

ASIAN DEVELOPMENT BANK

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SPECIAL EVALUATION STUDY

ON

PARTICIPATORY APPROACHES IN

FOREST AND WATER RESOURCE OPERATIONS

IN SELECTED DEVELOPING MEMBER COUNTRIES

December 2003

ABBREVIATIONS

ADB	–	Asian Development Bank
CBO	–	community-based organization
CM	–	community-managed
EIRR	–	economic internal rate of return
FRMP	–	forest resources management sector
FSP	–	forestry sector project
IFPRP	–	irrigation and flood protection rehabilitation
IMT	–	irrigation management transfer
ISF	–	irrigation service fee
IWMI	–	International Water Management Institute
Lao PDR	–	Lao People's Democratic Republic
MARD	–	Ministry of Agriculture and Rural Development (Viet Nam)
NGO	–	nongovernment organization
O&M	–	operation and maintenance
OED	–	Operations Evaluation Department
PCR	–	project completion report
PFM	–	participatory forest management
PIM	–	participatory irrigation management
PPTA	–	project preparatory technical assistance
PRA	–	participatory rural appraisal
RRP	–	report and recommendation of the President
SES	–	special evaluation study
TA	–	technical assistance
WUA	–	water users association
WUC	–	water users cooperative
WUO	–	water users organization

GLOSSARY

Comanagement	In this study, comanagement refers to the sharing of responsibility for natural resources management between local nongovernment stakeholders and the Government. It can involve assistance from the Government in developing and approving the regulatory framework, providing advice in resource management, and assisting a community in establishing a management structure. Local stakeholders then assume responsibility for resource management and control within the framework set by the approved regulations and by higher level legislation.
Framework	In this study, the Framework refers to the <i>Framework for Mainstreaming Participatory Development Processes into Bank Operations</i> , published by the Asian Development Bank in 1996.
Ownership	In this study, ownership refers to the belief and/or feeling that a project, objective, or activity is shared, controlled, and/or managed by stakeholders. Ownership can develop through engagement in decision-making processes related to a project or activity, rather than from the contribution of funds or other resources to a project. Ownership does not necessarily involve the physical ownership of assets.
Participation	In this study, participation refers to "a process through which stakeholders influence and share control over development initiatives, and the decisions and resources that affect them." (Asian Development Bank. 1996. <i>Framework for Mainstreaming Participatory Development Processes into Bank Operations</i> . Manila.)
Participatory Rural Appraisal	In this study, participatory rural appraisal refers to the collection by community members of physical and social information relevant to the design and implementation of projects and community development programs. Participatory rural appraisal can be an ongoing process that promotes active community involvement in and ownership of the data collection and analysis exercise. Participatory rural appraisal is taken also to include participatory rural planning.
Primary Stakeholders	In this study, primary stakeholders are those who are intended to benefit directly from a project (e.g., irrigators and farmers).
Stakeholders	In this study, stakeholders are those who have an interest in a project or its components, either as individuals or representatives of a group or institution. Stakeholders include people who influence a project or those that can influence a project, as well as those affected by a project.

Top-Down	In this study, top-down refers to projects that would generally involve design by technical specialists with little direct reference to the views and attitudes of the primary and other local stakeholders. A top-down project would typically be implemented, managed, and operated by a government agency or department without significant active involvement of nonagency stakeholders.
Water Users Organization	In this study, water users organization refers to all groups of farmers who join together to manage their irrigation systems (e.g., water users associations, water users cooperatives, and water users groups).

NOTE

In this study, "\$" refers to US dollars.

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SUPPLEMENTARY APPENDIXES (available on request)

- A. Lao Country Study
- B. Sri Lanka Country Study
- C. Viet Nam Country Study
- D. Participation and the Project Cycle

EXECUTIVE SUMMARY

The Asian Development Bank (ADB) has financed projects in the water resources (irrigation) sector since 1969 and the forestry sector since 1977. Over the following two decades, a majority of project evaluation reports in the sectors suggested that greater involvement of primary stakeholders (previously referred to as beneficiaries) would have improved project outcomes. As a result of ADB and international experience, the *Framework for Mainstreaming Participatory Development Processes into Bank Operations* was published in late 1996. Most projects in the sectors subsequently applied the Framework¹ and introduced more or less participatory processes into project design and implementation.

This special evaluation study (SES) presents an analysis of participatory processes applied in six projects in the water resources and forestry sectors. Following review of completed and ongoing projects in the sectors and discussion with ADB projects departments, three countries were selected for study—Lao People's Democratic Republic (Lao PDR), Sri Lanka, and Viet Nam. Three country reports were prepared as supplementary appendixes and are available on request. Their findings are summarized in this study. Experience from other projects in the three countries has also been drawn on, particularly with respect to irrigation projects in Sri Lanka.

The SES and its supporting studies are designed to define the lessons learned from participatory projects funded by ADB in the water resources and forestry sectors and discuss the strengths and weakness of participatory approaches to project design, implementation, and operation in these sectors. The following questions are addressed by the SES:

- (i) What are the limitations of participatory approaches?
- (ii) What are the constraints hindering the implementation of participatory approaches in ADB-financed projects?
- (iii) How can participatory approaches be further promoted for more effective intervention?
- (iv) Have participatory approaches added value to natural resources management operations, and if so, in what ways have these approaches contributed to poverty reduction and resource or project sustainability?

Special Evaluation Study Projects

Three irrigation projects were reviewed: two in the Lao PDR and one in Viet Nam. In the Lao PDR, a field study was undertaken of the Community-Managed Irrigation Sector Project (CM Irrigation), and a desk study was undertaken of the Decentralized Irrigation Development and Management Sector Project. The CM Irrigation was built on existing government policies and established a highly participatory approach to the construction and management of small mountain area irrigation systems. All of the 47 water users organizations (WUOs) established survived and most are operating at an adequate level. Problems in benefit distribution within the villages assisted by this irrigation project are being addressed by a livelihood support project funded by the Japan Fund for Poverty Reduction. The successor Decentralized Irrigation Development and Management Sector Project is adopting participatory processes to reconstitute WUOs and rehabilitate around 50 pump-irrigation schemes.

¹ ADB. 1996. *Framework for Mainstreaming Participatory Development Processes into Bank Operations*. Manila.

Viet Nam's Irrigation and Flood Protection Rehabilitation Project (Irrigation Rehabilitation) was designed before the Framework was adopted. It took a traditional top-down approach to irrigation system rehabilitation, with limited consultation in design with primary stakeholders. The management of main and secondary systems is by provincial irrigation companies. Recognizing the potential contribution of participatory irrigation management (PIM), two technical assistance (TA) activities were attached to the Irrigation Rehabilitation that introduced participatory management on a hydraulic boundary basis. WUOs were established on four secondary canals and improved irrigation performance leading to increased agricultural productivity.

Three forestry projects were reviewed: two in Sri Lanka and one in Viet Nam. Sri Lanka's Participatory Forestry Project (Participatory Forestry) was rated successful in its project completion report and project performance audit report, on the basis that it greatly exceeded its planting targets. Despite its name, the Participatory Forestry was a top-down project, with tree planting by farmers. Since this project commenced prior to the Framework, this undertaking cannot be criticized for its lack of effective participation, although this explains many of the sustainability issues now evident that were exacerbated by the lack of secure tenure for this project's forest woodlots. The successor Forest Resources Management Sector Project introduces more participatory approaches but is experiencing delay. Viet Nam's Forestry Sector Project undertook a participatory approach to commune development planning in four provinces. Delays resulted mainly from inadequate project preparation and a lack of cost norms and implementation guidelines.

Issues in Participation

Participatory projects should involve primary stakeholders in most, if not all, stages of a project's cycle. However, direct participation in identification is difficult, and none of the SES projects adopted participatory processes in identification, which tended to reflect implementing agency priorities and ADB's sector and geographic focus. Of the six projects mentioned, four were sector projects that employed significant participation in the detailed design of core subprojects. Participatory planning can be time-consuming, although mostly for primary stakeholders in participatory rural appraisal and planning. The two projects experiencing implementation delay (Viet Nam's Forestry Sector Project and Sri Lanka's Forest Resources Management Sector Project) found difficulty in establishing the processes required for participatory planning, the Viet Nam project due to lack of implementation guidelines and the Sri Lanka project due to an absence of staff trained in community-level planning. Operation and maintenance of participatory projects has generally been satisfactory for SES case study projects. Irrigation WUOs were established and are operating at a reasonable level, although few are financially sound. Project-built infrastructure is well operated and maintained in the few communes where construction is well advanced under the Forestry Sector Project.

Institutional factors are among the key determinants of the success of participatory projects. If the implementing agency has a well-established participatory culture, and if the agency's general policy and legal environment support participation, satisfactory outcomes are likely. For example, in Viet Nam, the 1998 decree on grassroots democratization provides strong underpinning for participatory planning and development, while in the Lao PDR, the transfer of irrigation management to farmers is dictated by national policy. Participation can improve the relationship between government officers and villagers through turning their attitude to one of partnership rather than policing, as was done under Sri Lanka's Participatory Forestry. Participation generally promotes good governance and transparency and accountability. In the

forestry sector, participation, combined with the allocation of forest tenure to villagers, can reduce the potential for illegal logging.

Participation has a generally positive impact on the environment. In the irrigation sector, participation results in improved irrigation management, more efficient use of water, and reduction or elimination of deliberate damage to offtake structures (to increase water flow). The Lao PDR's CM Irrigation and Viet Nam's Forestry Sector Project had great success in reducing slash-and-burn agriculture (supported by government policy). The only potential environmental negative from providing communities with control over natural resources is the potential for resource misuse, in the view of society in general, through the sale of timber rights and other activities. This highlights the need for a partnership between government and civil society in natural resources management, which is referred to as comanagement.

Project sustainability should be promoted by participation. PIM increases irrigation system sustainability because farmers are motivated to maintain and improve their infrastructure. WUOs appear to be sustainable, but many are underfinanced and have ongoing training needs that governments find difficult to provide. Fully empowered WUOs should be able to meet their own training and infrastructure needs. Government support may be needed following project completion, to allow this goal to be achieved.

Irrigation departments and farmers acknowledge the substantial advantages of PIM based on hydraulic (rather than political) boundaries. However, there was no spontaneous replication of PIM in lowland irrigation schemes in Viet Nam. The lack of replication is mainly due to tertiary system management by cooperatives that are based on commune boundaries and limited support by irrigation companies. Future farmer involvement in main and secondary irrigation system management may be enhanced through the corporatization or privatization of irrigation companies.

Impacts of Participation

ADB's Operations Evaluation Department database of lessons learned highlights the need for participation in natural resources projects. In total, project performance audit reports for 82% of irrigation and 53% of forestry projects evaluated suggest that improved participation by primary stakeholders would have improved project outcomes. Virtually all project performance audit reports refer to projects designed prior to approval of the Framework.

Participatory approaches can make a significant contribution to poverty reduction. A major impact of well-applied participation is that participation includes the poor and other disadvantaged groups in decision-making and promotes their inclusion in project activities. Participation can assist the poor in developing the attitudes needed to improve their situation and reduce their sense of hopelessness. PIM can improve water distribution and increase cropping intensity, particularly at the tail of canals and in schemes affecting areas where the poor often reside. In SES forestry projects, direct (unquantified) impacts included a marked reduction in land sales (to generate cash for survival) by ethnic minority farmers to Kinh (Viet Nam's majority group). However, the long-term horizon for commercial timber production limits forestry's potential for poverty reduction, since the poor need immediate income. SES forestry projects included agricultural and agroforestry activities that provided short-term income-generating potential for farmers. Payment for work was the most important benefit reported by primary stakeholders in Sri Lanka's Participatory Forestry.

The main costs of participation include increased project preparatory TA costs, increased time demands on primary stakeholders for the conduct of participatory rural appraisal and other participatory activities, and more intensive support and monitoring during implementation. Benefits should include improved project design, improved operation and maintenance, and greater sustainability, due to ownership factors. A statistical survey of the Song Chu irrigation scheme under Viet Nam's Irrigation Rehabilitation permitted the estimation of PIM's potential to increase economic performance. The increase in crop production of 13.0% would, if extended to the entire scheme, lead to a rise in the economic internal rate of return, from the 7.2% estimated in the project completion report to around 19.0%. The cost savings (mainly in terms of farmer labor) would result in a significant further increase in net benefits. The increase would result from a combination of PIM and the upgrading of the tertiary irrigation system.

Overall, the following is concluded:

- (i) Participatory approaches can add value to natural resources management project design, implementation, and operation.
- (ii) Well applied participation can increase ownership and sustainability.
- (iii) WUOs are capable of running small irrigation schemes and (at least) the secondary canal systems on larger schemes. PIM has the potential to prevent a costly recurring cycle of rehabilitation.
- (iv) Environmental outcomes of participation are almost universally and strongly positive in the irrigation and forestry sectors.
- (v) In the forestry sector, comanagement is the best way to manage forests; provide benefit to communities; and, potentially, limit illegal logging and rent seeking.
- (vi) Participation can offer major potential benefits to rural income and poverty reduction. The benefits can be direct, through improved resources planning and management, and indirect, through promoting interaction between the poor and the community and promoting a sense of worth and self-esteem among the poor.

However, participatory development faces a number of constraints. For example, positive institutional, policy, and legal environments are preconditions for effective participation. Stakeholder analysis thus needs to be undertaken more rigorously than for "top-down" projects, while precursor activities may be required to ensure that the policy or legal environment is favorable. The establishment of community organizations needs to be undertaken with care, taking enough time to ensure that processes are understood and accepted. This SES has also identified that the replication of participatory systems is not often spontaneous. Government and/or project support is likely to be required to expand pilot activities to national scale.

Recommendations

The following recommendations were identified from the SES. Some recommendations relate to project-specific actions, but other recommendations relate to participatory development more generally.

- (i) ADB's project design guidelines should be revised to require the inclusion of participatory development expertise on participatory project designs. The inclusion of studies that cover data on the participatory processes adopted should also be required. Terms of reference for feasibility studies should specify the participatory or consultative processes required and allow adequate time for these to be carried out.

- (ii) Mechanisms should be developed to maintain contact with stakeholders during the finalization of a project preparatory TA report, appraisal, and subsequent loan processing.
- (iii) Primary stakeholders should be involved in irrigation subproject construction monitoring or (in some cases) supervision.
- (iv) Additional WUO support is desirable, including empowerment training for female WUO committee members; postproject support, where required; and options defining, to assist WUOs in overcoming natural disasters, such as floods.

Considering that many projects using participatory approaches are still new and that the impacts of ongoing projects occur after some time has passed, more evidence needs to be gathered through a broader study of participation in natural resources areas (including fisheries and coastal zone management) covering more countries in 2 or 3 years.

I. INTRODUCTION

A. Background and Rationale for the Study

1. Over recent years, governments in Asia and elsewhere have experienced increasing difficulties in managing their natural resources effectively. Authoritarian or top-down approaches to resources management were weakened by many factors, not least of which was the inability of governments to allocate sufficient staff and budget to resources management. The involvement of communities in natural resources management has come to be seen as perhaps the only way to effectively manage natural resources.

2. In the early 1990s, there was increasing awareness and commitment to participatory approaches among developing countries that recognized the importance of achieving a broad consensus for government-sponsored development initiatives. Experience from projects financed by the Asian Development Bank (ADB) in the natural resources sector during the 1980s and 1990s pointed to the need for greater stakeholder involvement to improve project outcomes and sustainability. This was supported by the Operations Evaluation Department's (OED's) evaluation results. As of September 2003, OED evaluated 15 forestry and 44 water resources projects, with 47% of the forestry projects and around 50% of water resources projects rated generally successful (including those rated successful under OED's current rating system). One of the common lessons learned from these projects was the need for a beneficiary focus and participatory approaches. A list of these lessons is in Appendix 1.

3. In 1996, ADB published the *Framework for Mainstreaming Participatory Development Processes into Bank Operations* (Box 1). Since then, a growing emphasis was placed on government, individual, community stakeholder (or customer), and nongovernment organization involvement in the formulation and implementation of forest and water resources management projects.

Box 1: Framework for Mainstreaming Participatory Development Processes into Bank Operations

In December 1996, the Asian Development Bank (ADB) published the Framework^a in order to institutionalize and support participatory processes. The Framework defines participatory development as "a process through which stakeholders influence and share control over development initiatives [sic] and the decisions and resources that affect them."

The approach was intended to enhance government and stakeholder ownership^b and commitment. Adoption of a participatory approach was expected to improve project quality, effectiveness, and sustainability and give a voice to the poor and the disadvantaged. The process requires greater stakeholder involvement in all project stages, from identification through planning, design, implementation, and operation and maintenance, with clear allocation of responsibilities.

The Framework included wide-ranging recommendations for the integration of participatory development approaches into ADB operations.

^a ADB. 1996. *Framework for Mainstreaming Participatory Development Processes into Bank Operations*. Manila.

^b Ownership is defined in this study as the belief and/or feeling that a project, objective, or activity is shared, controlled, and/or managed by stakeholders. Ownership can develop through engagement in decision-making processes related to a project or activity, rather than from the contribution of funds or other resources to a project. Ownership does not necessarily involve the physical ownership of assets.

4. Many ADB-financed projects introduced participatory approaches in information sharing, consultation, joint assessments, and shared decision making. However, some projects classified as participatory experienced problems of delayed implementation and slow loan drawdown (Box 2). Although these problems are not unique to participatory projects, reviewing participatory approaches—to determine the extent to which they were effective or the extent to which they contributed to design or implementation difficulties—is useful.

Box 2: Levels of Participation

Participation can take numerous forms. At its most basic, participation may involve a simple process of information sharing with stakeholders. At the other extreme, participation would be project implementation by primary stakeholders or with their close involvement, leading to empowerment.

The Framework^a identifies four levels of participation, with the highest level (empowerment) leading to a high degree of self-reliance by primary stakeholders, including the capacity to undertake independent development activities in a community. In this special evaluation study (SES), five levels are identified, with a new Level 3 (Joint Assessment) interposed between Framework levels 2 and 3. Typical activities under the five levels are described in Appendix 2.

Framework	Current SES
1. Information Sharing	1. Information Sharing
2. Consultation	2. Consultation
3. Collaborative Decision-Making	3. Joint Assessment
4. Empowerment	4. Collaboration Decision-Making
	5. Empowerment

Even the more traditional top-down projects^b in natural resources management would generally reach Level 2. Designing an irrigation or forestry project would not be possible without at least consulting with those involved in or affected by a project. To be considered participatory, under the Framework's definition of participation, a natural resources management project would need to reach at least the collaborative and/or shared decision-making level (i.e., primary stakeholders should at least contribute substantially to decisions relating to the management of their resources).

^a ADB. 1996. *Framework for Mainstreaming Participatory Development Processes into Bank Operations*. Manila.

^b A "top-down" project would generally involve design by technical specialists with little reference to the views and attitudes of the primary and other local stakeholders. It would typically be implemented, managed, and operated by a government agency or department without significant involvement of non-agency stakeholders.

5. Limited information is available on the impact of participatory approaches, specifically regarding their impact on poverty reduction and resource sustainability. Some experts believed that participatory approaches would have positive impacts on sustainable resource use, sustainable resource conservation, and benefit-sharing equity, but these outcomes remain unverified. A number of ADB operational departments consequently requested OED to evaluate the effectiveness of current participatory approaches on natural resources management.

B. Participation in Natural Resources Management

6. The Framework provides guidance on the process of participation but limited analysis of why participation is needed. A number of areas exist where participation in natural resources management was viewed as virtually essential to the equitable and sustainable management of

these resources. Examples include inshore fisheries and inland water bodies in common ownership. Participation in managing these resources is perhaps the only way to avoid the “tragedy of the commons.” The alternative (assigning area or catch rights to individuals) can often exacerbate rather than reduce inequality. Similar arguments were applied to public forests, where assigning use rights to communities can reduce or eliminate encroachment, and irrigation canals and schemes that need to be managed for the benefit of all irrigators depending on them.

7. In forest areas where land is leased to farmers (as in many provinces in Viet Nam), participation is not essential for land management. However, many activities require participation or collaboration between smallholders if management is to be effective (e.g., fire and weed control and, in some cases, biodiversity management). Participation can also provide benefits to smallholders related to harvesting, processing, marketing, constructing access roads, and preventing illegal logging. In this context, participation is seen more in terms of increased production efficiency.

8. Another key aspect of participation relates to the problems commonly experienced by public sector agencies in the implementation and management of development projects and, more generally, in the management of public infrastructure and resources. These problems underpin the evaluation lessons, suggesting wider and deeper participation listed in Appendix 1, and support participation in irrigation scheme design and management that can lead to increases in irrigation efficiency and assist in minimizing conflict. A third area where participation can be useful is in public policy development. In developed countries, groups of farmers and resource users or environmentalists come together to conduct policy dialogues with government officials. This approach to joint-policy formulation is little developed in most ADB developing member countries.

9. While participation is mainly viewed as a positive force promoting improved design, implementation, and operation, participation also is criticized. Issues are related to difficulties in establishing genuine participation, which include the potential hijacking of participatory processes by the elite, for their own ends; the potential manipulation of participatory processes by government staff and consultants; and the potential reduction of governments’ obligation to provide social services. The presumed need for consensus in participation can artificially disguise mutually exclusive interests within a community, leading to potential problems, if not the breakdown of the entire process. Other ADB special evaluation studies (SES) are examining some of these issues in detail.

C. Study Objectives

10. This SES is based on studies of participatory projects in three ADB developing member countries (Lao People’s Democratic Republic [Lao PDR], Sri Lanka, and Viet Nam).¹ The SES and its supporting studies are designed to promote understanding of the lessons learned from ADB-funded participatory projects and discussion of the strengths and weakness of participatory approaches to project design, implementation, and management. The SES addresses the following questions.

¹ The study team comprised Toshio Kondo, Senior Evaluation Specialist and Mission Leader; Jon Cook, Water and Forest Resource Management Specialist; and Natural Resource Management Sector Specialists (Phouthalom Vongsay for Lao PDR, Karunatissa Athukorala for Sri Lanka, and Phuc Van Tran for Viet Nam).

- (i) What are the limitations of participatory approaches?
- (ii) What are the constraints hindering the implementation of participatory approaches in ADB-financed projects?
- (iii) How can participatory approaches be further promoted for more effective intervention?
- (iv) Have participatory approaches added value to natural resources management, and if so, in what ways have these approaches contributed to poverty reduction and resource or project sustainability?

D. Methodology

11. Following a review of participatory projects implemented over the past decade and discussion with project department staff, three countries were selected for fieldwork: Lao PDR, Sri Lanka, and Viet Nam. In each of the three countries, two projects were selected for detailed review. To be included in the study, projects had to have at least some participatory components and should have been under implementation for more than 2 years at the time of the study. The six projects selected are listed in Table 1. While project acronyms are commonly used in the concerned countries and in ADB departments, project names are listed in the table to improve readability. The relatively small number of selected projects reflects the fact that those projects involving participatory approaches are still ongoing.

Table 1: Special Evaluation Study Projects^a

Country	Project	Loan or TA Number
LAO	1. Community-Managed Irrigation Sector Project	Loan 1488
	2. Decentralized Irrigation Development and Management Sector Project	Loan 1788
SRI	3. Participatory Forestry Project	Loan 1183
	4. Forest Resources Management Sector Project	Loan 1744
VIE	5. Irrigation and Flood Protection Rehabilitation Project	Loan 1259
	– O&M Strengthening TA	TA 1968
	– O&M Development TA	TA 2869
	6. Forestry Sector Project	Loan 1515

O&M = operation and maintenance, TA = technical assistance.

^a The Japan Bank for International Cooperation (JBIC) is undertaking a parallel evaluation study on the same theme on JBIC-funded projects. JBIC is evaluating projects in India (forest resources), Pakistan (water resources), and Philippines (forest resources). A joint workshop is planned, during which the evaluation results will be shared, for the mutual benefit of the two institutions.

12. The following activities were undertaken in each country, and details are provided in Appendix 3.

- (i) Desk study reviews of project documents were conducted. Project preparatory technical assistance (PPTA) reports, reports and recommendations of the President (RRPs), project performance reports, and project completion reports (PCRs) were reviewed. Strategy papers, benefit monitoring and evaluation reports, and other project documents were also studied to gain wider perspectives of project performance and participatory approaches.²

² Only one PCR and one postevaluation report were available, both were for the Participatory Forestry Project, since other projects were recently completed or are ongoing. The SES's level of analysis is, therefore, limited.

- (ii) Meetings and interviews were held with project directors, project staff and advisers, project representatives, and forestry and irrigation department field officers.
- (iii) Secondary data was collected, and secondary data directly related to ADB projects and other project reports with information relevant to the study was reviewed.
- (iv) Rapid appraisal participatory workshops were held with focus groups, comprising farmers and community leaders, community-based organization (CBO) officials, and local and provincial government staff.
- (v) Small-scale questionnaire surveys were taken (Lao PDR and Sri Lanka only).³ The surveys assessed household income and project processes and attitudes to participation. Results are summarized in respective country studies.
- (vi) Country reports were prepared. Draft reports were discussed with implementing agencies and advisers.
- (vii) Final workshops were held in Kandy, Hanoi, and Vientiane, to present the main findings and recommendations from the country studies. Workshops were conducted in each local language, using a focus group approach to review and add to country report issues, lessons, and recommendations.

13. Study limitations included the small sample of countries and projects and the fact that four of the six case study projects were ongoing. In addition, difficulty was experienced in separating participation as a variable, particularly for those projects where participation was integral to the design and those that could not be implemented in a nonparticipatory manner.

E. Study's Structure

14. Chapter II (Sector Findings) discusses the four primary SES projects. Some information is provided on their impact on poverty reduction. Information on the two secondary projects (the Lao PDR's Decentralized Irrigation Development and Management Sector Project [Decentralized Irrigation] and Sri Lanka's Forest Resources Management Sector Project [Forest Resources]) is provided in Appendix 4. Chapter III (Analysis of Participatory Processes) discusses a number of aspects of participation and issues related to project cycle stage, institutional factors, gender factors, and environmental factors. Chapter IV focuses on the effects and impacts of evaluation, including the impact on poverty reduction and economic performance. Chapter V summarizes the study's conclusions and provides a number of recommendations. Suggestions are made for the development of guidelines to assist ADB and implementing agency staff in the application of participatory processes for future projects.

II. SECTOR FINDINGS

15. Six projects were reviewed under the SES, three in each sector. Information on the loans and related technical assistance (TA) is provided in Table 2, followed by summaries of their objectives and performance in relation to participation. Project descriptions and further information on project performance are included in Appendix 4, and tables summarizing project participation levels are in Appendix 5. The detailed country reports are available as supplementary appendixes.

³ In Viet Nam, a major stratified sample survey is being undertaken by an ADB and World Bank joint TA activity. The survey provided data on the impact of participation and rehabilitation on farm performance and household income.

16. The Lao PDR's Community-Managed Irrigation Sector Project (CM Irrigation) and Decentralized Irrigation are highly participatory in nature, with primary stakeholders closely involved in the construction and management of irrigation schemes. In Viet Nam, the Irrigation and Flood Protection Rehabilitation Project (Irrigation Rehabilitation) was a traditional top-down irrigation project with pilot TA activities added to develop systems for the involvement of farmers in irrigation management. Assessment in this report is, therefore, largely limited to the TA undertakings. Other irrigation projects from which issues and lessons were drawn include Sri Lanka's Walawe Irrigation Improvement Project⁴ and Kirindi Oya Irrigation and Settlement Project.⁵

Table 2: Special Evaluation Study Project Information

Project	Project Period	Project Status	Participatory	Project Cost (\$ million)	Loan Amount (\$ million)
Lao PDR					
1. Community-Managed Irrigation Sector Project	1996–2003	Near completion	Yes	24.0 ^a	14.7
2. Decentralized Irrigation Development and Management Sector Project ^b	2000–2006	Ongoing	Yes	24.0 ^a	15.5
Viet Nam					
3. Irrigation and Flood Protection Rehabilitation Project	1994–2003	Completed	No	86.5 ^a	76.5
- O&M Strengthening	1995–1997	Completed	Yes	1.8	
- O&M Development	1998–1999	Completed	Yes	0.2	
4. Forestry Sector Project	1998–2003	Being extended to 2005	Yes	53.2 ^a	33.0
Sri Lanka					
5. Participatory Forestry Project	1992–2000	Completed	Partly	24.1	10.5
6. Forest Resources Management Sector Project ^b	2000–2007	Ongoing	Yes	40.0 ^a	27.0

Lao PDR = Lao People's Democratic Republic, O&M = operation and maintenance.

^a Budgeted (actual not yet known).

^b Secondary projects were reviewed but not evaluated in detail. At the time of SES fieldwork, year 1 projects were just completed under the Decentralized Irrigation, but not enough time elapsed to allow impact or sustainability assessments. Village development activities recently commenced under the Forest Resources.

Source: Asian Development Bank.

17. Sri Lanka's Participatory Forestry Project (Participatory Forestry) was expected to introduce a participatory culture. However, the project was implemented as a top-down project, although forest planting was done by farmers (under the direction of Forest Department staff). Participation was largely passive, and according to the Framework's definition of participation, this project could not be classified as participatory. Since project design and implementation predated the Framework, this project cannot be criticized on this basis, particularly since the

⁴ ADB. 1984. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Democratic Socialist Republic of Sri Lanka for the Walawe Irrigation Improvement Project*. Manila (Loan 695-SRI[SF], totaling \$14.9 million).

