

People And Resources Dynamics Project (PARDYP) Phase 3

External review

April 17th – April 30th 2005

Version 2.1

May 30th 2005

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Acknowledgement

The review team addresses its deep thanks to all the persons involved in this review mission. In each of the countries visited – India, Nepal, and Pakistan – we appreciated the friendly and open atmosphere, the very well organised programme, which allowed us to gain a deeper insight in the project. We would also like to express our gratitude to the ICIMOD team, and especially to the resident co-ordinator and assistant co-ordinator of PARDYP who gave us all the required information and arranged all the meetings, the logistics and infrastructure in Kathmandu, assuring a smooth implementation of the mission.

List of abbreviations

CBO	Community Based Organisation
CD-Rom	Compact Disc – Read only memory
ER	Expected Result
GBPIHED	Govinda Ballav Panth Institute ...
HKH	Hindu Kush Himalaya
ICIMOD	International Centre for Mountain Development
IDRC	International Development and Research Council
NRM	Natural Resources Management
PAR	Participatory Action Research
PARDYP	People and Resources Dynamics Project
PFI	Pakistan Forest Institute
PRA	Participatory Rural Appraisal
PTD	Participatory Technology Development
QQR	Quinquennial Review of ICIMOD
SDC	Swiss Agency for Development and Cooperation
TAG	Technical Advisory Group
UBC	University of British Columbia
UoB	University of Bern
UoZ	University of Zurich
WOCAT	World Overview of Conservation Approaches and Technologies

Executive Summary

DONOR	SDC, IDRC, ICIMOD
REPORT TITLE	People And Resources Dynamics Project (PARDYP), Phase 3, Programme review – May 2005
SUBJECT NUMBER	
GEOGRAPHIC AREA	South Asia
SECTOR	Agriculture
LANGUAGE	EN
DATE	June 3rd 2005
COLLATION	
EVALUATION TYPE	Phase 3 external evaluation
STATUS	
AUTHORS	Dr. Julian F. Gonsalves , UPWARD, Los Baños, Philippines Mr. Kumar Upadhyay , Kathmandu, Nepal Dr. Dominique Guenat , ACADE-Echanges, Bussigny-Lausanne (team leader)
CROSS-SECTIONAL THEMES	Watershed management; research for development; capacity building in research
TYPE OF PROJECT	Bilateral (regional programme)
PROJECT EXECUTING AGENCY IN THE PROJECT COUNTRY	International Centre for Mountain Development (ICIMOD), Kathmandu, Nepal
TYPE OF COOPERATION	Technical co-operation (TC)

Review methodology

The external review of the third phase of PARDYP (People and Resources Dynamics Project) took place from April 17th to April 30th 2005. The project sites of Pakistan, India and Nepal were visited, but not the site in China. The review team examined the documents provided by the project, including CD-ROMs and websites. A briefing meeting took place in Bern (team leader only) prior to the mission. Other communication between the team members and the regional office in Kathmandu took place via e-mail until the team met in Kathmandu. The review is based on the TORs.

Project evolution

Looking back to phases 1 and 2, the project has considerably evolved over time. The first phase (1996-99) set the basis for the collection of biophysical data (hydrology, meteorology, sedimentation, erosion); during phase 1, team building (in the countries and at regional level), the establishment of contacts at all levels, and building up confidence with local communities played a

key role. During the second phase (1999-2002), following the recommendations of the first external review, the project focus was put more on socio-economic factors, while community based approaches and poverty orientation were emphasised. In the third phase, the project put its main focus on research for development, with a good balance between biophysical, socio-economic and institutional components. The publication of results became more important. The regional dimension of PARDYP was strongly emphasised.

Major findings

Working approaches

Participatory approaches in research have induced high quality implementation of on-farm research // The participatory dimension of PARDYP's R&D work can be seen in its strong on-farm orientation, the multidisciplinary team approach, a holistic orientation towards watershed management, iterative approaches to planning and an overall openness to constructive critical reviews // New areas of investigation include socio-technical, institutional, governance and implementation dimensions // Because watershed management is not just about technologies, appropriate social mechanisms and local institutional development are required // Watershed management research must continue.

Biophysical factors

If high flows are a major problem for downstream regions, low flows are the main problem for communities living upstream // Not soil erosion – nutrient management – is the key problem that must be addressed for improved performance in the agricultural land in the watersheds // It is important to improve water management in the watersheds, especially in the agricultural sector, as well as to improve drinking water quality.

Farming systems related factors / options for watershed development

Farm yields can be dramatically increased in the watersheds, mainly because the technologies traditionally applied have a great potential for improvement // Management of natural resources (e.g. water) combining improved livelihood opportunities and protection of the resources are more likely to be adopted // The solution does not lie in the promotion of a single option. The promotion of a basket of options is key for the sustainable development of the watersheds // Effective on-farm research with emphasis on diversification and intensification helps to reduce the pressure on natural resources, and marginal lands.

Watershed project design and scope

Because watershed management is not just about technologies, appropriate social mechanisms and local institutional development are required // From its inception, PARDYP has been characterized by increasing complexity, adding socio-economic, then institutional, equity and access aspects to the biophysical factors that were initially addressed. Dealing with this complexity is a challenge, especially translating results into practical applications that really contribute to improved livelihoods and sustainable use of natural resources in the watersheds // The scope of PARDYP's work is wide-ranging and diverse, primarily because of its orientation towards generating options at the watershed level, which requires a holistic approach // Another lesson learnt by PARDYP is that the results that have direct practical application in the field are much more on-farm elements than biophysical factors recording. However, the vast majority of resources injected in PARDYP went into biophysical data recording. On the other hand, most scientific papers produced by PARDYP are related to the biophysical and meteorological data.

Dissemination and scaling up

PARDYP has demonstrated the need for a strong connection between field research and thematic issues confronting mountain development // The ideas are there, the technologies exist and can be adapted. But for up scaling and disseminating – it is of utmost importance to rely on a performing extension system (relay) that is missing in most areas // If up-scaled implementation is to be achieved, farmers must be given an opportunity to serve as trainers, extension

agents, and even evaluators. In such a scenario, line agencies, NGOs and researchers primarily play a backstopping, facilitating and resources linking role.

Documentation

Significant efforts have been done by PARDYP to ensure the documentation of results, thanks to constant support from the regional office and a healthy competition between the countries, and the quality of the documents produced has significantly improved.

Networking

PARDYP has demonstrated the value of regional networks as mechanisms for sharing information, building consensus and solving problems // Partners value collaboration with external universities if there is a distinct and deliberate capacity development component and if the derived research products acknowledge all key players involved // Close relations between PARDYP and decision making authorities at national level can influence the process of policy formulation.

Recommendations

1. Each country team should assess whether the hydro-met network should be maintained in future and define the purpose of further data collection. If the further use is justified, a local partner (institution, organisation) should be identified to take over and manage the network.
2. Investigate links between biophysical and socio-economic factors, however without going into highly sophisticated modelling. The focus should be on practical applications and policy discussion.
3. While promoting improved seeds, especially hybrid seeds of various crops, carefully assess whether farmers are not becoming too dependent on suppliers of inputs (unreliable or too costly).
4. Marketing of products: avoid encouraging all the farmers to produce the same commodity to reduce the risk of market or crop failure. In any case, pay sufficient attention to the marketing of the commodities, and risks linked with specific commodities.
5. Any effort to highlight the importance of social and institutional issues in watershed management cannot totally ignore biophysical dimensions related to land degradation, soil fertility depletion, water regime, etc. Any watershed management project design should find an adequate balance between these dimensions.
6. In order to take full advantage of participatory research, local farmers' knowledge should be better factored in and their role in research processes (training, M&E) should be enhanced.
7. As participatory approaches are constantly evolving and being refined, resulting in new methods, more emphasis needs to be provided to PARDYP / watershed management projects' staff on capacity development and information support.
8. In spite of the cultural barriers that prevail, initial successes, however small, suggest that there are many opportunities for gender mainstreaming and addressing poverty (specially among women). Gender sensitive diagnosis, design and planning will be required.
9. Build upon past strategic research undertaken on the rehabilitation of degraded lands conducted by PARDYP & its predecessor projects, bringing a bigger focus on common property resources & their relevance to the poor, including women is highly recommended.
10. In watersheds where the continuation of activities is envisaged, the project should put in place bridging mechanisms (ICIMOD or PARDYP) to retain key personnel in the country teams in order not to lose the accumulated experience. On the other hand, where site or even a particular activity is to be discontinued, the project should ensure a smooth transition. This should include community level meetings and meetings with line agencies and partners where appropriate so that the exit is not perceived as abrupt and unplanned.

11. If equity and poverty alleviation are to be prioritised in new projects following the third phase, community-based restoration, management and use of common property resources should receive higher priority.
12. The steering committee should provide strategic guidance and support to the regional coordination unit to deal with special problems that might arise as the project comes to a close.
13. Pro-active and targeted distribution of PARDYP information products to institutions that are likely to utilise the information should be done.
14. Training should be considered as a mechanism for dissemination of best practices. Regional courses and workshops on watershed management, mountain agroforestry and CBNRM should be developed within ICIMOD, based on its PARDYP work of over a decade as well as other resources within ICIMOD, Nepal and the region.
15. PARDYP should make sure that the valuable knowledge accumulated by the project will be fully integrated within ICIMOD NRM programme and other programmes related to PARDYP concerns. The information should be processed in a user-friendly format consistent with the requirements of the beneficiaries.
16. The review team is of the opinion that ICIMOD should make use of the experience gained by PARDYP in establishing and running a knowledge network, e.g. by establishing a new regional network linking the major watershed management projects in the region. Considering the significant benefit that the network can provide, the concerned projects should not hesitate to participate in such an initiative.
17. ICIMOD should consider organising a meeting of current and potential “watershed investors” to identify possibilities for closer collaboration, to assess the needs in terms of training and advice, and to determine the interest for an international network.

1 Introduction

1.1 History and background

ICIMOD was established in 1981 based upon an agreement between His Majesty's Government of Nepal and UNESCO signed in 1981. The Centre was inaugurated in December 1983 and began operating in September 1984. Nepal, the Federal Republic of Germany, Switzerland, and UNESCO were the founding sponsors" (source: <http://www.icimod.org>).

More than two decades after ICIMOD was established, its mandate remains relevant: these mountains and their watersheds remain under severe ecological and economic stress. Increasing demands, mainly induced by sustained population growth – in the upper and lower slopes, in the valleys and beyond – are the major causes of increasing pressure on natural resources.

Natural resource degradation, rising poverty, inequity (in access to resources, in rights) and vulnerability continue to characterise mountain communities, across diverse cultural backgrounds. ICIMOD has, from the outset, attempted to understand and address issues of degradation and has accumulated a broad knowledge in this challenging and complex topic. Few International Research and Development Institutions have put as much emphasis over such a long period, as ICIMOD has, on researching causes and effects of degrading watersheds from such a wide range of biophysical, environmental, and socio-economic parameters. Focusing on studying complex, diverse, risk prone and degrading environments may be taken for granted but many stakeholders (donors and policy makers included) in the public research system are only recently exerting pressure on research establishments to opt for the poor and for underprivileged social groups, by making shifts towards understanding and addressing problems and issues in marginal areas.

Two major initiatives of ICIMOD (both funded by IDRC Canada) preceded the People and Resource Dynamics Project (PARDYP) being currently reviewed and have undoubtedly influenced the directions of the current program especially as they were undertaken in some of the same watersheds. The first was the Mountain Resource Management project (1989 to 1996) and the second was the Rehabilitation of Degraded Lands in Mountain Ecosystems project (1992 to 1996). The first was Nepal specific and the second involved watersheds in China, Nepal, Pakistan and India. Both these early projects received strategic support from the Resource Management and Environmental Studies programme of the University of British Columbia (UBC), Canada.

1.2 Three distinct phases

PARDYP is considered as a Research for development project designed at the outset as a long-term integrated project concerned primarily about natural resource dynamics and the degradation process. A total of five watersheds were included in PARDYP: two in Nepal, one each in India, Pakistan and China (figure 1). In PARDYP, ICIMOD was able to broaden the partnership (and funding support) to include not only IDRC but also the Swiss Agency for Development and Co-operation (SDC), which became the major donor. The strategic inputs and support of the University of British Columbia was continued even as the University of Bern, and later the University of Zurich, were brought in as additional players to support PARDYP. The systems of objectives of PARDYP for phases 1, 2 and 3 are compared in table 1, while some key parameters are compared in table 2. These two tables give a general overview of the project and its evolution over time.

The first phase of PARDYP (Oct 1996 to Sept 1999) was devoted to the establishment of the research infrastructure, human resources, systems etc. A large amount of very useful information was generated and a conference report is available with the highlights from that phase. It is generally accepted that in Phase 1, the biophysical research dimensions received more emphasis than the social, institutional and economic issues.

The second phase of PARDYP (Oct 1999 to Dec 2002) was designed to enhance the community-based approach and to target poverty reduction and improved management of natural resources. The project was expected to include a focus on the development/use of participatory, community based, decision making processes and the development of relevant methodologies (suggested by the external review team of Phase 1).

