bolivia, building household water supply systems proved to be a good way of addressing issues related to water management.[2]

The type of support that the PUCD project provided for enhancing small-scale infrastructure ranged from the simple provision of materials unavailable locally (pipes, corrugated iron, nails, etc.) to financial and engineering assistance in designing and implementing the work. Often these activities were carried out in collaboration with relevant line agencies. In some cases, they were subcontracted to local NGOs, with project funding. The community always provided labour and local materials.

Education, sanitation and health

Though the PUCD project had a limited technical and operational capacity to deal with educational, sanitation and health issues, in all countries efforts were made to meet the urgent demand for these types of services, through partnerships with appropriate institutions. The PUCD project's contribution in this area was limited to organization and logistics and, in a few cases, partial funding.

The appropriateness of investing the project's resources, especially staff time, in initiatives that were extremely removed from the project's core mandate was often discussed within the NFTs and among the NFTs at the annual PUCD project meetings. Social workers and environmental technicians at times expressed opposing views on this subject. However, the following lesson was elicited from the project's experience:

- **Most educational and health initiatives play an important role in creating and empowering grassroots organizations, mainly women's groups.**

Furthermore, sessions on adult education and health education were sometimes appropriate settings for providing environmental education messages (see Box 13 on page 72).

3.3. Strengthening communities' competence and awareness in natural resource management

Two main areas of activity were part of this core component of the PUCD project's implementation strategy:

- the improvement of farming systems , and
- the management of common property resources.

BOX 10

A programme for health education and latrine building in Pakistan

During the initial appraisal, women in the Kanak Valley identified the need for latrines as a major priority. To address this need, the project's Women in Development Team, in coordination with the local Rural Water and Sanitation Department and a local social welfare project promoted by the Dutch company Iwacko (operating on behalf of the Dutch-Pakistan Cooperation), launched a simple programme for latrine construction and household sanitation. The programme was implemented as an entry point activity in most of the villages covered by the project. It began with a three-day basic hygiene course based on simple training materials produced by UNICEF. This was presented in the local language by a female staff member from the local Rural Water and Sanitation Department. Course attendance was mandatory for receiving support in the building of a household latrine.

After the initial course, women were asked to select two households where demonstration latrines could be constructed. Their selection was based on the availability of the labour needed to dig the pit. Once the pit was ready, Iwacko, through a UNICEF grant, supplied a slab, an exhaust pipe and a bag of cement. A man from the village, chosen by the Women's Associations, was taught how to properly lay and fix the slab over the latrine pit. The household's family members, using local materials and technology, then built the walls and roof. After the course and demonstration, slabs, pipes and cement were supplied to all members of the Women's Association who were able to persuade their male relatives to help dig the pit and build the latrine shelter.

The latrine programme was implemented in a very short time with little cost to the project, which provided only supervision and logistical support. Although this initiative was at first criticized for being too far removed from the project's mandate for natural resource management, the experience showed that supporting women in meeting this basic need was highly instrumental in gaining the necessary credibility to start a more comprehensive partnership with their associations.

Based on Kane, 1997a

Improving farming systems

Most of the project-supported initiatives for improving farming systems developed out of negotiations between participants who wanted to have better yields, earn a higher income and save time, and the project's core mandate for promoting the conservation of water, soil and vegetation cover. Therefore, these initiatives were 'conservation by use' activities that sought a healthy balance between environmental and economic needs.

In most cases, striking a balance between these sometimes contrasting needs entailed a lengthy action-learning process. Four main types of actions and inputs facilitated this process:

- *On-farm experiments.* Selected farmers (who provided the land, labour and local know-how) and the project teams (who provided external inputs and technical expertise) conducted low-cost and low-risk agricultural experiments to identify and validate techniques and practices that would lead to the desired improvements in efficiency and sustainability.

- *Training.* Field days and study tours were organized to introduce interested individuals and groups to the technical measures validated through on-farm experiments and to transfer the necessary technical skills to these people. The main teaching/learning methods used were observation and discussion of the results from experimental parcels and 'hands-on' exercises.

- *Incentives.* Necessary material inputs at no cost or at a special price (seedlings, fertilizers, chemicals, tools, etc.) were made available. Income generating schemes based on revolving funds and other credit mechanisms were also established to compensate the farmers for their initial investment in implementing these practices.

- *Extension services*. Regular assistance was given to farmers both to minimize the risk of failure due to technical errors and to manage unforeseen problems arising during implementation. Participatory farmer-to-farmer extension services, including the formation of community or village 'specialists', were also sometimes provided in order to enhance the community's self-reliance in dealing with technical innovations.

Despite this common methodological approach, significant differences existed among the national field components in the nature and content of measures for

improving farming systems. These differences clearly reflected the specific environmental and agricultural problems in the different areas, the specific needs arising from participatory planning exercises and the institutional setting of each PUCD national component.

In Bolivia, participants and staff identified erosion caused by the sloping land and rainfall patterns as the main constraint to efficient and sustainable agricultural production. In fields cleared with slash-and-burn techniques, soil loss was found to be the cause of decreased fertility, requiring that new plots be cleared in the forest. This was found to be extremely labour-intensive and also led to more deforestation and erosion. To break this vicious cycle, the PUCD project developed an improved slash-and-burn agriculture package that included such practices as the conservation of hilltop forest coverage, the use of logs and branches to establish self-forming terraces, contour line planting and intercropping with leguminous species (see Box 12 on page 68). Coverage of fruit-tree orchards with nitrogen-fixing fodder species was promoted to improve soil retention, increase fertility, decrease the labour required for weeding and make available highly nutritious livestock feed. Simple technologies for the control of fruit-tree pests and diseases were also introduced, and fruit-tree nurseries were established to progressively improve the quality and yield of fruit grown for the market. Furthermore, credit and technical assistance for building small-scale irrigation systems were provided to farmers and groups in the dryer areas of the watershed.

In Burundi, where the high population density and the extremely limited farm size seriously challenged the potential for sustainable rural development, the project's strategy to improve farming systems focused on enhancing the soil's fertility. The project gradually developed and refined an integrated agrosilvipastoral system that included such measures as green manuring and cattle stall-feeding, as well as erosion control practices involving contour line cultivation and the planting of tree and fodder species (see Box 11). The project promoted this integrated set of measures by offering credit and technical assistance to the interest groups concerned. Major efforts were made to promote the involvement of women in these activities.

In Nepal, due to the strong conventional 'conservation' mandate of the project's national counterpart, the improvement of farming systems was not considered a priority until the beginning of the second phase. A plan focusing on agro-

forestry and the development of livestock raising was prepared but it was only partially implemented because of a lack of interest from local people and the limited technical capabilities of national staff. During recent years, the distri-

BOX 11

The development of an integrated 'conservation by use' scheme in Burundi

In 1992, during the project's initial participatory appraisal and planning exercises, farmers of Mbizi and Kigombe hills identified the constant loss of soil fertility on their farms as their most important problem in farming. With project support, they began to apply erosion control techniques in their fields, including contour planting and the planting of grass strips to create self-forming terraces. They also learned how to use chicken litter as fertilizer.

However, farmers soon realized that the litter from their chicken coops was not enough for their needs. They heard from project staff that participants in an agriculture and livestock development project in Gitega were using the dung from cattle pens as fertilizer and, inspired by the local proverb "the bird that does not fly will never know where the grain is", they asked the project to organize a study tour so they could learn from their colleagues' experience.

In Gitega, farmers from Mbizi and Kigombe saw how cows were kept in stalls. They went through their hosts' fields and observed how fodder was grown and how cow dung from the stalls was used to fertilize agricultural crops. Once back home, several farmers decided to follow the Gitega example. To this end, they asked the project to assist them in growing fodder on their farms and obtaining a loan to buy a cow.

To start, common nurseries were established to grow seedlings of both large tree species and anti-erosion fodder bushes (needed to hold the soil of the steep slopes of the Mbizi and Kigombe hills). Plantations were then established and cattle stalls similar to those in Gitega were built. Finally, the farmers purchased cows.

The initiative proved to be very successful. Erosion control measures and the availability of cow dung from the stalls led to a threefold increase in potato production and a twofold increase in the cabbage harvest. This allowed the farmers to pay back the loan and to earn extra income. Cow milk improved household diets, and calves provided meat and additional opportunities for capitalization.

Based on this preliminary trial, project staff developed an integrated 'conservation by use' plan for improving farming systems and proposed its implementation to all the interested farmers of the Upper Rwaba watershed. By 1996, 13 interest groups in the area had joined the initiative, while eight were in the preparatory process of receiving the initial loan.

Based on Seminario, 1997

bution of saplings of fruit and fodder species has been the most popular activity. The construction of a number of small-scale hill-irrigation systems was also supported in response to requests made by some of the economically better-off farmers. Nevertheless, activities for improving farming systems were quite limited in Nepal. This was also due to the fact that farmers in Bhusunde Khola had for centuries been practising sound land husbandry measures; thus it was very difficult to identify easy and effective improvements. A further reason was the shortage of cash for investing in agriculture.[3]

In Pakistan, from the beginning of the project, farming system activities were carried out to respond to the need identified during participatory planning exercises. The most important activity was the management of fruit-tree orchards, which represent the major source of income for Kanak Valley farmers. In collaboration with a UNDP/FAO project, a comprehensive training programme was developed to increase farmers' skills in variety-selection, pruning, grafting, irrigation, pest management, harvesting and marketing. Assistance was also provided to improve annual crop production by facilitating the extensive testing of improved varieties of wheat, barley, lentils and onions, all of which are important crops for food security in the area. A group of farmers was also trained in onion-seed production. The production from both annual and perennial crops benefited from the expansion of the lowland areas suitable for rainfed farming, a key issue in the arid environment of Kanak Valley (see Box 14). This was done by supporting farmers in rehabilitating traditional water-collecting systems and constructing bunds, spillways and check dams.

In Tunisia, the project provided assistance in the implementation of a number of small-scale soil conservation works (bunds and check dams) in response to demands expressed during participatory planning exercises. These works were designed by the Soil and Water Conservation Department, with incentives paid to the farmers for extra labour. An extensive programme for planting olive trees in slope plots was also launched to increase the market value of land and to decrease man-made soil erosion and loss of fertility.

Three main lessons can be drawn from these experiences:

- **There is no standard technical answer for the problems affecting upland farming systems; careful on-site testing should be carried out to assess how a given measure can cope with the local environmental, economic and social conditions.**

- **Attitudes and behaviour of local people towards the land (and towards other natural resources on which their livelihoods depend) cannot be considered independently from economic and political factors, such as insecure tenure arrangements, the local market and social marginality.**

- **Rural women play a pivotal role in the operation of indigenous farming systems. However, their participation in activities for increasing the efficiency and sustainability of local agricultural production is affected by their insufficient decision-making power within the household and the farm. Women's empowerment is thus an essential requisite of farming system improvement.**

Not all of the initiatives carried out by the PUCD project to improve local farming systems were equally successful in achieving the dual objective of the 'conservation by use' approach. In particular, as shown by the case of potato production and soil conservation in Bolivia (see Box 12), efforts to increase yields and agricultural earnings through environmentally sound practices were sometimes hampered by the most common factors affecting upland farming: unpredictable weather conditions, insecure land tenure and unfavourable market outlets.

The case described in Box 12 demonstrates the crucial role of marketing in the improvement of farming systems. However, project experience showed that inappropriate initiatives in this area may also have a negative social impact. For example, in Nepal, where in 1993–94 pineapple growing was promoted to manufacture and sell jams, it was found that the price of the product was too low, and the market was too far away. Subsequently, the farmers started to produce spirits from the surplus fruit, resulting in increased alcohol abuse and associated social problems, such as loss of money, fights and wife-beating.

Managing common property resources

In the PUCD project, most initiatives for managing common property resources (CPRs) have been more or less directly associated with farming system improvement. Thus, with regard to water and soil conservation and agroforestry initiatives, it is often difficult to make a sharp distinction between CPR interventions and those for farming system improvement. However, three main types of activities focusing specifically on CPRs can be identified:

- regeneration of public forests and rangelands, which resulted from entrusting local communities with the responsibility for management. This included planting, 'social fencing' (i.e. restrictions on land use imposed through

BOX 12

Potato production and soil conservation in Bolivia

The potato is an important crop for many farmers in the Upper Piraí watershed. The climate and soil are particularly favourable for cultivating potatoes, and there is a great demand for potatoes in the market of Santa Cruz de la Sierra. Potato cultivation is usually done on fields cleared on mountainsides. The sloping terrain and improper soil management make these fields highly susceptible to erosion. New fields are cleared every two or three years, requiring intensive labour and leading to increased deforestation. A further constraint in potato cultivation is the poor quality of the planting materials, which produce poor harvests that sometimes barely justify the commercialization costs.

In 1993, during a PUCD project participatory planning exercise, different communities identified the need to improve potato production in the area. In response to this need, project staff created a package of technical and financial measures designed to increase the economic benefits of potato farming and decrease its environmental impact and labour costs.

The package included two main components:

- *The establishment of revolving funds for seedlings.* A grant from the European Economic Community was used to purchase a stock of certified, high quality planting materials from the National Potato Seed Institute. These seedlings were distributed, according to demand, to individuals belonging to interest groups. Each individual agreed to pay back from his harvest twice the amount of seedlings received at the beginning of the campaign. Half of this would be sown during the next campaign, and the rest would be sold to create a common fund that the interest group would use to buy new certified seedlings three years later (as recommended by the Institute) or to re-invest in other income generating activities.

- *Promotion of soil conservation measures.* By signing the implementation agreement each farmer made a commitment to practice in his field the conservation measures recommended by the project, such as contour planting, intercropping with leguminous species and building self-forming terraces. Technical assistance and training were provided in these areas.

Twelve interest groups from the entire project area participated in this activity. However, they had limited financial success. Unexpected poor weather conditions led to a harvest of only five times the seedlings, compared to an expected tenfold to twelvefold increase. Technical difficulties arose in storing the potatoes, which caused additional significant losses. Due to a lack of transportation, marketing was a major obstacle. However, the experience was not totally negative. After harvesting and selling the product, the initial stock of planting materials was increased by 65 percent, which led to the creation of a small communal fund that allowed the groups to continue the initiative or develop further income generating initiatives. Moreover, 90 percent of the farmers involved adopted the project's recommended soil conservation practices.

Based on Roca, 1995

regulations, not physical barriers), fire control and the introduction of household technologies to decrease fuelwood consumption (Burundi, Nepal, Pakistan, Tunisia);

- control of the effects of erosion, such as landslides and gullies, which cause major damage to agriculture and property (Bolivia, Nepal); and

- management of streams, including measures for controlling water-power and downstream erosion (Bolivia and Nepal) or facilitating the recharging of the local water table (Pakistan).