⁵ ADB. 1977. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Democratic Socialist Republic of Sri Lanka for the Kirindi Oya Irrigation and Settlement Project*. Manila (Loan 324-SRI[SF]); ADB. 1982. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Democratic Socialist Republic of Sri Lanka for the Kirindi Oya Irrigation and Settlement Project (Supplementary)*. Manila (Loan 612-SRI[SF]); and ADB. 1986. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Democratic Socialist Republic of Sri Lanka for the Kirindi Oya Irrigation and Settlement Project (Phase II)*. Manila (Loan 794-SRI[SF], totaling \$45 million).

project far exceeded its planting targets. The Forest Resources is introducing more participatory approaches. Viet Nam's Forestry Sector Project is applying participatory approaches to forest planning and establishment.

A. Irrigation Projects

18. The construction and management of irrigation schemes in Asia has traditionally been undertaken by governments. Many schemes have experienced difficulties with irrigation planning; water management; conflict resolution (e.g., between the heads and tails of canals and schemes); and canal and structure deterioration, leading to a need for rehabilitation within a few years. One way of addressing many of these problems—passing on to farmers responsibility for at least part of irrigation system operation and maintenance (O&M)—evolved during the 1980s and 1990s. This change in responsibility from government to irrigation farmers is referred to as participatory irrigation management (PIM) in Viet Nam and as irrigation management transfer (IMT) in the Lao PDR and Sri Lanka. In this study, PIM is generally used to refer to farmer-managed irrigation.

1. Community-Managed Irrigation Sector Project (Lao PDR)

19. In the Lao PDR, IMT is a national government policy, although the detailed means of achieving this transfer are not yet formalized. The Ministry of Agriculture and Forestry introduced a regulation in 2000 introducing an IMT process that included support measures before and after transfer to beneficiaries. However, the regulations being drafted under the Prime Minister's December 1998 decree are still not finalized. In part, this lack of finalization results from the involvement of the National Agricultural and Forestry Extension Service, which was given responsibility for developing and testing the regulations (one of many major tasks facing the new organization).

20. ADB commenced lending to the Lao PDR's irrigation sector in 1979. At the end of the war in Southeast Asia in 1975, irrigation potential was little exploited. ADB and other development partners supported a number of pump schemes from the Mekong and its tributaries during the 1970s and 1980s, which met with varying degrees of success. Problems arose due to underdesign, particularly of some government-funded schemes, and pump breakdown and the inability of the Government to operate and maintain the schemes, particularly those based on diesel pumps. Irrigation efficiency and cropping intensity are now low, and the tail areas of canals and schemes are often unirrigated, particularly in the dry season.⁶

21. The CM Irrigation built on the principles of community-managed irrigation established under the Sustainable Irrigated Agriculture Project.⁷ This project adopted the principles

⁶ The problems faced by pump schemes led to significant rehabilitation requirements. An ongoing ADB-funded project (the Decentralized Irrigation) is addressing this issue through rehabilitating about 50 irrigation schemes in six provinces between Luang Prabang and Savannakhet. The project is intended to (i) establish sustainable irrigated agriculture through IMT and strengthening water users organizations (WUOs), and (ii) enhance the agricultural extension capacities and capabilities of government agencies at provincial and district levels. In terms of its overall participatory process, the Decentralized Irrigation is similar to CM Irrigation. However, existing WUOs of varying degrees of capacity are involved in the schemes, and a major project task is to improve community representation and WUO performance.

⁷ Under this project, which was funded by the Dutch government, a systematic process for organizing farmers and enabling them to manage the assets and O&M of irrigation systems was developed and implemented in seven locations. The project formed the basis of a national IMT policy.

proposed by the Government for IMT, establishing water users organizations (WUOs)⁸ on a participatory basis to work with the designers, assist in construction, and operate and maintain the schemes. One WUO was formed for each of the 47 subprojects (and for an additional 13 that were not implemented but will be implemented under the proposed Northern CM Irrigation, the successor project to the CM Irrigation). Villagers contributed substantial amounts of labor and materials to the design and construction of their irrigation schemes—averaging 229 days per household (Appendix 4, Table A4.2).

22. The CM Irrigation's 47 schemes have a combined command area of 3,720 hectares (ha) that are owned by around 3,520 households. Wet season cropping intensity in 2002 was 74%, and dry season intensity was 27%, indicating that (i) substantial in-field development remains to be undertaken to extend wet season irrigation to the full command areas of each scheme, and (ii) dry season water availability is limited in most schemes.

23. Most CM Irrigation WUOs are operating effectively. Based on a ranking against five criteria (Appendix 4), half the schemes are demonstrating good or very good participation, 41% are classified as fair, and 9% are rated poor. No schemes were ranked very poor under the classification system used. While the caliber of the WUOs varies, overall the project can be considered to have reached or come reasonably close to the top level of empowerment on the five-level scale. Overall sustainability is likely to be strong, due to high levels of ownership and a lack of alternative income earning opportunities in project villages.

24. The project attempted to ensure a reasonable gender balance through requiring 30% of all WUO committee members to be female. However, this goal was considered unattainable at many subproject sites, particularly in remote minority areas. Women contributed more than half the village construction and O&M labor inputs. On average, 22% of project training was provided to women, ranging from 10% for study tours to 26% for irrigation community organizer and/or WUO training and monitoring. The Decentralized Irrigation is attempting to mainstream gender into all of its community and extension and WUO development activities. In line with this, the project requires 20% of all WUO committee members to be female. Experience under both projects highlights the difficulties of obtaining the full participation of Lao women in decision-making, due to their often low education and capacity and the need to provide training opportunities for women, including empowerment training.

25. Ethnicity is also a significant issue in relation to participation. In the Lao PDR, sentiment is strong among government officials that interaction with a project's primary stakeholders should be in Lao Loum, the only official language recognized under the constitution. However, this sentiment ignores the fact that many men from minority areas, and even more women, do not speak Lao Loum. Since few, if any, minority languages are written, many individuals belonging to minority groups are also illiterate.

26. **Impact on Poverty.** Under the CM Irrigation, there were numerous changes that suggest that poverty levels have declined significantly compared to the before project situation. The number of households that experience rice deficits has declined steadily, following scheme completion. In three villages studied in detail under the SES, where the new irrigation scheme operated for more than 2 years, the number of deficit households fell from 40% to less than 1% of the 535 households, between 1998 and 2002. Average rice production increased from around 140 to 400 kilograms per person per year over the same period. Other indicators of improved

⁸ In this study, the term WUO is used to refer to all community-based irrigation management organizations (i.e., water users groups, associations, and cooperatives).

living standard evident in the villages are the increased number of motorbikes and bicycles, the increased proportion of children attending school (partly because of improved roads and transport), and the increased capacity to attend medical facilities in district or provincial centers. However, these factors have not been quantified by the project's monitoring system.

27. Given the lack of a good comparison case, defining what impact participation had on poverty reduction under the CM Irrigation is difficult. Participation is integral to the project, which would not be implementable without it. No without or before project scenario can, therefore, be defined or even simulated. As an indicator of poverty trends, the proportion of rice deficit households was plotted against the number of years since individual scheme completion. Figure 1 indicates a moderately strong correlation between the proportion of rice deficit households in CM Irrigation villages and the period since scheme completion.

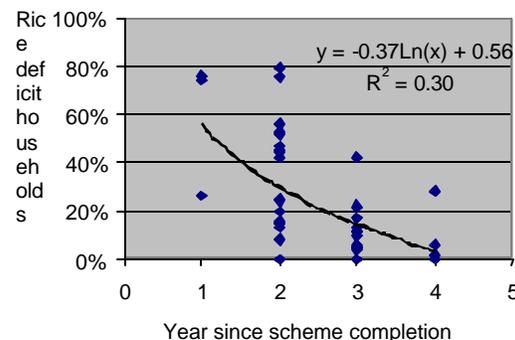
28. In the case of the CM Irrigation, the construction of village roads was a significant factor in reducing village poverty status. The roads provide improved all-weather access to towns and thus increase marketing opportunities for all farmers. They also bring additional services to villages and improve and lower the cost of access to education and health services that are important to the poor and the better off.

29. The CM Irrigation focused on irrigation development in mountain areas. Since the project mainly involved the replacement of traditional weirs with permanent structures, the beneficiaries were mainly those owning land within the command areas who were often not among the poorest members of their villages. In some cases, new land was brought under command and allocated to the landless or other poor families. However, in general, the initial project design probably exacerbated inequality in most villages. This was recognized in the midterm review, and steps were taken to correct this imbalance, particularly through the preparation of a Japan Fund for Poverty Reduction project designed to assist nonirrigation farmers in project and adjacent villages. Successor projects to the CM Irrigation (the Decentralized Irrigation and the Northern CM Irrigation Project [appraised in November 2003] recognized this issue and included substantial community development activities, as has Viet Nam's Red River Basin Sector Project.

2. Irrigation and Flood Protection Rehabilitation Project (Viet Nam)

30. In Viet Nam, farmers have long managed their tertiary systems based on larger schemes, through old-style government-controlled cooperatives. Since the introduction of the 1996 law on cooperatives, new (farmer-controlled) cooperatives have been established in most communes and are often involved in water distribution on irrigation schemes. Participation in planning and budgeting at the commune level (the lowest level of government) was well established under the 1998 government decree on grassroots democratization. Participation in

Figure 1: CMI Rice Deficit Households in 2002
(by year since scheme completion)



CMI = Community-Managed Irrigation Sector Project.
Source: CMI Community Development Section, summarized in Appendix 3 of the Lao PDR country report, Tables 3-5.

natural resources management is evolving rapidly, particularly in irrigation and forestry and coastal fisheries.

31. ADB recommenced lending to Viet Nam in 1993. The Red River Delta Water Resources Sector Project and the Irrigation Rehabilitation were funded under some of the first loans made. These were traditional top-down projects, but the Irrigation Rehabilitation included attached TA that introduced pilot PIM on two secondary canals in each of the two irrigation schemes rehabilitated under the project (Song Chu scheme in Thanh Hoa province and the North Nghe An scheme).⁹

32. The Irrigation Rehabilitation rehabilitated the 50,000-ha Song Chu scheme in Thanh Hoa province and the 30,000-ha North Nghe An scheme. As was normal in Viet Nam, under its previous central planning regime, scheme design was contracted to a state enterprise. No significant consultation was conducted with local government staff (apart from senior managers) or with farmers. Several farmers and middle level government officials indicated to the SES team that they believed they could have made a significant contribution to scheme design and regretted that more extensive consultation was not undertaken.

a. Operation and Maintenance TA Activities

33. TA 1968-VIE: *Operation and Maintenance Strengthening* and Small Scale TA 2869-VIE: *O&M Development in the Irrigation Sector* tested a number of models of participatory management, including water users associations (WUAs), water users cooperatives (WUCs), and commune-based agricultural service cooperatives on two secondary or commune-linking tertiary canals in Song Chu (B8A and B6/9) and two in North Nghe An (N4B and N6) with a total irrigable area of 1,285 ha (1.6% of the schemes' areas). The irrigation companies also established PIM on secondary canals in one cooperative in each scheme for comparison purposes, each with an area of about 250 hectares.

34. To date, all WUOs have survived, although with varying degrees of viability. In general, the agricultural cooperatives were more financially sound than the WUAs or cooperatives. While additional WUOs, based on hydraulic boundaries, were formed under a number of small irrigation schemes in Viet Nam's mountain areas, as far as is known none of these WUOs were formed in the larger lowland schemes.¹⁰ Despite an instruction from the Ministry of Agriculture and Rural Development (MARD) to extend the models to other schemes (dating from May 1998), replication of the models developed under the Irrigation Rehabilitation looks unlikely at present, due mainly to the difficulty of superimposing WUOs with different boundaries on groups of communes with existing and often quite strong cooperatives based on their administrative boundaries. Overall, the WUOs established under the O&M TA activities or by the irrigation companies are assessed as having reached close to Level 5 on the participation scale, although they are not yet capable of sustained independent development. While they are considered sustainable, they would benefit from further training, particularly for newly elected committee members.

⁹ The ongoing Second Red River Basin Sector Project is more participatory and has a rural development services component that typically represents about 25% of investment costs. The ADB-financed Phuoc Hoa Water Resources Sector Project, which is about to commence, is expected to be highly participatory in nature.

¹⁰ In some provinces, such as Tuyen Quang and Lao Cai, all irrigation schemes have been transferred to farmers' management, as all schemes are small, irrigating up to about 100 ha. The third World Bank Water Sector Assistance Project, costing \$160 million, is under preparation and will improve irrigation management on six major irrigation schemes: Cam Son, Da Ban, Dau Tieng, Ke Go, Phu Ninh, and Yen Lap. Under the Phuoc Hoa Water Resources Sector Project—for which an ADB loan was approved in November 2002—all WUOs will be formed on the basis of hydraulic boundaries for a command area of about 48,000 ha.

35. Since rehabilitation, from 2000 to present, Song Chu and North Nghe An irrigation companies report virtually 100% collection of irrigation service fees (ISFs). This is likely to reflect the improved security of water supply following rehabilitation. The WUOs formed under the TA indicate that they have met 100% of their ISF commitments and no significant difference is, therefore, evident between the with participation and without participation areas. The levels of general ISFs are set by provincial governments within a national framework developed by MARD. The fees are collected by cooperatives or WUAs that pass the fees over to provincial government irrigation companies, such as Song Chu Irrigation Company. Where cooperatives or WUAs take responsibility for secondary canal O&M, the irrigation companies rebate a portion of ISFs (about 10% in the case of WUOs under the O&M TA activities). All cooperatives and WUOs also charge a fee for O&M of the tertiary canals.

36. SES surveys in North Nghe An, Song Chu, and Thanh Hoa found that women comprise about 55% of the labor force and play an important role in farm activities (transplanting, weeding, lifting water, fertilizing, and harvesting) and animal husbandry as well as most housework. In recent years, there has been an increasing tendency for women to take care of all farm and domestic work and for men to go to work far from home to earn extra income for the family. In the communes visited, female-headed households were 10–20% of the total, and, in one commune, female-headed households were 50% of the total. As a consequence, the workload shouldered by women has increased greatly. Under the six PIM secondary canal WUOs in the North Nghe An and Song Chu systems, only two out of 34 management board members are women, suggesting that further efforts to assist women become more involved in WUO management are merited.

b. Impact on Poverty

37. The O&M TA communes demonstrated significant declines in poverty over the 1998–2002 period. In the TA communes, the poverty ratio declined from over 30% in 1997 to around 20% in 1998–2000 and 10–15% in 2002.¹¹ A sample survey of the impact of irrigation on poverty was undertaken in early 2003. Results for the Song Chu scheme are summarized in Table 3. The data indicate that the O&M TA farmers (with participation) showed 13% lower poverty levels (based on income), 7% higher cropping intensity levels, 6% higher rice yield levels, and 31% lower production cost levels. Interestingly, nonfarm income and total assets were higher for the without participation sample. A more detailed set of results is in Table A4.2 (Appendix 4).

¹¹ According to the United Nations Development Programme, the national poverty level in 2002 was 14.0% of households (the international poverty line was 32.5%), and the food poverty level was 13.0% of households (<http://www.undp.org.vn/undp/fact/base.htm>).

Table 3: Estimate of Impact of Operation and Maintenance TA Participation

Item	Unit	Without Participation	With Participation ^a	Added Value of Participation (%)
Sample size		200	147	
Poverty	%	27	14	(48)
Land owned	m ² /household	1,777	1808	2
Net operated area (including leased in and out)	m ² /household	1,805	1824	1
Gross cropped area	m ² /household	3,007	3415	14
Cropping intensity	%	213	227	7
Area planted to rice	m ² /household	2,103	3174	51
Area planted to other crops	m ² /household	904	241	(73)
Rice production	kg/household	1,359	2134	57
Yield	t/ha	6.56	6.98	6
Net gain (yield x cropping intensity)				13
Rice value	\$/ha	728	725	0
Total costs ^b	\$/ha	555	385	(31)
Net profit	\$/ha	173	340	97
Total food expenditure	\$/person	101	94	(7)
Total assets	\$/household	1,527	1293	(15)
Gross rice income (inc value of own labor)	\$/household	101	159	58
Gross rice income (ex value of own labor)	\$/household	153	232	52
Nonrice income	\$/household	36	6	(84)
Total Income	\$/household	618	581	(6)

ex = excluding, ha = hectare, inc = including, kg = kilogram, m² = square meter, t = metric ton.

^a The participation stratum includes tertiary canal rehabilitation, with work funded by a levy on farmers.

^b Eighty percent of the cost savings of \$170 per ha relate to savings in the value of "own" labor.

Notes: Negative numbers are enclosed in parentheses.

Data have been propensity score matched to ensure data comparability as far as possible.

Source: Asian Development Bank and World Bank. 2003. *Assessing the Poverty Impacts of Public Irrigation Expenditures in Viet Nam*. Manila.

38. In Appendix 6, an estimate is made of the impact such changes would have if applied to the entire Song Chu irrigation scheme. If the cost of WUO establishment and tertiary canal rehabilitation was applied in 1999, the economic internal rate of return (EIRR) would increase from the 7.2% calculated for the Song Chu scheme in the PCR to 19.0%, based only on increased yields and cropping intensity. If crop production cost savings of 10.0% are included, the EIRR would rise to 29.0%. The net benefits to individual farmers from increased crop production alone are equivalent to around \$4 million per year (\$20 per farm family), or more than \$15 million (\$80 per farm family) if labor and other cost savings are included. Even the lower level of net benefits would make a significant contribution to farm family income and poverty reduction. These returns do not include the allocation of any value to water savings (which would have downstream economic value) or to cost savings by the irrigation company.

39. Given the small size of the O&M TA areas, compared with the total schemes, the with participation impact of irrigation efficiency on downstream water users would not be measurable. However, an estimated improvement of 25% in irrigation efficiency over the entire scheme would have significant impacts on poverty in a water-limited area, such as the Ma river

basin, through making more water available for downstream users. In areas of extremely low irrigation efficiency, such as many in Sri Lanka, this effect can be marked, as calculated in Appendix 6 for the Walawe basin irrigation schemes. Where low irrigation efficiency is mainly through runoff, excess water can be picked up by pumping or diversion for downstream irrigation, lessening the impact of overuse.

B. Forestry Projects

40. Forests in Asia have also traditionally been managed by government agencies or departments. Throughout the region, shortening slash-and-burn agriculture cycles and population pressure, forest fires, and illegal logging combined to place great pressure on forest resources, leading to rapid deforestation in almost all ADB developing member countries. At the same time, government departments found it difficult to manage and control their forests, due to human resources and budget shortages. Commencing in India and other South Asian countries in the 1970s, participatory forest management (PFM) has expanded to almost all regional countries. Under PFM, local residents are given responsibility for managing forests, under a framework defined by government, which is often termed comanagement. A recent paper on PFM in India¹² suggested that it has “by and large, been successful and an ideal forest management model.” In Nepal, over 9,000 forest users groups are responsible for managing most of the middle hills forests, representing one of South Asia’s major environmental success stories.

1. Participatory Forestry Project (Sri Lanka)

41. ADB projects have been at the forefront of PFM in Sri Lanka. Commencing with the Community Forestry Project in 1982, ADB has now supported four projects involving greater or lesser degrees of PFM, including the Participatory Forestry Project and the Forest Resources reviewed under this SES and more recently the Protected Area Management and Wildlife Conservation Project.

42. The Participatory Forestry was intended to (i) increase tree planting and thereby create employment opportunities and income as well as reduce poverty and rehabilitate environmentally degraded areas, and (ii) strengthen the institutional capability of the Forest Department to expand its programs for nonforest tree planting, adaptive research, extension delivery systems, and privately operated village nurseries. The project included 18 of Sri Lanka’s 25 districts.

43. The project was classified as successful in the PCR and at postevaluation. The project exceeded its planting targets by 260%, with 53,000 ha planted compared with the 15,000 ha planned. Seedlings for home garden planting were provided to 462,000 families (more than 10 times the appraisal target). The O&M of plantations was variable. Some dry zone teak plantations were well maintained, with virtually 100% survival (after infilling), reasonable understory control, and effective pruning and in some cases thinning. In other areas, particularly in the wet and intermediate zones, survival has been as low as 10% or 20% for many plantations. Plantation farmers demonstrate low ownership levels, due partly to the inability of the Forest Department to issue secure titles for farmer woodlots and a lack of maintenance contracts for protection woodlots.

¹² Balooni, K. 2002. *Participatory Forest Management in India—An Analysis of Policy Trends Amid Management Change*. Available: <http://www.iges.or.jp/en/fc/pdf/report5/PTR0207.pdf>.

44. Sri Lanka's Forest Department has made considerable progress in moving toward a participatory culture, and many senior and middle managers have come to fully accept the benefits of and need for PFM. Farmers interviewed believed that as a result of this change in attitude, Forest Department staff members are now more approachable and able to assist them with their problems. One officer pointed out to the SES team that "previously we were treated by the farmers as policemen or enemies; now we have been accepted as human beings."

45. **Impact on Poverty.** Many poor people did benefit under the Participatory Forestry, through its home gardens component and through payment for work done. However, poor farmers dropped out from the project in several stages. At the beginning, farmer selection was through official village leaders. They often felt that the very poor would not be able to cultivate forestland, as they lack time. Awareness meetings were often not well publicized. Meetings were usually held during the day, when many daily workers were unable to attend. In some cases, it was necessary to restrict numbers, as land availability was limited. In those cases, only the people who came to the meeting were included in the project, and the poor were often not present.

2. Forestry Sector Project (Viet Nam)

46. The Forestry Sector Project suffered substantial implementation delays. Project consultants consider the major causes to be the lack of a fully detailed feasibility study, the partly consequent lack of appropriate guidelines and mechanisms for project disbursements and the slow rectification of this problem, and, more recently, the slow approval process of provincial line departments for infrastructure to be constructed in communes. Participatory processes (e.g., land allocation; forest planting; and, where approved, village infrastructure development and management) appear to have been implemented effectively without substantial need for additional time or resources.

47. The participatory planning process followed an ideal path, with sequential analysis of the various aspects of land use and capability. Planning activities require around 100 days of villagers' time per village for land-use planning, agroforestry planning, forestry planning, and community development plan preparation and discussion. The planning process required to reach an agreed commune development plan was estimated by project staff to require around 4 months. Staff consider that this process could be streamlined considerably by undertaking simultaneous planning (i.e., land resources, capabilities, uses, and potential and development priorities at more or less the same time) leading to more rapid production of a draft commune development plan of acceptable (though perhaps reduced) quality. Overall, labor and in-kind inputs by villagers were estimated by the project's midterm review at \$4.2 million or 16% of total project costs.

48. Forest maintenance appears to be operating well, with reasonable seedling survival in most areas. Villagers are organizing themselves into work gangs for the maintenance of protection and production forests. Village assets (schools, clinics, and dams and small-scale irrigation and rural roads) developed under the project were uniformly well managed and maintained in the villages visited by SES.

49. **Impact on Poverty.** The poor had substantial opportunity to benefit under the Forestry Sector Project and as far as possible were given at least equal access to land under the allocation program. They received priority in a cash-for-work program. Local bank payments were often delayed, which did not meet well poor populations' daily income needs and restricted participation.

50. Prior to the Forestry Sector Project, the poverty levels in the core subproject areas were above 40%, according to the PPTA's social analysis. At the communes visited by the SES team, the poverty ratio declined to 20–30%. Commune authorities and villagers assessed the reduction in poverty as resulting largely from the combined effect of government programs, including Program 135¹³ and project activities. In terms of direct impact on poverty, the project mainly contributed wages for forest planting, assisted farmers in establishing agroforestry that generated crop income, and assisted farmers in developing potentially valuable assets (plantations). While the main benefits of forest planting are long-term, the short-term cash income stream is valuable, and, moreover, few alternative income sources exist in remote hill areas.

51. Before the project, some ethnic minority landowners (in particular) sold their forest lands to Kinh¹⁴ to earn money for short-term use and then became hired laborers or subsisted through slash-and-burn farming. Under the project, land sales have almost ceased. Many minority landowners in project communes have benefited, and anticipate that their forestry activities will improve their lives in the future. Overall, participatory approaches have proved to be valuable tools in fighting poverty. Participatory approaches fight poverty through the direct impact of improved resources management and cash payments for work, and these approaches also have the capacity to generate greater confidence among the poor and improve their interactions with society on several levels.

III. ANALYSIS OF PARTICIPATORY PROCESSES

52. The analysis and issues of this chapter are based on the three country studies prepared under the SES. Initially, issues relating to participation at different stages in the project cycle are discussed, followed by a number of key aspects of participation. Particular reference is paid to natural resources management, focusing on institutional aspects and sustainability and replication and crosscutting issues, such as environment, gender, and ethnicity.

A. Participation and the Project Cycle

53. To be classified as a participatory project, an undertaking should include primary stakeholders in its decision-making processes at all stages of the project cycle, from design to O&M. Ideally, participatory processes should also be applied to the later stages of the cycle (monitoring and evaluation), although these are less critical to project performance than the earlier stages. The following are descriptions of the main participatory processes used at different stages of the project cycle by the SES projects.

1. Participation in Project Identification

54. Project identification in the natural resources sector was not highly participatory. Identification of projects conformed to national planning priorities or to ADB's selected regional and sector focus, as agreed in high-level consultations with planning and line ministries. Subproject identification similarly had few participatory elements. While the involvement of primary stakeholders (farmers) in project identification is difficult, the involvement of farmers is potentially feasible in countries such as Viet Nam that have national farmers associations. In

¹³ Program 135 was initiated in 1998 to assist poorer communes. In 2000, around \$80 million was distributed to almost 1,900 communes. The program's goals include poverty reduction and promotion of democratization and transparency in communes. The program involves commune dwellers in all aspects of project formulation and prioritization.

¹⁴ Viet Nam's dominant ethnic group (around 89% of Viet Nam's population of 80 million belongs to this group).

time, and as irrigation sector structures mature, the establishment of national irrigators associations may be feasible and assist in enhancing participation during the preparation of irrigation sector projects.

2. Participation in Design

55. Of the six projects reviewed under the SES, four are sector projects that applied substantial participation in their detailed design. Sri Lanka's Participatory Forestry was a traditional project, and the project also required detailed planning during implementation, since the areas for protection and production forest planting needed to be defined on a village-by-village basis. However, farmers were not much involved in this process. Viet Nam's Irrigation Rehabilitation was also designed with little participation from local staff or farmers.

56. Participatory design can be time-consuming, as shown by Viet Nam's Forestry Sector Project, which had a highly participatory planning and implementation process. However, the delays in implementation were mainly caused by inadequate planning and the lack of a sound implementation framework at project inception and were only partly caused by the complexities involved in the preparation of commune development plans. Although detailed design under the Lao PDR's CM Irrigation and Decentralized Irrigation was participatory, the extent was limited by farmers' low education levels and inability to read plans.¹⁵ Most project demands relate to the need to identify groups of stakeholders and spend time working with community groups to establish CBOs. The CM Irrigation required an average of around six meetings per village to establish its WUOs. The Decentralized Irrigation normally conducts two or three meetings per village, since existing WUOs are involved.

57. In none of the projects reviewed were significant delays caused by the participatory process itself. Project areas need to be demarcated, land use needs to be planned, and infrastructure needs to be designed, requiring a similar level of input whether a participatory or a top-down approach is used. In practice, participatory rural appraisal can reduce the level of inputs required from a project since the planning function largely devolves to the community, with a project being primarily responsible for awareness raising and CBO formation and training. Overall, the greatest proportion, by far, of incremental time required for participatory design needs to be contributed by the primary stakeholders.

3. Stakeholder Analysis

58. Stakeholder identification and assessment are key foundations for participatory projects. As stated in the Framework, "if stakeholder interests are not addressed before making a commitment for a development initiative, these (issues) will surface during project implementation, compromising its effective implementation and operation." While ADB procedures do not specifically require the conduct of stakeholder analysis, this analysis is necessary to ensure that key stakeholder groups support or at least do not oppose a project. No formal stakeholder analysis was undertaken of any of the projects reviewed by SES, leading to the failure to identify a number of bottlenecks, particularly in the forestry projects, that undermined project implementation and outcomes.

¹⁵ In Viet Nam, the ongoing Second Red River Basin Sector Project and planned Phuoc Hoa Water Resources Project are far more consultative than the completed Irrigation and Flood Protection Rehabilitation Project and Red River Delta Water Resources Project.

4. Project Implementation

59. Construction of the irrigation schemes was contracted out to government (Viet Nam) or private (Lao PDR) companies. Under Viet Nam's Irrigation Rehabilitation Project, farmers were not involved in the construction of the scheme, although farmers and cooperatives were responsible for tertiary and on-farm irrigation and drainage canals (not funded by the project). Under the CM Irrigation, villagers were responsible for a number of activities, including providing local materials, constructing houses and sheds, and providing in-kind and paid labor. These labor inputs assisted in generating high commitment to and ownership of the scheme. In the O&M TA activities, farmers were required to contribute funds for the rehabilitation of their tertiary canals. Primary stakeholder contributions (in-kind or cash) are considered to be an important way of promoting ownership.

60. The two forestry projects reviewed in detail differed greatly in their approach to participation. In Sri Lanka, the implementation processes of the Participatory Forestry were not highly participatory. Participation was almost entirely passive. However, with relatively limited additional effort, the project could have been implemented with more participation, which would have slowed the pace of implementation but probably achieved more sustainable outcomes. In Viet Nam, the Forestry Sector Project's implementation was slow during its first 4 years, due primarily to the late release of implementation guidelines and cost norms, which are a prerequisite for government expenditure in Viet Nam. Participatory planning processes were also long due to the sequential planning process adopted, and perhaps unduly detailed (e.g., in the preparation of digitized plans). In the Forestry Sector Project and the Participatory Forestry, farmers were paid for planting protective woodlots. The wages paid were valuable to the poor, and without such payment, they would not have been able to participate. However, other incentives (such as partial harvesting rights) are also important. Primary stakeholder contributions (cash or in-kind) are helpful in promoting ownership. In both projects, cash payments were delayed, making the participation of the poor more difficult.