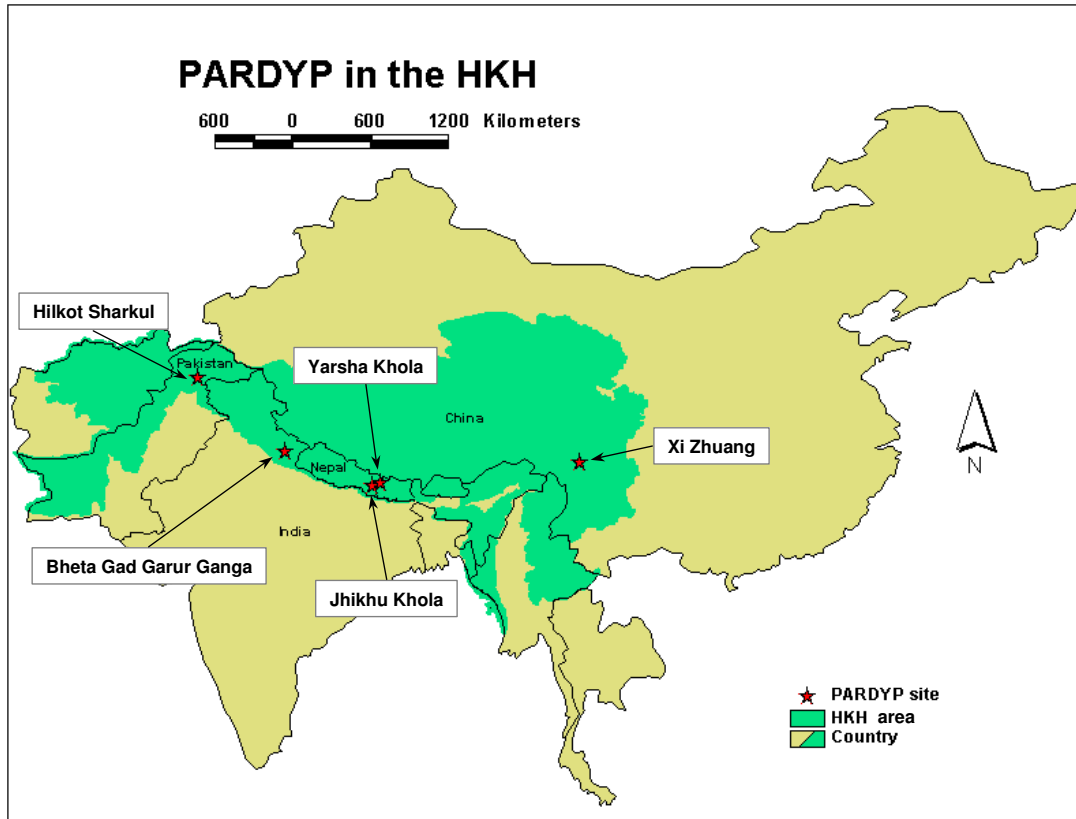


Figure 1 Location of PARDYP watersheds

During the third phase of PARDYP (Jan 2003 to Dec 2005¹), the focus was put back on research for development, with a better balance between biophysical components on the one hand, socio-economic and institutional components on the other hand. Emphasis was put on the publication of results obtained so far, both at national and international (cross watershed) level. The project activities were grouped under 4 major expected results (ER), which were the same for each country team, in order to ensure the comparability of results. Phase 3 was also to establish links between the biophysical and the socio-economic elements of the project. Impact of PARDYP results were expected at household level in the watersheds, as well as at policy level, while dissemination and scaling up were to take place through development organisations, both governmental (line departments) and non-governmental.

1.3 PARDYP's evolution: a process of maturation

Figure 2 illustrates the project history, from phase 1 to phase 3 and beyond. However, due to the complexity of PARDYP and the large number of issues addressed by the project, this figure refers to the biophysical aspects of the project. Socio-economic components and community

¹ This phase is likely to be extended (no-cost extension) until June 2006

involvement were limited in phase 1, while from phase 2 onward, they became increasingly important. Some aspects, such as socio-economic surveys, were also based on a scientific approach, but the approach at large was more participatory: participatory applied research (PAR), participatory technology development (PTD), community based management of natural resources, etc. The output of the socio-economic part was therefore focused more on practice-oriented documents rather than on scientific publications, and they were meant for dissemination of tested options for improved livelihood and optimised natural resources management in the PARDYP watersheds and beyond.

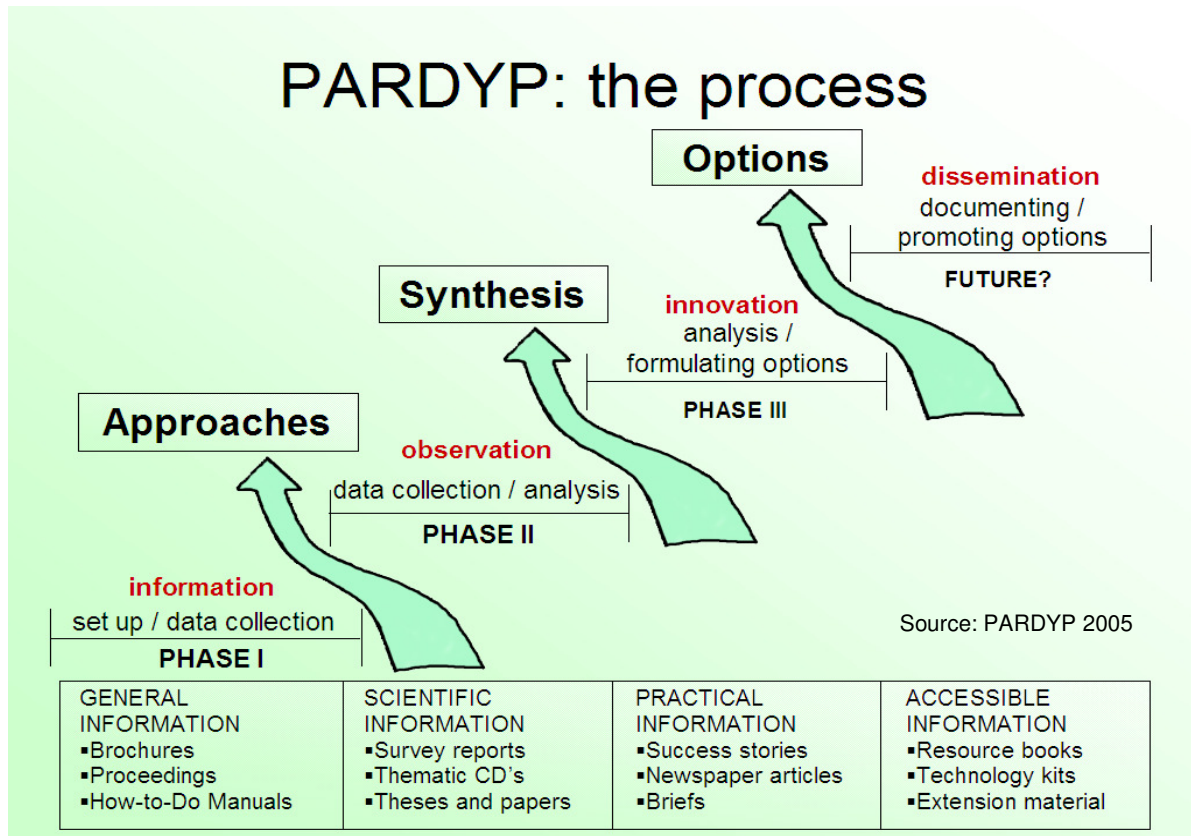


Figure 2 PARDYP history: three phases, their key characteristics and outputs²

The evolution of PARDYP can also be seen as a process of maturation: in phase 1, besides establishing the basis for the collection of biophysical data, team building (in the countries and at regional level), the establishment of contacts at all levels, building up confidence with local communities, were important. They were essential preconditions for phase 2. At the beginning of phase 2, a growing interest of the communities in the watersheds for what PARDYP was doing favoured their interaction with the project on issues that are closely related to their direct needs: improved agricultural practices, soil nutrient management, water management, etc. In phase 2, the scope of issues addressed by the project broadened, and the initially central topic – the biophysical parameters – was no longer in the centre. But of course, the regular collection of those data continued. Phase 3 could be called a phase of consolidation. The broad knowledge accumulated during the previous 2 phases was a great asset for phase 3. Networking with

² This figure relates essentially to the biophysical component of PARDYP; the socio-economic and institutional components do not fit in this picture.

partners (within each country as well as regionally) became increasingly important; more exchanges could take place (there were more results and experiences to share, as well as more confidence to do so), while the activities in the field were more balanced between the biophysical part and the socio-economic & institutional aspects than in the previous two phases. In phase 3, PARDYP continued to generate papers targeted to the scientific community while also attempting to delineate lessons of special relevance for grassroots level use. In addition, PARDYP has also generated substantial "meta" products in the form of lessons learned, methodologies, approaches, and processes. These are highly relevant for the dissemination and up scaling of the results, for the implementation of other watersheds projects, as well as at policy level. After this phase of consolidation, full maturity will be reached when the results will be converted into knowledge products (publications, CD's, training programmes, etc.) and fully integrated within ICIMOD, thus building the nucleus of a recognized centre of competence on watershed management in the Hindu Kush Himalayas.

Table 1 The evolution of PARDYP: comparison of the systems of objectives from phase 1 to phase 3

	Phase 1	Phase 2	Phase 3
Themes			
Goal and objectives	<p>Overall goal: To further improve the understanding of environmental and socio-economic processes associated with degradation and rehabilitation of mountain ecosystems and to generate wider adoption and adaptation of proposed solutions by stakeholders in HKH Region.</p> <p>Project objective: To provide a basic understanding of natural resources degradation processes and to recommend proven strategies and programmes for community and farm based prevention of degradation and rehabilitation of NR in the HKH Region.</p>	<p>Overall goal: To contribute to balanced, sustainable and equitable development of mountain communities and families in the HKH region.</p> <p>Project objectives: (a) Build on and generate knowledge and facilitate the exchange and dissemination of information and skills in the middle mountains of the HKH; (b) Enhance capacities and options of families and communities, especially those that are marginalized, in the use and management of natural resources in mountain watershed and thereby to increase households and community benefits; (c) Stimulate and engage in wide ranging policy dialogues through the involvement of policy makers and at local and higher levels in the research activities and in the development of needs of people in the four project countries.</p>	<p>Overall goal: To contribute to increased rural livelihood security and sustainability in HKH Region.</p> <p>Project objective: Sustainable options – applicable at household, community, and policy level –with proven impact potential for improving food and water security and income of rural households are developed through applied, interdisciplinary research.</p>
Expected results / specific objectives	<ol style="list-style-type: none"> 1) To generate relevant and representative information and technologies about water balance and sediment transport related to degradation on a watershed basis 2) To identify technologies and strategies to improve soil fertility and to control erosion and degradation processes in a farming systems approach 3) To generate socio-economic information on resource management and degradation 4) To systematically apply community-based participatory generation, testing and evaluation of natural resources' management strategies and technology 5) To strengthen the capacity of project partners 6) To make accessible to stakeholders relevant project information on project outputs 7) To effectively and efficiently manage the project as a regional collaborative R&D undertaking 	<ol style="list-style-type: none"> 1) To understand community institutions and organisations, and develop community based methods for solving NRM problems faced by the communities 2) To understand the basic causes of inequity and to empower and build the capacities of women and marginalized people, and to mainstream gender into the PARDYP programme of activities 3) To generate and exchange information in water as a resource, its role in land degradation, and to identify and test options to enhance water management decisions 4) To improve the productivity and sustainable management of common property resources – forest, pasture, degraded areas, water and other common resources 5) To use participatory on-farm research methods to generate, test and disseminate innovative practices and technologies based on indigenous practices and scientific knowledge, in order to improve soil, crop, Livestock and farming systems and productivity; and to improve food security, livelihood, and cash income for local communities. 6) To identify and capitalise on the livelihood potentials associated with the use and management of natural resources in the PARDYP watersheds. 7) To effectively and efficiently implement, manage and coordinate the project as a regional collaborative research for development undertaking. 	<ol style="list-style-type: none"> 1) Options for improved farming systems productivity (including land and water resources, as well as interactions with forest and livestock) are developed and tested 2) Options to increase productivity of agricultural land (focusing on soil conservation and soil fertility) are tested and disseminated 3) Water management options for more efficient use and equitable access are identified, tested and disseminated 4) Options and approaches to improve sustainable and equitable access to water, land, and forest resources are identified and disseminated 5) Joint planning and monitoring, synthesis and exchange at regional level is assured 6) On-going activities, that no longer fit in the new objective system are wrapped-up and put to use.

Table 2 The evolution of PARDYP: comparison of selected key parameters

Themes	Phase 1	Phase 2	Phase 3
Approach	Watershed approach based on biophysical parameters, hard data collection for a scientific approach. Area based approach.	Watershed approach with strong involvement of communities, participatory applied research, equity and gender strongly emphasised. Partly point conservation and development approach.	Watershed approach through participatory methods, and regional teams working on selected issues, emphasis on access to resources. Partly farm / site development approach.
Project Focus	<p>Setting up a network of hydro meteorological stations in selected watersheds across the Hindu Kush Himalayas. Focus on biophysical parameters.</p> <p>Biophysical aspects</p> <ul style="list-style-type: none"> ➤ Hydrology and sedimentation research; ➤ Meteorological records; ➤ Soil degradation research; ➤ Soil fertility management research; ➤ Natural resource mapping; ➤ Rehabilitation of degraded sites; <p>Socio-economic aspects</p> <ul style="list-style-type: none"> ➤ Baseline socio-economic studies; <p>Capacity building</p> <ul style="list-style-type: none"> ➤ Institutional strengthening through capacity building and staff training: (how to do things) <p>Networking</p> <ul style="list-style-type: none"> ➤ Limited networking through annual meetings and by letters; ➤ Development of regional R & D models <p>Beneficiaries</p> <ul style="list-style-type: none"> ➤ Not precisely described 	<p>Socio-economic aspects of watershed development, emphasis on community approaches, gender, equity and access. Focus on socio-economic parameters, and improved livelihood.</p> <p>Biophysical aspects</p> <ul style="list-style-type: none"> ➤ Monitoring continued (sedimentation, meteorology, hydrology, soils); ➤ Training in data analysis and understanding; ➤ Water harvesting, drip irrigation; <p>Farming systems</p> <ul style="list-style-type: none"> ➤ Participatory on farm research including soil fertility and aspects of farming systems; improved agricultural practices (mostly) specific to each country; <p>Socio-economic aspects</p> <ul style="list-style-type: none"> ➤ Surveys of CBOs considering women's workloads; ➤ Community forestry issues highlighted (Nepal); ➤ Water quality and water availability for households; ➤ Investigation on equity issues including gender main streaming; ➤ Investigation on potential for livelihoods improvement through sustainable management of natural resources; ➤ Understanding dynamics of local institutions for community based solutions to address NRM problems; <p>Capacity building</p> <ul style="list-style-type: none"> ➤ Institutional strengthening through capacity building and staff training: (scientific paper writing) <p>Networking</p> <ul style="list-style-type: none"> ➤ Facilitating information exchange through networking (PARDYP web page); ➤ Improving the management of regional initiative and coordination between PARDYP projects; <p>Beneficiaries</p> <ul style="list-style-type: none"> ➤ Bias towards marginalized groups, women and the poor. 	<p>Balance between biophysical and socio-economic / institutional aspects of watershed development</p> <p>Biophysical aspects</p> <ul style="list-style-type: none"> ➤ Monitoring continued (sedimentation, meteorology, hydrology, soils); ➤ Training in data analysis and understanding; synthesising results and publishing; <p>Farming systems</p> <ul style="list-style-type: none"> ➤ Packaging combinations of practices for best agricultural practices, testing and dissemination <p>Socio-economic aspects</p> <ul style="list-style-type: none"> ➤ Adoption surveys, land use & socio-economic surveys (repeat surveys) ➤ Water quality and options for improved drinking water, working with water users' groups ➤ Monitoring water quality; ➤ Documenting water management practices ➤ Improved access to water, land, and forest resources (equity, sustainability) <p>Capacity building</p> <ul style="list-style-type: none"> ➤ Institutional strengthening through capacity building and staff training; (scientific papers and material for broad dissemination of results) ➤ National level workshops; study visits for new proponents of watershed projects <p>Networking</p> <ul style="list-style-type: none"> ➤ Enhanced regional cooperation through joint planning, synthesis of results, and exchange of information at regional level; extranet ➤ Strengthened regional team (manpower and budget) <p>Beneficiaries</p> <ul style="list-style-type: none"> ➤ Farmers, users groups, CBOs, NGOs, local administrative bodies, research and extension agencies, district agencies, etc.