During participatory planning, interest groups and community organizations, including women's interest groups and associations, often identified and then implemented activities in these areas in response to a specific need related to their livelihoods or quality of life (e.g. protecting fields or settlements from landslides, enhancing the availability of forage and fuelwood, and ensuring a water supply for irrigation or household needs). Occasionally, national and local government conservation policies were instrumental in raising the awareness of this need among farmers and villagers, as in Tunisia and Pakistan (see Box 7 and Box 14).

Three main lessons were learned in this connection:

- **Initiatives in CPR management take a long time to produce a significant impact on the environment and the welfare of local communities.**

- **The participatory process could be highly instrumental in raising or renewing people's interest in their common property and in developing the necessary environmental management skills.**

- **However, participation is not enough; technically sound and cost-effective solutions to CPR management problems, which take into account the environmental, economic and social aspects of implementation and maintenance, need to be identified and validated at the local level.**

The project offered support to local communities in CPR management through different combinations of the following activities:

- *Legalizing tenure and use.* When possible and appropriate, the project assisted community organizations in formalizing the ownership of common property and utilization rights, in accordance with the opportunities offered by national legislation. This was done by providing training, legal advice and help with administrative procedures.

- *Participatory action-research.* Initial exercises in participatory appraisal and subsequent exercises in participatory evaluation played a major role in this connection. Furthermore, starting from specific needs expressed in participatory planning exercises, and using both local knowledge and technical innovations, relevant 'conservation by use' measures were identified and validated.

- *Promotion of environmental awareness*. People's awareness and understanding of environmental problems affecting CPRs were also raised through special communication and education activities. Due to the important role that women play in certain activities related to CPR management (fuelwood and water collection, cattle grazing), special attention was paid to developing education and communication initiatives specifically targeting women.

- *The development of partnerships among communities and conservation institutions.* Starting with its official counterpart, the project established links among grassroots organizations and conservation agencies to facilitate collaborative management of the overall watershed (see Chapter 5). Forums for discussion and negotiation were promoted and incentive schemes for conservation activities were developed or made accessible (see Section 5.3.)

Through these activities, the PUCD project facilitated incorporation of CPR management into the participatory process. Depending on the local situation, this process permitted the identification of a number of specific measures that responded to the prevailing environmental problems, the local people's ability to invest time and labour, and the opportunities offered by existing conservation policies.

In Bolivia, where all the land is actually the property of individuals or the State, primary forests and relatively well-conserved upland prairies still cover most of the project area. The rugged landscape, high rainfall and the very low popula-

tion density make erosion primarily a natural phenomenon, which has very direct consequences for the community. On several occasions during participatory planning exercises, participants expressed the need for soil and water retention measures for preventing landslides, gullies and river floods from affecting arable land, houses and roads. To address this need, the project supported forestry plantations and small-scale environmental engineering works by providing technical assistance and incentives. The project also promoted the sustainable use of forest land by testing agroforestry techniques for fodder production, 'shaded' coffee cultivation (that did not require cutting down trees), and the replanting of timber trees in lumbering communities, where forestry nurseries were also established. Major efforts were also made to sensitize people to the environmental risks related to deforestation and overgrazing. An environmental education programme aimed at raising awareness of conservation issues among the younger generation was implemented in collaboration with local primary schools (see Box 13).

In Burundi, due to the high population density, only small public forest areas are left, located on the top of hills or on the steeper hillsides. Reforestation of these areas with timber, fuelwood and fodder species was promoted. As part of the integrated system for agriculture, livestock raising and agroforestry (see Box 11), the PUCD project promoted additional reforestation and erosion control measures of communal interest, such as roadside tree planting and the establishment of erosion control hedges along the borders of agricultural fields.

In Nepal, small patches of forest and rangelands are scattered throughout the watershed. In accordance with the 1993 Forest Act and based on community demand, the PUCD project supported local forest user groups in taking control over these State-owned forests. The project provided assistance in training, the demarcation of land, the preparation of management plans and registration with the District Forest Office. The most serious and widespread problems that slowed down forest management were the high population density and conflicting claims from different villages/hamlets. However, though the total area of the forest did not increase, the volume and quality of existing forests substantially improved. Moreover, participatory planning exercises identified the need to control the consequences of erosion, such as landslides, gullies and torrents that were affecting communal grazing areas and private agricultural plots. To this end, technical assistance, training and incentives (made available by the project's counterpart agency) were provided to the User Groups concerned.

In Pakistan, from the project's start, staff had to deal with two major problems affecting CPRs: the lowering of the water table due to an excessive number of tubewells used to pump water for agriculture, and the degradation of fan area (rangeland) caused by overgrazing and the overexploitation of fuelwood. The former problem was addressed by an information and communication campaign on the lowering of the water table, which had been designed to make vil-

BOX 13

Environmental education in primary schools in Bolivia

In Bolivia, one of the objectives pursued by the PUCD project's national component was to change people's attitudes and behaviour towards natural resource management. To bring about this change, it was important not only to work with people who were currently using the resources, but also with those who would use them in the future.

Because 70 percent of the children in the project area attend local primary schools, it was decided to reach this population group through primary schools. To this end, an environmental education programme was launched throughout the entire Piraí watershed in collaboration with provincial educational authorities and local teachers.

The programme began by providing teachers with relevant information on the ecology of the Upper Piraí watersheds and methodological assistance in integrating this subject into official primary school curricula. Following this training, 'environmental corners' were introduced in all schools in the area. These were places where students, together with their teachers, could conduct botanical and environmental science experiments and exhibit their results to parents and the public at large. The exchanges that took place during these exhibitions were highly instrumental in catalyzing the integration of indigenous and scientific knowledge of the local ecology.

School gardens were also established in several schools to teach natural resource management skills to the children. In these gardens, fruit and timber trees and fodder species were grown and later transplanted to appropriate locations. In other gardens, vegetables were cultivated using such soil conservation techniques as contour line planting, alley cropping and self-forming terraces.

The programme involved 18 schools, 41 teachers and 878 children. The results of the final evaluation showed that the initiative had enhanced the students' appreciation and concern for the environmental problems of the Upper Piraí, that they had acquired practical skills in sustainable land and forest management, and that natural resources had became a major topic of discussion among children and their parents.

Based on Van der Put, 1996a and 1996b

lagers aware of the high risk of desertification faced by the entire area. Actions facilitating better water management were undertaken in the framework of farming system improvement initiatives. A groundwater monitoring system was also established. However, difficulties in reaching the owners of the tubewells who lived outside the area and the lack of a sound policy in this regard on the part of national and regional authorities prevented any significant results from being achieved. Rehabilitation of rangelands was more successful. Although no Village Association identified this activity as a priority during participatory planning exercises, due to its pivotal importance for the future of the area, including its potential effect on recharging the water table, the project actively promoted it. Villagers had to participate in rangeland rehabilitation initiatives to be eligible to receive project support for income generating activities, infrastructure development and farming system improvement. Based on these negotiations, a plan for land demarcation, plantings, social fencing and dry-season irrigation was established; this plan was complemented by training and social communication activities (see Box 14). Solar ovens were also made available on credit to local women in order to save fuelwood (as well as the time and labour needed to collect fuelwood).

BOX 14

Rangeland rehabilitation in Pakistan

Rangelands occupy 35 million hectares of the arid rural territory of Balochistan. Ninety percent of this area is still owned by local communities who for centuries have practised a nomadic and pastoralist economy based on transhumance and the rotation of grazing lands. However, a major change has occurred over the last 30 years. National rural policies and market trends have led most of these communities to settle in the valleys and practice irrigated agriculture; a practice made possible by the spread of electrically powered tubewells.

As these farming activities have complemented but not replaced traditional sheep and goat raising, the rangeland areas surrounding these settlements have experienced significant overgrazing and an overexploitation of fuelwood resources. This has caused substantial degradation of the vegetation cover, increased evaporation and a subsequent decrease in the recharging of the water table, whose current rate of exploitation far exceeds its already limited capacity for natural regeneration.

As in other areas of the region, rangeland degradation in the Kanak Valley is now a major environmental problem that directly affects fodder production and household

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fuel supply and also has a significant impact on both irrigated and rainfed agriculture. To address this problem, the PUCD project launched a collaborative rangeland rehabilitation and management programme, the Village Upland Use Plan.

This programme began by raising the community's awareness of the risks related to rangeland overexploitation and motivating the people to join the project in searching for technical measures that could contribute to a solution. To this end, staff and villagers organized a study tour to the rehabilitated and replanted demonstration areas established by the Arid Zone Research Institute in neighbouring zones of Balochistan. The findings from this visit were disseminated throughout the project area through a social communication campaign, which included video presentations, slide shows and thematic discussions.

Following these activities, interested Village Associations, in collaboration with project staff, prepared a rangeland management and revegetation plan. This plan, which was implemented with the assistance of FAO's Integrated Range and Livestock Development Project, included:

- the use of participatory mapping to identify the existing pattern of rangeland resource use and the areas that according to local tenure arrangement could be used for collective management;

- the revitalization of the traditional social fencing practices; and

- the planting of drought-resistant indigenous and exotic species (e.g. saltbush, *Atriplex,* pistachio) to facilitate and speed up the natural revegetation process.

For four years, in six locations, the Village Upland Use Plan protected about 665 ha of rangeland. A total of 60 500 seedlings and cuttings were planted and watered during the dry season. Almost half survived.

Data concerning production, the changes in ground cover and the inventory of species were collected annually in collaboration with Village Associations through permanent transect lines and sampling areas in the protected rangelands. Preliminary results indicated that a forward succession was taking place with the re-establishment of plant species that had disappeared due to overuse and uprooting for fuelwood production. Within four years, the older plots showed a dramatic improvement in vegetation cover. As a result of this experience, Village Association members realized that highly degraded rangeland areas can become productive again, and their interest towards the programme increased.

Significantly, these positive results where also achieved when social fencing was only partially effective due to social conflicts within the village. This suggests that the programme could introduce rotational grazing right from the start, at least in the less degraded areas. This would emphasize the 'conservation by use' objective of the initiative and increase its social acceptability.

Based on Mori and Rehman, 1997

Finally, in Tunisia, a collaborative plan for managing State-owned forests and rangelands in the Oued Sbaihya watershed was established involving local communities and the Forestry Department. This included the payment of government incentives to local interest groups to carry out reforestation activities, the establishment of participatory research plots/parcels to test the cultivation and reproduction of fodder species, and the creation of a legal Forestry Association (see Box 7). As a complementary measure, a social communication campaign was launched and technical assistance was provided to motivate and support women in purchasing improved stoves to decrease fuelwood consumption (see Box 15).

BOX 15

Improved tabouna stoves in Tunisia

During the initial participatory appraisal, two statements made by women from the Oued Sbaihya watershed clearly illustrated the problems related to the gathering and use of fuelwood: "Cut down, cut down the forest will disappear." This refers to the fact that human-induced deforestation is making fuelwood increasingly scarce.

"In winter it is the mud, and in summer it is the burning." These words express how women physically suffer from carrying the wood on their backs under the winter rains and the summer sun.

To find a solution to these problems, the project promoted the introduction of low-cost metal covers for traditional mud *tabouna* stoves. Methods for disseminating this technology (originally developed by the Agency for Energy in the north-western region of the country) were discussed and negotiated with the interested women during participatory feasibility analysis exercises. These exercises included group sessions that raised the women's awareness about some of the advantages of this technology: reduced fuelwood consumption, time saved in baking bread, decreased risk of fire, less smoke pollution and a reduced workload for women. Training sessions were then held on how to set up and use the *tabouna* covers, and the new technology was made available at the cost of 5 Tunisian dinars, the equivalent of one and a half days' wages.

By the end of 1996, 31 families, representing one-fourth of the households targeted by the initiative, had bought a *tabouna* cover. However, the adoption of this new technology in the area was slower than expected due to technical problems in operating the new stoves and to men's resistance to investing in a product they did not perceive as a priority need.

Based on M'Hamdi, 1996

The case described in Box 15 highlights a further important lesson learned by the project in the area of promotion of sustainable CPR management:

- **Rural women play a pivotal role in CPR management, which is, however, often overlooked because of the gender roles and the power structure prevailing in the community. Thus, no participatory initiative aimed at improving the sustainable use of fuelwood, rangeland or water source is complete without measures aimed at supporting women's empowerment in decision-making.**

1. It should be noted, however, that the high priority given by interest groups and communities to organizational, social and economic issues at the beginning of the project was also related to the comprehensive and open-ended design of the initial participatory appraisal and planning exercises (see Section 2.1.). A more focused initial appraisal design probably would have led people, from the beginning, to concentrate on actions aimed at promoting improved natural resource management practices, making implementation more responsive to the project's core mandate. However, it also would have resulted in the project being less responsive to people's 'felt needs' and prevented the 'integrated' dimension of the project's approach from being fully developed.

2. However, in a later stage, the value of the 'entry point activity' approach was questioned by the NFT in Pakistan, which did not find it to be conducive to increasing the community's motivation in addressing the serious environmental problems affecting the project area.

3. Available cash is instead used for informal money lending (at a rate varying from 24 to 36 percent per year), which provides a much better return and entails lower risks than investment in irrigation schemes, stall-feeding or any other measures for improving farming systems.

Chapter 4

Participatory Monitoring, Evaluation and Replanning

Participatory implementation involved the progressive testing and validation of organizational and technical solutions to problems identified through participatory planning. This problem-solving process required a steady flow of information that allowed stakeholders to: monitor the project's implementation (i.e. refine plans according to practical contingencies); evaluate the process and outcomes (i.e. draw lessons from experience); and plan a new implementation cycle that took into account the findings of this evaluation.

To facilitate the generation and use of this information, all NFTs made efforts towards establishing a participatory monitoring, evaluation and replanning (PME) practice at the community level.[1] Special attention was paid to identifying and testing criteria and procedures simple enough to be incorporated into the regular activities of farmers, grassroots organizations and local institutions.

The project's community-level PME practice developed as an action-learning process involving both staff and participants. Project staff played a major role at the start of the process, but local participants progressively took over the responsibility for PME activities as the project progressed.

4.1. Participatory monitoring

Participatory monitoring consisted of the continued follow-up of the organizational and technical aspects of an activity's implementation. It was conducted by the local participants, with some support from project staff.

Participatory monitoring paralleled the implementation process and was intended to enable participants and staff to conduct the following tasks:

- assess the progress made in implementation;
- identify and address difficulties and constraints in implementation; and
- revise the implementation plans accordingly.