5. Operation and Maintenance

61. Irrigation scheme O&M under the CM Irrigation's subprojects is making good progress. Most WUOs are managing their schemes to an adequate level. However, many have set their ISFs too low for long-term sustainability and increases will be required in future. Irrigable areas are being expanded through land clearing and leveling in many schemes. The WUOs established under the O&M TA activities have also survived and are operating their secondary canals satisfactorily. Water management has improved.

62. Plantations and infrastructure established under Viet Nam's Forestry Sector Project are mainly being well maintained, often by groups of farmers. Ongoing payment (particularly for the poor) appears to be necessary for continued maintenance of protection forests, until the areas can generate income. The failure to issue leases for woodlots established under the Participatory Forestry has been a major factor limiting maintenance activities by farmers. Under conditions of secure individual tenure, participation is not essential for the management of individual forest plots. Integrated fire management; access road maintenance; and timber harvesting, processing, and marketing are valuable.

B. Key Aspects of Participation for Natural Resources Management

1. Water Users Organizations

63. The formation of WUAs (CM Irrigation and O&M TA activities) or WUCs (O&M TA activities and irrigation companies [directly]) has been a central feature of farmer management of irrigation facilities. The management capacity of a WUO is a key determinant of the long-term viability of an irrigation scheme or secondary canal. If a WUO fails or is badly managed, water management and system maintenance will suffer, and the efficiency of the scheme will decline, with a long-term adverse impact on agricultural productivity. To date, all WUOs established under projects reviewed by the SES have survived and managed their facilities at an adequate level. While their capacity is variable, few have been fully empowered and most require ongoing support.

64. Experience in establishing PIM in Viet Nam and under the TA activities attached to Sri Lanka's Walawe and Kirindi Oya projects indicates that the establishment of sustainable participatory management approaches is time-consuming and not well suited to short-term TA inputs (Appendix 1, Lesson 72). However, over the life of a project, such as the CM Irrigation or the Decentralized Irrigation, sustainable WUOs can be established. ISF collection varies from 100% for O&M TA areas to 65% for CM Irrigation areas. In Sri Lanka, the Government has made several efforts to introduce ISFs on a national basis, but ISFs have been strongly resisted by irrigators and have not been successful. Viet Nam's success and (to some degree) that of the Lao PDR have been notable. WUOs in both countries have demonstrated strength in irrigation planning, water management, and conflict resolution. However, their long-term survival and performance will require (i) provision of training to new staff (e.g., following elections); and (ii) setting appropriate ISFs and managing funds effectively.

2. Gender and Ethnicity

65. Women are central to agricultural and forestry activities in the case study projects. In Viet Nam, women are often now the major contributors of labor, as men seek to earn income away from the village on a seasonal or permanent basis. SES projects made efforts to include women among their participants and include a proportion of women on WUO committees. However, even where women are initially elected, they may lose their positions after one or two elections. Mainstreaming gender into such projects will take time. In the Lao PDR, women's lower level of literacy and the culture of minority groups make women's participation more difficult.

66. Ethnic issues can also make participation harder to achieve. Under the CMI Irrigation, few project or departmental staff members had any minority language capability, making training impossible and local-language workshops difficult to conduct, which further discriminated against the women, who are less likely to speak Lao Loum, the national language.

3. Institutional Acceptance

67. Government institutions at all levels are key stakeholders in virtually all ADB-financed projects. The institutional culture of implementing agencies, with respect to participation, is a key determinant of the success of participatory projects. Where implementing agency staff members are not committed to participation, a participatory project will not likely achieve its objectives. Although participation may reduce the workload of government agencies, their

involvement remains central to success. At the local level, government involvement includes supporting community efforts and, at the national level, ensuring that the policy and legal environment is appropriate, hence, the use of the term comanagement.

68. In Sri Lanka, institutions such as Forest Department or Mahaweli Authority (responsible for implementation of the Walawe Irrigation Rehabilitation Project) have a long history of top-down implementation and management of projects. In part, this explains why their projects have had mixed success in terms of overall participatory development. Walawe introduced PIM successfully in the Moreketiya branch canal pilot project, but there has been no replication at other canals. An institution with a more participatory approach may have been able to extend effective PIM to other areas of the scheme, with far-reaching implications for water availability in the valley.

69. Box 3 shows that Sri Lanka's Forest Department can be considered to have entered the first stage when it introduced the Community Forestry Project in the early 1980s. The principle of community participation was accepted under this project. However, the project did not succeed in entering the second stage. Instead, the participatory aspects of the project concept were disregarded as not successful. If lessons learned had been fully analyzed and used in the planning and design of the Participatory Forestry, more sustainable benefits could perhaps have been achieved. The project was able to get people to participate, through providing labor to plant trees, under the guidance of the Forest Department. Even to commence passive participation is a substantial achievement, particularly on such a large scale. The department is now perhaps midway through the second stage, with senior management committed to moving to the third stage as quickly as possible.

Box 3: Stages in the Adoption of a Participatory Culture in Government Institutions

In changing from an autocratic or top-down to a participatory, client-focused approach, the following three stages of institutional development can be recognized:

Stage 1: Opposition to the System. Many officers do not trust the new approach and see problems in applying it. They can see no advantage to using the approach. The old way is almost always easier. Those who are trying to use participatory approaches may be criticized or laughed at. Some become demoralized. Unless senior management pushes the approach and assists those who are trying to apply it, the participatory approach is unlikely to be employed.

Stage 2: Increasing Acceptance. If senior management pushes this approach through, then little by little even some who do not trust the approach will see that its application is not all that difficult and that there are advantages to working with farmers on a participatory basis. Instead of mutual distrust, officers come to feel that villagers accept them, and they in turn trust the farmers and begin to understand their strengths. At this stage, senior and middle level management need to monitor the performance of field staff and provide necessary support, guidance, and appreciation of their work, if the system is to be internalized. Ongoing training is required.

Stage 3: Sustainable Use of the Approach. By the time this stage is reached, officers have observed the added advantages of the participatory approach and apply it in all their development activities. At this stage, the officers internalize the approach. The basis of sharing resources and benefits are mutually agreed between the main stakeholders.

Source: Sri Lanka Special Evaluation Study country study.

70. In the Lao PDR, the main interaction by the public service with the farmers is through the provincial and district agricultural and forestry service offices. While many staff members are highly motivated and committed, they have limited resources and capacities unless external funding is available. Office staff members are competent in technical areas but have little experience in less technical areas, such as community development and communication and participation. However, IMT is a central plank of the Government's rural policy, and institutional support is consequently quite strong, even though some officers are likely to retain reservations about WUOs' capacity to manage irrigation schemes effectively.

71. The institutional culture in Viet Nam is probably the most supportive of participation in the three countries studied. The strength of institutional culture is largely due to a long history of devolved authority, a capacity for independent action at lower levels, and a strong commitment by the ruling party and the Government to continue devolution and participatory processes. At the higher levels, MARD has brought in policies that promote PIM but has not been able to follow through to the provincial level, in part because of the autonomy now provided to provinces. Although the overall culture is favorable, many agencies continue to take a more traditional, autocratic approach that limits the potential for effective participation. In the Red River Basin Sector Project, MARD may need to make a stronger commitment to support PIM and rural development support activities, which are unfamiliar when compared with MARD's traditional approach to rehabilitating major infrastructure (as under the Irrigation and Flood Protection Rehabilitation Project).

4. Legal and Policy Framework

72. Even if a government institution seeks to develop a client orientation, this orientation will be virtually impossible unless the legal and policy framework is appropriate. This is important at two levels, the overall national policy and project or implementing agency level and the policy and legal environment level. At the national level, promotion of participation, and related issues such as accountability and transparency and other aspects of good governance are of great assistance in the promotion of a participatory development approach within projects and programs. Thus, the grassroots democracy decree has had ramifications throughout rural development in Viet Nam, with departments under many provincial people's committees now promoting participatory development. This has been accompanied by an increase in the level of fiscal delegation to districts and communes, which is promoting local responsibility.

73. In a number of cases (e.g., the Forestry Sector Project and the Irrigation Rehabilitation in Viet Nam) even though the overall policy environment was favorable, the detailed regulations required for project implementation were not in place at the time of project inception. Under the Forestry Sector Project, the financial guidelines and cost norms were not defined until roughly 2 years after the start of implementation, causing serious implementation delays and imbalance in the use and availability of international consulting inputs.

5. Participation and Governance

74. Good governance is central to participation. Good governance of community organizations is important in preventing the elite from hijacking these. Governance within project implementing agencies and line department staff is central to sustainable natural resources management. A situation where government officials can extract rent from villagers or others is not conducive to participation. The forestry sector is particularly prone to these problems. For example, villagers can be required to make illegal payments to obtain permission to fell or market timber, and lucrative rights to extract timber can be sold illegally to private loggers. In

such cases, the transparency and accountability that participation requires is likely to suffer. Rent seeking is one of the factors that have made it difficult to prevent the continuing reduction of forest cover in many countries, together with encroachment by smallholders and the conversion of forest land to agriculture through clearing and shifting cultivation. Participation (particularly if supported by land allocation) can make a major contribution to improved management of forest resources, through providing the incentives needed for villagers to manage and conserve their forests.

75. In terms of reduction of illegal logging, participation is perhaps the major weapon in the otherwise rather limited arsenal of government agencies. Where communities feel no ownership of the forests in their areas, they have little incentive to conserve them. They almost always feel powerless to stop the loggers who are stealing the more valuable trees from the forests and often are not prepared to report these loggers to the authorities. Participation can change this scenario by improving the relationship between officials and farmers, as was done under the Participatory Forestry in Sri Lanka. Where participation leads directly to ownership (as under the Forestry Sector Project), villagers are highly motivated to manage their land, either individually or collectively, and prevent encroachment or the theft of timber from both production and protection forests.

76. Most forestry staff view improved forest management positively and see improved forest management as a valuable resource for their area and its rural population. Others see forestry management as a threat to their incomes and are unlikely to embrace PFM with any enthusiasm and may oppose it.¹⁶ The close involvement of villagers and irrigators in the design and construction of an irrigation scheme is likely to reduce or eliminate the potential for rent seeking, particularly if villagers are given specific monitoring roles and the training to support them.

C. Participation and the Environment

77. Participation has an almost entirely positive impact on the environment and environment management. Most of these positive impacts translate directly or indirectly into improved incomes for rural dwellers and thus contribute to poverty reduction objectives. Key aspects in relation to irrigation and forestry projects are summarized in Table 4.

¹⁶ When a forest has fully degenerated (e.g., as in much of the middle hills region of Nepal), potential for rent seeking is greatly reduced. In this situation, support for participatory forest development and management has expanded rapidly and there are now more than 9,000 forest users groups with over 800,000 members. These groups are fully responsible for the development and management of their forests. PFM has regreened much of the Kathmandu valley and other middle hills areas over the past 20 years.

Table 4: Environmental Benefits from Participatory Approaches

Environmental Benefit	Source of Information
Irrigation	
1. Improved irrigation efficiency, which leaves more water for other irrigators and other uses, including environmental flows	O&M TA activities and the Walawe Decentralized Irrigation Project
2. Less wastage of irrigation water, through overwatering or flow-through, reducing the potential for increasing water tables, which can (in some areas) increase salinization inside or outside a scheme	Walawe
3. Reduced incidental transfer of water between catchments, a factor which can cause significant downstream environmental damage	Kirindi Oya
4. Reduced misuse of canals (e.g., for animal bathing or waste disposal), if a high level of ownership exists	O&M TA activities
5. Reduced damage, such as enlarging of structures to increase irrigation water offtake	Walawe
6. Elimination of timber felling to build temporary diversions (although this is an effect of a project overall, rather than participation itself)	CMI
Forestry	
1. Improved forest establishment and maintenance	Forestry Sector Participatory Forestry
2. Improved catchment area management through forest establishment	Forestry Sector
3. Reduced encroachment and illegal logging	Forestry Sector, Nepal's middle hill areas
4. Improved biodiversity conservation	Forestry Sector
5. Increased potential to exploit nontimber forest products sustainably	Forestry Sector
6. Reduced likelihood of overexploitation of nontimber forest products	Forestry Sector, Nepal
7. Greatly reduced incidence of slash-and-burn agriculture (particularly if supported by government legislation)	Forestry Sector CMI

Sources: Special Evaluation Study research.

78. Examples of the potential impact of overuse of irrigation water (which can be reduced greatly through PIM) are evident in the Walawe and Kirindi Oya schemes, both recently evaluated by ADB. In Kirindi Oya, high volumes of drainage water have damaged the brackish water lagoons and bird sanctuaries downstream. This damage is aggravated by the free-flow management that is typical of irrigation practice in Sri Lanka. The Embilikala and Malala lagoons have changed from brackish water into freshwater lagoons, destroying the environment for brackish water shrimp, on which many residents in the area made a living and on which birds in the adjacent bird sanctuary depended. The shrimp fishermen had to change to less lucrative fishing for freshwater species. Impacts of overuse (and thus excess extraction) of irrigation water are also evident in the Mahaweli scheme in Sri Lanka, where reduced flows in the Mahaweli river are believed to have contributed to serious coastal erosion.

79. Participation does not appear to be associated with any extensive negative environmental effects. However, there can be local problems where villagers and resource owners do not manage their resources effectively, for example through failing to conserve their forests or continuing slash-and-burn agriculture. These practices are not specific problems of participation but reflect a more general lack of care for the environment. These practices should in any event be reduced through promoting ownership and participation and secure tenure.

Overall, the rate of decline of slash-and-burn agriculture in Forestry Sector Project communes in Viet Nam and in Community-Managed Irrigation Project villages in the Lao PDR has been impressive, with the practice appearing to have been fully or partly eliminated in subproject areas over the past 5 years. While the decline of this practice is not solely a benefit of participation, since the decline is assisted by wider government policy agendas, certainly most environmental policies are easier and faster to introduce in a participatory environment.

D. Sustainability

80. PIM should increase the sustainability of irrigation systems through increasing the level of ownership. Sustainability of the WUOs established under the projects reviewed generally appears reasonable. All WUOs established under the Irrigation and Flood Protection Community Rehabilitation Project in Viet Nam survived and are functioning well, although their financial status remains weak. Under the Community-Managed Irrigation Project in the Lao PDR, all 47 WUOs established are expected to survive, although at varying levels of effectiveness and viability. Where major damage results from, for example, floods or landslides, ongoing government support may be needed to assist recovery. Government agencies need to keep an eye on WUOs and may have to assist in managing WUOs that are in danger of collapsing.

81. By comparison, the government-managed schemes in the Lao PDR and (to a lesser degree) in Viet Nam face significant problems. The pump irrigation schemes in Lao PDR, such as those being rehabilitated under the Decentralized Irrigation, have faced major sustainability issues, with declining serviceability of pumps, inability to meet electricity or diesel bills, and declining irrigable area and cropping intensity.¹⁷

82. In Sri Lanka, major problems have been experienced by the Walawe scheme, rehabilitated with ADB assistance over an 11-year period (1985–1996). An ADB postevaluation mission in 1999 found that around half of all off-takes and diversions were by farmers. The system was not capable of meeting design water flows, and farmers therefore enlarged structures during dry periods to try to save crops. This practice then exacerbated water supply problems for downstream farmers, who were in turn more inclined to damage their structures. On the 750-ha Moraketiya branch canal, where WUOs were established with help from ADB and International Water Management Institute, no damage to structures was observed and farmers were making efforts to improve their tertiary and farm canals through making concrete tiles and lining canals. The implication of this activity is significant. A scheme with farmer management has the capacity to continue to upgrade and avoid major rehabilitation, while an irrigation company or government managed scheme may require full or partial rehabilitation within a period of 5 to 20 years.

83. A number of conditions need to be met for sustainability to be achieved under PIM. These points are highlighted by studies in Sri Lanka and Indonesia and are summarized in Appendix 7.

84. Resource sustainability is usually enhanced by PIM. One of the major benefits or potential benefits of farmer management is that irrigation efficiency is increased (by an estimated 50% in Walawe and by 33% in Song Chu, Viet Nam). The savings arise due to improved management of gates and improved irrigation practice, which should be promoted by

¹⁷ Pump schemes are inherently less sustainable than gravity schemes, due to the need to operate and maintain pumps as well as canals. Nonetheless, no other counterfactual assumptions are evident in the Lao PDR.

the WUO.¹⁸ The WUO is also in a position to encourage and assist farmers who improve their in-field leveling, which itself increases irrigation efficiency by reducing the need to overwater low areas. Overall, the impacts of PIM on system sustainability appear to have been uniformly positive.

85. In the forestry sector, sustainability refers more to the resource than the institutions involved. Resource sustainability is likely to be greatly increased through participation, provided legislation (e.g., controlling the sale of timber rights) and extension support from government are appropriate. Transfer without support is unlikely to meet objectives, particularly in a technical area, such as forestry, where villagers' skills may not be highly developed.

E. Replication

86. Despite the apparent benefits of PIM, there has been little spontaneous replication of the pilot projects implemented in association with Viet Nam's Irrigation Rehabilitation and the Walawe and Kirindi Oya projects in Sri Lanka. Under the Irrigation and Flood Protection Rehabilitation Project, MARD believed that WUOs would prefer the hydraulic boundary model over agricultural cooperative systems that are based on administrative boundaries. This belief was supported by a MARD letter of instruction in May 1998, although provinces were advised to define which model suited their local conditions. However, other provinces have not introduced PIM at the secondary canal level, although many have undertaken study tours to the O&M TA WUOs. The Walawe irrigation scheme, the PIM pilot project in Sri Lanka, equally did not lead to spontaneous replication. Additional incentives appear to be required beyond the conflict reduction and improved irrigation efficiency that result from PIM. Assistance with secondary or tertiary canal rehabilitation is a valuable incentive to farmers, since assistance normally reduces labor or pumping requirements and provides a more reliable water supply, particularly to tail areas. In Viet Nam, national policy indicates that only rehabilitated canals should be handed over to farmer management, requiring support from projects or the central budget, as under the national Canal and Ditch Stabilization Program.¹⁹

IV. PARTICIPATION EFFECTS AND IMPACTS

A. The Asian Development Bank's Experience with Participation

87. In addition to the sample of projects reviewed in detail by the SES, ADB has funded numerous natural resources sector projects. While only a few highly participatory projects have been evaluated by OED, due to the relatively recent application of participatory development processes, OED's lessons learned database highlights the positive aspects of participation. Out of 44 irrigation and 15 forestry sector projects evaluated by OED since 1982, 36 (82%) and 8 (53%) have included lessons directly related to participation. Virtually all of the 112 lessons listed in Appendix 1 support participation (though some are neutral). While this conclusion is strong, it is not necessarily definitive. Most of the lessons are based on perceived problems with top-down projects and suggest that the problems would be reduced if a more participatory approach had been adopted. The possible countervailing argument, relating to successful aspects of top-down approaches, is not brought out by a keyword search on participation, and indeed a majority of lessons deal with how to correct problems rather than how to build on

¹⁸ In Walawe, irrigation efficiency is measured for each branch canal. However, for O&M TA secondaries, irrigation efficiency gains are estimates by the WUOs and irrigation companies.

¹⁹ The Prime Minister's Decision 66/2000/QD-TTg 13-6-2000.

strengths. Nonetheless, ADB's experience in the natural resources management sector clearly provides strong support for participatory approaches.²⁰

B. Time and Participation

1. Design

88. The present study did not identify an objective basis for assessing the additional time required for the identification and design of participatory projects.²¹ However, the level of 10% or 15% estimated in the ADB participatory development Framework would appear to remain a reasonable estimate. This level should be sufficient to include participatory development expertise during PPTA and, for example, to extend the social and poverty analysis (required whether or not a project is participatory) by using participatory processes, rather than, say, a questionnaire-based household survey.

2. Implementation

89. Implementation delays are often attributed to participation. Certainly two of the six projects examined in detail by the SES (the Forest Resources and the Forestry Sector Project) experienced serious implementation delays. Other projects have been implemented effectively, the Community-Managed Irrigation Sector Project being a notable example. The Decentralized Irrigation met its first year targets, although the project failed to achieve the desired level of participatory development, due to the late appointment of community development consultants. The project is now on schedule. The Participatory Forestry in Sri Lanka was implemented effectively and greatly exceeded its physical targets, but effective implementation was largely at the expense of true participation. The problems of the Forestry Sector Project in Viet Nam resulted from a variety of factors and not particularly from participation. However, simply because the project and implementing agency staff have to interact with more actors, the potential for problems can be magnified. Participatory projects thus may require better planning and management than top-down projects.

90. As in the case of design (where participatory rural appraisal places time demands on primary stakeholders), the main additional time requirements during implementation fall on farmers and villagers. The Participatory Forestry is estimated to have required around 100 days of input per village or perhaps 600 person-days per commune for land use and forestry and infrastructure planning.

²⁰ OED's lessons learned database also provides strong underpinning for participation in other natural resources management sectors, such as fisheries and aquaculture. For example, few fishing vessel projects or components have been successful where fishers have not been allowed a choice of vessel or engine.

²¹ The projects with substantial participation (the CM Irrigation, the Decentralized Irrigation, and the Forestry Sector Project) could not have been designed without participation. Participation is integral to design and not an add-on. Thus, saying whether or not participation during design added to time (or to cost) is impossible. However, additional stakeholder analysis and involvement in design would certainly require more resources and/or more time than a nonparticipatory project design in another sector or country. To resolve the question would require a detailed study of identification and design processes in participatory and a matched control group of nonparticipatory projects.

C. Costs and Benefits of Participation

1. Costs of Participation

91. ADB-financed participatory projects are often in the vanguard of establishing participatory development processes in their countries and sectors. In Viet Nam, the TA activities attached to the Irrigation Rehabilitation were among the first to introduce farmer management of secondary canals, a parallel situation to the Walawe Irrigation Rehabilitation Project in Sri Lanka. In Sri Lanka's forestry sector, the series of three ADB-funded projects (Community Forestry, the Participatory Forestry, and the Forest Resources) have been in the forefront of introducing participation to the sector and its institutions.

92. The pilot projects in Song Chu and North Nghe An in Viet Nam and in Walawe in Sri Lanka, were expensive in terms of cost per ha. The total cost of the Vietnamese TA activities was approximately \$1.9 million, or \$1,500 per ha brought under farmer management. In Walawe, to establish farmer management on the 750-ha command area of the Moreketiya branch (secondary) canal, the TA activities cost around \$1,000 per ha. However, apart from covering the establishment of participatory processes in project areas, the costs relate to the development of systems that can be applied to entire schemes and sectors.²²

93. Extending full PIM to the secondary canal levels of major irrigation schemes, such as Song Chu and North Nghe An, can be relatively inexpensive. For example, at about the time TA 1968-VIE commenced, Thanh Hoa province decided to establish an agricultural service cooperative to undertake PIM and manage the secondary canal in Thieu Do commune. The process took around 1 month and was estimated to cost about \$700 (\$3.00 per ha), excluding any training cost or farmers' opportunity cost of time and without provision of infrastructure. Provincial authorities consider the quality of participation in the cooperative to be lower than that in the WUOs, although the quality of participation is still considered effective.

94. The cash cost to establish full PIM, including training and the provision of office space, paid by SES for a typical Song Chu secondary canal is estimated at around \$26 per ha or perhaps \$35 per ha if the opportunity cost of farmers' time is included. This cost is small compared to the cost of rehabilitation, which is required prior to IMT from both technical and policy perspectives. To upgrade the secondary canals on canal B8A in Song Chu cost about \$110 per ha, with a further 20 kilograms per ha (worth around \$4) of paddy contributed by farmers for tertiary system upgrading.²³

²² Samad and Vermillion. 1999. *Assessment of Participatory Management of Irrigation Schemes in Sri Lanka: Partial Reforms, Partial Benefits*. International Water Management Institute (IWMI): Colombo. A study conducted by IWMI in Sri Lanka in 1999 highlighted that IMT on its own had limited overall benefits. Neither did rehabilitation alone create significant effects. However, in schemes where both management transfer and rehabilitation had occurred, significant effects on agricultural productivity levels and economic returns were observed. There was substantial underinvestment in maintenance on government and farmer-managed schemes. Farmers under PIM have not yet taken full responsibility for their schemes and expect the Government to support them when rehabilitation is again needed (Appendix 7).

²³ The entire Song Chu rehabilitation cost \$377 per ha in 2002 dollars, according to the draft ADB PCR. Rehabilitated were headworks and main and primary canals (109 kilometers [km] in total) and the first km of secondaries. The total length of secondary canals is 113 kms, of which around 20 kms were rehabilitated under the Irrigation and Flood Protection Rehabilitation Project.

2. Benefits of Participation

95. The major benefits that should accrue to PIM include savings in irrigation-company operating costs, improved irrigation efficiency, and reduced need for rehabilitation.

a. Reduced Irrigation Company Costs

96. Under the Irrigation and Flood Protection Rehabilitation Project, the irrigation companies estimated that they could save around 25% of their O&M costs by transferring secondary canal management to farmers. Based on current O&M costs, the savings on this basis would amount to around \$10.00 per ha per year. The current rebate of ISF allowed by Song Chu Irrigation Company to the WUOs on the B6/9 and B8A canals amounts to around \$6.00 per ha per year. In North Nghe An, the amounts are lower but are being increased this year to around \$4.50 per ha per year. Benefits in savings in direct labor costs to the irrigation company would be partially offset by the increased cash and opportunity costs of farmer management. If opportunity cost is considered to be around half the cost of casual labor, cost savings net of opportunity cost are likely to be on the order of \$2.00–3.00 per ha per year and are not highly significant in the context of overall scheme management or the other benefits of participation.

b. Increased Irrigation Efficiency

97. As mentioned in the discussion of the environmental benefits of irrigation, irrigators in Asia have a long history of overusing irrigation water. Apart from the environmental problems this causes, overuse can have severe economic consequences, particularly in a water constrained river basin such as Walawe. In Song Chu, water availability is also limited, particularly in dry years, at the tail of secondaries and the tail of the scheme. The new (government-funded) diversion planned for Cua Dat will support the irrigation of 30,000 ha on the left and right bank of the Ma river and provide additional water to the Song Chu scheme.

98. On canal N4B, in North Nghe An, rotating closures of tertiary canal offtakes have significantly increased irrigation efficiency and permitted the new irrigation of more than 100 ha that were previously underwatered or unwatered. In Walawe, experience in the Moreketiya canal suggests that PIM can increase irrigation efficiency at the secondary canal level by close to 50%. This means that a given volume of water taken from a main canal will irrigate 50% more land under PIM than under irrigation company management. In the case of Walawe, the introduction of PIM over the entire 12,000-ha right bank scheme, rehabilitated under the ADB project, could provide more than enough water to allow cropping intensity on the right bank to reach 200% (from the level at postevaluation of 189%) and increase cropping intensity on the new 6,380-ha left bank scheme from a likely 100–120% to close to the right bank level.

c. Reduced Need for Rehabilitation

99. In addition to the direct benefits of increased cropping intensity, PIM has the potential to reduce or remove the need for ongoing cycles of rehabilitation. The Walawe Irrigation Improvement Project was completed initially in 1977. By the early 1980s, the fact that the project was underdesigned in a number of key respects and that the upgrading of canals and structures was required was becoming evident. The \$36 million Walawe Irrigation Improvement Project was completed in December 1995 at a cost 165% above budget. The average cost for the 9,000 ha rehabilitated and 2,260 ha of new irrigation exceeded \$3,000 per ha, a high cost for a primarily rehabilitation project.

100. Despite this high cost, by the time of postevaluation in August 1999, the need for further major rehabilitation within 5 or 10 years was evident. While the cost of rehabilitation will be far lower than the initial rehabilitation program (since repair and upgrading of existing structures should probably suffice), overall cost is likely to be on the order of \$300 per ha. Based on the pilot PIM area, sustainability most likely would have been far higher if adequate participation had been included in the overall project design.

d. Overall Potential Benefits of PIM

101. Based on the assumptions in Appendix 6, the net present value of establishing PIM on the 17,800 ha of Walawe's right bank and left bank extension areas would be approximately \$1,350 per ha, at a discount rate of 12%. If in the non-PIM case, irrigation culture can improve to the extent that the budgeted second and third round rehabilitation exercises can be avoided, net present value declines to \$1,250 per ha, or \$22 million for the entire scheme. In a water-limited system, the potential returns to PIM are thus high, and, in this case, not far below the total initial cost of the scheme. The benefits of improved environmental flows, reduced environmental damage (land salinization and reduced salinity of brackish water lagoons), and increased availability of water for urban and industrial use have not been taken into account in this analysis, but in aggregate the benefits add significantly to the net economic benefits accruing to PIM. If the direct benefits of PIM for the O&M TA farmers were extended to the entire Song Chu scheme, overall scheme EIRR would increase from an estimated 7% to at least 19% (Appendix 6).