2 Context and challenges for watershed management in the Hindu Kush Himalayas

2.1 PARDYP and Watershed Approach to Sustainable Mountain Development

It is generally accepted that people and resource dynamics are best observed with watershed as a unit of management. The input and output relationship could be scientifically accounted, analysed and established in a watershed. This will facilitate not only understanding of the relationship between people and resources within a community (upland) but also between the communities (upland and lowland, upstream and downstream).

Resource issues in watersheds are interdependent (agriculture, water, forests, livestock, etc.) and becoming increasingly so in the context of growing population and limited resources. Agriculture and Forestry are closely linked because of their interdependence. Ownership, access and group dynamics are more pronounced in a watershed compared to other units of management. It is logical therefore that PARDYP's mandate to unfold relationship between people and resources are carried on a watershed basis.

Livelihood focus of PARDYP requires space to investigate diverse issues at different levels including *plot levels*, *sub catchment levels*, *watershed levels* and *regional levels*. This is best achieved through the adoption of watershed approach. The nature of the R and D interventions differs, depending on the levels one works at. For example, soil erosion measurements are best carried out at the *plot* and *sub catchment* levels, but a bigger emphasis on learning and synthesis might occur at *watershed levels* and a thrust on sharing and policy dialogue would be more evident at the *regional levels*. Scaling up therefore has different connotations and implications at different sites. Often the size of the watershed is determined by the objective of watershed development. Large macro watersheds may be relevant in planning of command area development for irrigation projects. On the other hand micro watershed of 500-700 hectares would be adequate for planning soil, water and biomass regeneration treatments. If the objective is to serve individual farmers, water harvesting on individual farms using farm ponds can be featured on farms even in a small area.

2.2 Challenges for watersheds in Hindu Kush Himalayan Region

The understanding of present challenges facing watershed management is very important in the context of PARDYP. A few outstanding challenges that have emerged in the regional and international watershed forums include:

- Inadequate understanding of the people and resource dynamics and methods to investigate them on a continuing basis;
- Limited understanding of sustainable and replicable watershed management technology that allows people and the nature to live in harmony;
- Absence of a specialized agency in the Region that could facilitate and take lead in documenting best practices and their dissemination;
- Limited knowledge on the participatory approaches and institutional capacity to apply them;
- Limited training and education facilities in the Region;
- Lack of adequate skills to measure impacts of watershed management;
- Insufficient monitoring and evaluation tools for determining the successes or failures and sustainability of watershed management interventions.

Contemporary challenges facing watershed management have influenced PARDYP's past, and present. These challenges need to be considered while delineating its future.

3 Review methodology and TOR

A three member joint SDC/IDRC/ICIMOD external evaluation team started its mission from 17 April 2005. The composition of the members included Dr. Dominique Guenat (team leader), Dr. Julian Gonsalves (member), and Mr. Kumar Upadhyay (member). Initially, each team member was assigned with country level responsibilities. Dr. Guenat, Dr. Gonsalves and Mr. Upadhyay visited and reviewed Pakistan, India and Nepal field programmes respectively. After the country review the team converged in PARDYP Regional office located at ICIMOD Kathmandu on 25 April 2005.

The scope of the TOR assigned to the consultants included:

1. The joint SDC/IDRC/ICIMOD external evaluation shall **review and assess progress** of the main objectives and activities outlined in Phase 3 document (refer to the log frame, Appendix A of project document) in terms of achievements of set targets in different Expected Results (ERs), the effectiveness of the approach, the integration of findings, and the strategies employed.
2. The review team will build on the 2001 review (two of the final reviewers were members of the 2001 review) and the 1999 review. The review team shall highlight '**the core activity**' and '**the core results**' of the three phases. These highlights will be important for capitalizing on the outputs and for knowledge management post project. Assessment of process oriented learning at the national level covering the development of methodologies and approaches to integrated watershed management research will be a part of the review.
3. The review team should focus its undertakings so as to provide ICIMOD and the national collaborating institutions involved in the PARDYP country teams with a set of **operational and workable recommendations for future work that build on the PARDYP assets**, and in particular which aspects of the project are unique or especially worth continuing and capitalising.
4. The review team shall analyse the **institutional framework** of the project with its different partners (national, international, ICIMOD). Special focus shall be on: the common undertaking and exchange of approaches and results, extent and quality of collaboration and coordination between countries, and support to and from the national collaborating institutions and partners. The '**regional set-up**' of the project shall be analysed in the sense of assessing the additional benefit of this regional approach versus a bilateral approach and should include consideration of the extra costs and challenges.
5. The review analysis should assess whether national partners have increased their capacity over the project phase and are now capable of addressing national needs, demands and strategies. The review team shall assess how national PARDYP partners are linked with other national research and / or extension / development programs, and mechanisms in place for extending research findings to local groups, NGO's, and other extension agencies.
6. According to their roles and responsibilities, and with reference to the current MoU, review and assess performance, strengths and weaknesses of the collaborating institutions in the implementation of the project – PFI, GBPIHED, UoZ, UBC, UoB, and ICIMOD.

During the review in the countries, the team interacted with the different project stakeholders in different venues and context including:

- Meetings with upper management of the host institution executing the project;
- Representatives of key institutional project partners at the policy level including local level officials;
- Core project staff implement the project;

- NGOs, GOs working in rural development in PARDYP watersheds, potential users of PARDYP results (not directly involved);
- Institutions involved in applied research in NRM in the region (universities, etc.);
- Representatives of PARDYP results, specific groups (e.g. women and users group);
- Former key staff of PARDYP still working in the area or not too far away.

The tools used in different interactive sessions included individual and group meetings, power point presentation, SWOT analysis, and focused discussion with the key informants in the field. The core regional and national staff provided excellent briefings and logistic support to ensure access to information. While the Terms of Reference and Log Frame of the Phase 3 project document guided all interaction and review process, the team also carried out SWOT analysis with the country core project team focusing on following key elements:

- research processes and results
- dissemination of results – use of results by end users
- institutional aspects within each country (incl. capacity building)
- network of partners / regional dimension of PARDYP.

During the SWOT analysis, the team members paid special attention to delineate the unique elements of the project in terms of results, processes, instruments, etc. that would justify capitalising (and what should be the outcome of the capitalisation, who would be the users, etc.)?

After converging in the PARDYP office in Kathmandu, substantive amount of secondary information in the form of published and unpublished reports, mimeograph, CD ROMs, brochures etc. were made available to the team. The team reviewed these reports and interacted amongst themselves on key issues throughout the review process. Finally, the team members jointly developed a reporting format to prepare a draft of the main report and divided their work consistent with their area of expertise. The draft report was presented to the core regional project team to validate the facts and figures including receiving feedback on the mission's findings.

The team leader and the members prepared the country visit report individually covering the country of their responsibility. These reports were repackaged by the team leader and have been attached as an annexe to the main report.

The evaluation team made special efforts to determine the future of PARDYP project through special meetings with senior management in SDC offices (Head quarters and Country offices) and ICIMOD officials. The team leader received a substantive briefing from Mr. Markus Schaefer, Desk Officer in SDC headquarters, and met Mr. Denis Bugnard, Co-director SDC Office Pakistan. The evaluation team had a substantive meeting on the issue of the future of PARDYP with Mrs. Renate Braun, Assistant Country Director SDC Kathmandu, Mr. E L Sharma, Division Chief Natural Resources Management Division, and Mr. Madhav Karki, Deputy Director General of ICIMOD. In this regard, the thoughts offered by the regional PARDYP team were significant and valuable to the mission.

The team members faced difficulties in digesting country level annual reports, contributing to main report and finalizing the country specific reports simultaneous within the time assigned to them. The field visit were limited to one-day trips to selected sites³ which restricted to get substantive feed back from the grass root beneficiaries in the villages and observe diverse participatory action research activities.

³ In Pakistan, the field visit lasted only one day, while in Nepal and India it was a bit more with respectively two and three days.

4 Findings

As stated in chapter 1, PARDYP phase 3 was characterised by a focus on research for development, and the expected outputs of the project were mainly practical options that have been tested and disseminated for improved management of natural resources at the watershed level, while improving the people's livelihood. At the same time, scientific results as well as lessons learned for dissemination and scaling up have emerged or will be elaborated until the end of the present phase.

The present report acknowledges the comprehensive national annual reports that provide excellent information on the activities implemented and continuous documentation of results in the present phase, as well as the regional annual reports. Compared to phase 2, the quality of the reports has significantly improved, reflecting the capacity building efforts of the project also in this regard. The results summarised and discussed here are essentially from a regional perspective, while the more detailed discussion of activities in the member countries are presented in the country review reports (see annexe).

This chapter starts with a presentation of the project achievements during phase 3 (without comments, section 4.1), to brief readers about the main activities of the project. This is followed by a thorough discussion and assessment of the main issues by the review team (sections 4.2 to 4.10).

4.1 Summary of achievements in Phase 3

4.1.1 Regional level – results achieved in 2003 and 2004

General comment

2004 has been an exciting and pivotal year for PARDYP during which many long-term activities started to produce excellent results and there has been a big increase in the number of farmers adopting PARDYP options within and outside the watersheds in India, Pakistan and Nepal. PARDYP has also been invited to Bhutan, Himachal Pradesh, and Bangladesh to present its findings and options.

Project management

2003	2004
<ul style="list-style-type: none"> • New ways of operating in phase 3 through 20 sub projects in 4 Expected Result (ER) areas have been introduced. By the end of 2003 these new approaches were functioning well, with some modification. • The PARDYP team in China no longer considers that it is able to collect the necessary data and conduct the studies of all sub projects in phase 3. A reduced programme reflecting the capacity and interest of the PARDYP China team has been accepted for 2004. 	<ul style="list-style-type: none"> • 2004 was the second year of PARDYP phase 3. About 80% of planned activities were carried out. Slippage of some 20% resulted from over ambitious planning, rather than specific problems. Activities were within budget. Other unplanned activities were included throughout the year. • 2004 was the year that PARDYP started to gain full recognition of its many achievements. At the same time the donors too recognized these achievements but feel that it is no longer necessary to support project activities in their current form beyond phase 3. • The annual PARDYP Operational planning meeting was held in Kathmandu in December 2004 and the plan for 2005 was finalised and agreed upon by all partners. Two major events are planned for 2005. The first is repeat socioeconomic / household surveys conducted at the start of PARDYP (and earlier in Jhikhu Khola) and at the same time repeat land use mapping.

Publications

2003	2004
<ul style="list-style-type: none"> • Following a one-month data analysis and writing workshop in Kathmandu in June, the hydro-meteorological Cross-Watershed Papers were drafted as part of a further attempt to synthesise the PARDYP data from the different watersheds. • Juerg Merz completed his PhD and left PARDYP at the end of December 2003. His thesis "Water balances, floods and sediment transport in the Hindu Kush Himalayas – data analyses, modelling and comparison of selected meso-scale catchments" synthesizes the hydro-meteorological data from all the PARDYP watersheds. • Reviews of PARDYP work on soil erosion, soil fertility, land rehabilitation and on farm research were completed and the results used to better target research in 2004. • Each country team produced a final version of their catchment's CD-ROM in the first quarter of 2003. 	<ul style="list-style-type: none"> • Four synthesis reports were prepared. Detailed technical reports describing the research findings for 2003 were collated and circulated in May 2004. Technical country reports for activities carried out in 2004 will be collated and made available from March 2005. • The book manuscript 'Renewable Natural Resource Management Research for Mountain communities' (edited by Michael Stocking, Hilde Helleman and Roger White) arising from a joint DFID and PARDYP workshop in March 2003 was finalised and forwarded to DFID. Proceedings of the FAO-funded regional workshop 'Designing the next generation of Watershed Management Projects in Asia' hosted by ICIMOD in Kathmandu have been finalised and forwarded to FAO for publication. • Documentation of watershed research information generated in the Mamlay watershed in Sikkim over the last 10 years by the GB Pant Institute of Himalayan Environment and Development, Almora India is being collated on CD ROM for wider circulation. • A CD ROM containing a synthesis of the whole water and erosion studies conducted in all PARDYP watersheds has been published in complement to the PhD thesis of Juerg Merz. • Regional Water and Erosion Studies Synthesis including the findings from cross-watershed analyses and the five watershed CD-ROMs were produced. These CD ROMS were collated in 2004 and a draft CD produced. • In addition, publications were produced in the following domains: water, water management and erosion (5 papers), rainfall and runoff (3 papers), low flow and shallow groundwater (3 papers) and community forests (1 paper).

Workshops and meetings

2003	2004
<ul style="list-style-type: none"> • The PARDYP phase 2 technical workshop was held in Kathmandu in December 2003. Proceedings of this workshop will be published in 2004. • Two important workshops were hosted by PARDYP in 2003. In March the DFID Renewable Natural Resource Management for Mountain Communities with participants from South America, Africa and the Region. In September the FAO funded 'Designing the next generation of watershed management projects in Asia' workshop with participants from 11 Asian countries was held in Kathmandu. Proceedings of both meetings will be published in 2004. • Two meetings involving the SDC funded World Overview of Conservation Approaches and Technologies (WOCAT) were held. One was the global steering meeting (originally planned for China but re-arranged in Kathmandu following the SARS outbreak) and a one-week training programme in WOCAT tools for PARDYP and interested participants from the Region and Nepal. 	<ul style="list-style-type: none"> • A regional meeting on soil conservation approaches and technologies was hosted by PARDYP. This network uses tools developed by the SDC funded World Overview of Conservation Approaches and Technologies (WOCAT). PARDYP staff acted as resource person for training on soil and waters conservation in the Chit-tagong Hill tracts, Bangladesh. This network will be developed further in 2005

Adoption and dissemination

2003	2004
<ul style="list-style-type: none"> Meetings to disseminate PARDYP findings nationally were held in India, Nepal, Pakistan and China. Similar meetings were repeated in 2004. 	<ul style="list-style-type: none"> The on farm research activities (based on cumulative learning, successes and failures over the last eight years) have provided solid recommendations that can make a difference to farmers' livelihoods and are being adopted in all PARDYP watersheds (see section 4.1.2). Roger White presented current thinking on watershed management and promising options for farmers to the World Bank funded Watershed Summit held at Chandigarh, India from projects in Himachal Pradesh in November 2004.