The PUCD project learned several lessons in this area:

- **To prevent participatory monitoring from becoming a very time-consuming task that can easily overburden field staff and participants, and subsequently be poorly accepted, it should concentrate on those aspects of the implementation process that the stakeholders perceive as being particularly important.**

- **Building the participants' capacity to monitor their own plans and activities is essential for making the participatory process sustainable.**

- **Progressively refining the terms of reference for collaboration may significantly contribute to creating or maintaining good relationships among partners.**

- **Participants greatly require professional follow-up to technical innovations introduced by the project in the areas of farming systems and CPR management.**

Based on these lessons, after initial testing during the project's first phase, participatory monitoring practice progressively focused on three selected elements: self-monitoring by grassroots organizations, the monitoring of implementation agreements and technical monitoring of natural resource management activities.

Self-monitoring

In each country, self-monitoring was considered to be a basic feature of the operating procedures of interest groups and community organizations. Promoting this practice was thus part of the project's assistance in building the managerial capacity of grassroots organizations. At the start of the project, staff facilitated self-monitoring, yet this type of support tended to be withdrawn once the group or organization became self-reliant.

Self-monitoring by grassroots organizations focused on their internal operations (e.g. the participation of members in activities, the payment of association fees, the management of conflicts, task-sharing among group members, scheduling and logistical arrangements of working sessions). It consisted of the following activities:

- verifying whether ordinary duties mandated by internal regulations were honoured by all group members;
- assessing whether commitments made in previous meetings were accomplished appropriately and on time;
- solving problems progressively met during the implementation of the activity; and
- organizing the continuation of ongoing work.

When relevant, participants also self-monitored their income generating activities. Staff developed simple accounting systems to facilitate this task and provided training to interest group members.

Group meetings were the core element of self-monitoring. In Burundi, Nepal and Pakistan, these meetings were part of a monthly routine and were established by the group's internal regulations. In Bolivia and Tunisia, groups adopted a more flexible approach and carried out self-monitoring activities when members felt they were needed.

For the sake of transparency, groups were encouraged to record the minutes of their meetings. Financial records were mandatory for groups and organizations that had a common fund or had obtained a loan.

A major obstacle to record-keeping was the low level of education, especially among women. To overcome this problem, the project provided assistance, generally by offering group members who already had basic literacy skills training in keeping minutes and in accounting. However, this did not prevent self-monitoring from being mostly an informal, verbal and qualitative exercise, deeply rooted in the community's patterns of social interaction and local knowledge.

Monitoring of implementation agreements

Periodic joint monitoring meetings among participants and project staff, or the staff of partner institutions, were designed to follow up on the terms of reference established by implementation agreements and to complement self-monitoring. These meetings were generally held when significant steps in the activity's implementation had been completed (e.g. preparing a parcel of land for planting, building a stall for livestock or digging a latrine pit), or before the project delivered major inputs (e.g. seedlings, loans for buying animals or building materials). Special joint monitoring meetings were also held when

BOX 16

Participants' views on participatory monitoring

Though self-monitoring is a relatively new and 'trendy' idea among rural development practitioners, it is already part of a farmer's daily life. An informal follow-up to organizational arrangements, timing, costs and the technical quality of the work is essential to most of the activities carried out by local communities (such as clearing a new field, testing a new crop, digging a well, building a bridge or even organizing a feast).

In all PUCD project field components, this background was instrumental in raising the awareness of interest groups and community organizations as to the importance of self-monitoring. The following statements represent some of the opinions on this subject collected during focus group interviews carried out in Bolivia, Nepal and Pakistan:

"In Paredones we keep a record book in which we write down the decisions made. Project staff commitments are written, as well as farmers' commitments. And when somebody is not fulfilling what is written, we say to each other: 'You see, here is an unfulfilled commitment.' This is our way to monitor, because what is not written, cannot be claimed. When something is written we can immediately claim it." (Member of the *Organización territorial de base* of the Community of Paredones, Bolivia)

"At the end of each month, we hold a general meeting. The meeting reviews the mistakes made and the reasons behind the failure of the activities, and attempts are made to correct and not to repeat the same mistakes in the near future." (Member of the Pragati Women's User Group, Nepal)

"Due to the absence of monitoring, our programme has come to a halt now. The monitoring job is the responsibility of the group, but so far we have not been able to monitor. Yet, in the near future we expect to accomplish this task as well." (Member of the Bhawana Women's User Group, Nepal)

"When Association's members are constantly asking each other about the progress, then the problems being faced come up. Discussion resolves the problems. Nothing can be finished without monitoring. In this way, if there is a conflict between the members, or there is a problem in implementation, then it can be removed. If somebody needs guidance, then other members can help him." (Member of a Men's Village Association, Pakistan).

Based on Warren, 1998

unexpected difficulties or unforeseen factors affected the group's or the project's ability to fulfil some aspect of the agreement.

The procedures adopted to monitor implementation agreements usually included the following activities:

- a joint review of the progress made in the activity's implementation, based on the project's and the group's records and, when relevant, on on-site inspections;

- a comparison of the current state of the activity and the specifications made in the implementation agreement, such as the technical features, the implementation schedule, labour requirements and inputs to be made available; and

- a group discussion to identify problems and possible remedial actions and to modify the implementation plan accordingly.

The major decisions made on these occasions were noted in the group's record books and in the project's files and kept as a reference for the next joint monitoring meeting.

The periodic monitoring of implementation agreements was highly instrumental in:

- providing participants with external feedback on their organizational and technical performance;

- changing the original design of the activity in light of practical contingencies; and

- making project staff and management aware of what was happening in the field.

To facilitate the latter task, all NFTs developed special formats for organizing the information from the joint monitoring meetings. Computerized databases were also created, allowing for the rapid identification of the progress made by different groups at a given point in time. This information was essential for the

project to deliver technical assistance and material inputs according to the state of implementation of each local initiative (see Box 17).

Technical monitoring of natural resource management activities

Project staff conducted technical monitoring for individual participants or groups involved in activities requiring innovative practical skills and know-how, such as on-farm experiments and CPR management initiatives. This was done through participatory extension visits during which farmers and staff conducted field observations and measurements, discussed this information in light of previous records, and agreed upon actions to be taken to correct technical errors and deal with subsequent stages of the activity or experiment.

To facilitate these activities, the NFTs developed a variety of record-keeping formats (e.g. records of nurseries and of plantings, records of demonstration plots, records of degraded land revegetation, and records of animal raising, containing information on basic veterinary care). The extension staff in charge managed most of these technical monitoring records. Attempts to transfer technical record-keeping and analysis to participants proved to be difficult in most cases. Due to the capacity of people living in oral cultures for memorizing significant facts and events concerning their work and daily life, participants sometimes questioned the relevance of this additional paperwork.

The PUCD project learned an important lesson in participatory monitoring:

- **To be truly participatory, monitoring tools and procedures should be consistent with the local culture, in particular, with the indigenous means of learning and communication, people's schedules, patterns of social interaction and manners.**

4.2. Participatory evaluation

Participatory evaluation aims at extracting the lessons from the implementation experience. It is conducted by participants and staff through interactive techniques. It strives to identify both the positive and negative aspects of the work completed and to provide suggestions for future plans.

In the PUCD project, participatory evaluation proved to be essential in refining the content and methods of participatory implementation. Furthermore, by linking past experience and future planning (see Section 4.3.), it contributed to ensuring continuity and 'vision' to the overall participatory process.

Significant differences existed in the participatory evaluation practices developed by NFTs and in the degree to which the relevant methodologies were con-

BOX 17

Monitoring of participatory implementation in Nepal

A participatory planning exercise carried out in the Bhusunde Khola watershed led to the formulation of 26 Community Action Plans, which included 226 activities. Of these, 96 physical activities and 33 training activities were assessed as feasible and became the subject of a project/User Group implementation agreement. To ensure the timely delivery of technical assistance and material inputs based on the progress made in the implementation of each activity, a simple Community Action Plan monitoring system was established.

This monitoring system focused on a Community Action Plan Database, which was designed by the staff member in charge. It consisted of a spreadsheet with the following main columns:

- Village Development Committees and the ward in which the hamlet is located
- Name of the hamlet
- Name of the activity
- Number of expected beneficiaries
- Contribution of User Group(s)
- Contribution of the project
- Other line agencies to be involved
- Total estimated cost
- Date of agreement
- Date of expected completion
- Monthly status of the activity

This information was linked with a second database, developed by the project's administrative assistant to monitor the financial aspects of the initiatives, such as the purchase and delivery of materials.

Both databases were updated every month based on the information collected by mid-level technicians, field assistants and group promoters through meetings with the User Groups concerned and on-site observations.

Monthly cross tabulation of data in the two spreadsheets allowed the staff in charge to prepare several monitoring tables, the most important of which were the 'status of ongoing activities' and the 'delivery of inputs'.

Although problems in information flow often affected the reliability of this information and increased the time needed to update the databases, the procedure was highly instrumental in facilitating the proper management of the project's field operations at the community level.

Based on Qwist-Hoffmann, 1996

solidated. This was due to the variety of specific learning needs addressed through participatory evaluation exercises. Moreover, in most of the countries, participatory evaluation practices were established only towards the end of the project's second phase, leaving little time, to date, to systematize the experiences in this area.

Nevertheless, there were a number of general lessons learned:

- **Participatory evaluation should focus on the participatory process itself, on the technical quality of the work performed and, when possible, on the effectiveness of the activities (i.e. the degree to which the objectives were achieved).**

- **Qualitative and quantitative techniques can be used in participatory evaluation exercises. However, technical aspects of data collection and analysis should be kept to a minimum so that the greatest possible number of individuals can participate.**

- **Rural people have a strong capacity to make sound judgements about their work and its results. However, evaluation may be a culturally sensitive activity. Thus, special attention should be paid to establishing a synergy between participatory evaluation exercises and indigenous, informal evaluation practices.**

- **At the start of the project, staff must facilitate community-level PME activities. However, the responsibility for organizing and implementing such activities should be delegated to trained community members as soon as possible.[2]**

Criteria for participatory evaluation and types of evaluation exercises

Different criteria can be used to evaluate implementation. The criteria most commonly adopted in the framework of the PUCD project included: the performance of interest groups/community organizations and their relationship with partner institutions; the technical quality of the completed work; the costs and benefits of implementation; and the effects on farming systems and natural resource management.

Different types of evaluation exercises were developed for each of these criteria. Most assessments of group performance and partnerships consisted of a periodic review of self-monitoring findings (see Section 4.1.). These reviews significantly contributed to identifying measures for improving the group's ability to make decisions and to take action (e.g. the amendment of internal

rules, the need for management training, and changes in task-sharing and leadership). The reviews were also instrumental in modifying the terms of reference of existing partnerships to meet the group's development needs.

BOX 18

Participatory evaluation as a learning process: project participants' views

The following statements from focus group interviews reflect the views of some PUCD project participants regarding participatory evaluation.

"In Vallecito, evaluation is done with the active participation of the community, of those who actually work and are in need of project support. There is also a technical part, which is carried out by the project. In this way, we, the participants, and project staff, see what has been done, if it has been done properly, if it has been followed up properly, and if agreements have been accomplished or not. In cases of poor achievement, we assess if this depended on bad luck or other factors. In this way, together with the project, we can find the reasons for success and failure and make better decisions for the future." (President of the *Organización territorial de base* of the community of Vallecito, Bolivia)

"We evaluate each activity at the general body meetings; we carefully assess whether the activity (such as trail construction, water tap, vegetable farming, etc.) benefited us or not; we also consider whether we are just wasting our time or if the time invested is giving us fruitful results. If we feel that we have benefited from the project, then we continue the activities." (Member of the Pragati Women's User Group, Bhusunde Khola watershed, Nepal)

"Some benefits [elicited by participatory evaluation] can be seen soon and some take time, maybe years...The results of new ways of pruning or the use of proper medicines are now so obvious that everybody has started to adopt them. When the project staff did pruning in my orchard I was angry. I could not do anything and had to let them to do it. They cut almost all the branches. My heart wept. But, when the season of the flowers came [and the evaluation was done] my heart was overjoyed." (Member of a Men's Village Association, Kanak Valley, Pakistan)

"For the first time, we have evaluated all the project activities together. We have found results very encouraging, and we would like to continue this process in the future because it helps to know what are the weaknesses and what are the strong points of our activities." (Member of a Women's Village Association, Kanak Valley, Pakistan)

Based on Warren, 1998

Evaluation exercises focusing on the technical quality of the work sought to answer the basic question: "How good are the results of our work?" These evaluations considered physical work (such as building infrastructure, establishing soil conservation measures and reforestation works) and assessed whether the work was done according to the recommended technical specifications and whether these specifications were sound. These exercises, jointly carried out by the farmers concerned and the project staff, often contributed to identifying immediate actions for upgrading the work and led to suggestions for improving the technical design of similar works in the future.

Simple and informal cost-benefit analyses of income generating activities were carried out in Bolivia, Burundi and Pakistan to determine whether earnings were covering investments and meeting expectations. This type of analysis attempted to point out the adjustments that could be made in production, marketing or financial management in order to decrease costs and increase benefits.

Evaluation techniques and tools

The agricultural and environmental effects of selected activities for farming system improvement and natural resource management were evaluated to assess the extent to which the objectives had been achieved, such as increased yields, decreased soil loss, decreased labour requirements and improved revegetation coverage. Based on a before/after comparison, these exercises contributed to validating on-farm research findings.

As with any assessment, participatory evaluation combines facts with opinions. Due to the sensitivity of this task, the use of interactive participatory techniques and tools for generating and processing information was essential for ensuring the relevance and consistency of judgements.

The participatory evaluation techniques and tools used in the framework of the project included those described below.

Thematic group discussions. Interaction among participants in evaluation meetings was facilitated by posing such basic evaluation questions as: "What do you like and dislike about...?"; "What were the main problems or constraints?"; "What did you invest in the activity and what did you get out of it?"; "To what extent were objectives achieved?", etc. Thematic group discussions were a multipurpose exercise used for almost all types of assessment. They also provided the setting in which more specific evaluation techniques were applied.