D. Impact on Poverty Reduction

102. Participation can play a role in poverty reduction. Participation provides a mechanism for the poor to become involved in project activities and more importantly can assist the poor in developing the attitudes required to improve their situation. Well implemented participation can make the poor feel valued and reduce their sense of hopelessness. In Viet Nam, several factors have contributed greatly to a rapid decline in poverty over the past 10 years. These factors include (i) land allocation, (ii) participatory approaches that are increasingly adopted at the commune level, (iii) mass organizations (to which the poor belong) activities, and (iv) such programs as the 135 that use participatory approaches to assist in the development of the poorer communes.²⁴

103. Overall, the irrigation projects (and TA activities) in the Lao PDR and Viet Nam have had a positive impact on poverty reduction. As indicated in Table 3 (page 13), poverty levels within the TA area were close to half those of the control group. Net income per ha from rice production was 52% higher for the PIM households. However, total income per household was similar for both groups. In combination with scheme rehabilitation, PIM thus has significant potential to reduce poverty. Under the O&M TA activities, the potential overall impact of PIM was limited by the small percentage of the scheme to which PIM was applied (covering only 1,800 out of 80,000 ha). However, in areas where water scarcity limits dry season cropping intensity or irrigable area (as in Walawe, Sri Lanka), PIM can make a major overall contribution to increasing cropping intensity, with direct impact on reducing poverty. Beyond the direct economic effect of participatory projects, SES surveys confirmed that participatory projects have

²⁴ A major boost to Viet Nam's increase in agricultural production since the commencement of the national economic renovation program (*doi moi*) has been the issue of secure title to agricultural land. However, in the absence of participation, income disparities can increase, an example is the previous sale of land by ethnic minorities in the Forestry Sector Project communes—a practice that is reported to have almost ended under the project.

the potential to empower the poor and encourage them to engage in economic activity to improve their circumstances. Box 4 considers the question from the point of poverty reduction.

Box 4: Who Should Participate?

One of the reasons why participatory development has developed a bad name in some areas is that this type of development has come to be thought of as a fully democratic process. Thus, all stakeholders (e.g., farmers) should influence and to some degree control development and management. However, participatory development does not imply full and direct democracy. At one extreme, participatory development would not mean, for example, consulting all 200,000 farmers in the Song Chu irrigation scheme area about scheme design. This clearly would not be useful, possible, or affordable. At the other extreme, a process that only involved village leaders would not necessarily protect the rights of the poor or disadvantaged.

Between the two extremes lie a range of options that offer the potential for appropriate levels of participation for different purposes. For example, elected water users organization boards should be able to reflect the views of their irrigator members. For any scheme, the boards could be assisted to develop a hierarchical structure on a reasonably democratic basis to provide manageable representative institutions up to the whole system level. Each sector and project needs to define the optimal participatory structures that will allow adequate stakeholder representation (including the poor and disadvantaged), without becoming too unwieldy or expensive.

Poverty reduction is a primary objective of most Asian Development Bank projects in the natural resources management sector. However, poverty reduction needs to be tempered with pragmatism and reflect individual differences and capacities. Viable and sustainable development needs to be the primary objective of natural resources management projects. Inclusion of the poor (and other disadvantaged groups) is to be encouraged but not to the degree that it jeopardizes viability. While positive discrimination is necessary to prevent widening inequality, ways need to be found to ensure that participation in project activities by the disadvantaged is effective. Each project needs to be assessed on this basis, to define the extent to which poverty reduction and viability and/or sustainability objectives mesh with and define the conditions and support the mechanisms needed to promote participation by the poor.

104. Forestry has the potential to contribute significantly to poverty reduction in the long term. This is particularly relevant in remote areas, where there may be few alternative sources of income. A teak plantation with a density at maturity of, say, 200 trees per ha could have a market value of \$20,000 per ha, making forestry a highly attractive form of savings and/or wealth accumulation to most rural dwellers, particularly the poor. In the short term, the poor benefited from the Participatory Forestry through receiving wages from planting activities, where the poor were given priority. These benefits were limited by the slow payment for work done and inefficient coupon system operation through cooperatives.

105. Plantations take time to mature and generate income. Even fruit tree crops or bamboo, which start producing income at 5–7 years take too long for the poor to consider them as viable investments. However, payment for planting and maintenance, combined with the potential for intercropping or agroforestry meant that the poor were able to participate. The extension service assisting the Participatory Forestry in Viet Nam made particular efforts to seek out the poor and where required provided agroforestry extension guidance at their houses or land plots.

E. Other Impacts of Participation

106. Benefits in development are seldom absolute—they need to be compared to a baseline that ideally compares the with and without intervention cases. In the absence of a without case, relying on before and after comparisons may be necessary. In terms of a whole project, this is

normally feasible, if not necessarily straightforward. However, separating participation as a variable can be difficult for two main reasons: (i) if the entire sector is participatory, as in the Lao PDR irrigation or Viet Nam forestry, finding a without participation or counterfactual project for comparison becomes difficult; and (ii) in irrigation in Viet Nam, IMT is normally only practiced in association with scheme rehabilitation (as specified in MARD policies) and separating the effects of rehabilitation and participation is difficult. Despite these conceptual problems, without participation scenarios were defined to assess the major impacts of participation. Matrixes were drawn up and are included as Appendix 8. The Lao PDR and Viet Nam matrixes were reviewed by the final country workshops, and all three were discussed with a number of stakeholders.

107. In summary, the main impacts of participation on irrigation performance, mainly based on experience under the O&M TA activities in Viet Nam but also supported by the Lao PDR and Sri Lankan project experience include

- (i) improved ownership and responsibility;
- (ii) careful and appropriate irrigation planning;
- (iii) significant water savings and higher irrigation efficiency, allowing more water for downstream users (due also to system rehabilitation);
- (iv) marked reduction of water conflicts between head and tailend canal users;
- (v) better maintenance of canals, with reduced cost, because of work undertaken by WUO protection teams, improved attitudes and concern, and canal watch by all farmers;
- (vi) improved water fee collection, due to improved water distribution (due primarily to system rehabilitation but supported by participation);
- (vii) stabilized production and improved livelihoods, with less concern about water;
- (viii) improved opportunities and extra income for the poor; and
- (ix) reduced costs, lower workloads, and possible staffing reduction for the irrigation company.

108. Constraints and limitations hindering the implementation of participatory approaches in the irrigation sector, based on the experience of the O&M TA activities include

- (i) still weak and inefficient supporting policies and legal structures;
- (ii) limited support and facilitation from local authorities;
- (iii) limited institutionalization supporting participatory approaches;
- (iv) limited operational and managerial capacity among WUO managers;
- (v) lack of empowerment demonstrated to date by Irrigation Rehabilitation WUOs (e.g., lack of self-help in relation to securing office space);
- (vi) limited awareness and understanding of farmers;
- (vii) small and fragmented production status;
- (viii) overlapping operation and management functions between WUOs and agricultural cooperatives;
- (ix) inefficient gender mainstreaming strategy; and
- (x) weak status of a proportion of WUOs from both managerial and financial perspectives.

109. The main effects of participation on forestry projects in both Viet Nam and Sri Lanka have included

- (i) improved ownership of the forest, leading to improved management;
- (ii) reduced potential for illegal logging;

- (iii) improved relationships between farmers and Forest Department staff, with a feeling of partnership developing rather than the antagonistic relationship that often results from the policing role of local forestry officers; and
- (iv) increased potential for the poor to become involved in forestry activities, although this is largely a function of the project mode, which provides resources to pay the poor to undertake project activities. Without this payment, the poor have difficulty participating, since their lives focus on day-to-day survival.

110. Constraints and limitations hindering the implementation of a participatory approach in the forestry sector include

- (i) many but still inefficient legal instruments and policies in relation to forest management;
- (ii) overlapping or conflicting legal and policy instruments, in relation to forest management, that are difficult to implement;
- (iii) appropriate institutionalization to support a participatory approach is lacking;
- (iv) variable quality of service provision, particularly in seedling quality;
- (v) investment norms have not been updated to meet needs;
- (vi) inefficient financial management systems, particularly for reimbursement of farmer labor inputs;
- (vii) limited awareness and understanding by farmers;
- (viii) limited market-based activities; and
- (ix) inefficient gender mainstreaming strategy.

F. Participation and the Asian Development Bank Framework

111. The analysis undertaken of the SES projects provides a perspective on the relevance and application of the 1996 ADB Framework. Overall, the Framework, since its publication in 1996, is considered to have been appropriate and has been applied effectively from the results of the study.

112. When evaluated from a participatory perspective, the Participatory Forestry can be seen to have experienced significant problems. The project was designed in 1990–1992, well before the Framework was available. Had the Framework been available, the project would have possibly adopted a more effective participation strategy. However, in retrospect, the implementing agency clearly had not adopted an adequate policy on participation at that time, which the project did not fully recognize. More detailed stakeholder and institutional analysis might have identified that Sri Lanka was not yet ready for a participatory project, at least without substantial precursor activities. The experience also highlights some areas where the guidelines need to be strengthened. Overall, the Participatory Forestry is assessed as a Level 2 project under the five-level scale (Box 2 and Appendix 5), and thus not participatory under the definition adopted by the Framework.

113. The Forest Resources is attempting to take participation to a far higher level than the Participatory Forestry. At least in its village development activities, the Forest Resources has the capacity to establish participation at Level 4 or Level 5. Delays are due mainly to management issues, exacerbated by the ongoing limited participatory culture in the implementing agency. These issues will need to be overcome rapidly if project objectives are not to be jeopardized.

114. The Community-Managed Irrigation Sector Project and Decentralized Irrigation are both potentially Level 5 projects on the participation scale. The projects' WUOs vary greatly in their participation level. However, their survival is anticipated, since irrigation is so central to their members' livelihood. Additional support and the encouragement of self-reliance will be required to establish fully empowered and self-sufficient WUOs. The Department of Irrigation and the provincial and district agricultural offices will need to make efforts to meet this objective.

115. The O&M TA activities are assessed as being fully in line with the ADB Framework and are probably around Level 4 on the five-level scale. None of the WUOs is fully empowered, although they appear sustainable. The Forestry Sector Project's participatory processes reflect the Framework, and the project appears to be achieving significant empowerment among its communes. The project's problems and delays appear to have mainly arisen from inadequate analysis of the institutional and regulatory framework during design, which has caused severe implementation delays and a mismatch between implementation and consulting inputs. This highlights a possible deficiency in the guidelines that are considered to underestimate the potential problems arising from such factors and do not address the essential nature of institutional and stakeholder analysis during project preparation.

V. CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

116. The study of irrigation and forestry projects in three ADB member countries has identified the following conclusions relating to participation that are relevant to the design and implementation of natural resources management projects:

- (i) participatory development is a useful approach to natural resources management project design, implementation, and operation;
- (ii) well applied participation can greatly increase ownership and sustainability;
- (iii) small irrigation schemes and (at least) the secondary canal systems on larger schemes can be run by WUOs;
- (iv) ongoing support needs to be provided through training and extension until WUOs become viable;
- (v) costly recurring cycles of rehabilitation for irrigation projects can be prevented through PIM;
- (vi) environmental outcomes of participation are almost universally and strongly positive in the irrigation and forestry sectors;
- (vii) forestry sector comanagement is the only way in which forests can be managed to provide benefit to communities effectively, but government agencies are unlikely to be able to provide the required level of inputs to manage and control remote forests, and the private sector (e.g., through forest enterprises) is not likely to generate the same levels of employment and benefit sharing and poverty reduction;
- (viii) community and individual ownership has the potential to reduce or eliminate illegal logging and rent seeking;
- (ix) government policies in Viet Nam and the Lao PDR lack alternatives to the use of participatory techniques for natural resources management,²⁵ and the same is

²⁵ ADB has not supported the forestry sector in the Lao PDR, which, however, is also experiencing a strong move towards PFM. As stated in a 1999 report: "there has been a big change since 1989 from a large-scale state driven forest management toward more participatory people-oriented forestry. The 1998 National Forestry Conference addressed people's involvement in forest management and conservation, and degraded forest and land allocation.

- true of other regional countries, such as India, Indonesia, and Nepal (In Sri Lanka, however, the national movement toward participatory natural resources management has not yet become established, although the Forest Department has made great progress, much remains to be done); and
- (x) major potential benefits to rural income and poverty reduction can result from participation, directly (through improved resource planning and management) and indirectly (through promoting the poor's interaction with the community and their sense of worth and self-esteem).

117. Both quantitative and qualitative analysis under this and other studies indicates that participation can produce significant positive impacts on poverty reduction and project and resource sustainability. However, the actual benefits of participation are interleaved with impacts induced by various activities, including market-based economic development, secure tenure allocation, irrigation scheme rehabilitation, other government programs, new agricultural techniques, and new high-yield varieties. Identify values specifically due to participatory processes is difficult.

118. In relation to the main evaluation questions that this study has addressed, the conclusion is made that participatory approaches can add substantial value to projects in irrigation and forestry. In many countries, designing or implementing projects without the participation of primary stakeholders would not be feasible. In such circumstances and assuming that ADB seeks to continue lending to the natural resources sector, the key question becomes how to design effective participatory approaches at reasonable cost. Participation also has much to contribute to poverty reduction, since without participation reaching and empowering the poor is more difficult and the risk is greater of project benefits being captured by the elite in the communities or by other stakeholders.

119. However, participation is not easy and is certainly not a cure for the problems of natural resources development and management. In particular, the following should be done:

- (i) Participatory processes need to be supported by implementing agencies and other key government stakeholders. In the absence of such support, implementation is unlikely to be participatory or effective.
- (ii) Participatory projects may need to be prepared with more care than top-down projects.
- (iii) Stakeholder analysis should be undertaken more rigorously than for top-down projects, since the capacity for stakeholder groups to oppose or delay implementation is greater.
- (iv) Relevant policies for participatory resource management should be ready for effective participation.
- (v) Loan projects involving multilateral agencies could be replaced by other project funding modalities, as loan projects might not be necessarily the best project funding modality for innovative participatory (or other) projects (e.g., they may face the risk of delayed disbursement where, say, the required policy or legal environment is not in place).

The new policies are embodied in the proceedings of the sixth party congress in 1996, Ministry of Agriculture and Forestry (MAF) forest sector strategy for 1996–2000, and the forest law of 1996, all of which emphasize the involvement of local people in natural forest resources management.” Chanthirath, K. 1998. *Towards Sustainable Forest Management in Lao PDR*. Report presented at the Fourth Asia-Pacific Environmental NGOs Conference, National University of Singapore, Singapore, 26–27 November 1998.

- (vi) WUO (and other CBO) establishment should be undertaken with care, taking enough time to ensure that processes are understood and accepted and that all groups in the community are adequately represented.
- (vii) Government and/or project support should be available to expand pilot activities to national scale, when systems replication is not spontaneous.

B. General Recommendations

120. This SES has given a preliminary judgment on the adoption of more participatory approaches in projects in forestry and irrigation in the three countries studied. There will be a need to gather more evidence, as the impacts of ongoing projects start become apparent. A broader study of participation in the natural resources area (including fishery and coastal zone management) covering more countries would be beneficial for ADB's sound natural resources management operations. Table 5 summarizes these recommendations.

Table 5: Suggested Action

Project Cycle	Institutions Responsible	Suggested Monitoring Timing	
Review project design guidelines to require inclusion of data on participatory processes and inclusion of participatory development expertise for participatory project designs.	RSDD	June 2004	OED
Terms of reference for feasibility studies developed by ADB and line agencies should clearly specify the participation methodology and especially the participatory or consultative processes required.	Projects departments	Ongoing	RSDD
Project designs need to be resourced at a level that adequate time is available for detailed participatory processes to be completed and integrated into the design. These include social and stakeholder and problem analysis processes and the development of the project framework and objectives.	Projects departments	Ongoing	RSDD
Develop mechanisms to maintain contact with stakeholders during the finalization of the PPTA report and appraisal and subsequent loan processing.	Participatory project PPTAs	End of 2004	RSDD
Involve primary stakeholders in irrigation subproject construction, monitoring, or supervision.	New irrigation project PPTAs	End of 2004	RSDD
Projects should establish clear targets to monitor participatory processes undertaken (such as approval of subproject plans by WUOs and/or community organizations).	Projects departments	Ongoing	RSDD
Conduct an SES on participation of natural resources by expanding the country and sector coverage.	OED	2005	OED

ADB = Asian Development Bank, OED = Operations Evaluation Department, PPTA = project preparatory technical assistance, RSDD = Regional and Sustainable Development Department, SES = special evaluation study, WUO = water users organization.

121. A number of recommendations flow from the discussion of the case study projects and the issues and analysis of chapters II, III, and IV. Several recommendations relate to improvement in the design and application of participatory processes, as summarized in the following matrix. Additional discussion of possible approaches to participation in natural resources projects arising from the country studies is included in Appendix 9.

LESSONS IN PARTICIPATION FROM OPERATIONS EVALUATION DEPARTMENT LESSONS LEARNED DATABASE

Item	No.	Lessons Learned
PE_number Project name Project number Country Period Rating		Lessons learned were located after conducting a word search associated with participation and beneficiaries.
Irrigation Projects		
PE0063 Gambarsari-Pesang-grahan Irrigation Rehab 0058-INO(SF) Indonesia 23-Dec-70 to 31-Dec-76 Generally successful	1.	On-farm irrigation and drainage systems and operations design should reflect local needs and situations and require close participation of all parties involved (paras. 54–58, 62, 74, and 77).
	2.	Participation of project personnel and beneficiaries in all stages of project preparation and implementation enhances institution building and management and achievement of objectives of the Project (paras. 74 and 80).
	3.	Training of irrigation staff and farmers in system and on-farm management improves project performance (paras. 31, 72, and 74).
PE0070 Walawe Development 0016-SRI(SF) Sri Lanka 23-Oct-69 to 31-Dec-79 Partly successful	4.	Close quality control and adequate supervision of construction operations, proper maintenance of structures during implementation and thereafter, and willing support and participation of farmer beneficiaries in efficient use of water at the farm level determine the success of irrigation and/or settlement development schemes. Consequently, these factors need to be kept under review by Asian Development Bank (ADB) missions at the appraisal and implementation stages (paras. 11, 34, 44, 45, and 80).
PE0086 Davao Del Norte Irrig 0152-PHI Philippines 22-Nov-73 to 30-Jun-80 Generally successful	5.	An adaptive approach for the whole process of irrigation development should be adopted to introduce progressive improvements based on actual experience with the Project and beneficiaries (paras. 44, 45, 55–58, 81, 84, and 86).
	6.	Introduction and initial performance of an institutional system involving beneficiaries and staff members of the irrigation scheme at all levels have a positive impact on cost recovery, agricultural production increases, and community development (paras. 57, 66, 67, 83, 85, and 87).
PE0129 Imjin Area Development 0208-KOR Republic of Korea 12-Dec-74 to 30-Nov-83 Partly successful	7.	The participative approach together with the transfer of responsibility for the management of the completed irrigation facilities to a local organization contribute to satisfactory O&M (O&M) of the irrigation system and successful cost recovery (paras. 67–68).
PE0187 RE0014 Laguna De Bay Development 0246-PHI Philippines Unsuccessful	8.	Beneficiary participation is critical for developing technical parameters, such as water needs, cropping intensity, incremental production, and O&M of irrigation systems, which all affect the economic and technical sustainability of the Project.

Item	No.	Lessons Learned
PE0229 Lodoyo Irrigation 0301-INO Indonesia 29-Jul-77 to 31-Mar-86 Generally successful PE0229 RE0008 Partly successful	9.	In irrigation schemes, project management is more successful if emphasis is given to administration of the use of inputs and establishment of linkages with concerned authorities at central, provincial, district, and village levels (paras. 55 and 57).
	10.	Government policies that leave farmers with the entire responsibility for the development of tertiary level irrigation facilities should consider the capacity and commitment of farmers to undertake the required tasks. Otherwise, areas deemed as irrigable may remain unirrigated years after project completion (RE).
	11.	The introduction of irrigation service fees indirectly empowers farmers to take a stronger role in system management and quality control. If irrigation water is provided essentially for free, beneficiaries have little leverage to demand improved services, and irrigation authorities have no direct accountability to farmers (RE).
	12.	Rational pricing of scarce water supplies is a key step in improving investment planning and efficiency of water resources use. The provision of local water supplies should be accompanied by measures to ensure that beneficiaries have the capability and commitment to operate and maintain the facilities provided (RE).
PE0234 Go Cong Pioneer Agricultural 0170-VIE(SF) Viet Nam 17-Dec-73 to 31-Mar-86 Partly successful	13.	The lack of adequate maintenance leads to uncertainty in the overall sustainability of irrigation schemes (para. 62).
	14.	ADB missions on irrigation projects would become more effective if experts in institutional and socioeconomic aspects are included in each mission's composition (paras. 64 and 65).
	15.	In modernizing agriculture under irrigation projects, on-farm feedback mechanisms need to be instituted, farmers' innovation and participation needs to be encouraged, and O&M systems need to be strengthened (para. 65).
PE0291 Tan An Integrated Agric 0207-VIE(SF) Viet Nam 10-Dec-74 to 31-Jul-87 Partly successful PE0291 RE0016	16.	The disregard of farmers' preferences resulted in the underuse of project facilities (paras. 37–38 and 59).
	17.	Local personnel possessing area topography and conditions experience and knowledge should be given the opportunity to participate in project design (RE).
	18.	Beneficiaries should participate in project design, implementation, and O&M and should be organized into groups and provided with requisite training (RE).
PE0311 Integrated Rural Devel 0387-NEP(SF) Nepal 20-Dec-78 to 30-Jun-89 Generally successful	19.	A national policy is important in propagating the user pays principle for the recovery of O&M costs of irrigation infrastructure (para. 95).
	20.	An effective package linking infrastructure development, technical support programs, and popular participation is imperative in the design and implementation of integrated rural development projects (paras. 97 and 98).
PE0317 On-Farm Water Management 0495-PAK(SF) Pakistan 15-Dec-80 to 31-Dec-88 Generally successful	21.	The organization and strengthening of water users associations (WUAs) should be designed and integrated into the overall process of watercourse improvement, rather than treated as an activity that is distinct and separate from construction. To develop the organizational skills of WUAs, farmers should be given maximum opportunity to make decisions and mobilize resources during the planning and implementation stages. Adequate lead time to permit greater farmer participation should be provided (para. 61).

Item	No.	Lessons Learned
PE0360 Bali Irrigation Sector 0522-INO Indonesia 17-Sep-81 to 30-Nov-89 Partly successful	22.	The mode of equipment procurement in agriculture projects should be designed to accommodate individual end-user preferences, especially for projects where the choice of equipment is dictated by diverse or changing local conditions. In such cases, centralized procurement through international competitive bidding may be inappropriate (para. 62).
	23.	Greater involvement than usual is needed by ADB in sector loans, to ensure that the implementing agency and its consultants either continue to implement the Project as originally envisaged, in the best interests of the beneficiaries, or adjust the Project to changing conditions (para. 95).
	24.	Questions over the ownership of irrigation and the responsibility for O&M should be resolved early. Beneficiaries should be involved in the decision-making and design processes as far as possible, which highlights the need to fully reflect sociocultural concerns in ADB projects. For cost-recovery efforts to be effective, these should be made part of a project at the beginning, and farmers should be actively involved throughout the project cycle. Initiatives in farmers' training and coordination are probably more effective at the field level than at a training center (para. 96).
PE0383 Agricultural Development Project 0703-FIJ Fiji Islands 6-Nov-84 to 31-Dec-90 Unsuccessful	25.	Future projects providing assistance to a well established local resource management organization should take cognizance of the existence of well defined roles and rules, sociocultural and religious interactions shaping human behavior, indigenous knowledge and practices of practical value, and adapted technologies that meet environmental conditions. Assistance processes should be developed that start by investigating viable indigenous resource management systems that build upon, rather than replace, indigenous institutions and technology.
	26.	Significant collection of irrigation service fees can be achieved by using collected fees for maintenance in areas where they are collected and by taking disciplinary action against farmers who do not pay (para. 53). Social characteristics of traditional farmers should be taken into account when assessing the feasibility of new crops and farming technologies (para. 69).
PE0387 Command Area Development 0560-NEP(SF) Nepal 15-Dec-81 to 31-May-90 Unsuccessful	27.	Agriculture and rural development projects should be formulated with intensive participation of beneficiaries from the start of project selection. Institutional, sociocultural, and marketing aspects need to be integrated into projects throughout (para. 78).
	28.	Irrigation projects that focus mainly on improvements in physical facilities are unlikely to achieve sustained improvement in system performance (para. 62).
	29.	The cost recovery and financial sustainability of irrigation systems cannot be attained unless water users accept full responsibility for the management and maintenance of system facilities (para. 63).
	30.	If water users view an irrigation project as a gift from the Government and remain dependent on external sources for the O&M of an irrigation system, the water users are unlikely to accept substantial responsibility for system management and maintenance (para. 64).
	31.	Activities to develop and enhance water users' capacities to operate and/or maintain irrigation systems through genuine beneficiary participation should be introduced at the beginning of project planning and design, rather than as a residual activity after physical facilities are complete (para. 65).
	32.	Project formulation and design should specify the roles and functions that water users are expected to perform and pay special attention to the detailed processes by which those skills and capacities are transferred to water users groups (para. 66).

Item	No.	Lessons Learned
PE0391 Hill Irrigation (Western Region) 0490-NEP(SF) Nepal 9-Dec-80 to 31-Dec-89 Unsuccessful	33.	There is a need to study and integrate technical and economic aspects and institutional, sociocultural, and environmental concerns into a comprehensive strategy to develop irrigation in hill environments.
	34.	Issues about ownership of irrigation facilities and the responsibility for O&M should be resolved early, and beneficiaries should be involved in decision-making from the beginning.
	35.	The development approach and strategy should be based on local knowledge and encourage the participation of the beneficiaries.
PE0393 Palawan Integrated Area Development 0528-PHI Philippines 29-Sep-81 to 31-Dec-90 Partly successful	36.	The quality of the outputs to be achieved requires attention as well as quantity. This is particularly relevant in the formation of beneficiary groups, such as irrigators' associations, water users groups, and community groups for malaria control. Project experience shows that the formation of a group and the related facilities will not lead to the intended impact if the group is not effective. This may require greater attention at appraisal to assessing the capabilities of executing agencies for establishing such groups and how projects are monitored and reviewed by executing agencies and ADB, with increased emphasis on output quality (para. 60).
PE0393 RE0032 Palawan Integrated Area Development 0528-PHI Philippines 29-Sep-81 to 31-Dec-90 Partly successful	37.	Monitoring systems must be carefully designed to maximize the usefulness of data collection efforts. In line with this, basic information on existing farming systems, agriculture potential, water and other natural resources, and market potential are critical in designing interventions where the main economic benefits are to be derived from increased agricultural production. In particular, a careful assessment of water availability and water catchments is a minimum requirement for designing irrigation projects. In areas where hydrological data is deficient, alternative sources of information—including farmers and other local experts—should be consulted closely during feasibility studies.
PE0401 Cibaliung Irrigation 0475-INO Indonesia 30-Oct-80 to 31-Mar-92 Unsuccessful	38.	As the prime locations for irrigation development become increasingly scarce, projects are more difficult and less viable and as such are pioneering in nature. Particular attention should be exercised in preparing, designing, constructing, operating, and maintaining such projects and in selecting consultants and contractors. Effective and preferably independent benefit monitoring and evaluation systems are required if such difficult propositions are to be viable. The provision of these systems would go a long way in supporting the current efforts of ADB and the World Bank to improve the quality of infrastructure development projects in Indonesia. Also of critical importance would be effective participation of beneficiaries from the onset of projects.
PE0420 Kemasin Rural Development 0497-MAL Malaysia 15-Dec-80 to 31-Mar-91 Generally successful	39.	The Project's design was not formulated with beneficiary participation. The terms of reference for feasibility studies should provide for beneficiary participation (para. 59).
	40.	The success of the Project can be attributed, in part, to a simple, robust design (para. 58).
	41.	Project success also resulted from an arrangement that brought together different agencies under a unified but simple management structure for project implementation purposes and that avoided postimplementation problems of reintegration of seconded staff members and control of handed-over facilities.
PE0425 Second Laguna De Bay Irrigation 0466-PHI(SF) Philippines 25-Sep-80 to 31-Dec-91 Partly successful	42.	Consultations with the potential beneficiaries and representatives of provincial and municipal institutions are necessary, inter alia, to avoid delays in acquiring rights-of-way, particularly in high-value populated lands. The potential beneficiaries should also be consulted and involved in the designing of irrigation structures, to give them a sense of participation and ownership and to benefit from their experience and knowledge of local geotechnical conditions (para. 54Bii).

Item	No.	Lessons Learned
PE0435 Second Irrigation Package Project 0627-INO Indonesia 19-May-83 to 30-Sep-92 Partly successful	43.	WUAs need to be established on a timely basis, and cost recovery and O&M should be strengthened (paras. 31, 63, and 67).
	44.	For this type of project, a detailed benchmark survey must be undertaken at the outset, and a proper benefit monitoring and evaluation system must be designed and applied at a regular interval (paras. 30, 32, and 59).
	45.	For this type of project, beneficiaries must participate in project planning and design (paras. 39 and 58).
PE0447 Serajonj Integrated Rural Development 0293-BAN(SF) Bangladesh 23-Dec-76 to 30-Jun-86 Partly successful	46.	Beneficiary participation in integrated rural development projects should be ensured to preempt unwanted beneficiary intervention and avoidable costs for acquisition of land or repeated rehabilitation of facilities (para. 59[v]).
	47.	Beneficiary targeting should be more focused to ensure delivery of benefits to the relatively poor wherever practicable. Government performance reviews should cover, among other things, structures and decision-making processes to ensure participation by poorer groups and accountability for the use of project facilities.
PE0464 Irrigation Package Project 0581-INO Indonesia 14-Sep-82 to 30-Nov-91 Partly successful	48.	In the design of rehabilitation projects, the optimum level of investment should be studied carefully, because the impact of rehabilitation on agricultural production may not be as large as is often thought. Rehabilitation per se does not bring about appreciable increases in crop yield unless such rehabilitation makes a real difference in the availability of water. Potential benefits of rehabilitation schemes need to be researched carefully.
	49.	The appropriateness of the traditional objectives associated with irrigation projects requires review. Indonesia has already achieved rice self-sufficiency and is poised to become a rice exporting country. Under the circumstances, economic viability, commitment of beneficiaries, and cost recovery should become increasingly important criteria in screening irrigation projects.
PE0475 Pabna Irrigation And Rural Development 0378-BAN(SF) Bangladesh 12-Dec-78 to 31-Dec-92 Partly successful	50.	Project experience highlights that the complexity, sophistication, and number of components of a project should match the level of socioeconomic development in a project area and the capacity of the implementing agencies. In poorer areas, projects need to be relatively straightforward, with fewer components and simpler design, to facilitate implementation and benefit generation at a lesser cost.
	51.	In projects like Pabna, stakeholder participation would help ensure cost recovery, adequate O&M, and overall sustainability. Moreover, an involuntary resettlement plan would help ensure that project benefits are not negated.
PE0486 Hill Agriculture Development Project 0721-NEP(SF) Nepal 13-Dec-84 to 31-Dec-92 Generally successful	52.	Strengthening institutional capability is essential, not only of the executing agencies but also of regional and/or district offices and centers and beneficiary groups.
	53.	In multisector projects with a number of executing and implementing agencies, the responsibility of each agency and the role, authority, and mandate of the coordinating body need to be clarified at the outset. A lead agency or central coordination unit should be at the working level to ensure that the appropriate level of system integration occurs.
	54.	To enhance the prospect of project success, it is important to (i) ensure beneficiary participation as early as possible, not only in the design and implementation of a project but in the O&M after a project as well; and (ii) adopt a flexible project implementation system based on the process-oriented approach with a built-in midterm review of operations.