PARDYP regional network

2003	2004
<ul style="list-style-type: none"> To improve communication between the PARDYP partners and as a window to the public PARDYP, Quarterly newsletters were prepared and circulated. Two "access" meetings on developing the programme with support of the University of Zurich were held Meeting on water (support of the University of Bern) and on-farm meeting took place 	<ul style="list-style-type: none"> Five monitoring visits were made to partner countries, visit reports were prepared and recommendations given. Eight visits for regional networking and dissemination of the results were made. The quarterly project newsletter collated by the regional team was produced throughout 2004 and will be continued in 2005. The PARDYP extranet site for partners was launched in early 2004. This site contains a collaborative workshop and a selection of important documents for PARDYP partners and others in the region with an interest in watershed management. This initiative has helped disseminate project findings and has also improved communication and information sharing between our partners. Regional data synthesis approaches and methodologies have been extended and implemented for activities that can be replicated in each watershed (like hydromet data collection). In other areas of research such as on-farm, differences in priorities and needs in the different watersheds are so different that regional synthesis is more difficult. A major activity has been to synthesise the water activities by preparing cross-watershed papers on a number of topics (high and low flows, soil erosion, rainfall). A CD ROM containing the results of this analysis and the methodological approaches developed was in draft form at the end of 2004. A four-week meeting was held in May 2003, where the four country teams analysed the data on a specific topic from each watershed according to selected topics relevant to the PARDYP project.

Partnerships & links

2003	2004
<ul style="list-style-type: none"> Partnerships in the region were strengthened (for example with CYMMIT, GTZ, EU- Bhutan, EU Pakistan) so that PARDYP research results can be translated from practice into policies. A new backstopping link with the University of Zurich on issues related to Access to Natural Resources has been initiated and is working very well." 	<ul style="list-style-type: none"> Further links with WOCAT will be developed and the embryonic Himalayan Conservation Approaches and Technologies (HIMCAT) network will be strengthened with meetings and training planned for June 2005. Sanjeev Bhuchar was resource person for a training programme in Watershed Management for staff from all NE India States. Roger White was invited to join a World Bank /GEF project identification mission to Bhutan to ensure lessons learned from PARDYP were incorporated at the project design stage. Improved linking with others conducting similar work in the region, (Bhutan, Bangladesh, NE India) and using the findings in including the approaches to networking and knowledge management as part of a GTZ funded initiative at workshops in Indonesia and Cambodia.

4.1.2 Country level – results achieved in 2003 and 2004

The results obtained at the country level are grouped according to the Expected Results formulated in the project document. However, ER1 (improved farming systems productivity) and ER2 (increased productivity of agricultural land) are very similar and the same people are dealing with them; therefore the results for ER1 and ER2 are presented together. Here again, the results are largely based on the annual progress reports produced by PARDYP.

For ER1 and ER2, each country was asked about the 5 best options based on their results and experiences. Table 3 summarises the findings. More details are given in the respective country review report.

Table 3 5 best options for ER1 and ER2

India	Pakistan	Nepal	China
1. Compost management 2. Bio-fertilisers 3. High yielding varieties 4. Cash crops 5. Off-season vegetables	1. Cash crops / off-season vegetables 2. Bio-fertilisers/composting 3. Seed production/multiplication 4. Fruit trees 5. Intercropping/relay cropping	1. Composting 2. Off-season vegetables 3. System of rice intensification (SRI) 4. Liming 5. Improved terracing methods	China did not respond to this, project implementation different

Source: PARDYP 2005

As far as ER3 (water management) and ER4 (access to water and resources) are concerned, they were also treated together (both related to water resources and addressed by the same people). Table 4 shows the main constraints for water and soil, as perceived by the inhabitants of the watersheds.

Table 4 Perception of water related problems by the watershed inhabitants

Hilkot (Pakistan)	Bhetagad (India)	Jhikhu (Nepal)	Yarsha (Nepal)	Xizhuang (China)
Water shortage for irrigation	Depletion of water resources	Irrigation water shortage	Irrigation water shortage	Water shortage during dry season
Water management	Inappropriate management of water resources	Drinking water shortage	Drinking water shortage	too much water during wet season
Poor water quality and quantity for drinking	Soil and nutrient losses	Deteriorating water quality		Drinking water shortage
	Water pollution	Top soil loss and nutrient build-up		

Source: PARDYP 2005

However, besides the results directly related to the ER, PARDYP has also achieved results:

At the level of communities in the watersheds

- Facilitation of group formation: seed growers' associations, women's groups, etc.
- Facilitation of the dialogue between different groups of stakeholders, e.g. between tenants and owners.

In terms of partnership within the countries

- Links with local non-government organisations: for the dissemination of the results of PARDYP, for the exchange of ideas and for scaling-up.

- Links with governmental organisations: at the local level (dialogue with local authorities), at the district level (dialogue with district authorities) and even at the national level (policy dialogue at the highest level).

In the four member countries, some key results can be summarised as follows (extract from the annual reports of PARDYP 2003 and 2004). For more details see annexe 6.1 (summary) and annexes 6.2-6.4 (detailed country reports).

4.2 Institutional and organisational set-up

4.2.1 Planning, monitoring and evaluation

Planning:

Compared to phase 2, the project management has been significantly improved, at the regional as well as at the national level. The more homogenous planning frame resulted in more comparable results between the countries, still leaving some space for country specific activities. The fact that the thematic teams (international teams addressing common issues of interest) had to take the initiative to formulate sub-projects is seen as very positive. However, this approach created some confusion in the beginning (e.g. the country coordinators had the feeling that they were by-passed by the thematic groups, and the formulation of log-frames for each sub-project by the thematic teams proved to be a very difficult exercise). Despite the complexity of this process, it had a beneficial effect on the team members as it helped them re-think about the justification and the purpose of the various activities of the project.

Looking at the project document for phase 3, the formulation of the expected results does not appear optimal, due to overlaps between ER's: a better delineation of ER1 and ER2 would have brought more clarity at operational level. The same applies to ER3 and ER4.

Monitoring and evaluation (M&E):

Monitoring and evaluation was seen as a weak point in phase 2. This weakness could not entirely be overcome in phase 3 despite quite some efforts. The increased budget for the regional component of PARDYP in phase 3 allowed more visits to the watersheds, and each visit was used as an opportunity to review one or another aspect of the project. In India, annual workshops with stakeholders were an occasion to get feedback from participants. In Pakistan, farmers' field days attended by senior people from line departments and ministries also provided feedback on the project activities. In Nepal, line agencies were gradually involved in evaluating activities. Getting this kind of feedback is very useful, but remains insufficient for a real steering of the project towards its objectives. True participatory monitoring and evaluation (where stakeholders play a monitoring role) has not been attempted at any of the sites.

4.2.2 Financial management and fund allocation issues

Fund flow from the project headquarters in Kathmandu to the country teams offices was a serious problem in India during phase 2. Renouncing to transfer US dollars solved this problem. Nowadays, project funds are transferred in rupees to the project country office in India, and this does not create any problem any more.

In Nepal, the country team was fully integrated in ICIMOD. As a result, their salaries were increased in line with the salary policy of the institution. However, as no additional funds were available, neither from the side of donors, nor from ICIMOD, the staff had to be reduced, and one senior staff lost his job.

In phase 3, the budget for the regional component was significantly increased as compared to phase 2. This did not create problems with the country teams because of the great benefit they could get from the stronger involvement of the regional coordinator, and the increased possibilities for regional meetings. In phase 3 the budget for the regional component was 341'000 US\$ (i.e. more than 100'000 US\$ per year) as compared to a mere 50'000 US\$ during phase 2 (1999-2002, i.e. less than 20'000 US\$ per year).

4.2.3 Steering and advisory bodies: role and efficiency

The steering committee met twice since 2003. This body is considered as important, but it remains too far away from the project reality to provide very useful guidance. An important decision of the donors was officially communicated to the project at the occasion of the last steering committee meeting: the end of funding of PARDYP in its present form (IDRC and SDC) beyond phase 3.

The technical advisory group (TAG) became really operational in phase 3 thanks to the increased budget of the regional component of PARDYP, allowing increased mobility to the people. The last meeting in December 2004 was attended by the University of Bern and the University of Zurich.

4.2.4 Support of UoB, UBC and UoZ

All three universities have comparable budgets to support PARDYP. University of Bern has 90'000 US\$ over three years, University of British Columbia has 88'000 US\$ over the same period and University of Zurich 94'000 US\$. The budget allocated to UBC goes directly from IDRC to UBC while the two Swiss universities receive their funds via ICIMOD (PARDYP).

The support received from the University of Bern was considered to be good, even after Juerg Merz had finished his PhD and left Nepal. The University of Zurich came in only recently to provide support in socio-economic, access, and other social issues. Their support was highly appreciated throughout the project. In fact, University of Zurich did break new ground for PARDYP during the present phase, opening the way towards a true poverty and livelihood orientation, based on participatory and consultative models. In that sense, University of Zurich has brought in more innovation than the other two universities. The support from the University of British Columbia (UBC) was mainly oriented towards PARDYP Nepal (therefore this support was not acknowledged in Pakistan or India). The relations between the project and UBC were not as tight as with the two Swiss universities; the different flow of funds may be an explanation for this. It was reported that in few publications done by UBC based on PARDYP material, neither PARDYP nor ICIMOD were quoted or acknowledged in due form.

4.2.5 Role of ICIMOD

In the PARDYP review 2002, the following recommendations were formulated regarding the role of ICIMOD for PARDYP:

- Redefine / strengthen the role of ICIMOD as a facilitator for PARDYP
- ICIMOD: identify priority areas of research and enhance in-house expertise (e.g. in complex, interdisciplinary watershed approaches)

Today, ICIMOD offers PARDYP – as well as PARDYP Nepal – a much better place within the institution as it did 3 years ago; not only from the infrastructure point of view, but also in terms of integration of PARDYP within ICIMOD (see below).

As far as the second recommendation is concerned, watershed management has been integrated within the new programmatic structure, under programme 1 (see box 1), which is positive for PARDYP. Previously, it was just a project, now it is integrated in a programme. However, if we look at PARDYP as a whole, it becomes obvious that PARDYP does not entirely fit in programme 1. PARDYP contains also elements fitting in most other programme: 2 (agriculture), 3 (water floods), 4 (culture, equity and gender), and 5 (policy). For this reason, we are not sure whether the complexity of PARDYP's integrated approach is adequately reflected and acknowledged within ICIMOD.

For ICIMOD, PARDYP is said to be "the only project situated at grassroots level"; this is extremely precious for an institution, in order to maintain a direct link with field realities and to remain credible in a knowledge-networking function. It is also one of the largest projects of ICIMOD in terms of budget (see table 5).

Box 1 *ICIMOD institutional development*

Besides the new headquarters that were built in Kathmandu and inaugurated in December 2004, ICIMOD – the International Centre for Mountain Development – developed a new strategic plan. This plan consists of the following six programmes:

1. Natural Resource Management

Institutional, technological and Policy innovations for community-based management to increase mountain productivity, food security, and biological sustainability. This includes: Watershed Management; Rangeland, Pasture and Livestock Management; Transboundary Biodiversity Management

2. Agriculture and Rural Income Diversification

Specialised mountain agricultural and non-farm products with market linkages that enhance economic security. This includes: High Value Products and Sustainable Agriculture; Rural Enterprises and Mountain Tourism; Decentralized Renewable Energy Options

3. Water, Hazards and Environmental Management

Decreasing the physical vulnerability and increasing environmental security of mountain people and downstream poor. This includes: Water and Floods; Climate Change and Responses; Environmental Services

4. Culture, Equity, Gender and Governance

Promotion of equality and empowerment of vulnerable mountain peoples for enhanced social security and reduced conflict. This includes: Gender, Mainstreaming; Equity and Rights; Community Institutions, Decentralisation and Local Governance

5. Policy and Partnership

Providing policy support and strengthening partnerships and ICIMOD's capacity for collaboration in planning, achieving, and monitoring programme activities. This includes: Programme Development and Monitoring and Evaluation; Policy Development and Advocacy Support; Partnership Development

6. Information and Knowledge Management

Making mountain information and knowledge accessible and usable to partners, policy-makers and advocates, and development practitioners. This includes: Information Management, Communications and Outreach; Mountain Environment and Natural Resources Information Systems

Table 5 *Main current projects in the NRM programme of ICIMOD (2005)*

S. No.	Project name	Project start (present phase)	Funding by	Budget/Year	Project focus	Countries involved	Comments
1	PARDYP, People and Resources Dynamics Project	1996 (III)	SDC, IDRC	US \$ 500,000 per year	Watershed, research from development	China, India, Nepal and Pakistan	Into Phase 3
2	Developing a Trans-boundary Conservation Landscape for the Eastern Himalayas	2002 (I and II)	MacArthur, USA	US \$ 150,000 per year	Establish a series of natural corridors Kangchenjunga	Nepal, Sikkim Bhutan	Phase I Oct 2005 and Phase II started May 2005 (overlapping period of 6 months between Phases)
3	Regional Rangeland Programme Phase II	1999 (II)	Austria Government	Euro 250,000 per year	Co-management and multiple use of rangelands	Afghanistan Bhutan China India Nepal Pakistan	
4	Securing Livelihoods in Uplands and Mountains of the Hindu Kush-Himalayas	2000 (II)	IFAD	US \$ 250,000 per year	Technical support to IFAD investment projects	Bhutan, China, India, Nepal, Pakistan, Bangladesh	Phase I no cost extension till June 2005, Phase II to start from July 2005
5	Farmers' Innovation in Shifting Cultivation	2002 (I)	IFAD/ICIMOD core		Farmers' innovations and policy issues	Bhutan, Bangladesh, India, Myanmar Nepal	Policy reappraisals; Two new proposal have been prepared (one on research on SC and another one on agrobiodiversity focus)
6	Policy in Natural Resource Management	2003 (I)	GTZ (restricted core)	US 150,000 per year for NRM	Policy focus across NRM projects	All eight HKH countries	Strongly linked with Policy and Partnership and IKM Programmes at ICIMOD

4.2.6 Partner institutions in the countries

The implementing institutions of the project have not changed during phase 3. This means for instance that in Nepal, it was not possible to identify a national institution in a position to host PARDYP for phase 3. Therefore PARDYP Nepal is still hosted by ICIMOD. In Pakistan and India, the implementing institutions – respectively the Pakistan Forestry Institute Peshawar and the G.B. Pant Institute – express very positive views about PARDYP and have integrated some elements of the project in their own structures, which indicates a high degree of ownership. Each country team has developed its own network with partners within the country, including governmental and non-governmental organisations at various levels.