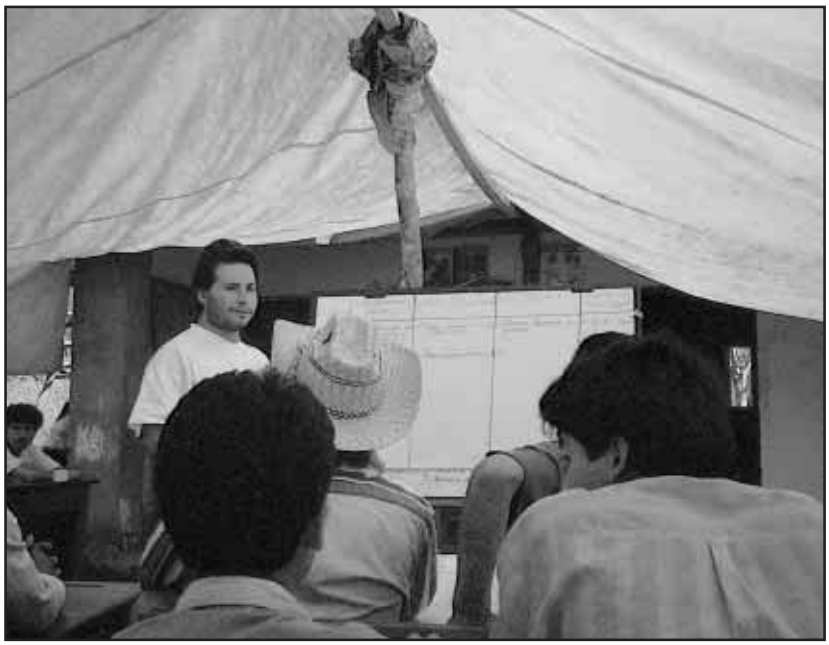

Photo 10
SWOL analysis session in Bolivia

On-site observations. For evaluating the technical quality of physical works, direct observation is always more suitable than verbal reports. Based on this principle, which is highly consistent with farmers' informal evaluation practices, groups of participants went to the site to judge for themselves the positive and negative aspects of the work completed. Facilitation questions (see preceding paragraph) and the subsequent interaction among participants stimulated and oriented the observations. When appropriate, simple measurements were also taken (e.g. plant survival counts, the duration of erosion control works and the amount of water provided by supply systems).

Strengths, Weaknesses, Opportunities and Limitations Analysis. SWOL analysis consists of asking participants to identify an activity's positive aspects ('strengths'), its negative aspects ('weaknesses'), the aspects that could be improved ('opportunities') and the aspects that cannot be improved ('limitations'). Several variants of this popular interactive technique were used in different countries.[3] SWOL analysis was especially suitable for process evaluation exercises focusing on group performance and partnership (see Photo 10). However, it was also used for assessing implementation results as well (with the objectives achieved listed as strengths and those that were not achieved listed as weaknesses). Lists of weaknesses and opportunities were highly instru-

mental in diagnosing problems encountered in implementation and finding possible solutions (see Box 19).

Identification and scoring of key indicators. This technique was developed in Pakistan and was used to assess the social effects of small-scale public works, the environmental impact of rangeland management activities and, in a slightly modified version, the comparative advantages of improved crop varieties. Participants were asked to list the activity's objectives and to provide, for each of these objectives, an indicator of achievement. Participants in the

BOX 19

SWOL analysis of the potato seedlings rotation fund, Bella Vista, Bolivia

WHAT WAS DONE WELL?	WHAT PROBLEMS WERE ENCOUNTERED?	HOW CAN THESE PROBLEMS BE OVERCOME IN THE FUTURE?	WHAT ARE THE CONSTRAINTS THAT CANNOT BE CONTROLLED?
1. Income increased by 75 percent.	1. Production was affected by excessive rain.	1. Sow before the beginning of the rainy season. Look for parcels with better drainage.	1. The weather.
2. Potato seed storage facilities (silos) have been built.	2. Storage facilities were far from the field so that carrying the seedlings to the group's silos was too labour-intensive.	2. Build smaller individual silos, close to the fields.	2. The high cost of building individual silos.
3. Soil conservation measures proved to be effective.	3. A lot of labour was needed.	3. Encourage mutual help among group members.	3. Insufficient time.
4. Loans were repaid by most group members.	4. Some group members withdrew from the credit scheme.	4. Develop stricter rules.	4. Insufficient power to enforce the rules.

Based on Warren, 1994b

exercise then rated each indicator on a scale of one to five, or judged it using the following categories: very good, good, acceptable, fair and bad (see Box 20).

Problems, causes and solution analysis. This technique was also developed in Pakistan and was often combined with the identification and scoring of key indicators (see preceding paragraph) to analyse those aspects of the activity's implementation that were perceived as particularly problematic. Participants in a thematic group discussion were requested to describe the main problems encountered during the implementation process, identify their causes and list a

BOX 20

Participatory evaluation of latrine demonstration through the scoring of key indicators, Raza Mohammad, Pakistan

OBJECTIVES	INDICATORS	SCORE
To save time	Number of hours saved One hour per day was saved because cleaning the compound has become easier.	5 (Very good)
To improve health conditions	Flies in the compound There are fewer flies because the compound is now free of children's faeces and rubbish.	5 (Very good)
To increase privacy and provide shelter from rain and snow	Women's privacy and protection All latrine owners appreciated this improvement.	4 (Good)
To replicate the construction of latrines throughout the village	Number of latrines built After initial demonstrations in two compounds, four more latrines were built in the village.	4 (Good)

Based on Mori, 1996b

number of possible remedial actions. This technique was instrumental in pointing out the difficulties in the implementation process and in finding suitable alternatives (see Box 21).

Participatory cost-benefit analysis. Simple cost-benefit analyses were carried out in Bolivia, Burundi and Pakistan to allow participants to quantify inputs (labour, land, materials) and outputs (earnings) of their income generating activities (see Box 22). By comparing costs and benefits, critical problems in generating income and methods to overcome these problems were identified.

Slide language and photo albums. Participants or staff took photographs documenting the activity or its outcomes and later presented them and commented on them as a starting point for thematic group discussions. This technique was often used as an indoor substitute for on-site observations. Slides proved to be more suitable than prints for this purpose because the larger picture provided greater detail and allowed for a 'hands-on-screen' interactive approach. Slide

BOX 21

Analysis of problems met in rangeland rehabilitation, Lehri, Pakistan

PROBLEM	CAUSES	SOLUTIONS
Illegal grazing in protected areas	A rumour spread that if plants were allowed to grow, then the Forest Department would seize the area. Parents were not aware that their children were bringing animals into the protected area. Since the protection of the area was not strictly enforced and animals were seen inside the area, others felt authorized to do the same.	Misunderstandings about Forest Department policy should be clarified. A local authority (i.e. five elders permanently living in the village) should be appointed to ensure protection. Fines should be applied to transgressors. Proceeds from the fines should be deposited in the Village Association's cash box. The present watchman should be replaced by a new watchman.

Based on Mori, 1996b

BOX 22

Participatory cost-benefit analysis, Lehri, Pakistan

COSTS		BENEFITS	
Netting	25 rupees	120 eggs per month for 12 months at 2 rupees an egg	2 880 rupees
Lime	40 rupees		
Feeder	65 rupees	10 layers sold at 100 rupees each	1 000 rupees
Drinker	70 rupees		
12 chickens	900 rupees	TOTAL INCOME	3 880 rupees
Service fees (10 per-cent interest on loan)	110 rupees	EARNINGS	
Feed	1 200 rupees	TOTAL INCOME –	3 880 rupees –
Veterinary care	160 rupees	TOTAL COSTS =	3 100 rupees =
Labour (estimate)	530 rupees		780 rupees
TOTAL COST	3 100 rupees		

Based on Warren, 1995a

language was particularly well-suited for community-wide evaluations and replanning workshops (see Section 4.3.) because it stimulated social communication. It was used in Pakistan to review improvements in rangeland rehabilitation by displaying visual evidence of the changes that had occurred over time. In Bolivia, tests of slide language produced promising results in evaluating the technical quality of the completed works and the comparative advantages of new agricultural techniques (see Photo 11). However, the use of slide language was discontinued in Bolivia because project staff found it to be too sophisticated and expensive to be sustained without project support.

Change mapping. This technique consisted of asking participants to identify social and environmental changes resulting from an activity (households provided with safe water; fields with erosion control measures; reforested areas,

etc.) and plot them on a farm or community map using appropriate symbols (see Box 23). Community maps prepared during the initial appraisal were used as a background on which improvements from the baseline situation could be charted (i.e. the impact of the activity as perceived by the participants). Change mapping was especially useful for summarizing and reviewing the effects of community development efforts. In Nepal, it was used during community-based evaluations and replanning workshops (see Section 4.3.; see also Photos 12 and 13).

BOX 23

Impact of project activities as identified by User Group members during a change mapping exercise, Majghaon, Nepal

ACTIVITY	CHANGES
Forest management	• easier access to fuelwood • more rational use of forest resources • increased group cohesion • increase in User Groups' funds
Distribution and plantation of forest, fodder, and grass seeds and seedlings	• increase in milk production • use of wasteland • more widespread interest, within the community, in tree planting
Compost-making and vegetable gardening	• increased awareness of the importance of women's self-organization • time saved because manure is available on the spot • supply of healthy and fresh vegetables • income generation and increase in User Groups' savings • increase in vegetable production
Water source protection	• supply of clean water • decrease of diarrhoeal diseases • time saved • identification of a way to share the work according to the activity's expected benefits • increase in the quantity of water at the source • use of surplus water for livestock and irrigation

Based on Warren, Moktan and Chapa, 1996

Photo 11
Slide language session in Bolivia

Photo 12
Change mapping in Nepal

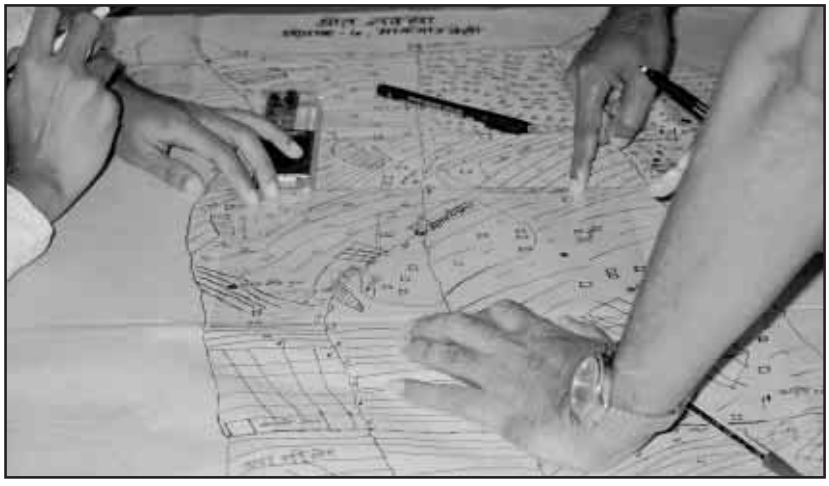

Photo 13
Change mapping in Nepal (detail)

4.3. Linking participatory evaluation and replanning

In the PUCD project, evaluation was primarily meant to be a learning opportunity for participants and other stakeholders, including project staff. Thus, evaluation exercises should end with a number of practical suggestions for improving the process and the outcomes of collaborative implementation.[4] The PUCD project learned a core lesson in this respect:

- **Efforts made to collect and process evaluation information are worthwhile only if the knowledge gained is applied to further planning and implementation. Field practice has shown that this can be best achieved if evaluation and replanning are incorporated into a single exercise, in which the review of past experience is followed almost immediately by the preparation of a new plan for continuing, modifying or expanding the activity or broader initiative.**

By linking two subsequent and different cycles of activities and outcomes, evaluation and replanning exercises play a pivotal role in the continuity of the participatory process. Thus, all NFTs paid special attention to identifying procedures for carrying out evaluation and replanning exercises that suited the nature of the activity and the type of social actors involved (individuals, interest groups, community organizations or agencies working throughout the entire area or watershed).

Participatory evaluation and replanning on single farms or parcels was conducted in Bolivia to assess the technical quality and effectiveness of soil conservation measures implemented by individual farmers on selected fields or on the entire farm. The evaluations consisted of on-site observations, jointly conducted by project experts and the farmer, using a checklist of key aspects. This information was used to identify both the amount and type of assistance the farmer would need for the next season, including training, extension services, special inputs, etc. Based on these findings, a field or farm soil conservation plan was drafted.

Participatory evaluation and replanning exercises focusing on individual activities were carried out in different countries. In Pakistan, interest groups performed participatory evaluation and replanning exercises focusing on community infrastructure, income generating activities, on-farm experiments or natural resource management initiatives. The techniques used for these evaluations included the identification and scoring of key indicators; problems, causes and solution analyses; and, for income generating activities, participatory cost-ben-

efit analyses (see Section 4.2.). This approach was instrumental in eliciting the participants' perceptions of the activity's accomplishment, identifying the main problems in the implementation process and incorporating measures to improve new plans. In some instances, these evaluation exercises revealed major shortcomings in the activity's design, which led to the initiative being radically reoriented or, on some occasions, abandoned.

Community-wide evaluation and replanning workshops were organized annually in Bolivia, Burundi and Nepal to assess the work done during the previous planning cycle, to encourage interest groups to share their experiences with the community, to identify additional problems and needs, and to formulate a new action plan. Led by members of the interest groups, these workshops consisted of a series of exercises conducted in small groups and plenary presentations to the entire community. These plenary sessions allowed for an interchange among groups and the identification of possible links among their activities. Furthermore, the workshops' 'open door' approach encouraged the participation of people not directly involved in the community's development initiatives, including children. Most of these workshops became broad social communication events, through which key messages on participation, improving living conditions and natural resource management were effectively circulated throughout the entire community. The following is an important lesson learned by the PUCD project in this respect:

- **Evaluation and replanning workshops represent a unique framework for including in the participatory process those sectors of the local community that have not participated in previous cycles of activities. Thus, community-wide evaluation and replanning workshops are highly instrumental in decreasing the risk of exclusion of marginalized groups.**

In Bolivia, evaluation and replanning workshops lasting one or two days were organized in collaboration with interest group leaders, local political authorities (*Corregidores*) and the community's official development body, when one existed. These workshops typically included an on-site observation session, a strengths and weaknesses analysis exercise, and the completion of a participatory planning matrix. Slide language was also used on some occasions (see Box 24; see also Photo 14).

In Nepal, similar two-day workshops were carried out at the hamlet or ward level with the participation of representatives from User Groups and local polit-

BOX 24

An evaluation and replanning workshop, Bella Vista, Bolivia

Bella Vista is a small community in a remote valley of the Upper Piraí watershed. The five existing interest groups began collaborating with the PUCD project focusing on agricultural and forestry activities, including potato cultivation using soil conservation techniques, bee-keeping, building a water mill and coffee cultivation in forested plots of land.

After one year, participants and project staff felt the need to assess their joint activities. To this end, a two-day community-wide evaluation and replanning workshop was organized.

To prepare the workshop, project staff visited the Bella Vista valley to review and document the state of implementation of current initiatives. During this visit, staff discovered that several people who had not yet taken part in activities promoted by the project were interested in joining the ongoing participatory development process in the community.