Item	No.	Lessons Learned
PE0500 Food Crop Sector Program 1014-INO Indonesia 13-Mar-90 to 31-Mar-94 Partly successful	55.	Analyses of the performance of ADB projects in general show that the satisfactory performance of projects is due mainly to adequate project preparation (sector analysis), strong institutional capability, solid commitment of executing agencies, and firm government support (result of ownership).
PE0500 Food Crop Sector Program 1014-INO Indonesia 13-Mar-90 to 31-Mar-94 Partly successful	56.	In this loan, insufficient attention was given to the institutional requirements for implementing the irrigation O&M targets. Lack of familiarity with the new procedures in provincial and field offices made the targets overly optimistic. In addition, the formulators of the targets seemingly had insufficient knowledge of the legal and administrative steps that had to be taken at each level of government before some of the new measures could be implemented. In addition, greater beneficiary participation and commitment to O&M and cost recovery could have been obtained with greater attention being given to strengthening local water resources staff capacity and better integration of agriculture and irrigation services.
PE0506 Second Hill Irrigation Project 0596-NEP(SF) Nepal 4-Nov-82 to 31-May-95 Partly successful	57.	Hill irrigation systems need to be based on sustainable and cost-effective engineering. The criteria for selecting systems should prevent political influence. Investment should concentrate on interventions to overcome key bottlenecks in existing systems. The cash and labor required for maintenance need to be agreed with farmers at the planning stage, to ensure that systems match farmers' maintenance capacities. Alternatively, a specific Department of Irrigation budget needs to be allocated from the outset. Moreover, construction work should be of a high quality, and structures should last and not require significant quantities of material for maintenance. There should be a mandatory minimum requirement and a period for maintenance by each executing agency after the completion of project construction. ADB supervision missions need to more closely monitor the quality of project planning and construction work. The terms of reference for consultants should place more emphasis on capacity building of local institutions.
PE0506 Second Hill Irrigation Project 0596-NEP(SF) Nepal 4-Nov-82 to 31-May-95 Partly successful	58.	Forecasts of the benefits of future irrigation projects should preferably not assume that farmers will adopt nonproject supplied inputs where such inputs are not already available and widely used. If a project requires increased government input subsidies, subsidy cost should be assessed and government expenditure agreed with the Government. Although hill irrigation projects may increase income from cropping, such earnings are becoming a small part of the total household farm income in hill areas, with families primarily being supported through migratory labor. Future projects aimed at raising living standards in the hills may need to also consider activities other than agriculture and, in particular, target women as prime beneficiaries.
PE0507 Highland Agriculture Development Project 0802-PHI Philippines 25-Nov-86 to 31-Jul-94 Generally successful	59.	Beneficiary participation in the planning and design of project components can improve the relevance of project-supplied facilities to the needs of beneficiaries. Continual assessment of design assumptions during implementation and flexibility in responding to new information can further improve a project.
PE0507 Highland Agriculture Development Project 0802-PHI Philippines 25-Nov-86 to 31-Jul-94 Generally successful	60.	The development of beneficiary associations to effectively manage facilities, such as a communal irrigation system and credit funds, is a lengthy process requiring more inputs than those provided under the Project. The provision of long-term support for building groups must be balanced by the need to avoid developing a dependency within the groups on outside support.

Item	No.	Lessons Learned
PE0513 Chashma Command Area Development Project 0723-PAK(SF) Pakistan 13-Dec-84 to 30-Apr-94 Partly successful	61.	In complex irrigation and drainage ventures, integration of their various components is necessary, together with effective coordination among agencies involved and participation of beneficiary farmers, preferably through their associations. Explicit consideration of the resources, needs, objectives, and capabilities of farmers (who are private entrepreneurs and often rather poor) is indispensable.
PE0532 Small Dams Projects 0750-PAK(SF) Pakistan 31-Oct-85 to 14-Mar-96 Partly successful	62.	Drainage projects should be based on detailed studies that seek realistic understanding of the physical, institutional, and socioeconomic situation in a project area. Designs must reflect O&M needs and be adjusted as field conditions become better known and evolve over time. The implications of sector policies should be reflected in designs, particularly in the prices of agriculture inputs and outputs.
	63.	Perhaps the main lesson that can be drawn from the Project is that the traditional approach to small dam and command area development is unlikely to generate high levels of social or economic benefit. New approaches will be required if acceptable performance is to be achieved, with a major focus on ownership, equity, and efficiency issues. Other key lessons include the following:
	64.	Beneficiaries need to be fully involved in identification, design, and implementation if ownership is to be promoted. In particular, farmers should, where possible, construct their own watercourses with necessary support from project staff.
	65.	In Pakistan, involving a range of agencies in project implementation is difficult, even where quite a strong agency is responsible for coordination.
	66.	Establishing sustainable WUAs requires time and great effort. Such an activity needs to be specified and funded under a project if the activity is to succeed. High-level support is likely required for about 2 years with some support thereafter.
PE0533 Walawe Irrigation Improvement Project 0695-SRI(SF) Sri Lanka 27-Sep-84 to 31-Dec-95 Generally successful	67.	Experience with irrigation system rehabilitation under the Project indicates that a different approach to irrigation project formulation, design, implementation, and operation is necessary to avoid (i) costly cycles of repeat rehabilitation soon after completion, (ii) resulting benefit shortfalls, and (iii) lack of overall sustainability. The optimal approach is a gradual and progressive process that focuses on institutional upgrading and participation by all stakeholders. The problems being experienced with irrigation management and passing responsibility for O&M to farmers organizations highlight a number of factors that have wide relevance to the irrigation sector in Sri Lanka and elsewhere.
	68.	Mechanisms for beneficiary participation in the design of irrigation projects should be carefully planned; tacking participatory approaches on to a project during or after implementation is less effective. The involvement of farmers from the outset of irrigation system rehabilitation is needed to promote understanding of water management issues and general ownership of an irrigation system.
	69.	Resistance to change is often demonstrated by smallholders. In the project case, changing long-established and wasteful irrigation practices has proven to be difficult.
	70.	Participatory approaches are essential if system deterioration is to be prevented or minimized. Under the current fiscal climate, irrigation authorities can seldom assume full responsibility for system maintenance.
	71.	Pilot projects can help define the best approaches to developing beneficiary participation. Such approaches must be used rapidly or many of the skills and much of the knowledge developed can be dissipated.

Item	No.	Lessons Learned
PE0558 Sorsogon Integrated Area Development 0915-PHI(SF) Philippines 3-Nov-88 to 30-Jun-98 Generally successful	72.	The establishment of sustainable participatory management approaches is time-consuming and not well suited to short-term technical assistance (TA) inputs.
	73.	The approach to reducing poverty through improving infrastructure and promoting economic growth is effective when the majority of the population is poor. If many landless and jobless laborers remain, and if these laborers lack the capacity to take advantage of poverty reduction investment, a bottom-up approach focusing on social preparation of the poor, such as beneficiary group organizing, is needed to enhance the capacity of the poor to maximize a project's poverty reduction impacts.
	74.	Social preparation requires long-term efforts and is better achieved by project components than by attached TA activities. Continued institutional support for the poor is needed after project completion and is better financed by advisory TA activities.
PE0564 Kirindi Oya Irrigation and Settlement 0324-SRI(SF) Sri Lanka 9-Dec-77 to 31-Mar-94 Partly successful	75.	Demand analysis for irrigation projects should be based on farmers' willingness to pay for routine O&M and future repairs. Farmers' willingness should be secured through written agreements in conjunction with enforcement measures.
	76.	Many of the developments observed during the project period would not happen in the same way again. With the experience of much reduced rates of return for new irrigation projects, ADB is now focusing on the rehabilitation of existing schemes, the adoption of participatory approaches from the outset, and the early transfer of operation to water users. For new projects, an engineering loan would precede investment, to ensure cost-effective design and reduce implementation delays due to design issues. Nonetheless, a number of lessons can be drawn:
	77.	Where irrigation schemes include areas of existing irrigation, clarifying existing formal and informal water rights and ensuring that water allocation between new and existing users is equitable are important. The needs of existing livestock owners must also be taken into account.
PE0591 East Rapti Irrigation 0867-NEP(SF) Nepal 26-Nov-87 to 10-Jun-02 Successful	78.	Farmer participation should be strengthened at all stages of the project cycle.
	79.	A project's social and environmental dimensions should be addressed.
	80.	Irrigation facilities should be provided only after project beneficiaries are willing to manage the operation of these facilities and a strong WUAs is formed.
	81.	Construction quality control should be strengthened through effective monitoring by beneficiaries.
	82.	Agriculture support services should be provided.
PE0599 Second Barani Area Development 1012-PAK(SF) Pakistan 31-Dec-98 to 20-Feb-90 Partly successful	83.	The O&M monitoring and support should be extended well into the postturnover stage.
	84.	Implementing a project in a poor region may not automatically have a significant impact on poverty reduction, if specific measures are not taken to ensure a fair distribution of project benefits in favor of the poor.
	85.	Inclusion in a project design of poverty-reduction activities such as nongovernment organization engagement and community development may not have the desired social impact, if careful arrangements are not made for effective implementation of such activities.

Item	No.	Lessons Learned
	86.	Provision of a credit line may not have the desired social impact, if careful arrangements are not made to develop borrower groups and microfinance institutions that can deliver microfinance services to the poor.
	87.	Inclusion of numerous training programs may not have the desired impact, if the training is not based on beneficiary demand and is not aimed at building long-term capacity in the local communities, with continued support after the training.
	88.	Smallholders and landless poor can easily be bypassed by public assistance that focuses solely on technology improvement.
	89.	Free provision of inputs (such as tree seedlings) to farmers may lead to the closure of such services after project completion. Project design should aim at the long-term operation of the introduced services and use funds during implementation to build up local institutions and capacities to sustain such services (more lessons learned in the project performance audit report).
PE0611 1034-PHI Second Palawan Integrated Area Development Project Philippines 27-Sep-90 to 31-Dec-98 Partly successful	90.	The top-down approach of designing a subproject by consultants with beneficiaries being informed of the investment decision leads to weak ownership of the subproject and poor sustainability. A better alternative is to let beneficiaries participate in subproject decisions and share a proportionate cash investment. Strong beneficiary ownership will ensure subproject quality, cost-effectiveness, and sustainability.
	91.	Multiple interventions are needed for rural development and poverty reduction. To achieve real synergies, integration of project activities should be based on client demand and conducted at the village level instead of letting different line agencies independently implement different project components.
	92.	In line with decentralization, integrated area development projects are better implemented by local governments, which are more attuned to the needs of their voters and the delivery of project benefits. National line agencies could participate as contractors to provide services based on client demand (more lessons in the project performance audit report).
PE0621 Northeast Minor Irrigation Project 1125-BAN(SF) Bangladesh 21-Nov-91 to 30-Jun-99 Partly successful	93.	There is no substitute for careful and rigorous project preparation to underpin investments in rural development. Such preparation must incorporate extensive involvement and input from all stakeholder groups (particularly from the project beneficiaries), as well as detailed assessments of institutional capacity and capability. In particular, such an exercise would have identified the potential demand for microcredit from small- and medium-sized farmers as a serious constraint on uptake and formulated a component to address this issue. Adopting an investment proposal prepared by the Government needs to be examined very carefully, to avoid the cancellation of such a substantial component.
Forestry Projects		
PE0226 Sagarnath Forestry Development 0334-NEP(SF) Nepal 20-Dec-77 to 15-Jun-86 Generally successful PE0226 RE0013	94.	Project experience signifies that a mixed plantation and community forestry approach is best suited to the Terai, considering the additional benefits that can be generated through greater community involvement and participation (para. 17).
	95.	Community participation in protecting plantations and intercropping and rotational grazing benefit communities and plantations. Poor site conditions, low availability of mechanical equipment for land clearing, reduced intercropping, nonfertilization of nurseries, fire damage, and weak management contribute to reduced plantation yields. Improved seeds, tissue culture and other superior nursery practices, chemical fertilizer, and irrigation activities are needed to increase yields (RE).

Item	No.	Lessons Learned
PE0364 Forestry Development 0507-SAM(SF) Samoa 22-Dec-80 to 31-Dec-87 Unsuccessful	96.	The following considerations are important: (i) the sociocultural and weather determinants in the design and implementation of forestry projects, (ii) a country's and executing agency's capacity to absorb a new project and the subsequent repercussions on other ongoing activities, (iii) a sector's capacity and/or capability to self-sustain its operations versus its continued reliance on external assistance, (iv) the institution-building requirements that need to be addressed from a national if not regional perspective and from the viewpoint of reducing dependence and achieving sustainability, (v) the value of a participatory and multidisciplinary project planning and preparation approach, and (vi) the value of a full understanding of natural forests (para. 65).
PE0366 Community Forestry Project 0568-SRI(SF) Sri Lanka 25-Mar-82 to 30-Jun-91 Generally successful	97.	If ADB's involvement in the forestry sector is to lead to sustained efforts in the forestry sector, the policy dialogue should focus on institutional reform and rationalization of policies (para. 81).
	98.	The absorptive capacity of an executing agency has to be more realistically assessed taking into account the agency's routine activities and the additional activities supported by other external funding (para. 82). Community participation cannot be taken for granted. Community participation possibilities must be realistically assessed by suitably experienced sociological experts who should be involved in the feasibility study and/or ADB's approval and/or TA during implementation. Demonstration plots can be effective if they are easily accessible, well designed, and well-maintained. These plots must also clearly demonstrate the technical and commercial viability of the trees. The extension service should be continued beyond a project's implementation period, and ADB should ensure compliance with this requirement.
	99.	Projected timely land lease arrangements with the targeted beneficiaries of social forestry activities are essential for a project's success. In this project, the ambiguous and unfair lease agreements were a particularly disappointing aspect and could jeopardize future social forestry programs.
PE0396 Community Forestry Project 0555-BAN(SF) Bangladesh 3-Dec-81 to 31-Dec-87 Generally successful	100	Community participation cannot be taken for granted. Community participation possibilities and the prerequisites for this type of participation must be realistically assessed by suitably experienced experts who should be involved in the feasibility study and a project's appraisal and implementation (para. 74).
	101	The ambiguous agreements with groups of participants and/or beneficiaries were a particularly disappointing aspect of the Project. The credibility of the Government's intentions for social forestry activities must be maintained by fulfilling the promises made. In the future, formal agreements covering obligations and profit-sharing must be drawn up and then executed promptly and fairly (para. 75).
	102	The potential for women's participation in communal activities, such as social forestry, should be analyzed and specifically promoted (para. 77).
	103	The extension service should be continued beyond a project's implementation period, and the institutional framework should be in place to respond to the demand for the services (para. 78).
PE0571 Upazila Afforestation And Nursery Development 0956-BAN(SF) Bangladesh 30-Mar-89 to 31-Dec-95 Partly successful	104	Social forestry initiatives have been hindered by social issues concerning the selection and eligibility criteria for participants, land tenure security for participants, roles and obligations of the parties involved, ownership of trees, and benefit sharing of the forest assets developed. The importance of conducting thorough social assessments prior to physical implementation is evident, for such critical social issues could have been anticipated and measures designed to minimize undesirable effects.

Item	No.	Lessons Learned
PE0587 Forestry Sector Program 0889-PHI(SF)/0890-PHI Philippines 28-Jun-88 to 31-Dec-93 Partly successful	105	<p>Development of project benefit-sharing agreements has been disappointing. The credibility of the social forestry initiatives has been jeopardized by unfulfilled promises to participants. Community participation—through the engagement of participants as wage laborers for investment purposes, without clear mechanisms for participatory social mobilization and organization development—and the establishment of workable mechanisms for realizing, distributing, and reinvesting the benefits of the investments according to the project purpose cannot be taken for granted. As social forestry initiatives are increasingly targeted to benefit the most disadvantaged, flexibility is required to address livelihood needs. The poor and disadvantaged do not have the means to wait for unpredictable benefits and harvests. Future development initiatives should include broader provisions for investments to enhance livelihood opportunities and downstream employment for supplemental income in the areas within and adjacent to plantations and forestlands. The sustainability of reforestation efforts depends crucially on the successful partnership between the Forest Department and participants, the efficient operation and management of established plantations, the adequate generation and distribution of benefits, and the productive reinvestment of revenues for sustained social forestry operations.</p>
	106	<p>Components of a forest management and conservation program should directly address the basic causes of forest degradation, namely poverty and landlessness. Greater emphasis should be placed on the people rather than natural resources, if the benefits of a forestry sector project are to be sustained.</p>
	107	<p>The most common difficulty experienced by people involved in actual implementation in the field was insufficient lead time to do necessary planning, nongovernment organization screening, and community organizing.</p>
	108	<p>Nongovernment organizations, such as farmers cooperatives and community groups, are far better than city-based organizations in effectively implementing reforestation projects.</p>
	109	<p>Policy changes need to be accompanied by enabling legislation.</p>
	110	<p>Some forestry sector projects were too focused on physical outputs, and long-term qualitative outcomes in the forestry sector were not given sufficient emphasis. A program design that allows for rolling (multiyear) targets, considers consciously quality and outcomes (as opposed to outputs), and incorporates community participation processes may be more appropriate for complex types of programs.</p>
PE0619 Participatory Forestry 1183-SRI(SF) Sri Lanka 5-Nov-92 to 30-Jun-00 Successful	111	<p>The success of the project confirmed the importance of generating immediate benefits and having well-defined responsibilities for beneficiaries in woodlot establishment. Other lessons learned include the need for (i) an initial social assessment of the beneficiaries' preferences and priorities for planting species; (ii) a realistic review of the extension capabilities of the Forest Department and institutionalizing skills for social forestry programs within the Forest Department; and (iii) the greater involvement of stakeholders in the planning and monitoring of agroforestry interventions and the maintenance of timber. To facilitate the participation of the most vulnerable beneficiaries, more flexibility in food-for-work incentives could be considered. For example, instead of food coupons, beneficiaries could be provided with some productive assets, such as livestock, as supplemental sources of income while they are waiting for the next cycle of food-for-work.</p>

PARTICIPATION LEVELS

1. Four levels of participation are suggested by the Framework. Six levels were defined by the *Special Evaluation Study on Participatory Development Processes in Selected ADB Projects in Agriculture, Natural Resources, and Social Infrastructure Sectors* (February 2001, Operations Evaluation Department Report SS-43). The six levels are reproduced, together with some suggested additions (in italics) and deletions. Following this list, a proposed five-level framework appears.

Level 1: Information Sharing

- (i) translation of project materials into local language and dissemination of information using various media
- (ii) *awareness raising activities including:* informative seminars and presentations and public meetings

Level 2: Consultation

- (i) consultative meetings
- (ii) field visits and interviews (at various stages of the project cycle)
- (iii) use of rapid rural appraisal or sample surveys for data gathering
- (iv) use of stakeholder workshops for problem analysis and development and/or approval of a project framework

Level 3: Joint Assessment

- (i) primary stakeholder assessment
- (ii) participatory assessment and monitoring and evaluation

2. This study suggests that Level 3 is divided between levels 2 and 4. Participatory monitoring and evaluation is linked to participatory rural appraisal, while Level 2 largely relates to primary stakeholder analysis.

Level 4: Shared Decision Making

- (i) use of participatory planning techniques (e.g., participatory rural appraisal)
- (ii) workshops to discuss and determine positions, priorities, and roles
- (iii) meetings to help resolve conflicts, seek agreements, and engender ownership
- (iv) (public) reviews of draft documents and subsequent revisions

3. The special evaluation study list refers to participatory resource assessment. This study suggests that the more conventional participatory rural appraisal terminology should be used, since participatory rural appraisal is used for many more functions than resource assessment. Resource assessment may also have been misdefined in the previous special evaluation study. Since retreats are only workshops by another name, they could be omitted. In the revised list that follows, this level is renamed Joint Assessment, which more nearly reflects the level's activities.

Level 5: Collaboration

- (i) formation of joint committees with stakeholder representatives
- (ii) formation of joint working groups and task forces
- (iii) joint work with users groups, intermediary organizations, and other stakeholder groups
- (iv) stakeholder groups given principal responsibility for implementation

4. The last of these points needs to be considered carefully. Giving stakeholder groups primary responsibility for implementation is a desirable objective, but more analysis is needed regarding this activity's implementation and implications. For example, does giving stakeholders primary responsibility mean that projects should be implemented through, for example, provincial departments rather than project offices. In addition, how should primary stakeholders be involved in the implementation process? These and other aspects should be reviewed by the working group proposed in Chapter V.

Level 6: Empowerment

- (i) capacity building of primary stakeholder organizations
- (ii) strengthening of the financial and legal status of stakeholder organizations
- (iii) handover to and self-management by stakeholders
- (iv) support for new, spontaneous initiatives by stakeholders

5. The changes suggested above combine to produce a new proposed five-level framework, which follows. These levels and their activities should be reviewed by the proposed working group.

Proposed Five-Level Participation Framework

Level 1: Information Sharing

- project materials translated into local languages and information disseminated using various media
- awareness raised through informative seminars and presentations and public meetings

Level 2: Consultation

- consultative meetings held
- field visits and interviews conducted (at various stages of the project cycle)
- rapid rural appraisal or sample surveys used for data gathering and primary stakeholder assessment
- stakeholder workshops used for problem analysis and development and/or approval of the project framework

Level 3: Joint Assessment

- participatory planning techniques used (e.g., participatory rural appraisal)
- participatory assessment and monitoring and evaluation conducted
- preliminary workshops held to discuss and determine positions, priorities, and roles
- project-related meetings held to help resolve conflicts, seek agreements, and engender ownership
- draft documents (publicly) reviewed and subsequently revised

Level 4: Collaboration

- joint committees formed with stakeholder representatives
- joint working groups and task forces formed
- users groups, intermediary organizations, and other stakeholder groups work jointly
- stakeholder groups are given principal responsibility for implementation

Level 5: Empowerment

- primary stakeholder organizations' capacity is built
- financial and legal status of stakeholder organizations is strengthened
- project handover is conducted and project is self-managed by stakeholders
- new and spontaneous initiatives by stakeholders are supported

METHODOLOGIES USED IN COUNTRY STUDIES

1. The methodologies used in the three special evaluation studies (SEs) are summarized in this appendix.

A. Lao People's Democratic Republic

2. **Meetings and Interviews.** These were held with project directors, staff, and advisers as well as with representatives of selected projects and Provincial Agriculture and Forestry Service Office and District Agriculture and Forestry Service Office staff members.

3. **Collection of Secondary Data.** Available secondary data directly related to the Asian Development Bank (ADB) projects and other project reports with information relevant to the study were reviewed.

4. **Rapid Rural Appraisal.** Three participatory workshops were held with focus groups comprising farmers and community leaders and community-based organization officials in Vangvieng district (Vientiane province), Khamkeuth (Bolikhamsay), and Kham (Xiengkhouang).

5. **Questionnaire Survey.** A questionnaire survey was completed with 30 households, mainly to obtain information on household income. Ten questionnaires were completed on each scheme in the rapid appraisal survey.

6. **Consultative Workshop.** A national workshop was organized to present and review the draft report. The workshop was attended by 42 people, including government officers from Vientiane provinces and districts; farmer leaders; and other stakeholders. Three focus groups reviewed the issues, lessons learned, and recommendations identified. Responses were taken into account in finalizing the country study.

B. Sri Lanka

7. **Meetings and Interviews.** These were held with project directors, staff, and advisers as well as with representatives of selected projects. In addition, Forest Department officers in six districts (Anuradhapura, Hambantota, Kandy, Kegalle, Matale, and Ratnapura), range officers, and other officers in Colombo were interviewed.

8. **Collection of Secondary Data.** Available secondary data directly related to ADB projects and other project reports with information relevant to the study were reviewed.

9. **Rapid Rural Appraisal.** Participatory workshops were held with focus groups comprising farmers and community leaders and community-based organization officials. In informal workshops, historical timeline analysis was carried out to review participatory forestry processes. Twenty-one sites representing home gardens, farmer woodlots, and protective woodlots from seven districts (or range forest divisions) were chosen, and case studies were prepared. Further, personal observations by the consultant and participatory observations with the beneficiary farmers at their woodlot sites were made to assess the status of the plots.

10. **Questionnaire Survey.** A small-scale survey using a questionnaire (of 101 households) was conducted in the 21 sites.

11. **Consultative Workshop.** A national workshop was organized to present and review the draft report. The workshop attendance of 37 included all levels of Forest Department officers, involved farmers, and other stakeholders. Three focus groups reviewed the issues, lessons learned, and recommendations identified. Responses were taken into account in finalizing the report.

C. Viet Nam

12. **Desk Study.** Project documents were reviewed, including project preparatory technical assistance reports, reports and recommendations of the President, appraisal reports, project performance reports, and project completion reports. Strategy papers, benefit monitoring and evaluation reports, and other project documents were also studied to gain wider perspectives of project performance and participatory approaches.

13. **Survey.** Survey methods and programs were developed and implemented based on focus group discussions and rapid rural appraisals, to collect data from selected institutions, communities, and individuals at all levels from organizations central to the managing and implementing agencies in Hanoi provinces, districts, and communes in project areas. The survey process included the following.

- (i) Meetings were held with project directors, project advisers, and other project staff members.
- (ii) Meetings were held with other government officials, particularly from implementing agencies.
- (iii) Workshops and meetings and group discussions were held (normally lasting 1–2 hours or more) using focus groups of government officials, primary beneficiaries (farmers and village heads), and other stakeholders. The workshops and discussions were intended to assess project performance in the participation activities through which the issues, strengths, and weaknesses of the project participation process were identified and collect supporting data and/or information. In addition, individual household and farmer interviews were conducted.
- (iv) Questionnaire surveys were not conducted under the Irrigation and Flood Protection Rehabilitation Project, since a major stratified sample survey was being undertaken during the SES period. The ADB and World Bank study, *Assessing the Poverty Impacts of Public Irrigation Expenditures in Viet Nam*, involved farmers from the Song Chu irrigation scheme, including those belonging to operation and maintenance technical assistance water users organizations. A control group included farmers from areas with irrigation but without participatory irrigation management and without rehabilitation.
- (v) Rapid appraisal surveys of a number of project communes were conducted in which interview techniques included group and individual household interviews and village focus group discussions. A total of eight group discussions and three meetings were held in relation to the Forestry Sector Project. These discussions and meetings were attended by 135 men and 27 women. For the Irrigation and Flood Protection Rehabilitation Project, eight group discussions, and three meetings were held. These discussions and meetings were attended by 136 men and 26 women.
- (vi) Interviews and meetings with other international organizations and nongovernment organizations were held in relation to the practical aspects and relevance of participatory approaches in Viet Nam.

14. **Stakeholder Analysis.** A summary stakeholder analysis was undertaken for the Irrigation and Flood Protection Rehabilitation Project and the Forestry Sector Project.

15. **Country Report and Final Workshop.** A Viet Nam country report was prepared to highlight the major findings and recommendations of the SES team in Viet Nam. A workshop was conducted in Hanoi on 18 September 2003 to present the study team's main findings and seek feedback from the 42 participants. Two observers from the Japan Bank for International Cooperation attended the workshop.

PROJECT DESCRIPTIONS AND ACHIEVEMENTS

A. Lao People's Democratic Republic

1. Community-Managed Irrigation Sector Project

1. The Project is intended to develop around 3,800 hectares (ha) of new or improved irrigation through the construction or upgrading of about 70 community-managed irrigation (CMI) schemes in the Lao People's Democratic Republic's (PDR's) central mountain regions, including the provinces of Vientiane, Bolikhamsay, Houaphanh, and Xiengkhouang, and in the Xaysomboun Special Zone. CMI schemes are community-based and rely on significant community participation from the planning stage, through implementation, to operation and maintenance (O&M). The Project comprises four parts:

- (i) community mobilization and training;
- (ii) development of CMI schemes with four subcomponents: irrigation systems, rural access roads, agriculture development, and environment monitoring and watershed protection;
- (iii) construction of district feeder roads; and
- (iv) institutional support for CMI development.

