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**PROPOSED GOSL/USAID PROJECT
FOR
SHARED CONTROL OF NATURAL RESOURCES
(SCOR)**



DRAFT PROJECT PAPER

(For review at the National Workshop to be held at the Airport Garden Hotel, Seeduwa on 7/8 August 1992.)

11827

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DRAFT -- July 11, 1992

PROJECT AUTHORIZATION

Name of Country: Sri Lanka

Name of Project: Shared Control Of Natural Resources (SCOR)

Number of Project: _____

ACRONYMS

ADB	Asian Development Bank
ADA	Agricultural Development Authority
AGA	Additional Government Agent
CEA	Central Environment Authority
CEQ	Council on Environmental Quality
ECC	Environmental Coordinating Committee
EIA	Environmental Impact Assessment
DAS	Department of Agrarian Services
DGA	Divisional Government Agent (now AGA)
DS	Divisional Secretary
DCC	District Coordinating Council
FD	Forest Department
FO	Farmer Organization
GA	Government Agent
GSL	Government of Sri Lanka
IBRD	International Bank for Reconstruction and Development (World Bank)
ID	Irrigation Department
IMD	Irrigation Management Division
IMPASA	Irrigation Management Policy Support Activity
IQC	Indefinite Quantity Contract
ISMP	Irrigation Systems Management Project
LUPPD	Land Use Policy and Planning Division
MASL	Mahaweli Authority of Sri Lanka
M/AD&R	Ministry of Agriculture
MEP	Mahaweli Environment Project
M/EPA	Ministry of Environment and Parliamentary Affairs
M/LIMD	Ministry of Lands, Irrigation and Mahaweli Development
M/LLA	Ministry of Lands and Land Alienation
NAG	National Advisory Group
NAREPP	Natural Resources and Environmental Policy Project
NARESA	Natural Resources, Energy and Science Authority
NEA	National Environment Act
NGO	Non-Governmental Organization
NORAD	Norwegian Development Cooperation
NWG	National Working Group
NSC	National Steering Committee
PC	Provincial Council
PWG	Provincial Working Group
PSC	Provincial Steering Committee
UG	User Group
WRMG	Watershed Resources Management Group

SHARED CONTROL OF NATURAL RESOURCES PROJECT

A. PROJECT RATIONALE

1. Introduction

Sri Lanka has made massive investments in the agricultural sector, much of it in irrigation infrastructure, to meet its food needs and to fuel its economic and social development. Undeveloped land suitable for economic expansion of the irrigation sector is very limited. Similarly, there is little undeveloped area of agriculturally-suitable rainfed land. The growth of population, while modest by South Asian standards, will increase the pressure for more food and other agricultural products.

This pressure will be enhanced by the needs of the accelerated development program currently fostered in the country. Thus, there is an increasing need to intensify production on both irrigated and rainfed areas, but to do so in a sustainable manner. Past efforts, with their emphasis on immediate gains and centralized, but poorly-coordinated control, have inadequately addressed the need to manage and utilize the natural resources that are the basis for continued production and development, more efficiently and more effectively.

The interventions planned by the Shared Control of Natural Resources (SCOR) Project are designed to promote sustainable development through an increasingly productive agricultural sector functioning within healthy social and natural environments. This will be done through expanding and strengthening the role of the small holders in the agricultural sector, as individuals and groups, in the management and control of the natural resources fundamental to the sector -- primarily land and water.

The focus on watershed development is a unique feature of the SCOR project. The need for integrating the development efforts in the different components of watersheds -- namely, upper catchment areas, reservoirs and anicuts, command areas and highland, and irrigation return-flow areas downstream -- is a basic premise of SCOR project. The central arena for project implementation will be the Pilot watersheds selected from North Central and Southern Provinces. The interventions will be focussed on formulating, pilot testing and application of innovative agricultural production modes. This will speed the transfer of specific land and water rights, strengthen the technical and managerial capabilities of the resource users so that they are better able to assume greater responsibilities for natural resource management, assist these users in structuring their agricultural activities for greater profitability, strengthen the capacities of local and intermediate level administrative and governmental bodies to interact positively with the resource users, and improve those aspects of national policy and ministerial structures necessary to implement the shared control of natural resource management.