The workshop was therefore designed taking into account the needs of both participants and non-participants. Its programme included:

- a series of plenary presentations conducted by representatives from interest groups about ongoing initiatives; the presenters discussed slides documenting the organizational and technical aspects of the activities being implemented and their preliminary results;
- SWOL analysis exercises, carried out by interest group members and facilitated by project staff;
- a needs assessment exercise allowing non-participants to express their expectations and desires;
- a plenary presentation of the results of these exercises; the presentation encouraged exchanges among different interest groups and non-participants; and
- the completion and subsequent discussion in plenary sessions of participatory planning matrices, which outlined actions to be taken to continue the ongoing activities and to initiate new ones.

As a result of this process, several new members of the community joined the existing interest groups. Agreements for extending soil conservation practices were also made with a number of new farmers. Furthermore, new development initiatives were launched in Bella Vista, including the establishment of tree nurseries and fish ponds, forest management activities and environmental education.

Based on Warren, 1994b

Photo 14
Participants in a participatory evaluation and replanning workshop in Bolivia

ical authorities. The workshop consisted of a change-mapping exercise, an on-site observation session, an SWOL analysis, focusing on the implementation process, and a replanning exercise. The workshop ended with the discussion, formulation and approval of a new Community Action Plan.

In Bolivia, Burundi, Nepal and Pakistan, evaluation and replanning assemblies were organized at the watershed level and involved interest groups, communities and institutions from the entire project area.

In Bolivia, delegates of grassroots organizations were invited to take part in area-level evaluation and replanning workshops. These delegates helped to interpret, from the community's point of view, the figures and records from the project-level monitoring and evaluation system. Their contribution was also instrumental in the preparation of the project's action plan for the following year.

In Burundi, an annual area assembly was organized during which the findings of interest groups were presented to delegates from every grassroots organization and local development institution. Based on discussions, a comprehensive annual plan for the entire watershed was prepared.

In Nepal, 'Inter-group Linkages and Experience Sharing' workshops were organized in different sectors of the Bhusunde Khola watershed. These workshops were designed to collect information on the project action from repre-

sentatives of User Groups. They also provided the project with an opportunity to determine the level of understanding of its approach and initiatives. The techniques used included an assessment of the strengths and weaknesses of the project/User Group partnership and a problems, causes and solution analysis of the main constraints encountered in participatory implementation. The results of these workshops were instrumental in refining the partnership's terms of reference, including its cost-sharing policy.

Two Villagers' Conventions were organized in Pakistan to facilitate a participatory evaluation of water and rangeland management measures promoted by the project, and to take stock of the overall project experience. The latter was done according to the findings of a participatory evaluation exercise carried out by the Women's Village Associations (see Box 25). It contributed to facilitating the transfer of the PUCD project's responsibilities to Village Associations and local institutional partners.[5]

BOX 25

A rural women's evaluation of the project experience, Kanak Valley, Pakistan

By the end of the project's second phase, staff and participating community members believed a comprehensive evaluation of the project's work in the Kanak Valley was necessary. To be consistent with the participatory approach followed since the project's inception, it was felt that participants should lead this exercise. Because the Women's Village Associations during the previous years had gained significant experience in participatory evaluation, the decision was made to entrust this task to a group of women from different villages.

To facilitate the evaluation, the project's Women in Development Team hired a young female sociologist from the University of Balochistan who was familiar with the project and fluent in the local language. She was given a photo album with photographs related to each activity in the project area and a list of thematic group discussion questions. Her job was to help participants identify key activities for which indicators of performance and achievement would be selected.

Thematic group discussions stimulated by the photo album and relevant key questions revealed three activities that the women considered to be the most important for evaluation: rangeland and water management, training and income generating activities, including the credit programme. The project found it extremely significant that women in 13 Associations identified water and rangeland management as a primary focus for the exercise. This demonstrated that a sense of responsibility towards the area's environmental situation had developed among local women, despite the fact that, until that time, they had only been marginally involved in natural resource management activities.

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To introduce women to the concept of 'indicators', a very simple example was used. Team members said: "Look at that tree in your compound. What things would you look at to see if the tree is healthy and growing well? In the same way, what things would tell you how well the activities promoted by the project were implemented and whether they achieved the expected results?"

Surprisingly, the women had little difficulty in producing the following lists of indicators:

- *Water and rangeland management:* knowledge gained by participants about why the water table is getting lower in the Kanak Valley; being able to define what natural resources are; participation in meetings and activities on water and rangeland problems.

- *Training:* number of participants; time spent in training; the application of knowledge and skills gained through training sessions.

- *Income generating activities and credit:* number of repaid loans; types of income generating activities; time spent on income generating activities.

At the end of May, a luncheon meeting was organized to discuss the indicators that were selected and to ask the women to rank them according to importance. Participants in this meeting were also asked to list the aspects of the project that could not be counted (i.e. a number of qualitative indicators). All of the women agreed that two key qualitative indicators for the project were 'trust' among partners and group 'self-confidence'. The women stressed that membership in Associations and access to credit had given them self-confidence and consequently the ability to make decisions, which they had previously lacked.

To continue the evaluation process, eight 'progressive' women (i.e. not restricted by segregation) were selected to conduct interviews with their fellow villagers based on the above quantitative and qualitative indicators. The project paid these women a daily wage. Interviews were conducted with members of the Women's Village Associations in the villages of Babri and Babkani, and with a small random sample of non-participants. For some indicators, such as the number of loans disbursed and repaid, the Associations' records were consulted and the relevant data tabulated. Two literate women from Karez Qadi wrote a community case study.

After collecting data, the evaluation team met in the village of Babkani to discuss the results. The credit programme was clearly the most popular activity among both participants and non-participants. However, every member of the Village Associations and more than 50 percent of non-participants understood that the main objective of the project was related to the regeneration of rangelands.

In this respect, the Associations' members said that when it came to the social communication initiatives on natural resource management, a picture was worth a thousand words. There was unanimous agreement that the use of slide language was the best means of delivering messages on this topic. Khan Bibi from Babkani stated: "At first, when I heard the project staff talking, I thought that they were responsible for saving natural resources. Then, when I saw the slides, I realized that the message was that we were responsible for managing our resources." Finally, the majority of members felt that participation meant 'sitting together to solve problems' and that 'time spent' was a good indicator of the extent of participation. According to non-participants, some of the project's unique aspects included its activities for helping the poor, the fact that it worked directly with women and that quality training was provided in village compounds.

Based on Kane, 1997b

1. The PUCD project made major efforts towards developing a comprehensive PME system, which included both a project-level and a community-level component. *Project-level PME* aimed to support NFTs in planning, following up, and assessing the project's overall process and achievements through simple, conventional PME techniques and tools. *Community-level PME* aimed to support interest groups and communities in learning how to better implement their initiatives and was based on participatory action-research methods. In this document, only community-level PME is described and discussed. A comprehensive review of the PUCD project's PME practice, including a self-assessment by NFTs and a number of recommendations for improvement, has been presented elsewhere (Warren, 1998).

2. In Nepal, increasing emphasis is currently being placed on the User Groups' self-evaluation of their practice and functioning as an organization. This approach is distinct from the evaluation of activities implemented in collaboration with the project.

3. Some of these analyses were limited to the identification of strengths and weaknesses.

4. Linking evaluation with replanning has the additional advantage of increasing people's interest and motivation in engaging in the evaluation exercise.

5. In Pakistan, the project was expected to terminate in October 1998.

PART 3

WITHDRAWING SUPPORT

Chapter 5

Towards the Institutionalization of PUCD Project Experience

As with any other technical cooperation initiative, the PUCD project has a limited duration. Thus, arrangements must be made to secure the continued and sustainable involvement of local actors in the participatory and integrated watershed management process promoted by the project. This entails implementing an institutionalization strategy that allows for the progressive development of the *collaborative dimension* of participatory and integrated watershed management.

In this regard, the concepts of 'local ownership' and an 'enabling political environment' are of particular importance.

Local ownership refers to the willingness and capacity of local communities and institutions to appropriate and take control over the process started with the project's assistance. The PUCD project supported local ownership by:

- building local stakeholders' capacity to autonomously conduct the iterative cycle of planning, implementation, monitoring, evaluation and replanning at the community level;
- creating among local institutions a core group of professionals and field workers sensitized to approaches to participatory and integrated watershed management; and
- establishing or strengthening forums for negotiation and decision-making involving all watershed stakeholders (grassroots organizations, local governments, line agencies, NGOs, international projects, the private sector, etc.).

Enabling political environment refers to the existence and enforcement of a set of regulations that can support the establishment and development of a participatory and integrated watershed management process. These regulations should cover procedures for decision-making at the local level, resource ownership and tenure, incentive schemes, and mechanisms for intersectoral collaboration. To this end, all NFTs did the following:

- kept national-level policy-makers informed of the results achieved in the framework of the PUCD project; and

- promoted the incorporation of methodological elements validated by the project into national or regional (subnational) policies on natural resource management and sustainable development.

From the beginning of the PUCD project, efforts were made to promote local ownership and assist national policy-makers in the development of an enabling political environment for participatory and integrated watershed management. The following is a core lesson learned by the project:

▶ **Since securing the continuity and sustainability of the participatory and integrated watershed management process requires long-term efforts, this cannot wait until the final stages of the project. In fact, relevant activities should parallel community-level fieldwork throughout the entire course of the project.**

However, institutionalization has become an important issue during the ongoing third phase. This reflects the natural emphasis of this phase on activities for successfully phasing-out the project.[1] Institutionalization is thus a work-in-progress for all project national field components. Its preliminary achievements and the main problems met are described and discussed in the following paragraphs.

5.1. Withdrawing support to the local iterative community-based participatory cycle

As pointed out in Section 4.3., after the preliminary experience with participatory appraisal, planning and implementation, evaluation and replanning exercises facilitated the progressive engagement of grassroots organizations in an iterative cycle of decision-making, action-taking and assessment of the work accomplished. Though evaluation replaced the initial appraisal exercise as a starting point, these subsequent cycles were structurally similar to the initial one. However, major efforts were made to allow interest groups and grassroots

organizations to carry out these cycles with less project support (i.e. decreased methodological, technical and financial assistance).

Progressive withdrawal of support to local actors in participatory planning, implementation and evaluation had a dual objective:

- promoting the self-reliance of grassroots organizations in managing their own decision-making and action-taking process; and

- decreasing the costs of support in each site, so that resources could be used to extend the process to other communities.

To achieve these objectives, training in participatory methods was provided to members of interest groups and community organizations in the form of both special workshops and formative supervision in evaluation and replanning. The NFTs in Burundi, Nepal and Pakistan found that training of community-originated and -based group promoters in charge of facilitating the participatory process within their villages was especially useful.

By the end of the second phase, the NFTs' opinions differed in terms of the degree to which grassroots organzations had achieved self-reliance in running these activities. Major progress was made in Nepal and Burundi, whereas less significant results were achieved in Bolivia, Pakistan and Tunisia.

In Pakistan and Nepal, Women's Village Associations and Women's User Groups were found to perform better than Men's Village Associations and User Groups, probably reflecting the fact that in these countries the project placed special attention on capacity-building of women's interest groups and organizations.[2] In fact, comparison of the NFTs' results in promoting the self-reliance of communities in running the participatory process cycle suggests a clear link between the performance of local actors and the quality and continuity of the training received from the project. Appointing and training local group promoters has proven to be a further significant asset. However, three main external factors must also be considered when assessing the degree of self-reliance achieved by grassroots organizations:

- the willingness and capability of local institutions (local government, line agencies, NGOs, etc.) to acknowledge and treat grassroots organizations as partners, rather than as beneficiaries;

- the existence of a local administrative mechanism allowing for collaborative decision-making and action-taking; and

- a national policy framework supportive of people's empowerment and sustainable natural resource management.

The following is a pivotal lesson learned by the project in this regard:

▶ **Transferring to grassroots organizations the responsibility of running the participatory process within their communities is a key requisite for ensuring the sustainability of any participatory and integrated watershed management process. However, successfully transferring this responsibility also greatly depends on the existence of empowering conditions in the institutional environment.**

5.2. Local human resource development

As mentioned in Section 1.4., all PUCD field components made major efforts to improve the knowledge, skills and attitudes of the staff of the local counterpart organizations and partner institutions regarding participatory and integrated watershed management. To this end, the project provided intensive in-service training and offered staff the opportunity to participate in special training activities both within the country and abroad. The project also assisted in making the administrative positions of the trained staff more secure, so that the expertise they had gained would not be dispersed.

The PUCD project learned two important lessons in this regard:

▶ **A training programme capable of coping with the lack of local expertise in participatory development methods and natural resource management is an essential element of any project seeking to establish sustainable participatory and integrated watershed management schemes. During the course of the project, a significant portion of staff time should be devoted to continuing education initiatives.**

▶ **Investments made by the project to build a team capable of promoting participatory and integrated watershed management at the local level should be secured through arrangements that would later allow this team to become part of the staff of local governments, line agencies or NGOs, with positions and responsibilities consistent with their training and experience. Incentives should be found to**

encourage qualified staff to continue working in the locality after the end of the project.

During the project, national and local institutions did not give sufficient recognition, in terms of increased salaries or enhanced career opportunities, to the expertise acquired by their staff working with the PUCD project. Moreover, consolidation of positions of new staff contracted by the project often proved to be particularly difficult. However, it should also be considered that the participatory approach required a radical change in the working methods and habits of the local staff, often requiring increased presence in the field. Some staff members could not or did not want to adopt such methods, whereas others were clearly more motivated and talented to adopt the appropriate working style. On several occasions, both factors affected the stability of the project's field teams.

A further issue concerning local human resource development regards the multidisciplinary expertise required to implement participatory and integrated watershed management. The list of activities identified through participatory planning shows that inputs from several professional areas (forestry, engineering, agriculture, veterinary science, rural economics, social sciences, etc.) are needed for their implementation. Most forestry and soil conservation departments or even specialized watershed management authorities do not have staff with this diversified background. Therefore, ways need to be found to assemble the expertise required to implement the plans negotiated among local stakeholders.

The PUCD project's national field components dealt with this issue in different ways. In Bolivia, from the beginning of the project, a separate unit was established, with some staff seconded from the counterpart institution and others directly recruited or hired by the project or through local NGOs. This approach produced the largest interdisciplinary team of the five national projects and responded to the multisectoral mandate of the project's counterpart: the Piraí Watershed Authority (SEARPI). It was made possible by the relatively low cost of labour in the country and by the managerial decision to hire young professionals, some of whom had no previous work experience, and to provide them with intensive in-service training. The results were highly satisfactory in terms of staff motivation and the efficiency of project implementation. However, at present, the institutional sustainability of such a large project team is uncertain.[3]

The national components whose counterpart institution is a soil conservation or forestry department addressed the need for a multidisciplinary project team by strengthening collaborative relationships with other line agencies. However, this entailed major difficulties in coordination, especially in Nepal and Pakistan, where there is little intersectoral collaboration at the district level. Nonetheless, this approach, compared to that of establishing ad hoc project units, is currently proving to be more instrumental in successfully withdrawing project assistance.