2. Quantifiable benefits consist of increases in food production and farm family incomes in the Project's area. Anticipated unquantified and indirect benefits include (i) the improvement of food security and the nutritional status of beneficiaries; (ii) the reduction in the incidence of shifting cultivation; (iii) the greater employment and increased income from marketing and processing of farm products and farm services; and (iv) the induced production and marketing of farm inputs (seed, fertilizer, and pesticides). Around 6,000 households (36,000 people) were expected to benefit directly from the Project.

3. The Project is being implemented by Department of Irrigation of the Ministry of Agriculture and Forestry at an estimated cost of \$24 million. Implementation commenced in early 1997, and completion is planned for December 2003.

4. The Project generally is rated highly successful on most criteria under the Asian Development Bank (ADB) project performance monitoring system. The Project has completed construction of 47 schemes with a command area of around 3,720 ha. Forty-four schemes were constructed by 2001/02 (year 6), with three schemes held over to year 7, due to uncertainty about the balance of loan funds. The last three schemes were completed in June 2003, and social development activities are ongoing. In the 2002 wet season, irrigation intensity was 85%, and irrigation intensity during the dry season was 37%. If those schemes whose irrigated areas exceed their command areas are limited to their command areas, the wet season irrigation intensity declines to 76% for an overall project cropping intensity of 113%.

5. The current status of the 44 water users organizations (WUOs) established up to 2002 was estimated, and WUO performance was ranked against five criteria: (i) wet season cropping intensity, which reflects water management and the extent of command area development; (ii) dry season cropping intensity, which also reflects water management and the extent of command area development; (iii) proportion of budgeted irrigation service fee (ISF) collected; (iv) management caliber of WUOs; and (v) O&M status (mainly reflecting maintenance quality). Overall performance is estimated in Table A4.1, with 50% of schemes demonstrating good or

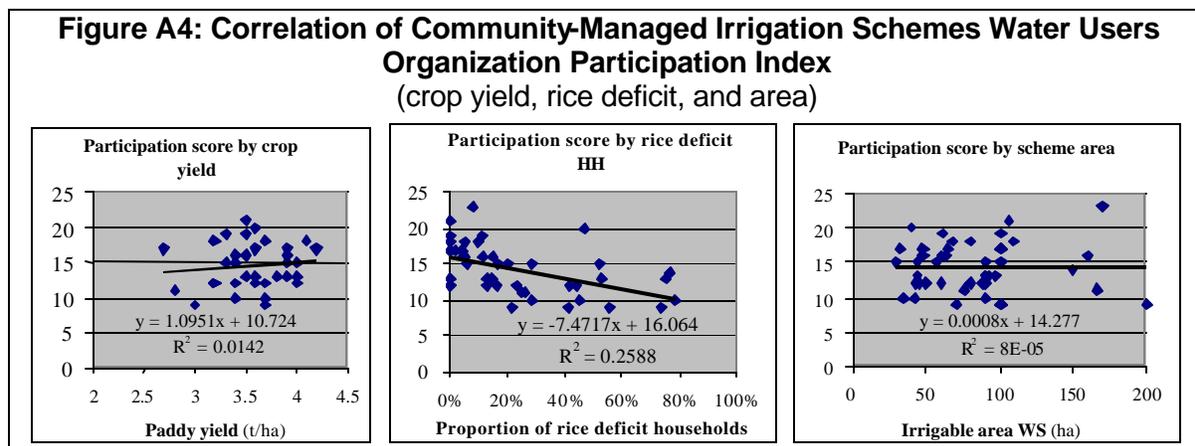
very good participation and 41% classified as fair. No schemes were ranked as very poor under the classification system used.¹

Table A4.1: Raking of Community-Managed Irrigation Project Water Users Organizations

Participation Rank	Score out of 25	% of WUOs
Very good	20+	7
Good	15–19	43
Fair	10–14	41
Poor	5–9	9
Very poor	0–5	0
		100

WUO = water users organization.

6. The three charts in Figure A4 plots the participation score out of 25 against three variables: wet season paddy yield, the proportion of rice deficit households in the village (including nonproject households), and the area of the scheme. The participation index showed a reasonable (inverse) correlation with the proportion of rice deficit households, with villages with near self-sufficiency in rice showing high participation scores. This result is probably affected by the fact that villages with lower rice deficits would generally be more affluent and thus more able to meet their ISF commitments. The participation index also correlated with crop yield, but with a low correlation index. Based on the data and assumptions used, there was no correlation with scheme size.



Source: Community-managed irrigation scheme records and special evaluation study team estimates from the Lao People's Democratic Republic country study.

7. WUOs define the level of ISF that they charge to their members. Together with the selection of regulations concerning the operation of the irrigation scheme, this self-selection was

¹ In a Danish International Development Assistance project in Dak Lak, in Viet Nam's central highlands, one out of 11 WUOs had been taken over by the irrigation management company, three were unsatisfactory and two were not currently financial. Only five were classified as working well.

intended to enhance the sense of ownership of the scheme by its members. Since the schemes were new, farmers did not consider that their maintenance requirements would be high, and therefore often set low ISFs. This has had a number of implications: few WUOs have been able to accumulate assets, and the ISF has not been sufficient to cover major repairs to canals (e.g., those needed because of landslips or failures of major structures) and does not correspond to the Government's expectations concerning the ISF making at least some contribution to capital cost recovery.

8. Despite the low rates set by most schemes, payment rates have been quite low, averaging around 65%. Low payment rates have been due to a lack of full development of the command areas and a reluctance by some farmers (those whose land was irrigated without cash cost under previous traditional schemes) to pay. While the self-setting of fees promotes ownership, WUOs need to be encouraged to set more realistic fees at the outset, since increasing fees from a low base is not always easy and WUOs need to build up some reserves if they are to meet major repairs and reduce their level of dependence on government support.

9. Households contributed substantial time to the construction of their schemes. Labor contributions under the Project are summarized in Table A4.2 and suggest an average input of 229 days per household.

Table A4.2: In-Kind Labor Contribution by Community-Managed Irrigation Scheme Villages

Item	Person-Days	Person-Years	Days per Household
Survey assistance	42,550	170	12
Collection of materials	81,735	327	23
Construction irrigation	378,978	1,516	108
Rural access road	107,488	430	31
O&M irrigation	147,153	589	42
O&M rural access road	47,541	190	14
Total	805,445	3,222	229

CMI = community-managed irrigation scheme, O&M = operation and maintenance.

Note: Person-days are converted to years by dividing by 250.

Source: Community development monitoring report, June 2003.

10. Women were involved with all but the heaviest construction tasks and contributed more than half the village construction and O&M labor inputs. Women are responsible for or share with men virtually all of the farm and water management operations. The main constraints to women's participation in remote rural areas and ethnic minority villages are their often low education or illiteracy and a general reluctance to participate in public situations. Relatively few women (compared to men) in minority areas speak Lao Loum, making their full participation difficult unless meetings or focus groups are conducted in the local language.

11. The Project promoted the participation of women in WUO committees through requiring 30% of all WUO committee members to be female. However, this goal was considered unattainable at many subproject sites, particularly in remote and ethnically diverse areas. Out of 195 WUO committee members, on 47 schemes, 46 (24%) were women. Four schemes had no female representation and three schemes had two female committee members. Under a subproject (the Decentralized Irrigation Development and Management Sector Project), the target proportion is 20%, but, again, in some schemes find women who are prepared to take on

management roles is difficult. This subproject is attempting to mainstream gender into all of its community, extension, and WUO development activities.

12. The Project did not take a systematic approach to the gender issue and did not have a strategy to provide training and awareness-raising activities for women. This unsystematic approach resulted in decreased motivation among women committee members in many WUOs. Women holding such positions are unsure of their role in a WUO. Only 22% of training course participants were female. The northern CMI scheme project preparatory technical assistance (TA) report stated that most contact between the Government and the village is through mass organizations, in which women are little represented.

13. Women from minority areas generally have a lower status in society and households than in the dominant Lao Loum (lowland) culture. Women are less involved in decision-making and are usually not permitted to travel without their husbands (e.g., to attend training courses). Women are less likely than men to be educated or literate and often do not speak Lao Loum, the language of virtually all training courses and other interactions with the Government. The fact that many women do not speak Lao Loum requires that projects (and government bodies, such as provincial and/or district agriculture and forestry service offices and extension organizations) should make a particular effort to interact with and support men and women through (i) providing literacy support and empowerment training, particularly for women but also for disadvantaged men; (ii) employing staff, including extension officers, with minority language skills relevant to their areas; and (iii) providing, to the greatest extent possible, training and extension inputs in relevant languages.

14. Research in the Lao PDR during the 1990s² indicated that women's roles in agriculture were changing, following the green revolution and the introduction of the power tiller. There were concerns that the largely matrilineal or matrilocal culture was being broken down through the allocation of land titles to the (usually male) head of the household. Under irrigation schemes, male irrigation officers and nongovernment organization representatives often approach the farmer, who they assume to be the male head of the household.

15. In practice, the worst of these fears do not appear to have been realized. A World Bank land titling project is reported by the United Nations Development Programme-funded Gender Resource Information and Development Center to be allocating around 40% of land titles to women, 30% to men, and 30% to husbands and wives jointly. The World Bank project has focused so far on urban areas, where residents speak mainly Lao Loum, and care will be required when the focus of titling moves to rural and irrigation areas, especially minority areas, so that women's rights are protected. There is rapid change in the agricultural environment, and unless active programs are developed (e.g., those developed under the Decentralized Irrigation Development and Management Sector Project) to involve women in project activities and training and extension programs, there is a risk that their role in agriculture and status in society will be eroded.

2. Decentralized Irrigation Development and Management Sector Project

16. The Project is rehabilitating irrigation schemes in Bolikhamsay, Vientiane municipality, and Vientiane province and in Savannakhet, Sayaburi, and Luang Prabang provinces. The Project is intended to establish sustainable irrigated agriculture through the irrigation

² For example: Loes Schenk-Sandbergen. 1995. *Lao Women: Gender Consequences of Economic Transformation*. Available: <http://www.iias.nl/iiasn/iiasn9/soueastasia/lao.html>

management transfer (IMT) process and the strengthening of WUOs. The Project will also enhance agricultural extension capacity and the capacity of government agencies at provincial and district levels. The Project involves (i) assisting irrigators as they organize themselves into WUOs, which will provide institutional and management support and allow irrigators to participate in the rehabilitation and O&M of irrigation systems; (ii) rehabilitating selected existing irrigation systems, in cooperation with WUOs, extending to about 10,000 ha; (iii) providing appropriate extension services to farmers to help them make rational decisions concerning their farm management and marketing systems; (iv) increasing the capacity of the Government and government agencies to support and sustain farmer-managed irrigation; and (v) providing institution-building support to WUOs.

17. A participatory process is being applied during subproject formulation. Provincial workshops will provide opportunities to public and private sector agencies to contribute to developing IMT. Consultation meetings at village level are held with male and female farmers. The selection of subprojects is intended to be made through a consultative approach with stakeholders in project provinces. Project cost is estimated at \$24 million, with financing from ADB (\$15.5 million), farmers (\$3.9 million), Japan Fund for Poverty Reduction (\$2.70 million), and Department of Irrigation (\$2 million). Completion is planned for December 2006.

18. During 2002/03, a total of 17 schemes were rehabilitated, and a further 17 will be rehabilitated during the 2003/04 dry season. The Project is, therefore, meeting its construction targets. Community and/or WUO development aspects were delayed due to the late appointment of consultants, but the second and third batches of projects are expected to receive adequate support. Rehabilitation of the first batch of projects was completed in 2003, and no assessment of impacts is possible as yet.

B. Sri Lanka

1. Participatory Forestry Project

19. The ADB and Australian Agency for International Development cofinanced the Participatory Forestry Project which was implemented between 1993 and 2000 at a total cost of \$24 million. The Project was intended to increase tree planting and thereby create employment opportunities, generate income, reduce poverty, and rehabilitate environmentally degraded areas. In addition, the Project was intended to strengthen the institutional capability of the Forest Department (FD) to expand its programs for nonforest tree planting, adaptive research, extension delivery systems, and privately operated village nurseries. The Project included 18 of the 25 districts in Sri Lanka under the initial phasing of district-level implementation.

20. The Project had four components: (i) participatory forestry, (ii) tree seed and seedling production, (iii) adaptive research, and (iv) monitoring and evaluation. Participatory forestry was the principal part of the Project, accounting for 93% of project cost. The purpose of the component was to develop homestead garden planting, woodlots, and other plantings by involving rural households in exchange for food coupons. The appraisal target was a total of 14,750 ha of planting: 9,000 ha of homestead gardens, 4,000 ha of farmers' woodlots, 1,500 ha of protective woodlots, and 250 ha of miscellaneous plantings. To offer incentives to participating households, the Project was also to provide them with seedlings and technical advice as well as more secure land tenure through the ownership of trees.

21. A TA grant worth \$822,000 strengthened FD's capability in forestry development through (i) developing and implementing a reorientation program for FD staff, to strengthen their

capabilities in forestry development, particularly their ability to provide service to farmers; (ii) assisting in evaluation and improvement of the institutional and financial framework for farmers' participation in forestry activities; (iii) establishing a benefit monitoring and evaluation system for FD; and (iv) training FD staff.

22. The Australian Agency for International Development was to provide a total of \$5.8 million of (monetized) food aid to support clearing, planting, and maintenance programs through the provision of coupons that farmers could exchange for goods at local cooperatives. The actual contribution was \$3.9 million, or 67% of target. Problems of scheduling resulted in the underuse of these funds.

23. Over the past 3 years, project completion and postevaluation reports have been prepared that provide comprehensive reviews of project implementation experience and achievements. Most physical targets were substantially exceeded. In terms of planting, achievement was 3.6 times the initial (appraisal) target (Table A4.3).

Table A4.3: Participatory Forestry Land-Use Plantings
(ha)

Subcomponent	Appraisal Target	Revised Target 1998	Actual PPAR 2002	% of Appraisal Target
Homestead gardens	9,000	31,000	36,263	403
Farmers' woodlots	4,000	9,000	9,808	245
Protective woodlots	1,500	4,000	4,536	302
Miscellaneous planting				
Public lands	250	2,000	2,468	987
Roads and canals (km)	700	500	1,546	221
Total area (ha)	14,750	46,000	53,075	360

ha = hectare, km = kilometer, PPAR = project performance audit report.
Source: PPAR.

24. In terms of support to home gardens, the number of households benefiting is a better indicator of performance than area, since the trees were mainly used for limited in-filling of garden areas or the replacement of old trees. In terms of farm families benefited, a total of about 462,000 households received seedlings, against the appraisal target of 45,200. Based on a survey conducted for the project performance audit report, no significant difference existed between project and nonproject home gardens in the wet and intermediate zones. Home garden benefits were thus mainly confined to the dry zone, where the plantings were largely incremental. However, the special evaluation study found that survival of some tree species, such as mahogany, cashew, and coconut, was low in some dry zone areas.

2. Forest Resources Management Sector Project

25. The overall goal of the Project is to increase the value and sustainability of Sri Lanka's forests by creating a policy and governance framework to enable local communities and the private sector to participate in forest resources development and management. The objectives of the Project are to establish participatory sustainable forest management of a permanent forest area (to increase its protection and production) and enhance local communities' access, particularly economically disadvantaged communities, to employment and other income-generating activities. In addition to income generation, the Project's activities will help improve the overall skill base of the poorest of the poor, to enable them to influence decisions and access programs that have an impact on their livelihoods. The Project has three components.

- (i) Participatory planning, management, and awareness campaigns will involve potential beneficiaries, official policy and decision makers, including the judiciary and civil society as a whole. The campaigns will ensure that there is a consensus concerning the national forest's administrative boundaries and the management objectives and priorities for its use.
- (ii) Sustainable forest development and management involving local communities, the private sector, and FD in improving conservation, enhancing timber production, and improving environmental services to public and private land. Agroforestry and woodlot plots will be established on degraded and/or encroached forest areas, to help increase food security and reduce poverty among poor forest-dependent communities.
- (iii) Institutional strengthening and training will be conducted to assist FD professional and extension staff members, participating beneficiaries, nongovernment organizations, and community-based organizations to establish optimal forest conservation and resource management practices.

26. The Project commenced in mid-2000 and is expected to end in December 2007. Total project cost is estimated at \$40 million, of which ADB's loan will fund \$27 million.

C. Viet Nam

1. Irrigation and Flood Protection Rehabilitation Project

27. The Project involved the rehabilitation of 45 kilometers (kilometers 40–85) of Hanoi's flood protection dyke and of two major irrigation schemes—the 50,000-ha Song Chu scheme in Thanh Hoa province and the 30,000-ha North Nghe An Irrigation scheme. The Project aimed to prevent the economic and social disaster that was likely if the Hanoi dike or irrigation schemes failed. Continued and improved functioning of these schemes was expected to enable sustained and accelerated agricultural and economic growth to improve the living conditions of the population in each subproject area. Song Chu Irrigation Company and North Nghe An Irrigation Company officials indicated that the Project's concept and main components were proposed by them during the preparation of the national Water Resources Sector Development Strategy Towards the Year 2000. Only the Project's irrigation component was reviewed by the special evaluation study team.

28. The Project was implemented over the 9-year period 1994–2003. A need for improvement in the operation and management of irrigation systems through greater participation of beneficiaries had been identified in the early 1990s. However, the Project adopted a cautious and phased approach to achieving improved system efficiency and beneficiary participation. It was decided that not enough was known about participatory irrigation development in Viet Nam and a pilot approach was adopted. The Project was, therefore, supported by TA 1968-VIE: *Operation and Maintenance Strengthening* and small scale TA 2896-VIE: *O&M Development in the Irrigation Sector*. The TA activities tested a number of models of participatory management, including water users associations, water users cooperatives, and commune-based agricultural service cooperatives on two secondary canals in Song Chu (B8A and B6/9) and two in North Nghe An (N4B and N6), with a total area of 1,285 ha. The irrigation companies also established participatory irrigation management on secondary canals in one cooperative in each scheme, for comparison purposes, each with an area of about 250 ha.

29. The Project overall was implemented largely as planned. Due to budget savings, Hanoi dyke's rehabilitation was extended to include kilometers 85–101. Headworks and primary and secondary canals were upgraded on the 50,000-ha Song Chu and 30,000-ha North Nghe An irrigation systems. The Project also undertook (unplanned) emergency repairs of the irrigation systems of Rao Nan, Bau Nhum, Khe May, and Nam Thach Han, following flood damage in November 1999.

30. The Song Chu irrigation system's irrigated area increased from 47,600 ha to 50,900 ha between 1995 and 2000, while average cropping intensity rose from 178% to 218%, according to the project completion report. The North Nghe An irrigation system's irrigated area rose from 21,900 ha to 30,050 ha, with a concurrent increase in cropping intensity from 179% to 224%. Yields have tended to increase due to a combination of rehabilitation and improved technology. The preproject (1995) average yield for the Song Chu scheme was around 4.33 tons per ha. The final benefit monitoring and evaluation report indicates that during 2000's dry season (roughly January to May) crop yield had risen, on the whole, to 4.95 tons per ha and up to 5.50 tons per ha in some communes. Wet season yield averaged 3.90 tons per ha and was not greatly affected by rehabilitation. Due to the increase in yield and higher cropping intensity, paddy production was estimated at 404,000 tons in 2000, an increase of almost 20% since 1995. Upland crop areas also increased significantly, but benefit monitoring and evaluation reports state that yields were little affected by rehabilitation.

31. A recent study of irrigation and poverty included a 347 household survey of Song Chu participation and nonparticipation areas (and of rehabilitation in several other schemes). The study's preliminary results for Song Chu are included in the overleaf of Table A4.4.

2. Forestry Sector Project

32. Viet Nam's forest coverage was about 9.3 million ha in the 1990s (29% of Viet Nam's area) and was dwindling rapidly, with annual deforestation at about 100,000 ha. The Project was developed to assist the Government in its pursuit of sound management of the nation's forest resources. After a 2-year feasibility study supported by the Food and Agriculture Organization (1995–1996), the Project's loan was approved by ADB in January 1997 and became effective in April 1997. The total cost of the Project is estimated at \$53 million. Funding included a \$33 million loan from ADB and a \$7 million grant cofinanced by the Government of the Netherlands. The Project was planned as a 6-year undertaking with a completion date of June 2003. However, a project extension to 2005 has been approved.

Table A4.4: Impact of Operation and Maintenance Technical Assistance Participation and Rehabilitation

Item	Unit	Target	Control	Target	Control
Family size	No.	4.7	4.7		
Age of head of household	Years	47.4	47.7		
Length of schooling of head of household	Years	7.6	6.7		
Poverty	% of hh	14%	27%		
Land owned	m ² /hh	1,808	1,777		
Land leased in	m ² /hh	57	28		
Land leased out	m ² /hh	42	0		
Net operated area	m ² /hh	1,824	1,805		
Area under rice	m ² /hh	3,174	2,103		
Area under nonrice	m ² /hh	241	904		
Gross cropped area	m ² /hh	3,415	3,007		
Cropping intensity	%	2,27%	213%		
Rice production	kg/hh	2,134	1,359		
				Đ '000/ha	Đ '000/ha
Rice value	Đ'000	3,591	2,387	11,317	11,350
Yield	t/ha	6.98	6.56		
Input costs					
Seed	Đ'000/year	90	90	284	430
Urea	Đ'000/year	190	112	599	533
Phosphorous	Đ'000/year	87	71	275	336
Potassium	Đ'000/year	78	39	244	186
Complex fertilizers	Đ'000/year	52	60	165	283
Manures	Đ'000/year	280	156	883	742
Insecticides	Đ'000/year	62	43	195	203
Herbicides	Đ'000/year	36	9	112	45
Irrigation fee	Đ'000/year	88	47	277	224
Irrigation cost	Đ'000/year	36	173	115	822
Hired labor	Đ'000/year	94	38	295	180
Own labor	Đ'000/year	815	983	2,568	4,676
Total cost	Đ'000/year	1,908	1,820	11,317	11,350
Output value	Đ'000/year	3,591	2,387	6,012	8,655
Net profit	Đ'000/year	1,683	567	5,304	2,696
Per capita consumption expenditure—food					
Total expenditure on food	Đ'000/person	1,464	1,572		
Assets					
Goods value	Đ'000/hh	1,103	732		
Housing value	Đ'000/hh	15,967	19,834		
Production assets	Đ'000/hh	304	298		
Transport assets	Đ'000/hh	2,329	2,443		
Other asset value	Đ'000/hh	467	520		
Total assets	Đ'000/hh	20,169	23,827		
Total income from fishery	Đ'000/hh	108	21		
Total livestock income	Đ'000/hh	2,777	1,812		
Sources of household income					
Gross rice income (including imputed value of own labor)	Đ'000/hh	2,483	1,571		
Gross rice income (excluding imputed value of own labor)	Đ'000/hh	3,623	2,387		
Nonrice income	Đ'000/hh	92	567		
Total household income	Đ'000/hh	9,070	9,707		

Đ = dong, % = percentage, / = per, ha = hectare, hh = household, kg = kilogram, m² = square meter, No. = number, O&M = operation and maintenance.

Note: Data have been propensity score matched to ensure data comparability as far as possible.

Source: Asian Development Bank and World Bank. 2003 *Assessing the Poverty Impacts of Public Irrigation Expenditures in Viet Nam*. Manila.

33. The Project aims to restore or improve the vegetative cover of the hilly and mountainous areas in three watersheds located in four provinces, namely the Chu River watershed in Thanh Hoa, Truc Kinh Reservoir watershed in Quang Tri, and the Ba River watershed in Phu Yen and Gia Lai provinces. Under the Project, about 114,000 ha of barren lands and/or degraded forests are expected to be fully impacted through forest plantation and watershed protection activities or combined agroforestry cultivation, which will benefit about 80,000 households within the Project's areas. Other aims are to (i) encourage the adoption of agroforestry and other market-oriented land use options through the provision of extension services and improved access to credit, (ii) improve the management of communal pasture lands and fodder production, and (iii) enhance local livelihoods through the upgrading of selected items of rural infrastructure.

34. Physical scope includes a variety of local infrastructure improvements, including items such as small-scale irrigation systems, intervillage roads, drinking water provision, etc. The Project also (i) generates resource-related and socioeconomic data about the participating communes, (ii) formulates environmental zoning and land use plans and generates corresponding maps, (iii) provides management and technical training to government staff, and (iv) delivers project-tailored extension services to all 50 or so targeted communes.

35. The Project's achievements to August 2003 are summarized in Table A4.5.

Table A4.5: Forestry Sector Achievements Compared to Commune Development Plan Targets

Item	Thuong Xuan TH			Gia Lai			Phu Yen			
	12 CDP	Completed	%	15 CDP	Completed	%	8 CDP	Completed	%	
Forest plantation										
Watershed forest protection	ha	14,399	14,329	100	21,191	18,105	85	15,985	12,599	79
Forest plantation	ha	3,991	2,809	70	652	192	29	1,769	515	29
Forest maintenance	ha	1,493	986	66				1,769	95	5
Production forest plantation	ha	1,401	261	19	1,224	866	71	678	229	34
Agroforestry plantation	ha	950	0	0	6,808	6,300	93	2,396	973	41
Infrastructure										
Rural roads	km	29	29	100	54	50	93	31	25	82
Schools	m ²	2,842	558	20	3,540	1,678	47	1,336	1,280	96
Clinics	m ²	103	103	100	75	75	100	110	110	100
Small dams	no	14	2	14	5	4	80	3	3	100
Wells	no	120	15	13	157	157	100	58	24	41

CDP = commune development plan, ha = hectare, km = kilometer, m² = square meter, No. = number, TH = Thanh Hoa province

Source: Central Planning Office.

36. Overall, watershed protection forest has achieved 87% of its target, while forest plantation has achieved 55% and production forest plantation 41%. Roads, dams, and clinics are at 85% or more, compared with commune development plan targets, but school construction has only attained 46% of the target. Implementation in the Project's first 4 years was slow, due initially to the lack of necessary implementation guidelines and subsequently to the slow participatory planning process and delays in obtaining approvals for infrastructure investments from line departments.

PARTICIPATION LEVELS OF SPECIAL EVALUATION STUDY PROJECTS

1. The tables in this appendix summarize aspects of the participatory process applied by the six primary projects reviewed under the special evaluation study.

Table A5.1: Participation Levels of the Community-Managed Irrigation Project and the Decentralized Irrigation Development and Management Sector Project

Item	Country-Managed Irrigation Project	Decentralized Irrigation Development and Management Sector Project
Level 1: Information Sharing	All project materials , apart from consultant reports etc., were translated into the Lao People's Democratic Republic (PDR). No materials were translated into minority languages . A substantial awareness and training program was conducted.	Documentation is being prepared and translated into Lao PDR. There is an orientation process and participatory assessment to disseminate information and gauge community interest.
Level 2: Consultation	Activities are strongly consultative. Farmers' participation in system design and construction supervision is probably insufficient.	Strongly consultative. Farmers' participation in system design and construction supervision is probably insufficient.
Level 3: Joint Assessment	Assessment is participatory. Monitoring and evaluation is by project. Use of full participatory rural appraisal techniques is limited. Biannual District Agriculture and Forestry Service Office meetings at the province level and Provincial Agriculture and Forestry Service Office meetings in Vientiane provided opportunity for assessment. Water users organizations (WUOs) were supported in methods for conflict resolution.	Assessment is participatory. Monitoring and evaluation is by project and includes impact evaluation through participatory benefit monitoring and evaluation. Aspects of participatory rural appraisal tools are included in the participatory assessment process and also in the WUO assessment. Quarterly provincial project office meetings, biannual steering committee meetings, and monthly consultant team meetings are held. DPO staff members visit each site weekly to assist in solving problems.
Level 4: Collaboration	Construction committees were formed but were less effective than desirable, due to the weak position of WUO representatives. Project and government staff members worked closely with WUOs. District Agriculture and Forestry Service Office and Provincial Agriculture and Forestry Service Office national project directors were responsible for implementation , although with substantial input by farmers .	Construction committees were formed, but they need strengthening and empowerment. WUO development committees were formed and are being trained. A project implementation committee was formed. The Provincial Agricultural and Forestry Service Office's National Project Director was responsible for implementation, although with substantial input by farmers .
Level 5: Empowerment	Results were substantial but variable. Some WUOs are operating well, but others need substantial ongoing support. Irrigation schemes are fully self-managed, with currently limited project support. WUOs and farmers are making decisions regarding the Irrigation Development Fund application and the extension of the command area.	Most Agence Française de Développement support is for WUO strengthening. WUOs are just being established. Financial system is designed. A similar approach to community-managed irrigation schemes is anticipated.

Source: Special evaluation study team data.

2. Table A5.2 compares the participation levels of the two Sri Lankan forestry projects assessed. Although implementation began around 3 years ago, the assessment of the Forest Resources Management Sector Project is limited, as little activity has commenced on the ground, apart from the demarcation of forest areas by contract survey teams. A number of village action plans have been prepared under the trainer training program, but village development activities have yet to commence.

Table A5.2: Participation Levels of the Participatory Forestry Project and the Forest Resources Management Sector Project

Item	Participatory Forestry Project	Forest Resources Management Sector Project
Level 1: Information Sharing	Results were limited and mainly confined to awareness raising with primary stakeholder farmers. Village motivators provided a useful link with the Project. Translation of materials into Sinhala was limited or nonexistent.	So far, no effective information sharing efforts have been attempted, such as the use of community radio, television, street drama, simple pamphlets, etc. The village action plan is translated into Sinhala and copies are provided to trainees. After the village action plan is prepared, a consultative workshop needs to be organized with the farmer community to validate the plan. Later, a copy of the document should be handed over to the participating community-based organization. So far, this has not taken place.
Level 2: Consultation	Consultation concerning areas and species was limited.	Newly recruited staff members (former motivators) are now visiting the locations covered by the Participatory Forestry Project. The new recruits do not use a consultative approach in their activities. They are taking a traditional research approach to data gathering, with little participation.
Level 3: Joint Assessment	None.	Joint assessment will be undertaken in target villages by staff members trained under the Project. Presently, the preparation of model village action plan is under the supervision of the consultant.
Level 4: Collaboration	There was no collaboration.	The extent to which collaboration will be achieved has yet to be determined.
Level 5: Empowerment	There was no empowerment, although some individual farmers have undertaken self-help development of farming areas made available under the Project. There is no evidence of spontaneous planting induced by the Project. A reasonably high proportion of nurseries formed under the Project continue to function.	The level of empowerment is yet to be determined.