2. Relationship to USAID and GSL development strategies

SCOR's interventions are directly supportive of USAID/Sri Lanka's strategic objective of "sustainable productivity of natural resources" and the anticipated program outcome, "increased local participation and shared control of natural resources." It also contributes to two other Mission Objectives: the diversification and commercialization of agricultural systems, and citizen participation in democratic systems.

The activities of the Project are complementary and synergistic to the efforts of the USAID-supported NAREPP, and are supportive of a number of other GSL development efforts. The Project interventions are in consonance with the GSL objectives for environmental protection and improvement, and are supportive of the GSL policy of decentralization and devolution of authority and responsibility for many government functions relating to land and water use.

2.1 Importance of sustainable productivity of natural resources to Sri Lanka's development

Sri Lanka's economic development in the foreseeable future, will remain heavily dependent upon the effective utilization of its natural resources for agriculture, for power, and for industry. In addition, the relatively small, but growing area of tourism adds special protection requirements for specific areas of the environment. The need for an effective combination of use and protection is clearly evident in the combination of dependencies. Use and protection principle is equally important within the agricultural sector, itself.

A large fraction of Sri Lanka's investments, both public and private, in the agriculture sector have been to develop irrigation capacity. Deforestation and inappropriate hillside cultivation in the watersheds, with resulting erosion, sedimentation, distorted runoff patterns, and decline in water quality threaten that investment. Intensification of agricultural production, necessary to meet future population and development needs, brings with it possibilities for increasing these problems. In addition, it has the potential to add new ones, such as chemical pollution of important portions of the nation's water resource, especially ground water, which will be an increasingly important supply for agricultural, as well as domestic, urban and industrial uses.

2.2 General constraints to sustained productivity

Three types of major constraints exist in relation to the environmentally appropriate increase in production:-

- 1) The lack of a production environment that permits the resource user to effectively manage the combination of resources essential to maximize economic production;
- 2) The lack of an appropriate combination of education, incentives and mechanisms to enforce penalties that encourage internalization of environmental considerations into management decisions;
- 3) The lack of adequate information about the land and water resources.

2.2.1. An inappropriate production environment

Essential to sustainable production is sufficient security of tenure for farmers to expect to utilize specific areas of land over an extended period. This reduces the incentive for exploitative land use, and permits recovery of investment in production and natural environment protection practices that have relatively long cost-recovery periods. Security of tenure usually is assured by ownership title, but other mechanisms are available to provide effective security. Settlement schemes offer de facto security, as do various types of traditional tenancy.

However, the security of tenure alone is not sufficient to ensure that farmers will make economically and environmentally sound decisions. The size of the operating holding should permit viable and sustainable production. While there is evidence that there are individual small holdings which are or could be made to be economically viable, very small fragmented holdings are, generally, not conducive to either optimization of agricultural practices or to the application of environment protection practices. Large operating holdings could permit a reasonable degree of optimization in the use of the available natural and human resources. However, the resources of individual holdings could be pooled together to bring about the same advantages without changes in tenurial rights.

There must be a supportive production environment. Production inputs, such as credit, seeds, and fertilizer, must be available at reasonable cost. The total costs to farmers, particularly small holders, often include a high proportion of "transaction costs," those monetary and non-monetary payments that are associated with obtaining necessary approvals, ensuring timely availability of the inputs, etc. These costs frequently result in decisions significantly different from those that would result if they were not a factor.

Customary economic incentives, such as product prices and market stability, must be such that production of resource appropriate crops can be profitable. Government policies on price fixing, importation of agricultural products, and other forms of regulation of the agricultural sector obviously

influence farmer decisions. These influences can produce positive or negative effects on the utility of the natural resources.