From this experience, the PUCD project learned two major lessons:

- **Participatory and integrated watershed management requires a wide range of technical expertise not available within any single line agency. To meet this need, there are two possible options: hiring ad hoc project staff, or mobilizing professionals from relevant line agencies and institutions. The first option leads to higher efficiency and better team integration; the second allows for easier sustainability and a wider dissemination of the project's approach among local institutions.**

- **In most practical settings, it is perhaps best to strike a balance between these two options. However, when possible, collaborating with permanent staff from line agencies and NGOs is preferable. To this end, it is necessary to develop procedures for facilitating the delivery of these organizations' services to the project, including formal staff exchange agreements with local institutions, payment for local consultancies, non-monetary incentives, etc.**

5.3. Promoting forums for collaborative watershed management

Probably the two most important lessons that the PUCD project learned on the collaborative dimension of participatory and integrated watershed management are the following:

- **Participatory and integrated watershed management entails the coordinated action of a variety of social and institutional stakeholders. Community organizations must be involved, as must local governments, line agencies, the private sector and NGOs.**

- **A participatory and integrated watershed management scheme should refer more to social, political and administrative boundaries than to the physical watershed or groups of subwatersheds.**

Three main factors need to be considered in this respect:

- *Linkages between upstream and downstream areas*. From both the environmental and social point of view, there is a clear ecological link between the upper and lower part of a watershed. Forest conservation and torrent and erosion control in the uplands are beneficial to the lowland environment, whereas infrastructure (main roads, market sites, administrative centres), which are of major economic and social importance to upland communities, are usually concentrated in lowland areas. Thus, both upstream and downstream areas must be included in participatory and integrated watershed management schemes.

- *Economy of scale.* Whereas initially it may be appropriate to conduct small tests within a single community or microwatershed, later on it is necessary to replicate successful pilot microprojects on a wider scale. When participatory and integrated watershed management packages (e.g. erosion control measures, credit and income generating schemes, measures for improving farming systems, extending the coverage of social services, etc.) are expanded to cover the entire territory, the per capita cost of implementation decreases and the social benefits and environmental impact increase. This is especially important for the economic sustainability of the participatory and integrated watershed management scheme in settings where international assistance has terminated.

- *The pivotal role of local governments*. Participatory and integrated watershed management cannot become collaborative if it is not strongly supported by local governments (district authorities, municipalities, etc.). Grassroots organizations must have the option of referring to an administrative authority with whom they can negotiate. Coordination should be established among international cooperation and line agencies working in the area. Development and conservation initiatives should be conducted within a local strategic planning process, coordinated by the government bodies of the municipality or district.

These considerations are especially important in view of the decentralization process and the establishment of bottom-up local planning structures (district development committees, municipal planning departments, etc.) that are progressively taking place in most developing countries, including those in which

the PUCD project has been implemented. In all these countries, the project helped local governments to strengthen their planning strategies and include in these strategies elements of participatory and integrated watershed management.

The main activities the project carried out in this area included:

- *Sensitizing local institutions*. Most policies developed in the 1990s have highlighted the pivotal role that people's participation and environmental concerns should play in local development. However, most local governments of upland districts or municipalities lack an appropriate understanding of these concepts and the capacity to put them into practice. To fill this gap, all NFTs carried out activities to sensitize local administrators and professionals to the participatory and integrated approach to natural resource management and human development, and to improve their competence in this area. Activities included local seminars, visits to communities where new policies had been successfully implemented, and encouraging the participation of local resource persons and politicians in regional and national conventions. Daily interactions with the NFTs and the concrete examples of pilot initiatives supported by the PUCD project played a major role in this process.

- *Promoting intersectoral collaboration among local line agencies and NGOs.* Cooperation among line agencies and sectoral NGOs is essential to local planning and is also a key element in participatory and integrated watershed management. In all PUCD locations, technical assistance was provided to the planning bodies of local governments to coordinate intersectoral actions linking national policies with the demands of grassroots organizations and with non-governmental initiatives in general.

- *Involving the private sector*. In areas where the private sector was found to be a significant stakeholder, representatives of corporations and companies were asked to join the participatory and integrated watershed management process.[4]

- *Legal recognition of grassroots organizations.* In accordance with national laws and regulations, the project supported interest groups and community organizations in acquiring legal status. Legal recognition was essential for

these organizations to be acknowledged as official partners by local governments and public administrations.

- *Conflict management.* During the implementation of the above activities, at times, the project teams had to mediate conflicts among communities and institutions or within the local administration. The mandate received from national authorities and the project's international status have aided these teams in successfully arriving at technical solutions and 'diplomatic' arrangements that satisfy all parties.

Differences in national policies, in the local administrative context and in practical contingencies, have led to a variety of arrangements through which the project has promoted forums for participatory and integrated watershed management. Significant differences also exist in the results achieved to date by each field project in this area.

In Bolivia, the project team has been able to integrate participatory and integrated watershed management into the implementation of the new People's Participation and Municipalities Law. This was made easier by the fact that the territory of the Municipality of Samaipata roughly corresponds to the Upper Piraí watershed (i.e. the project area). Following an official agreement made with the Municipality and the Ministry of People's Participation, the project provided technical and methodological support to forming legally acknowledged grassroots organizations (which act as the communities' official partners with the local government) and to formulating a five-year Municipal Development Plan, covering issues on social development and natural resource management. According to the law, after 1998, the follow-up to the plan's implementation will include a regular official forum for exchange and negotiation among different stakeholders in the Municipality and the watershed.

In Burundi, the project has strengthened cooperation between the Ministry of Agriculture and the Ministry of the Environment and has established a fruitful collaboration with the Direction provinciale de l'agriculture et de l'élevage (DPAE). The DPAE has become the focal point of annual evaluation and replanning assemblies at the *Commune* (municipality) level. These assemblies are attended by local governments, line agencies, NGOs, grassroots organizations and international agencies active in the territory. This collaborative approach allows those involved to focus on the municipality's social and envi-

ronmental problems. After having participated in special training courses organized by the project, DPAE staff members replicated this scheme throughout the Makamba province. This process is currently being continued, and replicated at the national level, by the UNDP-funded programme, to which project experience was handed-over (see p. 116).

In Nepal, despite the fact that there exists a clearly stated policy for the decentralization and democratization of development planning and implementation, the PUCD project has only achieved preliminary results in establishing a forum for participatory and integrated watershed management in the Gorkha District. Project staff have carried out initiatives to strengthen intersectoral collaboration at the district level and have provided training and technical assistance to Village Development Committees (VDCs) in the project area. This process is continuing during the project's third phase. The project will also make major efforts to strengthen the capability of local User Groups to demand services from different line agencies, so that a bottom-up integration process can take place within the Gorkha District Development Office.

In Pakistan, a lack of regular coordinating mechanisms and procedures among the different development actors (such as government agencies, the project and NGOs), and the absence of a people's participation policy at the regional (Balochistan) level were the main constraints in the implementation of the PUCD project. Attempts to create forums for consultation, such as the Villagers' Conventions in Kanak Valley, were not particularly successful in terms of the involvement of local institutions.[5]

In Tunisia, there is a strong and independent coordinating agency for rural development activities at the local (regional) level: the Commissariat régional pour le développement agricole (CRDA). This agency could be the ideal focal point for a forum on participatory and integrated watershed management. However, since the CRDA has, to date, used centralized, top-down planning methods, there have been difficulties in modifying its procedures for making decisions and taking actions so that they are compatible with a participatory bottom-up approach (despite the fact that new national policies strongly advocate this type of approach). Project assistance and mediation have contributed to promoting participatory practices in some of CRDA's departments, particularly in the Forest and Soil Conservation Offices (see Box 7). However, the

process of creating an institutionally acknowledged forum for collaborative watershed management still needs to be consolidated. This important objective will be pursued during the project's ongoing third phase.

5.4. Assistance in policy-making

The PUCD project experience shows that even small initiatives may play a significant role in promoting participatory and integrated watershed management at the national level. Important lessons learned in this regard are:

- **A two-way link can be established between national policies for natural resource management and pilot field experiences in participatory and integrated watershed management. An enabling policy environment is an obvious requisite for the success of field projects; at the same time, field projects may play a significant role in informing and sensitizing policy-makers through appropriate communication, training and lobbying initiatives at the national level.**

- **Efforts aimed at making national policies more supportive of participatory and integrated watershed management are facilitated if there is the political willingness and institutional capacity at the local level to establish effective links for intersectoral collaboration.**

If these conditions are not met, the institutionalization of the project's approach is unlikely to take place. Thus, towards the end of the second phase, the project began to provide technical assistance to policy-makers at both the national and local levels. In fact, a variety of relevant initiatives are currently in progress, according to the institutional opportunities and constraints existing in each country and/or local setting.

In Bolivia, the PUCD project collaborated with an FAO Technical Cooperation Project (TCP) aimed at facilitating the preparation of a National Watershed Management Plan (*Plan nacional de manejo de cuencas*). This allowed several lessons learned by the project to be incorporated into the plan. Moreover, the PUCD project is currently participating in the reform of SEARPI (the Piraí River Watershed Authority, the project's national counterpart), which may possibly include the creation of a Participatory Watershed Management Department within SEARPI. Furthermore, the expertise gained by the project in monitoring and evaluation and in the use of the Geographic Information System may be institutionalized in two ad hoc units to be incorporated in this new department.[6] The department would continue to provide support to the Samaipata area

through the structure created by the project. It would also be in charge of assisting the ongoing replication of project experience in participatory watershed management in the La Palmira watershed (mid-Piraí River watershed), which is currently carried out in collaboration with the Municipality of El Torno. One of the expected outputs of the latter experience is the preparation of policy guidelines on participatory and integrated watershed management, to be discussed in a Santa Cruz Department-wide workshop, to be implemented in collaboration with local congressmen, representatives of the private sector, municipalities and the departmental government. This process is supported by the need, increasingly felt by SEARPI's management, to re-affirm the comprehensive institutional mission and goals of the agency (whose activities in the past have focused on downstream flood protection through civil works). However, financial, political and institutional constraints are currently slowing down this process.

In Burundi, despite the difficulties caused by the civil war, favourable contingencies facilitated the institutionalization of project experience. From its inception, the project was deeply committed to facilitating the integration of the Ministry of the Environment with the Ministry of Agriculture in the Makamba Province. Project staff and consultants trained field staff in participatory methods and promoted their involvement in the participatory process launched in the project area, in collaboration with local interest groups, grassroots organizations and local authorities. Further support to the adoption of the participatory approach at the Makamba Province level was provided by the activities of a local NGO, the Conseil pour l'éducation et le développement (COPED), and by a project funded by the African Development Bank. During the project's second phase, lessons learned through this experience were incorporated into the recommendations for an UNDP/FAO Technical Cooperation Project aimed at assisting Burundi's Government in developing a new policy on integrated and participatory natural resource management. To assist in the implementation of this new policy, a five-year project was subsequently launched by the UNDP. The PUCD project's senior staff members have been deeply involved in the design of this project and are currently in charge of its implementation.[7]

In Nepal, a twofold strategy is being followed to facilitate the institutionalization of the PUCD project experience. At the Gorkha District level, the project's approach has been officially adopted by the local counterpart (the District Soil Conservation Office, DSCO) in the framework of a replication test, carried out

in the Maudi Khola watershed, with very limited external assistance and funding. The DSCO is currently conducting activities for strengthening collaborative links with VDCs and for incorporating issues related to participatory and integrated watershed management into district government planning. There is also a project to transform the Chorkate Base Camp into a centre for field training on participatory and integrated watershed management. At the national level, the PUCD project has established collaborative links with a number of ongoing internationally sponsored initiatives in participatory and integrated watershed management. This has led to the formation of a Working Committee for Soil Conservation and Watershed Management, which involves national institutions, NGOs and international projects. This committee is currently supporting the systematization of the participatory methodologies field-tested in the country and providing advice to the Nepali Government on related policies and legislation.

In Pakistan, a number of political, social and environmental constraints have hindered the institutionalization of participatory and integrated watershed management. This was the main reason for not continuing the project after completion of the second phase. Nevertheless, the Balochistan Forestry Department, in part inspired by the example provided by project experience, has issued guidelines recommending that new projects planned for the region include people's participation, integration of conservation and development activities, and collaboration among local institutions and grassroots organizations. This has allowed the PUCD project's National Project Director (NPD) to start using the Forestry Department's regular funds to replicate the Kanak Valley experience in other areas of the Mastung District. Interesting initiatives are currently being undertaken in promoting people's participation in the stabilization of sand dunes and the rehabilitation of *karez* (the indigenous tunnel wells).[8]

In Tunisia, institutionalization is incipient because the project was begun more recently in this country. At the local level, financial support provided by the Austrian Cooperation represents a major opportunity for strengthening the implementation of field activities in the Oued Sbaihya watershed. Project staff are also collaborating with IFAD in designing a participatory methodology for the Zaghouan Governorate (including the Oued Sbaihya area). Moreover, efforts are being made to stabilize the ongoing collaboration between the project and the different departments of the CRDA of Zaghouan. At the national

level, the PUCD project experience has been shared with other internationally-sponsored initiatives aimed at promoting the incorporation of the participatory approach to natural resource management into national and local (regional) policies. One important opportunity is represented by the request of the Water and Soil Conservation Direction (the project counterpart) for technical assistance in designing and implementing a training course on this subject matter for the field teams in charge of the execution of the natural resource management component of a new European Community/Ministry of Agriculture project, which will be implemented in selected locations scattered over different governorates.

The above review of the perspectives for the institutionalization of the PUCD project experience reveals the complexity and the variety of arrangements for facilitating the adoption of participatory and integrated watershed management in the various local and national, political and administrative settings. Since institutionalization is still in progress, no conclusive lessons learned can be identified. However, a major issue in the institutionalization process should be mentioned: all teams are becoming increasingly aware of the necessity of producing and making available to policy-makers sound information about the impact, costs and benefits of participatory and integrated watershed management.

1. The need for additional efforts for meeting the challenge of institutional sustainability is the main justification for the thrid phase of the project.

2. According to the NFT in Nepal, the Women's User Groups in the Bhusunde Khola watershed performed better also because of the following reasons: i) compared to men, women have more to gain socially, legally and economically from the formation of User Groups; ii) women were found to be better skilled in managing internal conflicts within their User Groups, ensuring continuation, whereas male-dominated groups may become inactive following a conflict (e.g. leadership conflicts); iii) women tend to be more honest and prudent in handling money and goods that belong to the group (Ohler, 1997c).