4.3 Conserving the environment and improving livelihoods

4.3.1 Conservation and development: strong focus on livelihoods

Most of the PARDYP partners today emphasize livelihoods as much as they do the conservation of environment. This was a considerable shift from the earlier phases where a stronger emphasis on conservation (soil and water mainly) prevailed. The reason for inclusion of a livelihood emphasis was to reduce the non-sustainable use of natural resources. This therefore can be considered a *conservation and development* approach. All the PARDYP projects are able to demonstrate with their watershed this balanced approach. The first ER (see system of objectives, table 1) puts an emphasis on *testing options for improved farming systems productivity*. The second ER puts an emphasis on *options to increase productivity of agricultural lands*. The fourth ER deals with *sustainable and equitable access to water, land and forest resources*. In essence all these three ERs have strong livelihood dimensions. ER 3 refers to *water management options*, which no doubt includes a conservation dimension. Clearly Phase 3 has brought a strong orientation towards livelihoods.

4.3.2 CBNRM

The stronger emphasis on access and equity in phase 3 is notable (especially irrigation, spring and drinking water). Rather conspicuous is the relative neglect of the emphasis on forest and other common property resources. ICIMOD as an institution has, in its most recent strategic plan emphasized Community Based Natural Resources Management (CBNRM). CBNRM almost always implies tenure, rights, responsibilities and improved and secure access. Often these center on common property forest and water resources. Possibly in recognition of this important pro poor orientation, PARDYP organized a major workshop (with support of the University of Zurich) on issues of access (entitlements, institutions, tenure governance, etc.) for PARDYP staff. For most of the research teams these were *new* terminologies suggestive of an increased recognition of equity issues. The result is that there is a heightened awareness of the value of such intervention as spring catchment area conservation (in India), of water user groups (Nepal), and of tenant – landlord dialogue (Pakistan).

The emphasis on poverty alleviation has brought renewed attention to the value of linking biophysical research predominantly done in past phases (or even in PARDYP predecessor projects) to more contemporary issues of user groups in the management of common property resources. There has been some past research on which to base new initiatives including the work in the Bheta Gad watershed in India and Jhiku Khola watershed in Nepal. The experience in Jhiku Khola of rehabilitating a highly degraded (commonly owned) terrain for fodder suggests the potential for such approaches to address livelihoods whilst also restoring the environment. However it is not just about technologies as, without the appropriate social mechanisms and local institutions these assets will not be managed sustainably. The work on water user groups, also in the same watershed, strongly point out to the value of appropriate social institutions.

4.4 Participatory research for development

PARDYP was conceptualised as a **Research for Development** project. The view of the reviewers is that the regional and national teams (in the three countries visited) have succeeded in making dramatic shifts in research approaches and modes of work, within their respective watershed sites and host organizations. PARDYP has also made substantial progress in demonstrating the value of regional exchanges (mostly through better communications between partners and active researcher-level participation in a range of well-focused regional educational activities / events). The participatory dimension of its R and D work can be seen in its strong on-farm orientation, the team approach, a holistic orientation towards watershed management, iterative approaches to planning (resulting in refocusing on a phase-by-phase or year by year basis).

4.4.1 The participatory approach

As a result of the iterative and self-introspective approach used by the (wider) team of PARDYP partners and stakeholders, the PARDYP programmatic focus has shifted over its three phases, from a primarily biophysical emphasis on hydrological or meteorological issues to natural resource management and sustainable livelihoods. This need-responsiveness has kept PARDYP “up to date” in terms of what governments, civil society and donors are starting to prioritise across the region (conservation and development, sustainable livelihoods, a farmer-first orientation, on-farm research approaches, knowledge-based networking etc). This orientation and shift has, not surprisingly, created a need for participatory **research** approaches, which the PARDYP teams have done well to respond to. Other dimensions of participatory approaches that have not yet received adequate attention are: local organizations, institutions and conflict resolution strategies.

Participatory research invariably suggests the need for team-based modes of work. PARDYP has done an exceptional job in this regard. The research teams are not just *multidisciplinary* – they are truly *interdisciplinary* – and they are engaged in joint planning and monitoring of work. *Draft* papers are being reviewed and critiqued by peers within teams and, sometimes, across teams. These are currently unconventional ways of doing (R and D) business in the region. These are the less chosen paths (by researchers) and PARDYP is demonstrating the value of this approach within the host institutions themselves.

4.4.2 Scope of PARDYP

The scope of PARDYPs work is wide-ranging and diverse. This should not be surprising because watersheds are the unit of the R and D efforts. As the orientation is towards ultimately sustaining livelihoods through the generation of environmentally benign approaches and options, R and D are aimed at generating options, implying the need for an exploratory approach. Generating options has also resulted in a diverse portfolio of R and D efforts: hydrology and meteorology, farming systems, land cover, water availability and management, soil erosion and fertility, on-farm and off-farm conservation and rehabilitation, community forestry, agronomic and horticultural initiatives and social economic, gender and marketing issues. The emphasis on each of these areas (again not surprisingly) differs from site to site, depending largely on the teams’ own priorities and staff capacities. The distances of the project headquarters to the site also has had a bearing on the scope of the program (e.g. the China project). The wide scope of themes being pursued should not be viewed as a weakness of PARDYP (see project objectives to understand better the implications of this cluster of objectives and its implications for programming, chapter 1).

4.4.3 Using long-term hydrology and meteorology datasets

The majority of financial resources (a point emphasized by the Regional Coordinator in a refreshing example of self-introspective openness) thus far have been spent on the hydrology and meteorology components, an area of work that does not have a strong participatory research component (having local people read and maintain the stations, though a notable accomplish-

ment, is not, in itself an indicator of participatory research). One implication of these realities is that the project must quickly come up with some well conceptualised and targeted strategies to analyse the data sets or/and repackage them (knowledge products) with a view to increasing their relevance and use, e.g. by local administrators. ICIMOD must also demonstrate that the past emphasis on the Hydro Met work was justified by demonstrating success in identifying donors, government entities or scientific institutions willing to take over the responsibility for funding/maintaining these stations⁴. The value of having access to long-term databases has been stressed by project staff because of the emerging issues relating to climate change and its implications on livelihoods. Documenting the Hydro Met work alone (year books and cross watershed papers) without a complementary effort aimed at interpretation/application will not suffice.

4.4.4 Farmer-to-farmer approach for up-scaling

There are some areas of participatory research that however remain somewhat neglected by the PARDYP team and might be considered until the end of phase 3. The first is the use of farmer-to-farmer (F-to-F) approaches. If up scaled implementation (wider use and dissemination) is to be achieved, farmer-to-farmer approaches must receive attention. There is a tendency to rely on the extension system and NGOs for wider dissemination of proven approaches and technologies. The reality is that the human resources for scaled up action do often not exist within these agencies. Moreover farmer-to-farmer approaches might prove to be a better way of retaining capacities within the region (staff turnover cannot always be controlled). These F-to-F approaches could include the preparation of inventories of farmer-resource persons (listing of experienced farmers with identified areas of specialization and contact details), inventories of farms and sites that can serve as learning centres (easy accessible farms which can serve as field training venues and study-visit sites). One has to gradually start to engage local farmers in the job of serving as trainers and extension agents. Though it is a bit late for the current phase, PARDYP partners and ICIMOD could already start to consider including this dimension of R and D research in follow-on activities after PARDYP. Farmer-to-farmer approaches are an integral component of a PR and D approach.

4.4.5 Conflict resolution: a neglected dimension

One other general area of capacity development that could have received more attention is the area of conflict resolution. This issue has been taken up in Pakistan, where significant results were obtained by facilitating a dialogue between different communities (tenants and owners). A focus on watersheds and common property resources invariably imply that conflicts will arise. When resources are scarce, conflicts are common...but also when new assets are created (as when regeneration takes place or when water resources are revived) conflicts also arise. There is an entire range of conflict resolution principles and lessons that have been generated from the work of ICIMOD, RECOFTC, FAO that could be of use to PARDYP staff. Necessary orientation, capacity building and field-testing activities may be undertaken in the coming months.

4.4.6 Strengthening staff capacities in PR and D

PARDYP staff has been pursuing PR and D approaches without adequate knowledge of new approaches/methods. PARDYP regional coordination unit might consider equipping staff and their host institutions with the latest information and related resources on PR and D. One such resource is the three-volume PR and D sourcebook to be released May 2005 by CIP UPWARD in Los Banos Philippines. Another three-volume compilation is that on Community Forestry in Bhutan just recently released (information relayed by Richard Allen). There are publications on Participatory Action Research, Participatory Technology Development and Participatory Monitoring and Evaluation all produced by IIRR Philippines. IDRC, FAO and RECOFTC have documented conflict resolution approaches and methods. RECOFTC has a manual on case study writing. These are just some illustrations of the wealth of materials that could be put together for

⁴ Provided it is justified to maintain them, see chapter 5. Recommendations

a mini reference library on participatory approaches and provided to site teams. Short orientation workshops may also be considered. The teams need to be updated on the recent trends in PR and D approaches. The country PARDYP teams do put a lot of emphasis on Capacity Development. Information support of this kind might be appreciated as the project is brought to a close.

4.4.7 Reporting on participatory approaches

Better reporting on methodological issues is required at all levels but more so at the country team level (the reviewers did notice a remarkable improvement on the part of the regional office reporting of methodological issues). If participatory methods are used, they need to be reported on. Critical perspectives are to be encouraged. Process dimensions (not just the outputs or outcomes) of PR and D, if and when highlighted in reports can serve to disseminate lessons.

4.5 Capacity building

Regional exchanges and regional events have contributed as much to capacity development as they have to information sharing. One country team, when asked about the value of regional exchanges, suggested the following benefits: sharing lessons and approaches, sharing methodologies, sharing results and capacity development. PARDYP partners learned new presentation techniques, conference approaches, and “workshopping” modes. Learning to listen and being open to critical but constructive feedback was an important lesson garnered by participants. The opportunity to interact with other regional players was appreciated. The interaction with the Universities of British Columbia and University of Berne in the earlier phases when capacity development was emphasized was also noted. More recently the contributions of the University of Zurich was greatly appreciated because of their capacity development orientation. For example the conduct of the livelihood survey involved partners in the design of the questionnaire. The workshop on ACCESS provided them with an opportunity to be exposed to important social science components of NRM work. The ACCESS workshop infused “new” ideas such as entitlements, institutions, equity, governance etc. Partners value collaboration with outside universities if there is a capacity development orientation and the products provide due acknowledgement (in the form of joint authorship) of the national partners involved. Carrying data collected by national partners, for off-site analysis is often questionable, especially when local partners feel they have local capacity to collaborate or/and are willing to learn along the way. In a future effort involving the external universities it might make sense to use university faculty as mentors of younger researchers: they would work in a truly collaborative mode generating joint products, while also building capacities within local institutions.

Over the lifespan of the project, not far from 200 people have been involved in PARDYP teams and trained in the four countries; some of these people are today working in other projects or line agencies where they continue to spread some of the values (e.g. true participatory approaches) they learned with PARDYP.

4.5.1 Quality of papers

There has been a remarkable improvement in the overall quality of research papers and other papers being generated out of PARDYP. Regional level workshops have adopted a participatory operational mode with more peer-based reviews being factored in. At the last regional conference papers were subjected to a critical review (post workshop) followed by opportunities for the writers to revise the papers. As many as three or four drafts were developed prior to publication of the proceedings. This is quite remarkable considering that scientific papers in the past only received an editorial review. This approach improves the quality of the papers and enhances their user value too.

4.5.2 Host institutions

In two of the countries where local R and D institutions hosted PARDYP country programs, the chances of activities being integrated or mainstreamed are good. There is already evidence of

willingness of the host institutions to take on certain dimensions of the work. However, there is still an interest in future partnerships. The host institutions are now using the language used by PARDYP. For example the GB Pant Institute of the Himalayan Environment and Development in India has the following statement in its list of accomplishments: “*Execution of natural resources management practices with particular emphasis on people and resource dynamics in mountain watersheds* “. One of its three mandates is “to identify and strengthen local knowledge of the environment and contribute towards strengthening researches of regional relevance”.

The opportunities for integration of the PARDYP program within a Nepalese organization appears as bleak as it did in Phase 2. The capacities of the Nepal PARDYP team are therefore probably best used within an ICIMOD led integrated watershed management program.

4.6 Documentation, dissemination and scaling up

The Regional coordination unit and partners have significantly increased their emphasis on documentation and dissemination dimensions in Phase 3.

The regional unit has identified the following four target dissemination outputs:

- a) *For Farmers*: recommended options
- b) *For Watershed and NRM projects*: methods and approaches
- c) *For Decision makers*: briefs and fact files
- d) *For Researchers*: research priorities / identification of gaps in understanding

An important step taken by PARDYP has been to identify which audience need to be targeted with information inputs. However it has not done an equally good job of identifying what specific methods need to be targeted to each group (dissemination and scaling up strategy).

A wider range of products is in the pipeline at the regional level as well as within countries. The reviewers have to commend the PARDYP network for this emphasis while at the same time cautioning them about the risks of not being able to bring this to a closure at a time when a number of other tasks need great attention (further data analysis, reporting, preparing for follow on projects). Of major concern is the unanticipated movement of staff after SDC decided not to fund another phase. The lack of staff and loss of institutional memory could pose a serious threat to plans and efforts to develop a range of knowledge products in the last year of the project.