Source: Special evaluation study team.

Table A5.3: Participation Levels of Operation and Maintenance Technical Assistance Activities and the Forestry Sector Project

Item	Operation and Maintenance Technical Assistance Activities ^a	Forestry Sector Project
Level 1: Information Sharing	<p>Basic project information and materials were prepared in Vietnamese and disseminated to beneficiaries .</p> <p>Project communication teams were formed to provide awareness activities .</p> <p>Women’s Union, Farmers Association, and Youth Union extended information among their members and families .</p> <p>Awareness raising under the main project was limited.</p> <p>Communication with some stakeholders was poor (e.g., transport)</p>	<p>Basic project information and materials were disseminated.</p> <p>Project communication teams were formed, with the assistance of extension staff, to provide awareness activities .</p> <p>Women’s Union, Farmers Association, and Youth Union extended information among their members and families .</p> <p>No materials were translated into minority languages, but some extension and project staff members learned to speak minority languages. Numerous village meetings held and awareness campaigns were undertaken.</p> <p>Project surveys were of community interest.</p>
Level 2: Consultation	<p>The technical assistance activities were highly consultative.</p> <p>The main project was limited to the irrigation company directorate and leaders .</p>	<p>Project activities were strongly consultative .</p> <p>Sufficient participation in project planning and design, with the strong support of consultants and Provincial Project Management Unit.</p>
Level 3 : Joint Assessment	<p>For the main project, assessments were made and monitoring was conducted through the benefit monitoring and evaluation system, but the system was not effective, and its implementation was delayed.</p> <p>The technical assistance activities used full participatory rural appraisal techniques during the process of water users organization (WUO) establishment.</p>	<p>Monitoring is by project, through a computerized project management information system at the project management unit of the Provincial Project Management Unit.</p> <p>Village heads provide monthly reports.</p> <p>The land use plan, forestry plan, and commune development plan are fully participatory.</p>
Level 4: Collaboration	<p>Participating in developing WUO statutes, voting for the management Board, and determining the contribution for canal maintenance were collaborative activities.</p> <p>Monthly and biannual meetings were held to discuss and solve operational and managerial activities of WUOs.</p> <p>Regulations and planning documents were subject to public review.</p> <p>There was no collaboration under the main project, although irrigation planning and scheduling is agreed between communes and irrigation companies.</p> <p>Project management committees were formed, but these committees were less effective than desirable, due to the weak position of WUO representatives.</p> <p>Project and government staff members worked closely with WUOs. These links weakened after completion.</p> <p>Joint work between the irrigation company and WUOs was very good.</p> <p>WUOs expressed a desire to take on high responsibility for implementation.</p>	<p>Land allocation was fully participatory.</p> <p>Regular village meetings were held to discuss project activities and suggestions and team work. Monthly and biannual meetings were held.</p> <p>Customary law was reviewed.</p> <p>Public hearings and discussions regarding land allocation, land use planning, and commune development plans.</p> <p>Link and collaboration between the Provincial Project Management Unit and farmers were effective.</p> <p>Links with provincial forestry subdepartment and other forestry programs needed to be improved.</p> <p>Commune peoples committees closely and effectively participated in project supervision.</p> <p>Joint work between the Provincial Project Management Unit and farmer and commune project implementing teams was very good.</p> <p>Villages took on a high level of responsibility for implementation.</p>

^a All points refer to participation in technical assistance activities, unless specified as main project activities.

Item	Operation and Maintenance Technical Assistance Activities ^a	Forestry Sector Project
Level 5: Empowerment	Empowerment was limited, and this condition was exacerbated by WUO board turnovers. All WUOs have maintained operations under difficult conditions, and some ongoing support is needed. Irrigation schemes were fully self-managed, with limited government support. Empowerment is not yet evident, and the inability to use self-help to build office accommodations is a concern.	Infrastructure support was good, but construction was often delayed. Land allocation needs to be implemented for all subprojects. Many examples of spontaneous development are evident.

Source: Special evaluation study team.

ESTIMATED NET BENEFITS OF PARTICIPATION

1. Quantifying the benefits of participation is not straightforward, as indicated in the International Water Management Institute studies of participation in Sri Lanka and Indonesia that are discussed in Appendix 7. No basis for assessing the likely impact of the Sri Lankan and Vietnamese forestry projects or for the Community-Managed Irrigation Project could be defined, due to the absence of a realistic counterfactual example. However, the project performance audit report on the Walawe Irrigation Rehabilitation Project in Sri Lanka provides a basis for assessing the impact of improved irrigation efficiency on a water-constrained river basin. In addition, the ongoing study of irrigation and poverty in Viet Nam provides a statistically reliable estimate of the impact of participation combined with tertiary canal rehabilitation (indicated by the Appendix 7 studies that are to be a prerequisite for participatory irrigation management).

2. Table 6.1 estimates the potential benefits from introducing participatory irrigation management to major irrigation schemes in the Walawe basin in southern Sri Lanka. The calculation is based on the severe limitations on water supply in the valley, combined with the ongoing expansion of the irrigated area. The Moreketiya branch canal, near the top of the Walawe right bank irrigation scheme, which was rehabilitated under an Asian Development Bank loan, demonstrated high irrigation efficiency following the introduction of participatory irrigation management, as shown in Table 6.1. Compared to the other branch canals, the water savings were estimated to exceed 30% (annual use by Moreketiya canal in 1998/99 was 2.9 meters, compared to 4.4 meters for the whole scheme).

3. Overall, according to estimates, participatory irrigation management on the 11,300-hectare (ha) project area and the expansion area should allow an annual increase in dry season irrigation by approximately 6,000 ha per year. Average gross margins estimated by project performance audit report were \$512 per ha for dry season rice and \$1,447 per ha for chilies. If the average gross margin is estimated at \$700 per ha, the increase in the whole-scheme gross margin per year would be on the order of \$4 million, or \$235 per hectare for the average of left and right bank schemes. This margin is net of farmer labor and is thus available to service management and marginal capital and investment in participatory irrigation management. While no firm data are available on the cost of expanding participatory irrigation management to all secondary canals, the initial cost is expected to not exceed \$100 per ha (including costs for upgrading tertiary canals), with an annual cost of less than \$10 per ha for, say, 5 years, for training and support, until the participatory irrigation management system is self-sustaining.

Table A6.1: Estimated Benefits of Participatory Irrigation Management on the Walawe Irrigation Scheme

Item	Irrigable Area (ha)	Irrigation Efficiency		Area		
		Ex-PIM (%)	+PIM (%)	Ex-PIM (ha)	+PIM (ha)	
Walawe Right Bank	11,400	189	200	21,546	22,800	
Project	910	175	175	1,593	1,593	
Other	12,310			23,139	24,393	
Left Bank						
Existing (assumed unaffected)	5,750	180	180	10,350	10,350	
Extension	6,380	120	175	7,656	11,165	
	12,130			18,006	21,515	
Total Scheme	24,440			41,145	45,908	
Increase in dry season irrigation	ha				4,763	
Net margin (after labor)	\$/ha				700	
Overall increase in net margin	\$'000				3,334	
Area for PIM	ha				17,780	
Increase in margin per ha	\$/ha				188	
Initial rehabilitation cost	\$/ha				300	
Estimated savings in MASL costs	\$/ha				20	
10-year ex-PIM rehabilitation costs	\$/ha				400	
Item		Increase in Gross Margin	Savings in MASL Costs	Saving in Rehab Cost	Cost of PIM	Net Cash Flow
NPV at 12% discount						1,349
NPV omitting second and subsequent rehabilitation programs						2,270
Estimated cash flow	Y1			(300)	100	(400)
	Y2	188	10		10	188
	Y3	188	10		10	188
	Y4	188	10		10	188
	Y5	188	10	400	10	588
	Y6	188	10		10	188
	Y7	188	10			198
	Y8	188	10			198
	Y9	188	10			198
	Y10	188	10			198
	Y11	188	10			198
	Y12	188	10			198
	Y13	188	10			198
	Y14	188	10			198
	Y15	188	10	400		598
	Y16	188	10			198
	Y17	188	10			198
	Y18	188	10			198
	Y19	188	10			198
	Y20	188	10			198
	Y21	188	10			198
	Y22	188	10			198
	Y23	188	10			198
	Y24	188	10			198
	Y25	188	10	400		598
	Y26	188	10			198
	Y27	188	10			198
	Y28	188	10			198
	Y29	188	10			198
	Y30	188	10			198

% = percentage. / = per, ha = hectare, MASL = Mahaweli Authority of Sri Lanka, NPV = net present value, PIM = participatory irrigation management, Y = year.

Source: Special evaluation study team estimates, based on project performance audit reports for Walaw Irrigation Rehabilitation Project.

Table A6.2: Song Chu Project Investment Costs, Crop Areas, and Incremental Benefits
(with and without participation)

Item	Unit	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Total
Economic costs excluding participation													
Foreign cost (2001 Đ)	Đ bil	5.8	3.9	14.5	11.8	22.4	16.6	6.6	3.0				84.6
Local cost (2001 Đ)	Đ bil	11.1	6.5	37.4	30.4	54.8	45.3	20.4	7.1				213.1
Total investment cost	Đ bil	17.0	10.4	51.9	42.2	77.2	61.9	27.0	10.1				297.7
Equivalent cost (2001 \$)	\$ mil	1.1	0.7	3.3	2.7	5.0	4.0	1.7	0.7				19.2
Economic costs including participation													
Foreign cost (2001 Đ)	Đ bil	5.8	3.9	14.5	11.8	22.4	16.6	6.6	3.0				84.6
Local cost (2001 Đ)	Đ bil	11.1	6.5	37.4	159.8	57.1	47.0	20.7	7.4				347.1
Total investment cost	Đ bil	17.0	10.4	51.9	171.6	79.5	63.6	27.3	10.4				431.7
Equivalent cost (2001 \$)	\$ mil	1.1	0.7	3.3	11.1	5.1	4.1	1.8	0.7				27.8
Item		1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005–24
Cropped area—without project													
Spring rice	'000 ha	44.5	44.6	44.7	44.5	44.5	44.5	44.5	44.5	44.5	44.5	44.5	44.5
Summer rice	'000 ha	39.6	40.4	41.2	39.6	39.6	39.6	39.6	39.6	39.6	39.6	39.6	39.6
Other	'000 ha	10.5	14.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
Total	'000 ha	94.6	99.0	103.8	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1
With project													
Spring rice	'000 ha	44.5	44.6	44.7	44.8	45.3	45.8	46.9	46.9	46.9	46.9	46.9	46.9
Summer rice	'000 ha	39.6	40.4	41.2	42.0	42.7	43.5	44.3	44.3	44.3	44.3	44.3	44.3
Other	'000 ha	10.5	14.0	18.0	17.4	16.8	16.1	15.5	15.5	15.5	15.5	15.5	15.5
Total	'000 ha	94.6	99.0	103.8	104.1	104.8	105.5	106.7	106.7	106.7	106.7	106.7	106.7
With project and with participation													
Spring rice	'000 ha	44.5	44.6	44.7	44.8	46.2	47.7	49.7	49.7	49.7	49.7	49.7	49.7
Summer rice	'000 ha	39.6	40.4	41.2	42.0	43.6	45.0	47.0	47.0	47.0	47.0	47.0	47.0
Other	'000 ha	10.5	14.0	18.0	17.4	17.1	16.8	16.5	16.5	16.5	16.5	16.5	16.5
Total	'000 ha	94.6	99.0	103.8	104.1	106.9	109.5	113.1	113.1	113.1	113.1	113.1	113.1
Without project performance													
Spring rice	t/ha	4.0	4.2	4.4	4.6	4.9	5.1	5.4	5.4	5.4	5.4	5.4	5.4
Summer rice	t/ha	3.3	3.4	3.4	3.5	3.6	3.6	3.7	3.7	3.7	3.7	3.7	3.7
Total value	Đ bil	661.0	791.3	939.1	903.7	974.0	822.6	732.3	645.4	706.6	734.9	745.8	741.8
Production costs	Đ bil	630.2	665.9	693.5	671.6	665.6	657.6	661.4	658.8	658.8	668.5	667.9	666.6
Net value of production	Đ bil	30.9	125.4	245.6	232.1	308.4	165.0	70.9	(13.4)	47.8	66.4	77.9	75.2
With project performance													
Spring rice	t/ha	4.0	4.2	4.4	4.7	5.0	5.3	5.6	5.6	5.6	5.6	5.6	5.6
Summer rice	t/ha	3.3	3.4	3.4	3.5	3.6	3.8	3.9	3.9	3.9	3.9	3.9	3.9
Total value	Đ bil	661.0	791.3	939.1	954.1	1043.3	894.5	814.5	715.6	782.6	812.5	826.2	823.5
Total costs	Đ bil	636.8	683.9	713.9	698.4	694.7	685.2	705.3	699.5	699.7	718.7	717.8	715.3
Net value of production	Đ bil	24.2	107.4	225.2	255.7	348.7	209.3	109.1	16.1	82.9	93.8	108.5	108.2
Incremental value	Đ bil	(6.6)	(18.0)	(20.4)	23.6	40.3	44.4	38.2	29.5	35.1	27.4	30.6	33.0
With project and with participation performance													
Spring rice	t/ha	4.0	4.2	4.4	4.7	5.3	5.6	6.0	6.0	6.0	6.0	6.0	6.0
Summer rice	t/ha	3.3	3.4	3.4	3.5	3.9	4.0	4.1	4.1	4.1	4.1	4.1	4.1
Total value	Đ bil	661.0	791.3	939.1	954.1	1138.7	995.4	923.8	805.7	881.6	915.5	931.2	928.1
Total costs	Đ bil	636.8	683.9	713.9	698.4	708.6	712.6	747.6	741.5	741.7	761.8	760.8	758.2
Net value of production	Đ bil	24.2	107.4	225.2	255.7	430.1	282.8	176.1	64.1	140.0	153.7	170.3	169.8
Incremental value	Đ bil	6.6	(18.0)	(20.4)	23.6	121.7	117.9	105.2	77.6	92.1	87.3	92.4	94.6
EIRR													
With project			7%										
With project and with participation			19%										
With project and with participation + cost savings			29%										

Đ = dong, + = plus, / = per, bil = billion, EIRR = economic internal rate of return, ha = hectare, mil = million, t = metric ton.

Note: Table shows participation performance based on 7% higher cropping intensity, 6% higher rice yield (EIRR with cost savings calculated separately).

Incremental capital costs estimated at \$122 per ha for secondary and tertiary canal upgrading and \$28 per ha for WUO establishment and support.

Source: Draft Project Completion Report for Irrigation Rehabilitation, supplemented by participation benefits from draft report of Asian Development Bank/World Bank, 2003, *Assessing the Poverty Impacts of Public Irrigation Expenditures in Viet Nam*. Manila.

OTHER STUDIES

A. Assessment of Participatory Management of Irrigation Schemes in Sri Lanka:

Partial Reforms, Partial Benefits¹

1. The 1999 International Water Management Institute report (*Assessment of Participatory Management of Irrigation Schemes in Sri Lanka: Partial Reforms, Partial Benefits*) examined two irrigation schemes in detail, before and after rehabilitation, and a further 50 randomly selected schemes through an extensive survey in four districts. The report tested five hypotheses relating to irrigation management transfer (IMT):

- (i) IMT leads to a reduction in government expenditure for operation and maintenance.
- (ii) IMT will increase the cost of irrigation to farmers.
- (iii) IMT will lead to improvements in the quality of irrigation services to farmers.
- (iv) IMT will result in the improved maintenance of irrigation facilities.
- (v) IMT will result in higher agricultural productivity per unit of land and water.

2. The evidence from this study leads to the following conclusions related to the impact of the participatory irrigation management program on the performance of irrigation schemes: (i) government expenditure on irrigation has substantially declined, beginning before transfer; (ii) initiated reforms have not generated an appreciable increase in the costs of irrigation to farmers (farmers generally make fewer direct payments [cash and in-kind] but contribute more labor for canal maintenance); (iii) management transfer alone did not bring about significant changes in the quality of irrigation services; (iv) management transfer alone did not result in significant improvements in agricultural production levels or the gross value of agricultural production per unit of land or per unit of water diverted (neither did rehabilitation alone create significant effects; however, in schemes where both management transfer and rehabilitation have occurred, significant effects on agricultural productivity levels and economic returns were observed); and (v) serious underinvestment occurred in maintenance. This raises concerns about the sustainability of all schemes, including those under participatory management.

3. Thus, at least in the Sri Lankan case, none of the five hypotheses tested by the study was confirmed.

B. Irrigation Sector Reform in Indonesia

4. In Indonesia, in the late 1980s, many irrigation systems were in dire need of repair, due to deferred maintenance. A small-scale irrigation transfer policy was adopted in the early 1990s, with generally positive initial results. However, as the program moved into schemes requiring greater repair, the program slowed, and only 47% of the planned 900,000 hectares to be transferred had been completed by 1997.²

5. The study drew the following lessons from the Small-Scale Irrigation Turnover Program (SSITP):

¹ Samad, M., and D. Vermillion. 1999. *Assessment of Participatory Management of Irrigation Schemes in Sri Lanka: Partial Reforms, Partial Benefits*. IWMI Research Report 34.

² Vermillion DL. 2001. *Irrigation Sector Reform in Indonesia: From Small-Scale Irrigation Turnover to the Irrigation Sector Reform Program*. INPIM International Email Conference June–October 2001.

- (i) SSITP was a modest reform that affected only a small part of the irrigation sector. Only a limited amount of authority was devolved to farmers, and the Irrigation Service still maintained control over the intake and, in many cases, the main canals of small-scale systems. The basic codependency between farmers and the Irrigation Service for deferring maintenance and obtaining externally financed rehabilitation projects was not changed. Hence, the turnover program did not overcome the problem of financial and physical sustainability of irrigation. Water users organizations are still relatively weak organizations in the rural institutional landscape of Indonesia. They lack water rights, do not own the infrastructure, have difficulty obtaining credit from banks, and do not have an influential link to river basin management forums. Irrigation intensities are already relatively high in Java, and turnover had limited potential for increasing agricultural productivity.
- (ii) Clearly, water users were mostly on the sidelines of the turnover process, watching as the Government, once again, provided free repair and upgrading of irrigation infrastructure. The results were often unsatisfactory designs and construction and a reinforcement of perceptions among farmers that the Government was responsible for repairing and upgrading irrigation systems. Because farmers could rely on the Government to return again, deferring maintenance made sense.
- (iii) The need for more far-reaching reforms has become apparent in recent years. Reforms are needed to achieve better benefits for farmers and more economies for government through devolution. To create more meaningful incentives for farmers to invest in the long-term sustainability of irrigation systems, there is a need to expand the economic niche of farmers, link them to river basin management, and have a clear policy requiring joint investment in repair and rehabilitation of infrastructure. The water users organizations need stronger legal clout, additional help in developing agribusinesses, and clearer water use rights.
- (iv) Overall, there is little evidence of dramatic impacts of the program on the agricultural or economic productivity of irrigation systems in Java. The most significant positive outcomes of turnover appear to be in improvements in water distribution arrangements and decreases in the frequency of water-related disputes. There is no indication of any patterns of negative impacts.
- (v) Recognition of the failings of this partial attempt at reform, plus the widespread political economic turmoil and fundamental reforms of the late 1990s, combined to permit the comprehensive set of reforms adopted under the Irrigation Sector Policy Reforms, begun in April 1999 with Presidential Instruction Number 3. The reforms can be considered as a comprehensive reform program in that it deals with the fundamental underlying problems in the sector—accountability, incentives, transparency, choice of service provision, and empowerment of water users.

ESTIMATED IMPACTS OF PARTICIPATION

1. The tables in this appendix summarize the estimated impacts of participatory approaches in the irrigation and forestry sectors in the three special evaluation study countries.

Table A8.1: Estimated Relative Impacts of the Community-Managed Irrigation Participatory Scheme Compared with the Pump Scheme
(Lao People's Democratic Republic)

Factor	Pump Scheme (prior to rehabilitation and management upgrading) Less Participatory Scheme	Community-Managed Irrigation Participatory Scheme
Technical and/or Physical		
Design	Designs were completed by government or private sector engineers, with little reference to farmers. Some schemes were poorly designed.	Farmers should be consulted in detail during survey and design stages.
Construction	Construction was contracted out.	Farmers contribute labor (mainly unskilled) and materials. Costs can be reduced, but construction by farmers is often of poor quality, particularly inadequate is the compaction of canals.
Construction supervision	Construction supervision was carried out by government employees or private consultants.	Farmer involvement in supervision can increase quality control.
Irrigation efficiency (e.g., area irrigated per m ³)	Efficiency is limited by often poor water management.	Efficiency can be increased through improved monitoring of irrigation and management of sluices.
Irrigable area	A reduced proportion of the command area was irrigated, due to pump breakdown and low irrigation efficiency.	Irrigable area should be increased, due to improved water planning and management.
Quality of canal maintenance	The quality of maintenance depends on the efficiency of water users organizations (WUOs).	The quality of maintenance should be improved, due particularly to small scheme size.
Irrigation planning	Limited planning may have been carried out prior to the strengthening of WUOs.	Plans were prepared but not always obeyed.
Farm productivity	Poor availability of water at the tail of the canal or scheme limits the productivity of many farms.	Dry season cropping is more reliable if irrigation plans are well prepared and followed.
Further development of scheme	Development is unlikely or impossible without project-type assistance to improve water supply and irrigation efficiency.	Self-help is evident in some schemes (e.g., with land clearing and leveling expanding irrigable areas). However, on-farm development is still a constraint in some areas.
Social		
Village coherence	Divisiveness is common (e.g., between head and tail irrigators or villages).	Coherence should be increased through collective decision-making processes. Schemes often involve only one village, limiting the potential for conflict.
Intervillage relationships	The limitations of water supply and management can cause conflict.	Effective WUOs can improve intervillage equity and reduce conflict.

Factor	Pump Scheme (prior to rehabilitation and management upgrading)	Community-Managed Irrigation Participatory Scheme
	Less Participatory Scheme	
Conflict	The Government may have to become involved in conflict resolution.	Villagers should be better able to resolve their intra- and intervillage conflicts.
Individual and collective empowerment	There was no empowerment until WUOs were strengthened.	By enabling beneficiaries to make decisions affecting the environment, individual empowerment can be significantly increased.
Dependency	Dependency was increased, although government support was limited or nonexistent.	Dependency was reduced, and self-reliance increased.
Ownership	Ownership was not a factor.	Ownership increased greatly. The sense of ownership in all farmer-managed irrigation schemes is strong.
Poverty	Tail-end farmers often face problems, due to limited dry (and sometimes wet) season production.	Improved irrigation efficiency may allow more farmers to benefit through expansion.
Institutional		
Power of government officers	The power of government officers was not a factor.	Government officer power was reduced. Farmers police their own water management and maintenance and set appropriate penalties for infringements.
Village and/or government links	Village and government links were not factors.	Villagers' ability to deal as equals with the Government was enhanced.
Employment	After irrigation management transfer, farmers were required to manage and maintain their scheme. The Government was not involved.	There are WUO management opportunities.
Training needs and/or program	Training in WUO management and irrigation planning were required but not available.	More intensive training programs are required over an extended period, to enable WUOs to manage effectively. Few postproject training opportunities exist.
Economic		
Financial	Many pump schemes are unable or unwilling to meet electricity costs. Often, large debts are owed to the electricity company by most electric pump schemes.	Many community-managed irrigation schemes are not able to accumulate funds. Irrigation service fees are often set too low.
Irrigation service fee	Collection of fees is often difficult, due to poor water supplies and lack of income, particularly at the tail end of canals.	Irrigation service fee collection is variable. With good water supplies and management, collection can be high.
Economic	Many schemes show poor economic performance. Some schemes collapsed (particularly diesel pump schemes).	Schemes often exceeded their feasibility study targets and are likely to be economically sound.
Rehabilitation	Rehabilitation is urgently required by most schemes. Without effective irrigation management transfer and WUO development, rehabilitated schemes may not be highly sustainable.	With full farmer management, rehabilitation should (in theory) be an ongoing process, thus avoiding the need for major scheme rehabilitation. However, this will require irrigation fund accumulation and increased irrigation service fees in most schemes.

Factor	Pump Scheme (prior to rehabilitation and management upgrading)	Community-Managed Irrigation Participatory Scheme
	Less Participatory Scheme	
Project related		
Implementation period	Original construction periods were often short. New schemes are not being developed.	Implementation periods were increased, due to the need to form or strengthen WUOs.
Sustainability	Sustainability is generally low.	Sustainability will increase, perhaps greatly. The need for rehabilitation is deferred or removed.
Self-generated expansion	Self-generated expansion is unlikely.	Many schemes were initially unable to irrigate a large proportion of their command area, requiring ongoing development. The rate of expansion is variable.

Source: Special evaluation study team.

Table A8.2: Anticipated Impacts of Participation in Sri Lankan Forestry Projects

Factor	No Participation or Less Participatory	More Participatory
Technical/Physical		
Coverage and/or area	Coverage increased (perhaps by >50–100%).	More intensive preparatory work reduces the potential planting area. But the coverage rate can increase once processes are established in executing agencies.
Quality of maintenance	Maintenance is often neglected.	Weeding and pruning and pest control improved.
Plant survival rate	The plant survival rate decreased (by perhaps >50%).	The plant survival rate should increase, due to improved ownership and maintenance.
Productivity per plant per hectare	Productivity is lower, due to weed competition, poor pruning, lack of fertilizer, etc.	Productivity is higher.
Social		
Village coherence	Coherence generally had no effect, but divisiveness may exist in some situations.	Coherence should be increased though collective decision-making processes.
Individual and collective empowerment	Empowerment may increase dependency.	By enabling beneficiaries to make decisions affecting the environment, individual empowerment can be significantly increased.
Dependency	Dependency levels increased.	Dependency levels were reduced.
Ownership	Ownership was not a factor.	Ownership levels increased.
Sense of worth and security	Sense of worth and security may be reduced by increased dependency.	Sense of worth and security increased.
Poverty	Poverty levels did not necessarily change.	Poverty may allow equitable benefit distribution, depending on effectiveness of community-based organizations.
Institutional		
Power of government officers	The power of officers is likely to increase the power of executing agencies over farmers, as the officers have resources to distribute.	Power has to be shared between Forest Department and farmers, which will reduce the power of range and beat officers.
Village and/or government links	Links were not a factor.	Villagers' ability to deal as equals with the Government was enhanced.
Workload of officers	The workload of officers increased during implementation, due to the need to closely supervise and undertake planting work.	The workload increased during the establishment phase but decreased during planting and maintenance, as responsibility was delegated to individuals and community-based organizations.
Training needs and/or program	Training was limited mainly to technical issues.	More intensive training programs are required over an extended period.

Factor	No Participation or Less Participatory	More Participatory
Economic		
Financial	The cost was low.	The initial cost per farmer and per hectare may increase.
Economic	The long-term economic impact may be reduced, due to lower productivity and higher mortality rates.	The long-term economic impact should increase.
Project related		
Implementation rate	The implementation rate increased.	The implementation rate was reduced.
Implementation period	The implementation period was reduced.	The implementation period was increased, at least for the first introduction of participation. The increase may be mitigated by preproject training.
Sustainability	Sustainability was reduced.	Sustainability was increased.
Self-generated expansion	Self-generated expansion is unlikely.	Self-generated expansion is possible.

Source: Study team.

Table A8.3: Impacts of Irrigation Sector Participation in Viet Nam

Factor	Irrigation Company Management (nonparticipatory)	Farmer Management (participatory)
Technical/Physical		
Design	Top-down planning and design fails to capture the knowledge and experience of farmers and may ignore needs of other stakeholders (e.g., transport).	Participatory design can build on farmers' local knowledge (e.g., in relation to topography, floods, hydrology, and climate) and should ensure that the scheme is considered suitable by farmers (men and women).
Construction	Construction is contracted out and may be more expensive. Quality may be poor if construction is not adequately supervised.	Farmers can contribute labor (including skilled labor) and materials. Costs can be reduced, but construction may need more detailed supervision.
Construction supervision	Construction is supervised by government employees or private consultants. Supervision levels are often inadequate.	Construction monitoring by farmers should increase quality control.
Irrigation efficiency (e.g., area irrigated per cubic meter)	Irrigation efficiency is reduced.	Irrigation efficiency is increased through improved monitoring of irrigation and management of gates.
Watering time per tract	Watering time is increased due to higher irrigation demand and low irrigation efficiency.	Watering time is reduced, due to more timely control of gates and possibly improved irrigator attitudes to water conservation.
Irrigable area	Irrigable area is reduced.	Irrigable area is potentially increased, due to higher irrigation efficiency (potentially by 25% or more). Alternatively, diversion volumes can be reduced, leaving more flow for environmental flows or alternative use.
Quality of canal maintenance	The quality of canal maintenance depends on the efficiency of the irrigation station.	The quality of canal maintenance should be improved, provided water users organization management is effective.
Irrigation planning	When irrigation planning is carried out by an irrigation authority, ownership and obedience to the plan are limited.	Irrigation planning by farmers increases the likelihood that farmers will obey the plan.
Farm productivity	Poor availability of water at the tails of canals or schemes limits the productivity of many farms.	Farm productivity is increased, due to improved irrigation planning and increased availability of irrigation water to the tails of canals and schemes.
Further development of scheme	Farmers will likely wait for the next project.	Substantial self-help is evident in some schemes (e.g., with canal lining paid for by farmers or from the village development fund).
Social		
Village coherence	Village coherence generally has no effect but may be divisive in some situations (e.g., between head and tail irrigators or villages).	Village coherence should be increased through collective decision-making processes.
Intervillage relationships	These relationships will have no necessary effect. The irrigation company may have to act as an intermediary to resolve disputes.	These relationships can be improved through the links that should be formed between villages on a multivillage secondary canal, for example.
Conflict	The Government is involved in conflict resolution.	Villagers should resolve their intra- and intervillage conflicts. Violent confrontations should be reduced or eliminated.