3. During the preparation of this document, SEARPI, the project's national counterpart in Bolivia, expressed the intention to hand-over almost all national project personnel to staff a new Participatory Watershed Management Department to be created within the institution (see Section 5.4.). However, funds for implementing this decision still need to be secured by the Santa Cruz Departmental Government. Negotiations are currently (September 1998) in progress.

4. Experience in this area was developed to the greatest extent in Bolivia, where the scheme involved representatives of the Samaipata's Ranchers Associations (*Asociación de ganaderos*), the tourism sector and selected Santa Cruz companies (those which extract water and building materials from the project area). Similar attempts at involving landowners and tubewell owners in Pakistan were hindered by conflicting economic and social interests and by the lack of an enabling policy. In Tunisia, the owners of large cereal farms, which are located on the western side of the Oued Sbaihya watershed, have shown little interest in collaborating with this joint management process.

5. The project's difficulties in promoting the adoption of the participatory approach in the Baloch institutional context played a major role in terms of discontinuing the PUCD project in Pakistan.

6. The department will also include an Information, Documentation and Communication Centre. This will be made possible by the decision to transfer to SEARPI the Communication Centre created by an FAO/Italy project (GCP/INT/541/ITA) implemented in the area in recent years, and by the availability of European Community (EC) funds for creating a database on the Piraí River watershed.

7. Longer-term assistance and expanded to this initiative will be ensured by a new IFAD project.

8. A major constraint in fully replicating the project's approach in other locations of the Mastung District is the lack of female staff members, who could support women in development activities. Support in this area is currently being sought from international donors.

Chapter 6

Participatory and Integrated Watershed Management Redefined

In the preceding chapters, the three principles on which the PUCD project approach is based—participation, integration and watershed management—have not been defined. However, a number of conceptual remarks concerning these core elements of participatory and integrated watershed management can be useful to conclude the description of the project experience.

Participation

Most discussions of participation in development and natural resource management start by posing two basic questions:

- "Who is supposed to participate?"
- "What kind of participation is expected to take place?"

For the first question, the historical background must be considered. In development debate and action, for 40 years (1950–1990) 'participation' meant 'community participation'. In fact, a strong link existed between participatory practice at the grassroots level and a political and moral concern for helping the world's poor to resolve the environmental, economic and social problems that inequitable development had created.

Obviously, development actions must have a final goal, and 'more equity' is a very reasonable one. In fact, the current discussions and practices addressing empowerment, which are also part of the PUCD project experience, are keeping alive the political and moral background of the 'participatory movement'.

However, by the beginning of the 1990s, most practitioners in participatory methods were ready to admit that community participation and empowerment

were not sufficient to ensure the social sustainability of development efforts. The local community was found to be too small as a territorial and social unit. Furthermore, it was understood that empowered communities needed somebody to whom they could address their claims: somebody capable of listening, discussing and negotiating.

Thus, practitioners progressively shifted their attention towards larger territorial units, usually corresponding to the lowest administrative level of the state (e.g. the municipality, the district or the province). This trend was strengthened by the diffusion of decentralization policies in most developing countries. Local governments, line agencies, NGOs, trade unions, political parties and private companies were supported in establishing a partnership with community-level grassroots organizations and interest groups. In these complex socio-political environments, participation increasingly meant *involvement of local institutions and civil society in a power-sharing scheme, based on negotiation and conflict management*. As shown in Section 5.3., the development of these collaborative management schemes has been an important element in the PUCD project experience.

The complexity of the social interactions taking place in the framework of collaborative management, as compared to community participation, has led the project to test different levels of participation and different roles in the participatory process.

At the beginning (i.e. in the framework of community-based participatory appraisal exercises and initial participatory planning workshops), the project basically acted as a *catalyst* in the decision-making and action-taking initiatives of participants. Participation was thus an almost completely open-ended and endogenous process, driven by local actors' interests, expectations and social interaction.

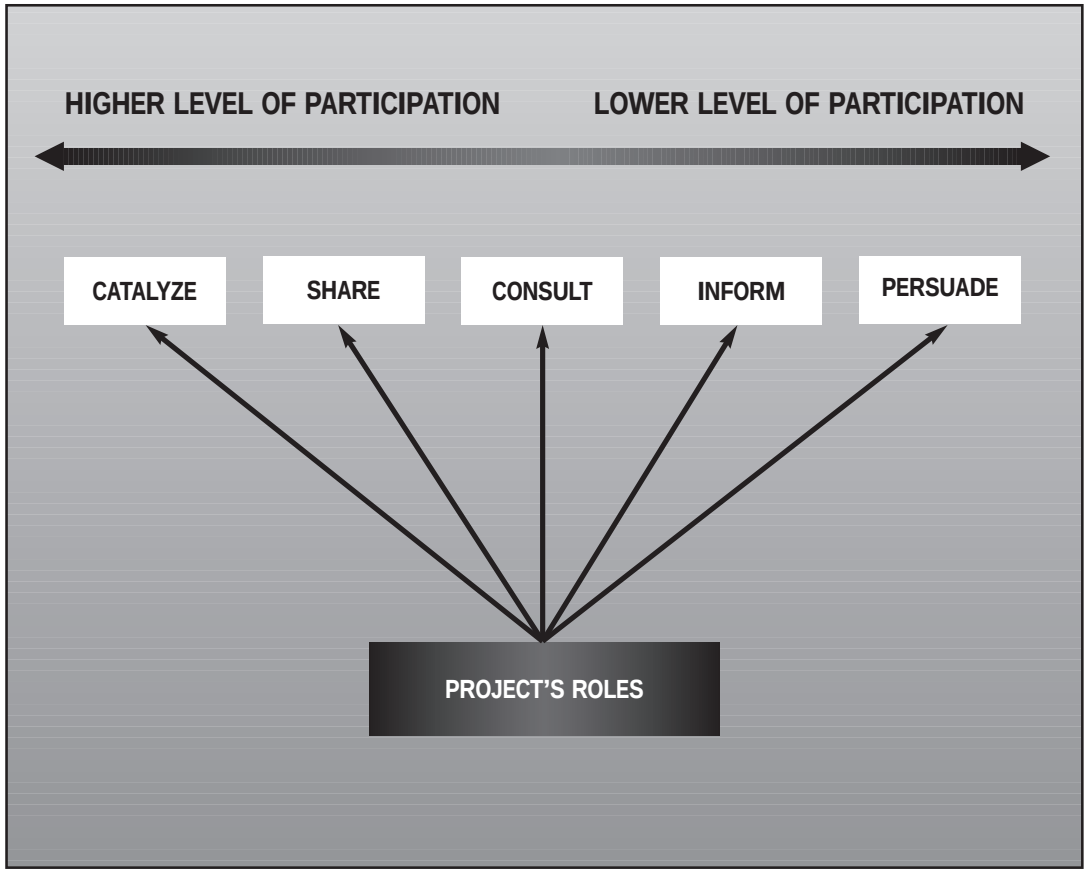
However, during the subsequent phases of the participatory cycle, the project acted either as a relatively powerful *counterpart or an external mediator*, becoming an additional actor in the participatory process. During this stage, the project, as any other actor, sought to convey its own agenda in local decision-making and action-taking. Thus, participation developed into a consultative process, based on partnership and negotiation.

Eventually, an even more 'interventionist-oriented' approach was adopted, and is still being followed, in withdrawing support; during this phase, training, communication, research and lobbying are being used to *persuade local actors and national institutions* of the relevance and usefulness of the participatory and integrated watershed management approach.

The above considerations are indicative of the differences that existed over time and among settings in the type and extent of local actors' participation in the PUCD project. The following diagram illustrates the range of differences, which is probably an intrinsic feature of complex collaborative management schemes, as those started-up by the project.

DIAGRAM 2

VARIATION OF LOCAL ACTORS' PARTICIPATION IN THE PUCD PROJECT EXPERIENCE, ACCORDING TO THE PROJECT'S ROLES



Based on Ingles, Musch and Qwist-Hoffmann, 1998

Integration

The concept of 'integration' also has a long history in development. Like the participatory approach, the integrated approach originated in the 1950s from the community development movement and was subsequently adopted by the integrated rural development programmes and projects of the 1970s.

According to the integrated approach, development action should address in a comprehensive manner all of the basic needs of the people, such as food, income, shelter, health and education. However, this is rarely achieved in development programmes because of insufficient *intersectoral collaboration* among national line agencies and specialized development organizations. Subsequently, initiatives were launched, often with substantial international funding, to merge development efforts in different sectors, such as agriculture, local infrastructure, health and education.

Certainly, a historical and methodological link exists between these experiences and the collaborative dimension of participatory and integrated watershed management, as implemented by the PUCD project. The promotion of bottom-up approaches to intersectoral collaboration has indeed been a major concern throughout the duration of the project.

However, in the PUCD project, integration basically consists of *incorporating development and conservation goals*. This approach led the project to involve local actors in an open-ended search for a socially acceptable and environmentally sound trade-off between short-term action (aimed at improving people's livelihoods and social welfare) and long-term action (aimed at protecting the resource base from overexploitation). This entailed abandoning both the vision of social development as a process independent from environmental concern and the concept of conservation as a goal abstracted from people's economic, social and political conditions. In fact, the project addressed *natural resources as a social capital*, which should be used to produce immediate benefits for the people, and, at the same time, kept as whole and diversified as possible to allow future generations to enjoy the same, or increased, benefits.

So-called on-farm 'conservation by use' activities (i.e. activities for increasing both the economic efficiency and the environmental sustainability of local practices for natural resource management; see Section 3.3.) are the most evident practical application of this idea. However, not all PUCD project activities were actually conservation by use activities. Important efforts were made to

implement purely 'development' initiatives (such as income generation schemes, health and education services, capacity-building and local infrastructure), which may have an indirect effect on people's behaviour towards natural resources. Furthermore, apparently 'pure conservation' activities were implemented (such as reforestation, regeneration of rangelands, and gully and torrent control) because local actors eventually found that, in addition to the positive environmental impact, these could have long-term effects on their future economic and social welfare.

These considerations indicate that the PUCD project envisaged the integration of 'development' and 'conservation' goals and actions through two complementary approaches:

- a *technical approach*, allowing for the incorporation of environmentally sound improvements in local farming systems; and

- a *social approach*, aimed at creating the economic and social conditions, including empowerment and participation, needed to allow and motivate local actors to take responsible and effective care of their environment.

This was made possible by the wide project mandate and the high flexibility of official action plans, which actually indicated a series of expected outcomes and options for action rather than constituting a mandatory list of quantitative outputs and predefined activities. However, the open-ended and flexible project design was also an important condition for allowing the project to incorporate inputs of the participatory and collaborative planning process. Thus, it can be said *that integration and participation reinforced one another in the PUCD project strategy*, facilitating the progressive development of the participatory and integrated watershed management process.

Watershed management

A recent authoritative CD-ROM manual (Schreier *et al.*, 1997) defines a watershed as:

> An area of land bounded by topographic features that drains water to a shared destination such as lakes, streams, estuaries and oceans. It captures precipitation, filters and stores water and determines its release.

The same authors state that the purpose of watershed management is to:

> Control the quantity and quality of water released and influence the wise and effective use of water resources for energy production, navigation, flood control, irrigation, drinking water supply and aquatic production.

Both statements are based on a hydrological (and hydraulic) vision of watersheds and watershed management, which is rather distant from the PUCD project approach. The following remarks are an attempt to redefine the two concepts according to the experience described in this document.

It must be considered that all PUCD project areas included a number of physically defined subwatersheds, located in the upper part of a major river basin. Nevertheless, in the project's experience, existing hydrological boundaries have generally proven to be less relevant and meaningful than social and political boundaries. The project-promoted participatory process developed spatially more with reference to community territories or administrative divisions (which often crosscut subwatersheds), than according to physical units defined on the basis of water runoff (which were often found to be socially and politically meaningless). Furthermore, project efforts focused more on facilitating a process of social and political change than on controlling water flow, though the latter was not neglected.

Given this situation, to what extent is it still possible to discuss (participatory and integrated) *watershed management* in relation to the PUCD project experience? This question has been considered on several occasions during the PUCD project's history.[1] The answer has been that in the framework of the project, watershed management refers more to the special consideration paid to *upstream/downstream ecological and social linkages* than to a geophysical reference unit (i.e. the hydrological watershed, as defined by Schreier *et al.*).

This shift entailed the need for a different definition of the scope of watershed management. This definition can be worded as follows: *participatory and integrated watershed management is about ensuring the sustainability of the ecological, economic and social exchanges taking place among upstream and downstream areas of a given territory*. As suggested by Diagram 3, these include natural resource exchanges, which are the focus of conventional watershed management, and economic, social, political and cultural exchanges, which are additionally considered by participatory and integrated watershed management.