4.6.1 CD-ROMs

In phase 2 mainly CD ROMs were produced, many of them in partnership with University of British Columbia. UBC trained a member of the Nepal team to produce these CDs, which now are produced within ICIMOD. A total of 13 very high quality educational CDs have already been produced. The person trained by UBC went on to train individuals from Pakistan, India and China *all* of whom are now producing CD ROMs within their institution. The leadership roles of the UBC and the Nepal country program in building country level capacity in CD-ROM media has been noted and recognized by the reviewers. As these are among the most useful education material (for administrators, scientists, trainers, educators and policy makers) one can find (on the respective topics) much more needs to be done to improve their accessibility via electronic means (websites). They have not been loaded onto the ICIMOD websites because of technical difficulties (their high resolution character). The regional office unit and even possibly the UBC is encouraged to try to surmount these technical problems and to find a way to get these useful CD ROMs onto websites. Alternatively, this task could even be outsourced to a private company. In addition a pro-active effort to distribute the CD ROMs (in their current form) to educational and development institutions across the region is encouraged. The materials are too valuable to be left under-utilised. They could be packaged with hard copy versions of related relevant publications.

4.6.2 Hydro-met publications

The Hydrology and Meteorology components of the program receive the largest level of funding and have so far generated a number of products of relevance to the scientific community primarily, CD ROMS, scientific papers and Year Books⁵. These products certainly will continue to be of relevance as issues of water shortages and global warming / climate changes are appreciated by local administrators and the scientific community. The project has delivered on the promise of *improving the understanding of the dynamics and issues within small watersheds in the HK Himalayas*. But it would appear that the biggest beneficiaries have been the scientific community. Is it possible in this last year of the project to “repackage” the knowledge outputs so that their use by local administrators and planners can be further enhanced?

There are many messages that can be garnered from the analysis of the ten years of data (Hydro met). Before the project ends there is a huge need to package these into more widely usable publications (e.g. Myths and Facts). Different vantage points should be taken toward the data and both the University of Bern and University of British Columbia (that have benefited immensely from the contributions and hard work of the PARDYP staff and readers in the watersheds) should be encouraged to make a contribution to this concluding phase of the project by collaborating in this effort to draw lessons and implications for use across a wider community of users beyond the scientific community. A writing workshop may be considered to accelerate the writing of the reviewing process.

4.6.3 WOCAT

The increased attention of PARDYP to the issue of documentation and dissemination has been boosted by its links with WOCAT (World overview of conservation approaches and technologies) an SDC funded initiative based in the University of Bern. WOCAT put an emphasis on the collection and sharing of information on conservation approaches and technologies. The Kathmandu based meeting involved not only the PARDYP partners but also a wider range of organizations in the region. There is a heightened awareness among national partners of the value of sharing information. The association with WOCAT offers PARDYP partners a potentially wider network with which to informally interact or exchange information with and learn from.

4.6.4 Handbooks

PARDYP regional staff is increasingly becoming engaged in the development of handbooks (e.g. Land Degradation issues) and Training manuals. Writing workshops (writeshops) should also be considered. Writeshops can be used to develop concept notes or proposals, generate policy briefs, refine and revise scientific papers, develop training curriculum, generate community level posters, develop resource books, etc. The principles of writeshops can be applied for a wide range of purposes. Writeshops are relevant because they can greatly reduce the time required to generate an output (consensual). Besides they enhance the quality of the product as a result of the peer review and critiquing from multi disciplinary vantage points. During writeshops participants are provided with back-up support from artists, editors and desktop publishers. The workshops are by design intensive.

4.6.5 Dissemination strategy

The dissemination strategy currently focuses on workshops and publications or CDs. National dissemination workshops have been held in various countries. However many of these workshops have turned out to be national conferences: papers are presented and conference reports published. A broader view of dissemination suggests the importance of combining workshops with field visits. Reviews in other countries suggest that the study visits are probably the most effective mechanisms to communicate successes (i.e. dissemination). PARDYP has not adequately emphasized the role for farmer cross visits (by farmers and local communities) and

⁵ It is estimated that 95% of the scientific publications generated by PARDYP so far are related to hydrology and meteorology.

study visits (targeted to local administrators and planners). Pakistan can be cited in example in this regard. Farmers' field days (and also women farmers' days) are organised and a number of high-ranking decision makers and local authorities are invited in the field. These events are very successful.

Study visits: The States of Himachal Pradesh and Uttaranachal Pradesh in India will soon be implementing large World Bank assisted Watershed development projects. One of the start-up activities involves a visit later this month (May 2005) to the PARDYP site in India. These watersheds are serving as focal points for disseminating the lessons of PARDYP. ICIMOD itself can capitalize on these learning centres by organizing study tours and orientation workshops for higher-level officials planning to initiate watershed programs. ICIMOD needs such field sites if its own networking role is to be enhanced. Having access to mountain watershed field sites adds to its credibility.

4.6.6 Annual reporting

Annual reporting at the regional level and country level has improved rather significantly from the point of view of user friendliness, relevance of information, presentation, coverage of bio-physical, social and (to a lesser extent) institutional issues. The project emphasis on dissemination and the reporting on the basis of Expected Results (ERs) is primarily responsible for this quantum improvement in the quality of reporting. Reports are no longer limited to the conventional presentation of research methods and results. There has also been a considerable improvement in the promotional material on the PARDYP project. A good example of this would be the interactive CD and the institutional brochures produced by the Indian partners and ICIMOD for Nepal. The PARDYP India brochure only presents its country specific agenda after it introduces the regional objectives of PARDYP. Then it goes on to present in a very user-friendly manner the specific thrusts of its central Himalayan initiative. Partners are starting to realize the need to communicate to a wider audience that goes beyond the scientific communities.

4.7 The regional dimension of PARDYP

This is probably the area where PARDYP has made the most progress during phase 3. This was made possible thanks to the increased budget for the regional component, but not only. The strong commitment and hard work (in terms of encouragements and motivation) of the project coordination on the one hand, a better understanding of the benefits of sharing information and results on the other hand, as well as the fact that more material and more results were available for exchange were just as important factors that promoted the regional dimension of PARDYP.

Major elements of regional cooperation are: regional planning, ER teams (planning, data sharing, information exchange, etc.), sharing of responsibilities, as well as more regular meetings (not only of country coordinators). In the 2002 review, several models of regional networks were discussed. At that time, the Nepal team had played a major role in the regional set-up, partly because it had become increasingly difficult to work in the field in Nepal. Since then, the situation within PARDYP evolved towards the model illustrated in figure 3, where India, Pakistan and Nepal have established closer links, while China has remained somewhat apart. Regional activities provided ample opportunity for cross-cultural exchanges.

What are concrete benefits of the regional cooperation? On the technical level, some technologies, such as SRI, would probably not be presently under testing in Pakistan and India, based on positive results obtained in Nepal, without regional exchanges. At the level of working approaches, the regional set-up certainly helped to refine the methods based on each other's ex-

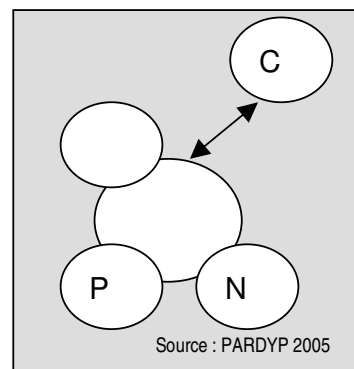


Figure 3 Regional model of PARDYP during phase 3

periences. This applies particularly to the social aspects of PARDYP. And the links established across the countries to set-up the ER teams has allowed to reach a critical mass of researchers on specific issues, thus accelerating and improving the research process, and improving the capacities of the involved researchers.

4.8 Networking

Networking is important for PARDYP, not only as an internal issue of the project, but also in terms of linkages with a broader community of institutions / organisations involved in watershed management. The regional co-ordinator of PARDYP suggests the following picture to illustrate the interactions of PARDYP with the international stakeholders (watershed projects and institutions) dealing with watershed development (figure 4). These links are crucial for the further dissemination of the results of PARDYP accumulated since more than a decade.

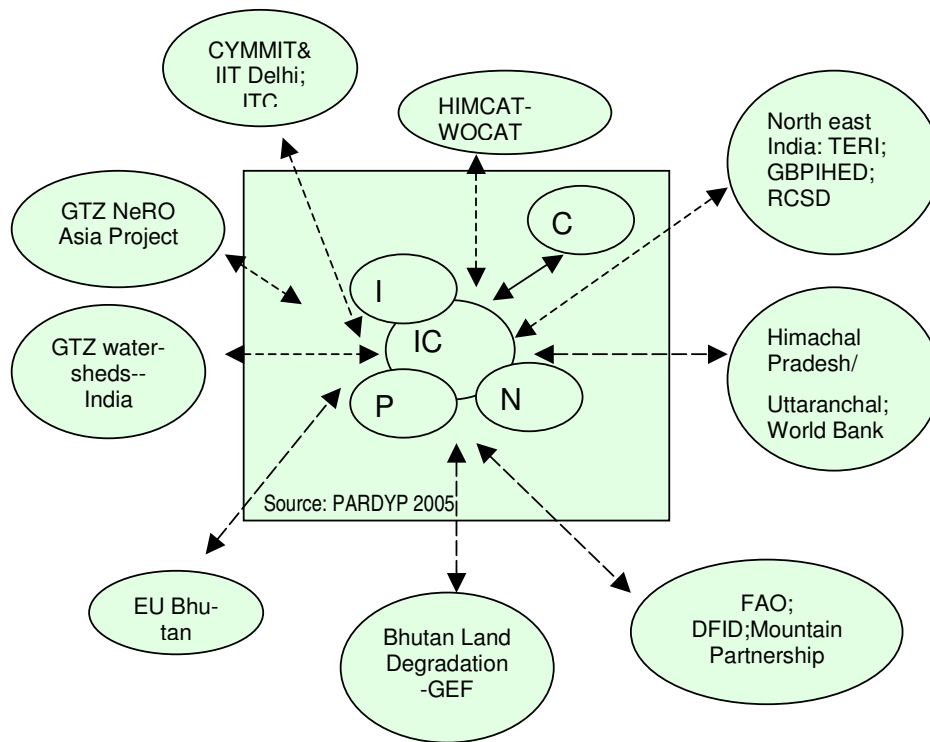


Figure 4 The broader PARDYP network

PARDYP as an international network is analysed in a case study mandated by GTZ⁶. This paper underlines some aspects related to communication within PARDYP: e.g. the importance of face-to-face communication to complement available electronic facilities (e-mail).

The same study indicates that a variety of different means of communication helped to strengthen network communication, including website, extranet, newsletter, e-mail, etc. But the network really started functioning

only in phase 3, because there were more resources available, more results to exchange, and because the phase 3 project document has encouraged partners to collaborate over the borders with the ER groups. The author of the paper sees phase 1 of PARDYP (pre-Internet phase) as a time where the structure had first to be established, phase 2 (e-mail available, used mainly by country coordinators) as a time for experimentation and phase 3 (e-mail widely available and used) a phase of full use and refinement of communication. But the network only functions thanks to regular inputs of the regional team: "without some central coordination, the cooperation and synergy which is the value of the network simply will not occur". Even if PARDYP under its present form will come to an end after the present phase, some networking know-how of the

⁶ "A study of communication, leadership and culture in networking for natural resources management in Asia", conducted by Layton Montgomery and Greta Rana, funded by Deutsche Gesellschaft für technische Zusammenarbeit (GTZ)

project should continue to serve the interests of watershed development in a broad sense (see also recommendations, chapter 5).

As a “classical example of a knowledge network”, PARDYP should continue to play a central role a new “watershed management network” involving many partners, possibly as illustrated in figure 4. Beyond networking, PARDYP could offer a number of services to the network members: from workshops on the state-of-the-art in watershed management in the HKH to training for project staff on specific issues, consultancies or even operational mandates. ICIMOD has a valuable set of results, experiences and instruments that should be used in the best possible way.

4.9 Lessons learned

4.9.1 Upstream

Revelation of the need to connect thematic research and field studies in ICIMOD’s NRM programme

One of the striking achievements of PARDYP Phase 3 is the revelation of a strong connection between field research following watershed approach as that adopted by PARDYP and thematic issues confronting mountain development. The emphasis on watershed management in the latest ICIMOD’s strategic programme including designation of a specialized focal point in watershed management in NRM Division is indicative of ICIMOD’s priority. PARDYP certainly deserves a share of the thrust for the current institutional emphasis on watershed management. PARDYP’s role as a field laboratory of ICIMOD is also highlighted in the findings, conclusion and recommendations of the third QQR panel. This report mentions that “the watershed approach of the PARDYP programme, implemented in five countries, has to be mentioned as one of ICIMOD’s few examples of successful integration of different thematic areas...”. The report has recommended that “Given the opportunity of the existing PARDYP and in future potentially six countries in the region, ICIMOD should use this field presence to integrate its work on different thematic areas”.

A functioning regional network capable of sharing information, strengthening capacities, building consensus and solving problems

During Phase 3 PARDYP has markedly demonstrated the added value of regional networking through the establishment of PARDYP extranet, publication of newsletter, organization of annual operational planning meeting, and thematic meetings focusing on a particular ER. While extranet and newsletters have contributed significantly to establish a common understanding on principle and practices of watershed management, ER and OP meetings have helped to pursue common approaches to watershed management and addressing challenges that are faced by the participating networks in watershed management.

Methodologies and approaches

While PARDYP is an ongoing initiative over a period of more than 8 years, during Phase 3 several distinctly important areas to watershed management have started to emerge: (a) issues to be considered while designing hydro-met network consistent to the objective of a specific NRM project (India, Pakistan, Nepal); (b) design and implementation of participatory action research (PAR) to promote sustainable mountain living (India, Pakistan, Nepal); (c) documentation and dissemination of best of practices; (d) approaches to up scaling (replication) of best practices from a demonstration sites to other areas; (e) approaches to user friendly NR data collection, processing, presentation, and use (e.g. survey and mapping of community forests in Jikhu Khola), and (f) specific policy issues related to compensation mechanisms between upland and lowland stakeholders (China).

Identification of priority “Policy Briefs”

The PARDYP project has identified several policy and research gaps confronting sustainable use of biophysical and human resources in the middle mountains of the Himalayas. It is ex-

pected that several policy briefs will emerge within the next 6 to 12 months on issues such as use of bio-fertilizers, community based natural resources management, and rehabilitation of degraded lands including common property resources, social/community forestry and water management. The adoption or consideration of the recommendation of these policy briefs by member countries will be of great importance in the promotion of sustainable mountain development.