Factor	Irrigation Company Management (nonparticipatory)	Farmer Management (participatory)
Individual and collective empowerment	Empowerment is not increased.	By enabling beneficiaries to make decisions regarding the environment, individual empowerment can be significantly increased.
Dependency	Dependency is increased.	Dependency is reduced.
Ownership	Ownership is not a factor.	Ownership Increased greatly. The sense of ownership in all farmer-managed irrigation schemes is strong.
Poverty reduction	Poverty reduction levels did not necessarily change.	Improved irrigation efficiency for the tails of canals, where the poor are often located, should provide improved and stabilized production for the poor, which will reduce poverty. Stabilized and effective irrigation service is evaluated as the top factor among many others contributing to general poverty reduction. Poverty reduction helps strengthen the capacity, the power to work, and the self-confidence of the poor. Poverty reduction results in additional income and job opportunities for the poor.
Institutional		
Power of irrigation company officers	The power of officers Increased, due to the sanctions they can exert on farmers (e.g., by cutting off water).	The power of officers was reduced. Farmers police their own water management and maintenance and set appropriate penalties for infringements.
Village and government links	There are few links.	Villagers' ability to deal as equals with government employees is enhanced.
Employment	The irrigation company has to employ and manage water bailiffs and staff members to maintain structures for the tertiary canal level.	The workload is unchanged (more or less), but because work is undertaken by farmers, the workload and management needs of the irrigation company are greatly reduced. The irrigation company can save perhaps 25% of staff costs through delegating secondary canal management to farmers.
Training needs and/or program	Training is limited mainly to technical issues.	More intensive training programs are required over an extended period to enable water management organizations to manage effectively.
Economic		
Financial	Irrigation company costs increased. Development costs were not affected.	Capital costs are not necessarily changed, but operating costs are reduced.
Irrigation service fee	Collection may be difficult if service is inadequate.	Collection rates should improve, due to increased ownership and improved water management.
Economic	The long-term economic impact may be reduced, due to lower productivity and more rapid deterioration of schemes.	The long-term economic impact should increase.
Rehabilitation	Rehabilitation is often required after 10 to 15 years.	With full farmer management, rehabilitation should (in theory) be an ongoing process, thus avoiding the need for major scheme rehabilitation.

Factor	Irrigation Company Management (nonparticipatory)	Farmer Management (participatory)
Project related		
Implementation rate	The implementation rate increased.	The implementation rate was reduced (marginally).
Implementation period	The implementation period was reduced.	The implementation period was increased, due to the need to form or strengthen water users organizations.
Sustainability	Sustainability levels decrease because of increasing costs and staffing levels (if service quality is to be maintained as the scheme deteriorates).	<p>Sustainability levels increased perhaps greatly because of the motivation of farmers to maintain water service quality.</p> <p>Sustainability levels increase because of the need for rehabilitation is reduced or removed.</p> <p>Sustainability levels increase because of improved attitudes and awareness toward maintenance and protection.</p> <p>Sustainability levels increase because of strengthened commitment and financial capacity supporting volunteer contributions.</p> <p>Sustainability levels increase because of increased water fee collection.</p>
Self-generated expansion	Self-generated expansion is unlikely.	Self-generated expansion is possible, depending on command area characteristics.

Source: Special evaluation study team.

Table A8.4: Estimated Impacts of Participation in Viet Nam's Forestry Sector

Factor	Provincial State Forest Enterprise— Hypothetical (nonparticipatory)	Participatory Forest Development and Management on Allocated Land
Technical/Physical		
Knowledge and/or skill	Knowledge and skill levels should normally be high (e.g., through employing well-educated staff) but sometimes is not.	Knowledge and skill levels are relatively low but can be increased through extension.
Forest development planning	Planning is top-down.	Planning is from the bottom up.
Plantation development	Development depends on the Government's budget, which is not always available at the right time of year for forest development activities.	Development depends on project funding, though some spontaneous planting might occur on allocated lands. Plantation establishment is often more timely. Poor people can find plantation development difficult, since they have short-term income needs that cannot be met from plantations (unless agroforestry is feasible).
Quality of maintenance	Maintenance is often neglected and depends on budget allocations.	Weed control and pruning should be timelier, based on individual ownership of small plots (even remote land is now being maintained by farmer teams in the highlands). A free rider problem is possible, if some individuals neglect maintenance (e.g., maintenance or fire control). The maintenance of infrastructure is improved.
Plant survival rate	The plant survival rate will not necessarily change.	The plant survival rate will not necessarily change, but increased motivation may be offset by reduced knowledge and skill. The survival rate can increase with project and extension support and through the use of good quality seedlings.
Productivity per plant per hectare	Productivity is lower, due to weed competition, poor pruning, lack of fertilizer, etc.	Productivity is higher, due to timely management and thinning, etc.
Harvesting, processing, and marketing (HPM)	State Forest Enterprises (SFEs) have the potential to assist villages in HPM.	Under individual ownership, harvesting is a problem. Ideally, coordination is required at the forest level, so that harvesting can be fully planned. Villagers will need substantial assistance from the Forest Department or SFEs on HPM. Issues of responsibility for the maintenance of logging tracks can exist (overcome perhaps by appropriate contracts with loggers).
Nursery supplies	Nursery supplies are not a factor.	Nurseries are established in communes. After-project sustainability may be limited. Supplies improved, compared with previous provision from forest extension center.

Factor	Provincial State Forest Enterprise— Hypothetical (nonparticipatory)	Participatory Forest Development and Management on Allocated Land
Social		
Village coherence	Largely irrelevant to the village (limited if any link to the Commune People's Committee).	Coherence should be increased through collective decision-making processes.
Individual/collective empowerment	Empowerment had no effect, except on SFE workers (who often do come from local areas).	Empowerment increased greatly.
Dependency	Dependency had no effect.	Dependency was reduced.
Ownership	Ownership had no effect.	Ownership increased.
Poverty reduction	Poverty reduction had a limited effect, as profits accrue to provinces.	Poverty reduction benefits are widely distributed in villages.
	Rent may be charged by nonpoor individuals.	Poverty reduction enhanced capacity and self-confidence of the poor, enabling individuals to join with better producers in efficient team work.
		Poverty reduction created short-term job opportunities for the poor.
		Poverty reduction helped the landless to acquire land and extension.
		Poverty reduction created favorable markets for the poor.
		The poverty reduction rate was high.
Sense of worth and security	Sense of worth and security had no effect.	Sense of worth and security was increased particularly by the establishment of a visible and valuable asset.
Institutional		
Power of government officers	The power of officers limited links to villages.	Villagers were able to talk to government officers on a more equal basis. The power of officers to control villagers in production woodlots was eliminated, much reducing the risk that the relationship would become a police to criminal one.
Workload of officers	SFEs are often understaffed for the workload required.	The workload of officers increased during the establishment phase and decreased during planting and maintenance, as responsibility was delegated to individuals.
		A participatory approach can improve operation of forest protection stations, through increased monitoring levels by farmer-owners.
Training needs and/or program	Little training is normally provided.	All farmers will require at least some technical training.

Factor	Provincial State Forest Enterprise— Hypothetical (nonparticipatory)	Participatory Forest Development and Management on Allocated Land
Economic Financial	Many SFEs do not operate profitably and are a drain on government budgets.	Initial cost per farmer and per hectare may increase, but the medium - to long-term cost to the province should be markedly reduced (for comparable areas and management standards).
Economic	Many SFEs will need improved management if they are to optimize their contribution to the economy. SFEs may have an ongoing role in watershed forest protection.	The long-term economic impact is expected to be highly positive.
Governance	SFEs may present opportunities for provincial governments to extract rent.	Transparency and governance are greatly improved. The potential for corruption is almost eliminated.
Project related Implementation rate	The implementation rate increased.	The implementation rate was reduced.
Implementation period	The implementation period was reduced.	The implementation period was increased, at least for the first introduction of participation. The increase may be mitigated by preproject training.
Sustainability	Sustainability levels were reduced because of increasing costs and staffing. Land use changes by unpaid or underpaid SFE member households, who have to earn their living by relying on forest resources, are uncontrollable.	Sustainability levels increased perhaps greatly because of the strong and positive attitude of most beneficiaries. Land tenure of 50 years is sufficient to motivate farmers. Ownership has improved. Attitude and awareness were strengthened. Poor people's lives and production stabilized. Slash-and-burn agriculture was reduced. Commitment and capacity of farmers to implement village plans was strengthened. Villagers can and should monitor and control their forests, at a level that is beyond the capacity of Forest Protection Department.
Self-generated expansion	Self-generated expansion is unlikely, except for those SFEs that generate profits and are allowed to retain them for expansion. However, a well-run SFE has good potential and can, for example, borrow commercially to finance expansion, which is an activity that would be difficult for village forest landholders.	Self-generated expansion is possible, particularly after substantial revenue streams from original plantings commence.

Source: Special evaluation study team.

POSSIBLE APPROACHES TO PARTICIPATION IN NATURAL RESOURCES PROJECTS

1. During the preparation of the three country studies, a number of suggestions for implementing participatory approaches were developed. These were presented to participatory workshops, discussed by working groups, and refined. They are summarized in this appendix and form the basis for the recommendations in Chapter V.

A. Project Cycle

1. Project Identification and Design

2. Few of the projects evaluated under the special evaluation study (SES) included much information on the participatory approaches used during identification and design. Therefore, the design documents of participatory projects should include adequate information on the participatory processes used, including the approach to ensuring adequate representation, and on the meetings, interviews, and surveys conducted, with a breakdown by gender. Moreover, participatory project preparation teams should include expertise in participatory development to establish participatory rural appraisal and intensive stakeholder analysis to (i) identify the roles, responsibilities, and participation extent of all stakeholders in each project phase; (ii) introduce the participatory approach framework and mechanisms to project implementing agencies, as appropriate; and (iii) establish a relevant mechanism to secure commitment to exercise the participatory approach in conformity with national and donor guidelines.

3. In none of the countries studied under SES is there a national irrigators association, as exists in many developed countries. The widespread establishment of participatory irrigation management (PIM) and water users organizations (WUOs) provides the potential to establish such an association in developing member countries. A national irrigation association would have benefits in providing a national and provincial level partner for governments to liaise with in policy development and in identifying needs and potential projects. Where appropriate, the association could be established as a section of an existing national farmers organization, which would simplify establishment and provide the new organization with a ready-made structure. In line with this, consideration could be given to supporting the establishment of national irrigation associations with a hierarchical structure, from WUOs to schemes, districts, and provinces and beyond.

4. Other recommendations based on SES country reports relating to identification and design include the following:

- (i) Terms of reference for feasibility studies developed by the Asian Development Bank (ADB) and line agencies should clearly specify the methodology and especially the participatory or consultative processes required.
- (ii) Project designs need to be resourced at a level that provides adequate time for detailed participatory processes to be completed and integrated into the design. These include social, stakeholder, and problem analyses and the development of a project framework and objectives.
- (iii) For women to participate in and fully benefit from project activities, gender strategies should be designed that specifically target their needs. All project statistics and, for example, workshop reports and planning documents should include gender disaggregated data.

2. Loan Processing Period

5. There is often a hiatus during between project preparatory technical assistance (PPTA) and loan effectiveness, during which beneficiaries hear little if anything about a project. Therefore, mechanisms need to be developed during the PPTA process to maintain contact with stakeholders during the finalization of the PPTA report and appraisal and subsequent loan processing.

6. Options could include developing a committee of village leaders who could be invited to, for example, biannual workshops where progress in project planning could be outlined, information on the current status in the villages is collected, and training is provided to enable leaders to better prepare beneficiaries for implementation. To make this manageable, meetings would have to be limited in size, perhaps to village leaders who participated in the planning process. In other cases, a project newsletter could be developed and circulated to participating villages and government officers.

7. Increasingly, the internet forms a useful method of maintaining active and passive contact with stakeholders. The mechanisms are established during project design, which include the establishment of websites and electronic mail lists. Mechanisms to disseminate materials should be feasible. Such mechanisms should be developed and trialed under projects in countries where internet capability in provinces and districts is reasonably advanced.

3. Construction Supervision Monitoring and Certification

8. In any community irrigation scheme, the community ultimately is the client. The community's satisfaction with the construction quality and value under the construction contract is, therefore, important. To that end, small community construction monitoring committees could be appointed prior to subproject design. The size of the committee would depend on the area and nature of the scheme. Members could be provided with training in construction and contract monitoring. Women should be included on the committees.

9. In some countries and projects, responsibility may move beyond monitoring to works approval, but this needs to be handled carefully in order not to place too much responsibility on individuals in their communities.

10. Villagers often have an unequal voice, compared with government officials on construction committees. Methods to include communities effectively in the monitoring and approval of schemes are required to promote ownership and reduce the potential for operational problems.

4. Timing

11. Participation runs the risk of delaying project implementation, as processes are developed and implemented. While participation should never be rushed, developing time, cost, and resource efficient ways of implementing participatory processes is essential. Where possible, the participatory planning system should be defined prior to implementation (e.g., during PPTA activities), and sufficient training should be provided to executing agency staff, so that full implementation can commence soon after loan effectiveness.

12. If departmental staff resources are too limited to achieve the required implementation rate, consideration can be given to engaging nongovernment organizations to assist in

community mobilization and participatory planning under guidelines prepared by an implementing agency.

5. Monitoring of Participation

13. Participatory approaches have provided added value to poverty reduction through more equitable sharing of resources and benefits. In addition, these approaches facilitate the closer integration of the poor with society. However, effective indicators that could be used to quantify impacts are not available. To change this situation, the following actions must be undertaken.

- (i) Monitoring of participatory processes is required in participatory projects. For example, elections for community organizations (such as WUOs) and the number of farmers enrolled as members must be monitored.
- (ii) Identifying quantifiable indicators is needed to measure added values related to poverty reduction resulting from participatory approaches. Indicators could include the percentage of poor people participating in a project compared with the percentage residing in a project area, the income levels before and after participation (or with and without participation), and the percentage of project labor costs paid to the poor. Stakeholder scorecards or report cards can also be used to assist in defining the impacts and the problems relating to participation.
- (iii) Adopting, as far as possible, participatory monitoring techniques is necessary, so that project area households are fully involved in the monitoring process and understand its relevance.

B. Crosscutting and Social Issues

1. Gender

14. Women are central to irrigation and agriculture in the three countries studied. In the household, women normally share in decision-making with their partners and are involved with most farming activities. In the Lao People's Democratic Republic (PDR), women contributed more than half of all labor inputs to irrigation scheme construction. However, women have little representation on WUO committees, and those women who are elected hesitate to make substantive contributions. Recommendations include the following:

- (i) Projects should mainstream gender into all relevant project activities and continue to promote reasonable gender balance on WUO committees.
- (ii) Women members of WUO committees and subcommittees will often require support, through empowerment training, in addition to the normal management and technical training provided to WUOs. This support will assist female members in making a full contribution to WUO operations.
- (iii) Projects need to take care that they do not cut across existing cultural values, particularly in a matrifocal and/or matrilineal society, as exist in parts of the Lao PDR. This requires adequate socioanthropological inputs during design and careful gender monitoring during implementation, to ensure that women's rights and roles are not compromised.
- (iv) Women can also be disadvantaged with respect to extension activities that often mainly target men. Projects need to make specific efforts to target women and include them as village extension workers, as is being implemented under the Decentralized Irrigation and Drainage Management Project in the Lao PDR.

2. Ethnic Minorities

15. The Community-Managed Irrigation Project was able to provide little encouragement for the routine participation of minority groups or people from those unable to speak Lao. Work normally proceeded with the participation of Lao speakers only. Therefore, projects should ensure that participation by minority groups is promoted, as far as possible, through the appointment of minority language speakers as village coordinators or extension workers. The translation of key documents into minority languages and the conduct of at least some training in minority languages should be undertaken.

3. Conflict

16. Of the three countries covered by the SES, only Sri Lanka is in a recent conflict or postconflict situation. However, participation is a key to postconflict project design and implementation. Recent project design experience in Sri Lanka indicates that in a postconflict environment, full consultation and deeper participation by the parties to a conflict is essential, in particular to ensure that a project does not exacerbate tensions and thus contribute to a delay in the permanent resolution of a conflict.

4. Poverty

17. Irrigation projects (in mountain areas) need to take care not to increase income disparity in subproject villages through focusing mainly on farmers with irrigation land. The Community-Managed Irrigation Project, as initially implemented, did not take sufficient account of this. However, following midterm review, an add-on Japan Fund for Poverty Reduction-funded project is attempting to provide income-earning opportunities for neighboring farmers without irrigation. The decentralized irrigation development and management sector and proposed northern community-managed irrigation scheme projects have taken full account of this issue. Options to widen benefits to include relatively poor nonirrigation farmers include

- (i) encouraging a more inclusive approach during land allocation during subproject planning;
- (ii) encouraging the renting of irrigated land to farmers without irrigation land during the dry season;
- (iii) expanding project agricultural extension activities beyond the subprojects and including shifting cultivators and women making fruit and vegetable gardens;
- (iv) favoring the landless and poor in income-earning opportunities provided by the project; and
- (v) undertaking social development activities in education and water supply, which should benefit whole communities.

C. Irrigation Operation and Maintenance

1. Water Users Organization Development

18. A single project period is often too short to permit WUOs to become fully self-supporting. Where this is identified as an issue, ways need to be found to provide ongoing support, such as training and extension to WUOs after the end of a project period. Where government services are too underfunded to provide such services, WUOs can be encouraged to allocate part of their collected irrigation service fees (ISFs) to paying part-time village extension workers (as is already common through many Vietnamese agricultural cooperatives) and supporting training

for new WUO committee members. WUOs need to be informed about existing training opportunities. While such support will often be desirable, the organizations should be encouraged to become self-supporting, requiring a careful balance to be drawn between insufficient and excessive support levels.

2. Major Repairs of Irrigation Structures

19. The collection of ISFs and the approach to the management of irrigation funds are unlikely to permit major repairs or replacement to be made from savings. Other forms of funding are likely to be required for emergencies, such as the destruction by flood of weirs under the Community-Managed Irrigation Project. A national insurance program could be considered to meet part or all of emergency repair costs. This program should reduce the time before repairs can be effected and make farmers more responsible for their schemes, thereby reducing risk and uncertainty and promoting ownership.

3. Participatory Irrigation Management in Large Irrigation Schemes

20. No strong recommendation can be made based on the research undertaken for this study for a particular kind of participatory model. The two irrigation rehabilitation approaches (water users associations and cooperatives) and the more generally applied agriculture and agricultural service cooperatives all appear suitable, though some will be more appropriate than others in a particular area, and each approach has significant advantages and drawbacks. The major problem that the ADB-funded technical assistance activities sought to address was the fact that administrative and hydraulic (irrigation and drainage) boundaries rarely coincide. Thus, a cooperative, normally based on the commune boundary, may include areas served by more than one secondary canal, while most secondary canals and a proportion of tertiary canals cross more than one commune.

21. In other regional countries, innovative institutional approaches have been developed, particularly for increasing farmer involvement in large scheme management. In the People's Republic of China, a number of options have been tested to reduce dependence on government institutions for irrigation management.¹ With that in mind, a review of all PIM options will be desirable in Viet Nam and other ADB member countries, to define the optimal systems for irrigation management transfer for schemes of different sizes and characteristics.

22. In the absence of PIM, irrigation efficiency is almost always low (i.e., water is used wastefully). Ways to promote integrated farmer management of secondary canals need to be developed, and farmer management requires some form of organization that includes each canal's entire command area. These organizations could include (i) canal-based WUO or water users cooperatives (the approach of ADB technical assistance activities); (ii) associations of subgroups from each cooperative that join together for irrigation planning and irrigation management; (iii) private canal management organizations, along the lines of the Shangxi model (Appendix 9, footnote 1); or (iv) private irrigation companies, in the longer term. Initially this could involve corporatizing the companies for a period prior to full privatization. For each irrigation system, analysis is required of the optimal modes for rehabilitating, strengthening,

¹ In Shanxi, a World Bank project is supporting the turnover of around 4,200 tertiary canals irrigating almost 600,000 hectares. Options being tested include contracting (by far the most common model), leasing, and auctioning, as well as the establishment of WUOs or joint-stock companies. Key outcomes to date are reported to include water saving, lower irrigation costs, and higher cost recovery. (Li, Xiaokai, and Houbin Liu. 2002. Institutional Options for Management Turnover: Guanzhong Irrigation System. Report presented at the 6th International Seminar on Participatory Irrigation Management, Beijing, 21–26 April.)

and/or sustaining grassroots participatory irrigation management. A firm legal and policy framework, concrete guidelines, and initial infrastructure support funds and training should be made available for successful promotion of PIM models. In Viet Nam, this may require a new government initiative and perhaps the launch of a new program.

4. Farmer Management of Main Structures

23. At present, farmer management is limited to tertiary and some secondary canals. In the future, however, farmer management of primary and main canals and, in many circumstances, headworks will be feasible. In many countries, full farmer management has proven effective, which was the case in Australia,² Nepal, India (several states), and Mexico (with the transfer of main canals during the second phase of irrigation management transfer).

24. Full farmer management could be undertaken in Viet Nam, through corporatizing an irrigation company and providing a share of the equity and board membership to farmers served by the company. Ultimately, 100% of equity could be allocated to farmers, though reserving one or more board positions and a share of equity for the provincial government or other stakeholders might be necessary. Involving others would have advantages in transparency and accountability and still allow farmers to take control over the development and management of their scheme. Farmer management should provide excellent underpinning to PIM at the secondary and tertiary canal levels. Operating parameters would still need to be determined by provinces, particularly in areas where other water uses are important, including those involving environmental flows. Where irrigation companies are also responsible for urban drainage, for example, payments and funding sources for drainage pumping and other costs would need to be agreed.

25. Since both Song Chu and North Nghe An are large and complex schemes, full farmer ownership could be attempted initially in a simpler scheme. One or more of the Red River Basin Water Sector subprojects and/or the forthcoming Central Region Water Resources project could be selected. This would allow the systems for defining farmer board representation to be developed.

5. Irrigation Service Fee Management

26. As Viet Nam's rural communities become more diverse in terms of economic activity, management of irrigation revenues will need to be separated from other cooperative or commune revenues. If all families in a village are irrigation farmers, then there may be justification for using irrigation service fees for all village activities. However, if nonirrigation activities become significant (e.g., off-farm work and service sector development and retailing and manufacturing), then other sources of revenue should be considered (such as property taxes) for general commune and/or village development and operation. ISFs should primarily be used for irrigation development and operation and maintenance, not as a source of general revenue. Revenue and expenditures should be controlled by farmers and should be accounted separately from other revenue sources, such as village development grants. The financial operations of WUOs and cooperatives should be fully transparent.

² In Australia, public utilities or cooperatives manage all irrigation systems, including headworks, and are responsible for all aspects of operation and maintenance and in some states for financing rehabilitation and modernization.

6. Irrigation Management Transfer

27. The study of irrigation schemes in all three SES countries and from elsewhere in the region (e.g., Indonesia and the Philippines) shows clearly that irrigation management transfer does not of itself solve all of the problems facing small-scale and large-scale irrigation. To capture the full benefits of water user empowerment, governments and projects need to ensure that the transfer program and its institutional and legal framework are appropriate and that barriers to adoption of improved practices are removed.

28. WUOs need clear legal status, with well-defined water rights. Water users should be involved in the design and construction of a scheme or its rehabilitation, which should be at a technical level that the users feel comfortable with. The WUO should be fully responsible for decision making (but within the context of national or local legislation). Strong support for WUOs is required for a period, possibly 5 years or more, during which time their capacity needs to be monitored and strengthened, as necessary. Irrigation departments need to change their relationship with the water users from one of control to one of partnership. Overall, strong national and local political commitment is essential.

29. Projects need to review these (and other) factors in detail before introducing PIM or irrigation management transfer. Even in the absence of one or more of the factors for success, some aspects of PIM are invariably of value, particularly the involvement of farmers in the design of their scheme, which engenders ownership and a participatory approach to dispute resolution. Thus, even if future irrigation projects do not consider that the attainment of participation Level 6 (Empowerment) is feasible, strong efforts will nonetheless be merited to achieve Level 3 or Level 4 and fully involve primary stakeholders in the decisions relating to their schemes.

D. Institutional Factors and Training and Extension

1. Policy and Legal Framework for Participation

30. Governments need to establish effective measures (appropriate guidelines, operational frameworks, and financial support) to promote the application of participatory processes developed by government agencies in the planning, programming, preparation, implementation, and operation of development projects and programs.

31. The establishment of an appropriate policy and legislative framework is essential if participatory processes are to be widely adopted. Participation requires a clear policy framework to be effective, together with strong and unequivocal support from senior management. Where the policy framework is inadequate to support participation and comanagement, a participatory process of policy development should be undertaken by government and nongovernment stakeholders. Policy and operational guidelines need to be developed and widely distributed, so that all stakeholders are fully informed about the project and of their rights and obligations.

32. In the absence of appropriate political and policy support, participatory processes are unlikely to be effective. Careful assessment is, therefore, required of the policy and legal framework before approving a project. Where inadequacies are identified, these need to be corrected and appropriate mechanisms put in place prior to loan effectiveness.

33. Implementing agencies could be encouraged to organize a series of workshops at head offices and in participating provinces and/or districts to familiarize staff at all relevant levels with

the project design and seek their views. Ideally, these workshops would be undertaken toward the end of the PPTA period or between PPTA and appraisal. At this stage, officers still have some capacity to contribute to the design. PPTA budgets could reflect this approach. If the policy foundation for participation is lacking, these workshops could also be used to contribute to the development of a policy framework.

2. Training and Awareness

34. Actual and potential primary stakeholders need to be aware of a project and its components and/or activities and of their rights and obligations. Awareness of participatory projects and their processes needs to be more actively promoted. Mechanisms include radio, television, and leaflets. However, a balance needs to be drawn between promoting necessary awareness and raising expectations that cannot be met.

35. As recognized by the Participatory Forestry Project and the Forest Resources Management Sector Project, the training of staff and farmers is essential to support the establishment of participation. Adequate training inputs are required for executing agency staff and beneficiaries, particularly to support the initial introduction of participatory approaches. The initial introduction of participatory approaches needs to focus on in-service training, but preservice training should also be supported strongly.

36. WUOs and cooperatives may have a high turnover of management staff, which can threaten their sustainability. Ways need to be found to train incoming staff in such areas as planning, management, and accounting and financial control. Irrigation companies and agricultural departments should consider developing and institutionalizing training courses for WUO managers. A national or regional module-based training system could be considered.

E. Other Factors

1. Incentives

37. Incentive structures are important if the participation of beneficiaries is to be secured. Secure tenure is one of the most important of all incentives in promoting forest planting and maintenance. Land tenure arrangements for village forestry projects must be clear, unambiguous, and publicized widely. Government agencies responsible for issuing leases or other titles should be resourced at a level that allows them to meet their obligations on a timely basis.

38. Under the Participatory Forestry Project, the allocation of land for plantation development with intercropping possible in the years prior to full canopy establishment provided a major incentive for farmer participation. However, the failure of the Forest Department to allocate lease certificates to farmers who developed woodlots is causing anxiety and mistrust among villagers. The failure to allocate lease certificates is jeopardizing participatory efforts under ongoing ADB- and Australian Agency for International Development-funded projects, with some villages refusing contact with departmental staff. The department should as a matter of urgency complete the issuing of 25-year lease certificates to all tracts meeting the defined criteria. Community groups or farmers should be allocated long-term maintenance contracts on suitable protection woodlots.

39. Incentives are important to government officers as well as to primary stakeholders. Project designs need to consider this and attempt to ensure that incentives (including

nonfinancial incentives) are sufficient to secure the involvement of government stakeholders and, in particular, ensure that any disincentives are identified and solutions proposed.

2. Replication

40. ADB has been at the forefront of introducing participatory systems in many of its developing member countries. However, there has been little spontaneous replication of the approaches piloted in ADB projects, including those piloted under the Irrigation and Flood Protection Rehabilitation Project and the Walawe Irrigation Improvement Project. Ways need to be found to extend PIM to more canals and communes within the Song Chu and North Nghe An schemes, if not to the entire irrigation areas. There is considered to be potential for development partners to work with government officials to expand PIM to many of the country's lowland and mountain schemes. One option will be for the Government to widen the scope of its Canal and Ditch Stabilization Program and link it with agency-funded support for PIM, including tertiary system upgrading.

41. Similarly, through the Forestry Sector Project, ADB has undertaken groundbreaking work in participatory forest planning. Ways need to be found to extend such systems to more areas and, for example, link them more closely with the Government's 661 program. The Government of Viet Nam and ADB should assess whether a successor participatory forestry project is merited, which could involve widespread assistance to provinces to promote more or less spontaneous forest development on a participatory basis.