DIAGRAM 3

MAIN EXCHANGES AMONG UPLAND AND LOWLAND AREAS AS IDENTIFIED IN PUCD PROJECT FIELD LOCATIONS

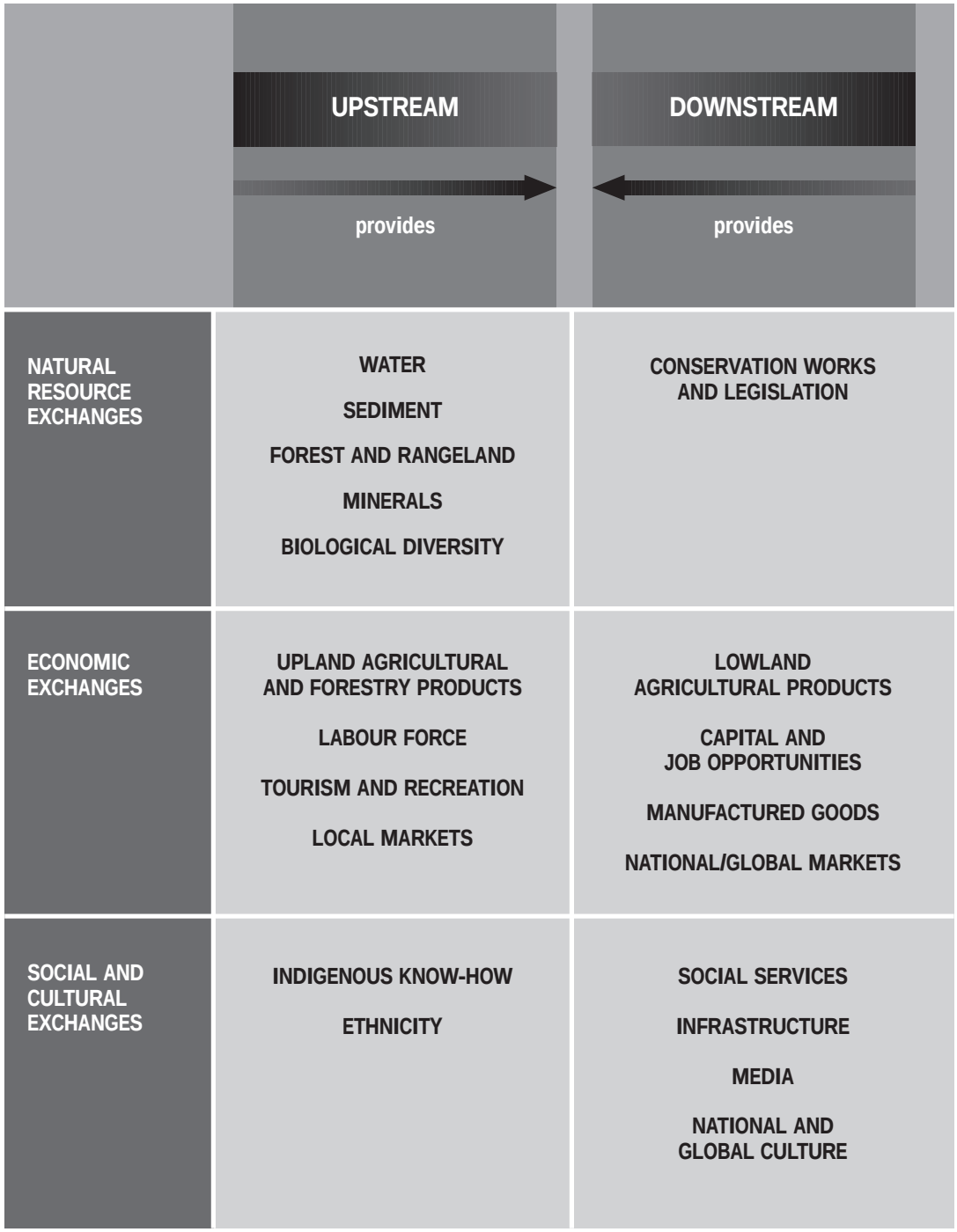


Diagram 3 highlights the holistic nature of upland/lowland linkages, which encompass both natural phenomena, such as water and soil runoff, and geopolitical processes, such as the economic, social and political marginality of most mountain areas. It also shows the *twofold structural imbalance affecting watershed systems*: the continued flow of natural resources (such as water and sediment) towards the downstream areas (driven by physical factors such as the force of gravity); and the power and wealth gap existing between the upland and lowland sectors of the local society.

These considerations indicate that watershed systems cannot be defined only in hydrological terms, nor analysed and managed only through the methods and tools of natural sciences, which in the past have inspired engineering-led watershed conservation policies. Rather, a *political ecology approach* is needed to identify and practically tackle the inequitable and unsustainable aspects of the system. Participatory and integrated watershed management, as implemented by the PUCD project, is an attempt to put this idea into practice.

Chapter 6 • Endnotes

1. See, in particular, Douglas, 1996; Fé d'Ostiani and Warren, 1996; Ohler, 1998; Van Ginneken, 1993a.

MAIN LESSONS LEARNED

Regarding the creation of action-learning teams

Adult education and experiential learning approaches, including interactive learning methods immediately followed by application in practical settings, are the most effective means of promoting the acquisition of the knowledge, skills and attitudes needed to facilitate a participatory and integrated watershed management process.

Continuing education is essential in making local staff capable of applying participatory methods and envisaging conservation and development issues in an integrated manner. Moreover, continuing education is a powerful incentive to enhance commitment to the project's mission.

Regarding the availability and validity of secondary information

While it is essential to take advantage of existing information to the fullest extent possible, this information, when available, should be viewed critically, because it is often out of date, unreliable or incomplete.

Regarding selection of participating communities and preliminary visits

The selection of communities to be involved in a participatory and integrated watershed management process entails a complex series of mediations among technical factors, national policies, the administrative structure of the area and local power sharing. The role of facilitation teams in this process should be one of diplomacy, tact and respect for local actors' criteria and priorities, without, however, neglecting the project's agenda.

The staff responsible for these preliminary visits must make major efforts to convey a clear and straightforward message about the project's goals and approaches and to understand people's reactions towards the project's proposal for collaboration.

Regarding initial participatory appraisal exercises

In participatory and integrated watershed management, there should be a balance between comprehensiveness and specificity in the content of the initial appraisal. The exercise should be sufficiently open-ended to allow local people to review all the meaningful aspects of their situation, yet at the same time sufficiently focused on environmental issues to promote people's awareness of the links between practices in natural resource management and socio-economic conditions.

The organization and timing of the initial appraisal exercise depend on a number of conditions, such as population size, settlement patterns and accessibility. The amount of time participating communities have available, according to the agricultural calendar, should also be considered when planning an initial appraisal exercise, as should the level of expertise of the facilitation team.

Regarding participatory planning

In preparing a tentative workplan, community members face the challenge of putting into action the learning process that took place during the participatory appraisal exercise. To accomplish this task successfully, responsive attitudes, mutual trust and good facilitation skills are necessary.

Since establishing the above conditions requires time, the results of initial participatory planning exercises are seldom completely sound. A more in-depth analysis of the implications of the decisions made in the framework of the participatory planning workshop is necessary before implementation can begin.

Regarding participatory feasibility analysis and the making of implementation agreements

A negotiation among the community's felt needs and needs as defined by outsiders (such as project managers, technicians, local politicians and national policy-makers) takes place in participatory feasibility analysis, leading to a series of compromises acceptable to all the involved stakeholders. For this reason, participatory feasibility analysis is a less neutral stage of the participatory process than initial participatory appraisal and planning. In fact, it is at this stage that the project becomes a stakeholder in decision-making and that the process becomes truly collaborative.

Participatory feasibility analysis is essential in increasing the project's and the community's understanding of the pros and cons of the proposed activities and in determining which activity can be realistically implemented through collaborative action.

Participatory feasibility analysis allows participants to become informed about the institutional assets and constraints, which may either positively or negatively affect the fulfilment of their needs. This awareness is an essential element of community empowerment.

Technical consultations, potentially leading to organizational arrangements, with a variety of institutions active in the community or the project area/watershed at large are also highly instrumental in widening the array of different activities that can be implemented in the framework of the participatory process. In particular, activities outside the project's mandate and operational capabilities (such as health, education and infrastructure development activities) may become feasible when involving relevant line agencies, NGOs or projects in the participatory process. This contributes to making participatory watershed management truly integrated and collaborative.

Sound implementation agreements require time, patience, flexibility, diplomacy and a human touch, which lead to a more solid partnership among stakeholders and a smoother collaborative implementation process.

Regarding people's perception of problems in natural resource management

Natural resource management that does not have a direct impact on income is seldom considered a priority for marginalized communities, such as those settled in upland areas.

Environmental awareness and natural resource management skills can be improved only if a certain level of organizational capacity is reached and if primary needs (income, water supply, education, communication services, etc.) are first satisfied to a reasonable extent.

Regarding the strengthening of grassroots organizations

Actions for strengthening grassroots organizations entail a significant degree of cultural sensitivity and relativism, combined with some sort of light cultural engineering.

Regarding health and education activities in the framework of participatory and integrated watershed management projects

Most educational and health initiatives play an important role in creating and empowering grassroots organizations, mainly women's groups.

Regarding improvement of indigenous farming systems

There is no standard technical answer for the problems affecting upland farming systems; careful on-site testing should be carried out to assess how a given measure can cope with the local environmental, economic and social conditions.

Attitudes and behaviour of local people towards the land (and towards other natural resources on which their livelihoods depend) cannot be considered independently from economic and political factors, such as insecure tenure arrangements, the local market and social marginality.

Rural women play a pivotal role in the operation of indigenous farming systems. However, their participation in activities for increasing the efficiency and sustainability of local agricultural production is affected by their insufficient decision-making power within the household and the farm. Women's empowerment is thus an essential requisite of farming system improvement.

Regarding management of common property resources (CPRs)

Initiatives in CPR management take a long time to produce a significant impact on the environment and the welfare of local communities.

The participatory process could be highly instrumental in raising or renewing people's interest in their common property and in developing the necessary environmental management skills.

However, participation is not enough; technically sound and cost-effective solutions to CPR management problems, which take into account the environmental, economic and social aspects of implementation and maintenance, need to be identified and validated at the local level.

Rural women play a pivotal role in CPR management, which is, however, often overlooked because of the gender roles and the power structure prevailing in the community. Thus, no participatory initiative aimed at improving the sus-

tainable use of fuelwood, rangeland or water source is complete without measures aimed at supporting women's empowerment in decision-making.

Regarding participatory monitoring

To prevent participatory monitoring from becoming a very time-consuming task that can easily overburden field staff and participants, and subsequently be poorly accepted, it should concentrate on those aspects of the implementation process that the stakeholders perceive as being particularly important.

Building the participants' capacity to monitor their own plans and activities is essential for making the participatory process sustainable.

Progressively refining the terms of reference for collaboration may significantly contribute to creating or maintaining good relationships among partners.

Participants greatly require professional follow-up to technical innovations introduced by the project in the areas of farming systems and CPR management.

To be truly participatory, monitoring tools and procedures should be consistent with the local culture, in particular, with the indigenous means of learning and communication, people's schedules, patterns of social interaction and manners.

Regarding participatory evaluation

Participatory evaluation should focus on the participatory process itself, on the technical quality of the work performed and, when possible, on the effectiveness of the activities (i.e. the degree to which the objectives were achieved).

Qualitative and quantitative techniques can be used in participatory evaluation exercises. However, exercises requiring more complex technical skills should be kept to a minimum so that the greatest possible number of individuals can participate.

Rural people have a strong capacity to make sound judgements about their work and its results. However, evaluation may be a culturally sensitive activity. Thus, special attention should be paid to establishing a synergy between participatory evaluation exercises and indigenous, informal evaluation practices.

At the start of the project, staff must facilitate community-level PME activities. However, the responsibility for organizing and implementing such activities should be delegated to trained community members as soon as possible.

Regarding replanning

Efforts made to collect and process evaluation information are worthwhile only if the knowledge gained is applied to further planning and implementation. Field practice has shown that this can be best achieved if evaluation and replanning are incorporated into a single exercise, in which the review of past experience is followed almost immediately by the preparation of a new plan for continuing, modifying or expanding the activity or broader initiative.

Evaluation and replanning workshops represent a unique framework for including in the participatory process those sectors of the local community that have not participated in previous cycles of activities. Thus, evaluation and replanning workshops are highly instrumental in decreasing the risk of exclusion of marginalized groups.

Regarding actions aimed at securing the continuity and sustainability of the participatory and integrated watershed management process

Since securing the continuity and sustainability of the participatory and integrated watershed management process requires long-term efforts, this cannot wait until the final stages of the project. In fact, relevant activities should parallel community-level fieldwork throughout the entire course of the project.

Transferring, to grassroots organizations, the responsibility of running the participatory process within their communities is a key requisite for ensuring the sustainability of any participatory and integrated watershed management process. However, successfully transferring this responsibility also greatly depends on the existence of empowering conditions in the institutional environment.

Regarding local human resource development

A training programme capable of coping with the lack of local expertise in participatory development methods and natural resource management is an essential element of any project seeking to establish sustainable, participatory and integrated watershed management schemes. During the course of the project, a significant portion of staff time should be devoted to continuing education initiatives.

Investments made by the project to build a team capable of promoting participatory and integrated watershed management at the local level should be

secured through arrangements that would later allow this team to become part of the staff of local governments, line agencies or NGOs, with positions and responsibilities consistent with their training and experience. Incentives should be found to encourage qualified staff to continue working in the locality after the end of the project.

Participatory and integrated watershed management requires a wide range of technical expertise not available within any single line agency. To meet this need, there are two possible options: hiring ad hoc project staff, or mobilizing professionals from relevant line agencies and institutions. The first option leads to higher efficiency and better team integration; the second allows for easier sustainability and a wider dissemination of the project's approach among local institutions.

In most practical settings, it is perhaps best to strike a balance between these two options. However, when possible, collaborating with permanent staff from line agencies and NGOs is preferable. To this end, it is necessary to develop procedures for facilitating the delivery of these organizations' services to the project, including formal staff exchange agreements with local institutions, payment for local consultancies, non-monetary incentives, etc.

Regarding the promotion of forums for collaborative watershed management

Participatory and integrated watershed management entails the coordinated action of a variety of social and institutional stakeholders. Community organizations must be involved, as must local governments, line agencies, the private sector and NGOs.

A participatory and integrated watershed management scheme should refer more to social, political and administrative boundaries than to the physical watershed or groups of subwatersheds.

Regarding the need for assistance in policy-making

A two-way link can be established between national policies for natural resource management and pilot field experiences in participatory and integrated watershed management. An enabling policy environment is an obvious requisite for the success of field projects; at the same time, field projects may play

a significant role in informing and sensitizing policy-makers through appropriate communication, training and lobbying initiatives at the national level.

Efforts aimed at making national policies more supportive of participatory and integrated watershed management are facilitated if there is the political willingness and institutional capacity at the local level to establish effective links for intersectoral collaboration.

Acronyms and Abbreviations

AGL	Land and Water Development Division (Agriculture Department, FAO)
CAP	Community Action Plan (Nepal)
CFU	Community Forestry Unit (Forestry Department, FAO)
COPED	Conseil pour l'éducation et le développement (Burundi)
CPR	Common Property Resource
CRDA	Commissariat régional pour le développement agricole (Tunisia)
CTA	Chief Technical Adviser
DSCO	District Soil Conservation Office (Nepal)
DPAE	Direction provinciale de l'agriculture et de l'élevage (Burundi)
DSCO	District Soil Conservation Office (Nepal)
EC	European Community
FAO	Food and Agriculture Organization of the United Nations
FORC	Forest Conservation, Research and Education Service (Forestry Department, FAO)
FTPP	Forests, Trees and People Programme
IFAD	International Fund for Agricultural Development
NGO	Non-governmental Organization
NFT	National Field Team
NPD	National Project Director
OTB	Organización territorial de base (Bolivia)
PME	Participatory Monitoring and Evaluation (and Planning or Replanning)
PRA	Participatory Rural Appraisal
PRODERE	Programa de desarrollo para los refugiados y desplazados en América Central
PRODOC	Project Document
PUCD	Participatory Upland Conservation and Development (Project)
RRA	Rapid Rural Appraisal

SEARPI	Servicio encauzamiento y regularización de aguas del río Piraí (Bolivia)
SMALP	Salud, medio ambiente lucha contra la pobreza en América Latina (Italian Cooperation Project)
SWOL	Strengths, Weaknesses, Opportunities and Limitations (Analysis)
TCP	Technical Cooperation Project
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
VDC	Village Development Committee (Nepal)

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