Publication of “Fact Files”

During Phase 3, PARDYP is publishing “fact files” such as hydro-meteorological characteristics of the watershed in the mid-hills; livelihood profiles of the selected watersheds, promising sustainable farming options, results of options, etc. The published fact files are already in use by different research institutions, graduate students, and development practitioners (e.g. hydro-meteorological data). It is accepted that the fact files in the pipeline will be of great value for different project stakeholders in the future. The fact files published so far have resolved several controversial issues as well as created more awareness reflecting PARDYP’s experience:

- While measuring stream flow measurement in the middle hills, focus should be on the monitoring of low flows as against emphasis on maximum flow;
- While designing watershed investment programmes, priority should be given to soil fertility management not soil erosion control since soil erosion in the agricultural land in the middle hills are observed to be under acceptable limits;
- Development of irrigation canal alone is not the panacea for promoting sustainable livelihoods in the middle mountains. Water harvesting and water management offers opportunity for the poorest that are characterized by owners of marginal lands.
- Information on water quality influences awareness to consume safe drinking water.

4.9.2 Grassroots level

Availability of options to the beneficiaries

PARDYP 3 has been able to recommend various options for PAR for adoption trials and the majority of them have proved to be successful. Some of the activities that were appreciated and adopted by the beneficiaries are: diversified cropping systems; off-season vegetable production (incl. polyhouses); drip and sprinkler irrigation; multi-use water harvesting structures (including fish ponds); catchment area rehabilitation / water source protection; lime application in acidic soils; system of rice intensification (SRI); appropriate water filters and solar disinfection techniques; introduction of new seeds; improved grass and fodder trees.

Awareness creation

During PARDYP 3, awareness on the importance of participatory action research (PAR) at the grassroots level has been significantly increased. Initially, the project staff had difficulty selecting participants willing to participate in the PAR. The grassroots beneficiaries are reported to be very keen on group approach to problem solving and are seeing benefits of sharing knowledge through field visits of each other’s farm. During the field visits it was obvious that the farmers had greater understanding of the people and resources dynamics. They also have a good understanding of the importance of a solid information base about their immediate environment – both biophysical as well as socio-economic for appropriate decision making. Meeting with key informants in the project area has clearly revealed the quality of acquired knowledge including their sensitiveness on ecological sustainable practices and role of women’s participation. Virtually all team members in the countries have benefited from opportunities provided to them for participation in short term training or degree courses.

Improved income

Significant increases in crop yields and vegetative growth through combined effects of drip and sprinkler irrigation, improved seeds, adoption of appropriate technology, and application of fertil-

izers (organic as well as chemical) are reported from all project sites. Increase in household income through the promotion of off-season vegetables, selling vegetable seedlings, fruit saplings and grass seeds have been reported. However, no quantitative data could be provided.

Facilitation, networking and up scaling

PARDYP has clearly communicated to the beneficiaries at grassroots level that its scope is PAR and that it is not responsible for up scaling. However, the project staff has played an impressive role to replicate and upscale best practices through networking and connecting farmers with local government initiatives or activities of other stakeholders / potential donors.

4.9.3 The policy issue

Mountains play a major role in the global water cycle: worldwide, mountains represent about 25% of the land area, but 40 to 50% of the water that circulates falls in mountain ranges. Major policy issues are related to water resources and other natural resources, and PARDYP, with ten years of scientific records and analyses of key data in watersheds can contribute to the debate at various levels.

At the (small) watershed level, the policy issues relate mainly to the utilisation of natural resources (e.g. regulation of land cultivation according to the slope, forest management, range land management, marginal land, water use rights, livestock production, etc.). Even within a small watershed, there can be conflicts between users situated upstream and downstream, e.g. if the former divert water for their own use, not leaving enough water for the latter. A close environmental monitoring was done by PARDYP, providing crucial information for the policy dialogue at a higher level (larger watershed).

On a broader scale (e.g. large watershed, or even between upland and lowland), the policy discussion will be dealing e.g. with practices in the upland that preserve natural resources (including the forest cover) in order to reduce risks of floods in the lowland. For this policy discussion, the environmental monitoring mentioned above will provide hard facts. If such practices imply restrictions in the use of natural resources for the upland farmers, then the concerned farmers are more likely to be motivated to adopt sustainable practices if compensation mechanisms are put in place. PARDYP may not be in a position to address all these policy issues, but many lessons can be learned from the project to feed this discussion.

We must say, however, that the sensitivity of the methods used in the watersheds may not be sufficient to demonstrate effects of different agricultural practices on parameters such as erosion in agricultural land, sedimentation and watershed quality at the level of the watershed.

4.10 Uniqueness of PARDYP

PARDYP is not an investment project but a field laboratory to conduct participatory action research to understand biophysical linkages and identify best practices that could contribute to sustainable livelihoods in a watershed approach. Its role is to unfold people and resources dynamics that are continuously in action in the selected watersheds in the member countries. The project is expected to facilitate not implement or upscale the best practices for watershed management that are identified through PAR. Therefore, PARDYP is a unique regional initiative in terms of its mandate, approach and organizational structure. Some of the unique features of PARDYP are presented below.

4.10.1 An integrated and multidisciplinary initiative

PARDYP represents an integrated and multi-disciplinary initiative that has created an enabling environment to all thematic mountain development activities planned by ICIMOD to reach the grassroots and carry out PAR. The network that has evolved through PARDYP is a vehicle that has allowed effective implementation of several PAR through its established partner institutions and the country teams in these institutions.

4.10.2 A unique set of “meta-products”

“Meta-products”, i.e. lessons learned, methods and approaches about biophysical, social or institutional processes, are outputs of the project that represent a unique source of knowledge and know-how dealing with the complexity of watersheds considered in a holistic perspective.

4.10.3 A decentralised network

A decentralized network represented by country level institutions located in the participating countries characterizes PARDYP. This network determines collectively a joint initiative to be tested and observed in the field in close cooperation with the resident population. PARDYP facilitates collecting, processing, analysing and comparing results obtained from PAR. PARDYP functions as a breeding ground for new ideas through sharing of experiences

4.10.4 Value added through networks and a synergetic mechanism

PARDYP has demonstrated the added value of a regional network to upscale adaptation of proven practices by encouraging country teams to reach a critical mass of beneficiaries through the establishment of country level networks.

PARDYP has also demonstrated a synergetic mechanism to enhance country capacity through tailor made training, workshops and field visits in different aspects of watershed management. The country teams are exposed to wide ranging issues and options to address them.

4.10.5 A unique expertise

Because of its unique expertise and network strength PARDYP has also demonstrated its utility to ICIMOD strengthening its partnership with other donors. PARDYP Regional Coordinator is invited by other donors to assist in project formulation and other initiatives.

5 Overall assessment and recommendations

In this chapter, the review team presents a number of key statements along with recommendations. The recommendations are of different nature: there are recommendations that are directed to PARDYP for the remaining time of its third phase. Other recommendations are addressed to ICIMOD to ensure that the regional institution makes the best use of the experience and results obtained with PARDYP during about 10 years. Finally, some recommendations are of more general nature for a possible future phase or continuation of PARDYP as a whole or of selected activities of PARDYP (table 6).

Table 6 Recommendations for PARDYP, ICIMOD and watershed management

	PARDYP 3rd phase	ICIMOD	PARDYP beyond 3rd phase
Biophysical factors	1, 2		1
Farming systems related factors / options for watershed development	3, 4		3, 4
Approaches and methods, capacity building	7, 8		5, 6, 7, 8
Watershed project design and scope	10, 12	9, 10	9, 11
Dissemination and scaling up	13	14	
Documentation	15	15	
Networking		16, 17	

Note: the numbers indicate the corresponding recommendation

5.1 Biophysical factors

- If high flows are a major problem for downstream regions, low flows are the main problem for communities living upstream.
- Not soil erosion – nutrient management – is the key problem that must be addressed for improved performance in the agricultural land in the watersheds
- It is important to improve water management in the watersheds, especially in the agricultural sector, as well as to improve drinking water quality

RECOMMENDATIONS

1. Each country team should assess whether the hydro-met network should be maintained in future and define the purpose of further data collection. If the further use is justified, a local partner (institution, organisation) should be identified to take over and manage the network.

2. Investigate links between biophysical and socio-economic factors, however without going into highly sophisticated modelling. The focus should be on practical applications and policy discussion.

5.2 Farming systems related factors / options for watershed development

- Farm yields can be dramatically increased in the watersheds, mainly because the technologies traditionally applied have a great potential for improvement.
- Management of natural resources (e.g. water) combining improved livelihood opportunities and protection of the resources are more likely to be adopted.
- The solution does not lie in the promotion of a single option. The promotion of a basket of options is key for the sustainable development of the watersheds
- Effective on-farm research with emphasis on diversification and intensification helps to reduce the pressure on natural resources, and marginal lands.

RECOMMENDATIONS

3. While promoting improved seeds, especially hybrid seeds of various crops, carefully assess whether farmers are not becoming too dependent on suppliers of inputs (unreliable or too costly).

4. Marketing of products: avoid encouraging all the farmers to produce the same commodity to reduce the risk of market or crop failure. In any case, pay sufficient attention to the marketing of the commodities, and risks linked with specific commodities.

5.3 Approaches and methods, capacity building

- Participatory approaches in research have induced high quality implementation of on-farm research
- The participatory dimension of PARDYP's R and D work can be seen in its strong on-farm orientation, the multidisciplinary team approach, a holistic orientation towards watershed management, iterative approaches to planning and an overall openness to constructive critical reviews
- Watershed management research must continue. New areas of investigation include socio-technical institutional, governance and implementation dimensions

RECOMMENDATIONS

5. Any effort to highlight the importance of social and institutional issues in watershed management cannot totally ignore biophysical dimensions related to land degradation, soil fertility depletion, water regime, etc. Any watershed management project design should find an adequate balance between these dimensions.

6. In order to take full advantage of participatory research, local farmers' knowledge should be better factored in and their role in research processes (training, M&E) should be enhanced.

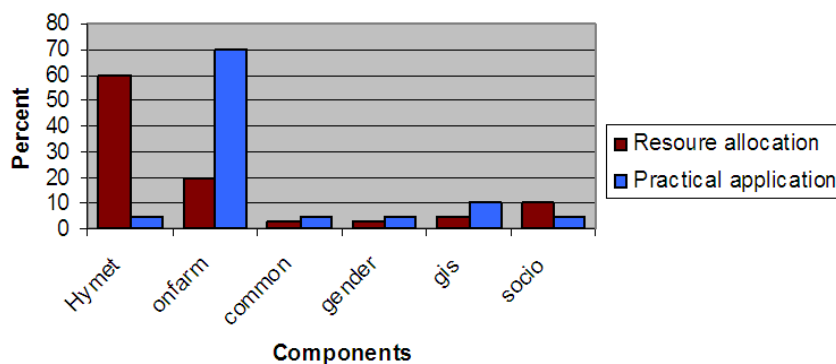
7. As participatory approaches are constantly evolving and being refined, resulting in new methods, more emphasis needs to be provided to PARDYP / watershed management projects' staff on capacity development and information support.

8. In spite of the cultural barriers that prevail, initial successes, however small, suggest that there are many opportunities for gender mainstreaming and addressing poverty (specially among women). Gender sensitive diagnosis, design and planning will be required.

5.4 Watershed project design and scope

- Because watershed management is not just about technologies, appropriate social mechanisms and local institutional development are required
- From its inception, PARDYP has been characterized by increasing complexity, adding socio-economic, then institutional, equity and access aspects to the biophysical factors that were initially addressed. Dealing with this complexity is a challenge, especially translating results into practical applications that really contribute to improved livelihoods and sustainable use of natural resources in the watersheds.
- The scope of PARDYP's work is wide-ranging and diverse, primarily because of its orientation towards generating options at the watershed level, which requires a holistic approach
- Another lesson learnt by PARDYP is that the results that have direct practical application in the field are much more on-farm practices than biophysical factors. However, the vast majority of resources injected in PARDYP went into biophysical data recording (figure 5). On the other hand, most scientific papers produced by PARDYP are related to the biophysical and meteorological data.

Figure 5 Resources allocation vs. practical application



RECOMMENDATIONS

9. Build upon past strategic research undertaken on the rehabilitation of degraded lands conducted by PARDYP & its predecessor projects, bringing a bigger focus on common property resources & their relevance to the poor, including women is highly recommended.

10. In watersheds where the continuation of activities is envisaged, the project should put in place bridging mechanisms (ICIMOD or PARDYP) to retain key personnel in the country teams in order not to lose the accumulated experience. On the other hand, where site or even a particular activity is to be discontinued, the project should ensure a smooth transition. This should include community level meetings and meetings with line agencies and partners where appropriate so that the exit is not perceived as abrupt and unplanned.

11. If equity and poverty alleviation are to be prioritised in new projects following the third phase, community-based restoration, management and use of common property resources should receive higher priority.

12. The steering committee should provide strategic guidance and support to the regional coordination unit to deal with special problems that might arise as the project comes to a close.

5.5 Dissemination and scaling up

- PARDYP has demonstrated the need for a strong connexion between field research and thematic issues confronting mountain development.
- The ideas are there, the technologies exist and can be adapted. But for up scaling and disseminating – it is of utmost importance to rely on a performing extension system (relay) that is missing in most areas
- If up-scaled implementation is to be achieved, farmers must be given an opportunity to serve as trainers, extension agents, and even evaluators. In such a scenario, line agencies, NGOs and researchers primarily play a backstopping, facilitating and resources linking role

RECOMMENDATIONS

13. Pro-active and targeted distribution of PARDYP information products to institutions that are likely to utilise the information should be done.

14. Training should be considered as a mechanism for dissemination of best practices. Regional courses and workshops on watershed management, mountain agroforestry and CBNRM should be developed within ICIMOD, based on its PARDYP work of over a decade as well as other resources within ICIMOD, Nepal and the region⁷.

5.6 Documentation

- Significant efforts have been done by PARDYP to ensure the documentation of results, thanks to constant support from the regional office and a healthy competition between the countries

RECOMMENDATION

15. PARDYP should make sure that the valuable knowledge accumulated by the project will be fully integrated within ICIMOD NRM programme and other programmes related to PARDYP concerns. The information should be processed in a user-friendly format consistent with the requirements of the beneficiaries.

⁷ The obvious first course would be on watershed management (already being considered by the regional coordinator). Another course could be on Addressing Land and Water Degradation. An international roving course on Agroforestry may be considered in partnership with the GB Pant institute given the richness and diversity of agroforestry options that can be observed in the mid hills of the Indian central Himalayas. Such courses would typically be three-week length tailored to middle level personnel. Strong field exposure components are critically important to ensure relevance and success (these days LCD projects and CD ROMS have served to substitute visits to the field instead of complementing them).

5.7 Networking

- PARDYP has demonstrated the value of regional networks as mechanisms for sharing information, building consensus and solving problems
- Partners value collaboration with external universities if there is a distinct and deliberate capacity development component and if the derived research products acknowledge all key players involved
- Close relations between PARDYP and decision making authorities at national level can influence the process of policy formulation

RECOMMENDATION

16. The review team is of the opinion that ICIMOD should make use of the experience gained by PARDYP in establishing and running a knowledge network, e.g. by establishing a new regional network linking the major watershed management projects in the region. Considering the significant benefit that the network can provide, the concerned projects should not hesitate to participate in such an initiative.

17. ICIMOD should consider organising a meeting of current and potential “watershed investors” to identify possibilities for closer collaboration, to assess the needs in terms of training and advice, and to determine the interest for an international network.

6 Next steps

A number of recommendations are about the remaining time in the present phase (see also table 6). The implementation of these recommendations is the task of the present project team. But with the perspective of the termination of the present funding of PARDYP, the main stakeholders of the project will be forced to take actions for the future. Two levels must be distinguished:

- *The country level*
The situation of PARDYP is different in each country, in terms of partners, potential donors, team composition and host institution. ICIMOD – and the project coordination in Kathmandu – will definitely have to support the country teams in defining a strategy for the future, be it an exit strategy or a continuation of key activities in a different form and with different partners. This may include the formulation of project proposals, but also finding new partnerships, strengthening existing contacts, etc.
- *The regional level*
ICIMOD has the full responsibility for the regional level, and the implementation of some of the recommendations (e.g. setting up a centre of competence for watershed management, establishing a network for watershed management in the Himalayas) will require concrete actions from the centre. ICIMOD will for instance need to be proactive in the formulation of proposals, organisation of workshops, and strengthen the links with watershed management projects in the region.

7 Annexes

Annexe 7.1 Summary of country activities in 2003 and 2004

CHINA

In China the team has been based 16 hours drive or a one-hour flight from the watershed. It has not proved possible for the team to participate fully in all planned ERs due to travel problems and staff shortages. As PARDYP has entered its third phase with even more demand for data from all watersheds, the distance from the watershed has become more of an issue. The demand for information (and the quality and timeliness of that information) for regional analysis, particularly for the cross-watershed paper analyses, has been greater than expected.

	2003	2004
Biophysical aspects	<ul style="list-style-type: none"> • Updating existing hydro-met data • The hydro-met station was closed down at the end of October 2003 • Participatory M&E of water harvesting 	<ul style="list-style-type: none"> • Understanding water dynamics in mountain watersheds • Water governance case study (power relations among stakeholders in upland and lowland areas (plan for 2005)) • Training on improved irrigation (plan for 2005)
Socio-economic aspects, equity, gender, access	<ul style="list-style-type: none"> • Repeat socio-economic survey (livelihood and access, assessment of environmental service and land use change) • Access and land use rights to resources (water, land forest products, information) 	<ul style="list-style-type: none"> • Workshops to disseminate results on water governance and soil fertility management • Facilitate dialogue between stakeholders towards participatory watershed governance
Policy		<ul style="list-style-type: none"> • Policy issues about compensation of upland farmers for environmental services

INDIA

A brief overview of some key activities conducted in India in 2003 and 2004 is given in the following table.

	2003	2004
Biophysical aspects	<ul style="list-style-type: none"> • Hydro-met monitoring continued throughout the year 	
Farming systems	<ul style="list-style-type: none"> • Focus on on-farm participatory action research, e.g. on effect of bio-fertilisers on crops; "polyhouses" for seedlings rising, economic returns of off-season crops • Further dissemination of pisciculture in water-harvesting tanks • Economic analysis of fish farming • Farmer-to-farmer evaluation of research activities and learning approach 	<ul style="list-style-type: none"> • On-farm activities and participatory action research, e.g. bio-fertilizers on various crops. • Availability of improved seeds and bio-fertilizers identified as major problem, solved with involvement of private entrepreneurs • Off-season vegetables give good results • System of Rice Intensification (SRI) not very successful, but drip irrigation shows promising results as well as High Value Cash Crops. • Fish farming activity gets highest popularity as options for improved livelihood.
Rehabilitation / CBNRM	<ul style="list-style-type: none"> • Activities in rehabilitation sites managed by the land users: community based weeding, compost application programmes • New plantation activities by communities (PARDYP provided quality saplings) 	<ul style="list-style-type: none"> • Rehabilitation of degraded community land: decreased workload of women and improved availability of grasses to the villagers
Socio-economic aspects, equity, gender, access	<ul style="list-style-type: none"> • New case studies on access and equity in forest and water resources 	<ul style="list-style-type: none"> • Availability of quality water: technologies developed by PARDYP taken up by NGOs and line agencies for further extension • Survey on availability and access to water resources for irrigation and domestic use

Policy		<ul style="list-style-type: none"> • Synthesis of policies on water and NTFP made and documented
Capacity building		<ul style="list-style-type: none"> • On-site trainings, exchange visits and meetings for women, marginalized section of the society Panchayat bodies, NGOs and line agencies • National workshop on integrated watershed management: "emerging challenges and options" organized for information sharing.
Documentation / networking		<ul style="list-style-type: none"> • Reports, scientific papers and popular articles produced and used as effective tools for information sharing.

NEPAL

Improvements in the security situation during the first half of 2003 allowed more fieldwork than originally planned so that new programmes and follow up of old activities proceeded well. The main activities conducted in 2003 and 2004 are shown in the following table.

	2003	2004
Biophysical aspects	<ul style="list-style-type: none"> • Monitoring of water quality to record seasonal changes • Monitoring stations and sites (hydro-met, erosion and surface flow collectors) have been upgraded and are routinely monitored for quality data collection 	<ul style="list-style-type: none"> • Land use maps for Jhikku Khola from IKONOS high-resolution satellite imagery produced and field checked • Monitoring of water quality continued • Monitoring stations and sites (hydro-met, erosion and surface flow collectors) are made more low flow sensitive and are routinely monitored for quality data collection
Farming systems	<ul style="list-style-type: none"> • Water conserving methods for off-season vegetables widely adopted. Very encouraging results with drip irrigation systems and System for Rice Intensification (SRI). • Trials conducted with the Asian Vegetable Research and Development Centre (AVRDC) on blight resistant tomato and with fodder species from CIAT: promising results 	<ul style="list-style-type: none"> • Surveys and reports on adoption of drip irrigation (simple cheap sets irrigating 144 m²) and grass and fodder completed • Participatory monitoring and evaluation of technologies: System of Rice Intensification (SRI) and drip irrigation analysed
Rehabilitation / CBNRM	<ul style="list-style-type: none"> • Experiments with forage species conducted by Community forest user groups 	<ul style="list-style-type: none"> • Case studies on access, equity and rights on farmers managed irrigation system and community forest
Socio-economic aspects, equity, gender, access	<ul style="list-style-type: none"> • Access, equity and rights on farmers managed irrigation system and community forest reviewed for case study reporting 	<ul style="list-style-type: none"> • Social surveys also conducted on irrigation, community forest and access to water • A repeat household/ livelihood survey conducted in Jhikku Khola (using the same questionnaire in all watersheds) • New options for improved water management under testing
Documentation / networking	<ul style="list-style-type: none"> • Review of the activities carried out in Yarsha Khola between 1996 and closure of fieldwork in 2001: far more positive than anticipated, many activities taken up locally • A review of soil erosion studies carried out in Nepal (including PARDYP) indicates that erosion rates are much lower than originally thought. There are obvious implications for soil conservation programmes 	

PAKISTAN

A brief overview of the main activities conducted in Pakistan is given in the following table.

	2003	2004
Biophysical aspects	<ul style="list-style-type: none"> • Hydro-met and soil erosion data collection continued • All stations remain well maintained, readers are trained and data collection is up to date 	<ul style="list-style-type: none"> • Hydro-met and soil erosion data collection continued
Farming systems	<ul style="list-style-type: none"> • Participatory applied on-farm research with hybrid maize, seasonal and off-season vegetables show good results; onion seed production introduced with technical support of PARDYP (seed certification); 	<ul style="list-style-type: none"> • Maize trials and demonstrations concentrate on cultural practices • A ten-fold increase in maize yields due to project interventions observed since 1997

	<p>activities with fruit trees bring improvement in fruit production</p> <ul style="list-style-type: none"> • Experiment for the bio-control of pests conducted; a micorhyzae study started to grow pine trees and to see its effects on agricultural crops (collaboration of PFI scientist and scientists from National Agricultural Research Centre (NARC) Islamabad) 	<ul style="list-style-type: none"> • Trials with System of Rice Intensification (SRI) look very promising with 300% yield increase (needs to be confirmed in 2005)
Trees planting, rehabilitation / CBNRM	<ul style="list-style-type: none"> • Various broad-leaved and coniferous species grown in the project nursery; thousands of fast growing, multipurpose plants planted on waste areas and farmers lands • Block plantations of two species as farm forestry practice and energy plantation 	<ul style="list-style-type: none"> • The seed cooperative established with PARDYP help continues to operate • Various broad-leaved and coniferous species were grown in the project nursery as well as in farmers' nurseries • Various research on clones of hybrid poplar in the area
Socio-economic aspects, equity, gender, access	<ul style="list-style-type: none"> • Sewing and embroidery training of females completed in four communities. Two more communities to come • Fish farming training for males • Food technology training for females provided • Survey conducted on equity issues, access to natural resources and rights 	<ul style="list-style-type: none"> • Study on gender conducted in eight communities
Policy		<ul style="list-style-type: none"> • Dialogue on community management of natural resources influenced the new forest policy of Pakistan
Capacity building / dissemination	<ul style="list-style-type: none"> • A farmer day workshop organized in Hilkot watershed was very successful 	<ul style="list-style-type: none"> • A farmer day workshop for men and another one for women, with participants from various organizations and farmers of Hilkot and adjacent watersheds were organised. Both events were extremely well attended and are a feature of the local calendar now run since 2001

Annexe 7.2 Country report India

See "India report 2005.pdf"

Annexe 7.3 Country report Nepal

See "Nepal report 2005.pdf"

Annexe 7.4 Country report Pakistan

See "Pakistan report 2005.pdf"

Annexe 7.5 Terms of reference

Review of the People and Resource Dynamics in Mountain Watersheds of the Hindu Kush Himalaya (PARDYP) 10/1996-12/2005

BACKGROUND AND RATIONALE

The 3500 km mountain range of the Hindu Kush-Himalaya (HKH) that stretches from Afghanistan to Myanmar is home to more than 120 million people. Their environments and livelihoods are threatened by an increasing imbalance between population and available production land. Overuse of natural resources in these fragile ecosystems, removal of vegetation on steep slopes in conjunction with intense rainfall is triggering erosion and landslides resulting in soil losses, fertility depletion, and a deteriorating biophysical environment. This leads to increasing poverty in mountain communities because their natural resource base (forest, soil, water, plant and animal life), on which they depend for their survival, are being lost at an alarming rate.

The "People and Resource Dynamics in Mountain Watersheds of the Hindu-Kush Himalayas" Project (PARDYP), is a research for development project. PARDYP, funded by SDC, the Canadian 'International Development Research Center' (IDRC) and the International Center for Integrated Mountain Development (ICIMOD), has set up a complex network of hydrological and meteorological stations in five watersheds in Pakistan, India, Nepal and China. Through cooperative rural participation, PARDYP Phase I was involved in biophysical research and investigations within the fields of hydrology and meteorology, soil erosion and fertility, on-farm and off-farm conservation and rehabilitation, community forestry, agronomic and horticultural initiatives, and social and economic issues.

These research aspects continued to be of great importance from regional to farm level during Phase II. Phase II aimed however to target poverty reduction and the sustainable management of natural resources more directly through the strengthening of the community based approach, and the encouragement of field teams to operate through interdisciplinary procedures. Through this approach an attempt was made to ensure that social and equity issues and the development needs of communities are better understood and met.

In phase III the emphasis was on turning the research findings into usable practical options for farmers. New collaborative research approaches were tested with virtual teams from the watersheds tackling thematic issues and pooling the results. Further regional networking was promoted and deepened. SDC and IDRC do not foresee support to the PARDYP project beyond phase III.

OBJECTIVES AND TASKS

1. The joint SDC/IDRC/ICIMOD external evaluation shall **review and assess progress** of the main objectives and activities outlined in Phase III document (refer to the logframe, Appendix A of project document) in terms of achievements of set targets in different Expected Results (ERs), the effectiveness of the approach, the integration of findings, and the strategies employed.
2. The review team will build on the 2001 review (two of the final reviewers were members of the 2001 review) and the 1999 review. The review team shall highlight '**the core activity**' and '**the core results**' of the three phases. These highlights will be important for capitalizing on the outputs and for knowledge management post project. Assessment of process oriented learnings at the National level covering the development of methodologies and approaches to integrated watershed management research will be a part of the review.
3. The review team should focus its undertakings so as to provide ICIMOD and the national collaborating institutions involved in the PARDYP country teams with a set of **operational and workable recommendations for future work that build on the PARDYP assests in [particular which aspects of the project are unique or especially worth continuing and capitalising.**

4. The review team shall analyse the **institutional framework** of the project with its different partners (national, international, ICIMOD). Special focus shall be on: the common undertaking and exchange of approaches and results, extent and quality of collaboration and coordination between countries, and support to and from the national collaborating institutions and partners. The '**regional set-up**' of the project shall be analysed in the sense of assessing the additional benefit of this regional approach versus a bilateral approach and should include consideration of the extra costs and challenges
5. The review analysis should assess whether national partners have increased their capacity over the project phase and are now capable of addressing national needs, demands and strategies. The review team shall assess how national PARDYP partners are linked with other national research and / or extension / development programs, and mechanisms in place for extending research findings to local groups, NGO's , and other extension agencies.
6. According to their roles and responsibilities, and with reference to the current MoU, review and assess performance, strengths and weaknesses of the collaborating institutions in the implementation of the project – PFI, GBPIHED, UoZ, UBC, UoB, and ICIMOD.

The regional approach shall be reviewed, and recommendations should be given on how this can or should evolve to reach impact or maximum support to partner countries.