2.2.2. Failure to consider environmental impacts

Sri Lanka, has a long history of cultural sensitivity to the environment. Unfortunately, the combination of increased population pressure, increased urbanization, the push for development and modernization, and inappropriate government policies have seriously eroded this sensitivity. The impact of this loss, expressed in accelerated environmental degradation, is difficult to address in the agricultural sector, and especially in the small-holder portion of the sector. The typical processes used for environmental protection in the industrial sector -- establishment of environmental standards, monitoring of impacts, and enforcement of rules -- can be effective because most of the environment-impacting practices can be identified with the individual producer. In the agricultural sector, and particularly in farming, adverse impacts usually are the result of the cumulative effects of the actions of many, and cannot be identified with individuals against whom corrective actions can be taken.

These cumulative effects, such as erosion resulting from inappropriate cultivation practices, pesticide and nitrate contamination of groundwater and nitrate or phosphorous eutrophication of tanks and streams, are the result of decisions made in the normal course of farming. Unless those decisions are informed by the knowledge of potential impact, and unless reasonable alternatives exist for these cultivation practices and the management of those chemicals, environmentally-inappropriate decisions will continue to be made.

Other environmental impacts may be the result of failure to use appropriate protection practices because they are technically too difficult or too expensive. Erosion control practices that require physical structures are illustrative. In this case, to reflect and protect the public interest, there will be a need for the availability of technical assistance and government incentive payments may be necessary to encourage their adoption.

While most agricultural environmental impacts are from non-point sources, some, such as those resulting from inappropriate irrigation can be identified with individuals. In these cases, penalties can be used to generate corrective action. However, education, technical assistance, incentives and reduction in pressures to utilize environmentally fragile lands usually are much more effective in internalizing environmental considerations into agricultural decision-making.

2.2.3. Inadequate resource information

To understand environmental cause and effect relationships, and to evaluate their physical, economic, and social impacts, information on the environment must be available at a scale that permits appropriate decision-making. For this information to be available, it must be collected, processed, and made accessible in usable form by the decision-makers and users. Unfortunately, there is a serious lack of this basic information, particularly at the level of detail necessary for agricultural and resource utilization planning. In addition, the available data are not conveniently available to those who could benefit from it.

2.3 Institutional constraints

The NAREPP Project Paper identifies four major institutional constraints relating generally to the management of environmental resources in Sri Lanka:

- a. "weak institutional capacities for natural resource management in the public and private sector,...
- b. limited on-the-ground experience with alternatives public-private partnerships in natural resource management;
- c. insufficient numbers and quality of personnel, in and out of government, trained in basic skills of impact assessment,...
- d. limited opportunities for public review of government plans and decisions and for informed public participation."

In addition to these general institutional constraints, to which NAREPP is responding, primarily in relation to the needs of the central government and business elements of the private sector (with specific emphasis on the coastal zones and fishery sector), there are other institutional constraints of special relevance to the objectives of the SCOR Project.

- a. Inadequate institutional environment to foster new, sustainable production opportunities;
- b. user groups non-existent or too weak to participate in planning, management and control of natural resources;
- c. resource tenure arrangements that inhibit adoption of sustainable production and conservation practices;
- d. a lack of coordination among agencies, donors, projects, levels of government and resource users with respect to the use of natural resources;
- e. a lack of supporting services for the identification and implementation of sustainable production and protection practices;
- f. inadequate environmental consciousness with respect to potential impacts of agricultural and non-agricultural production decisions at various levels.

The Project responds to these constraints, focusing on resource areas and governmental levels not addressed by the NAREPP. In addition, it starts from the premises that optimizing the sharing of resource management is fundamental, increased agricultural production and productivity are essential, and sustainability requires adequate consideration of environmental limitations as well as potentials. The Project purposes are directly aimed at reducing and/or removing these constraints.

2.4 Need for action

The GSL has recognized the constraints described above, has taken a variety of actions to reduce them, and continues to search for ways to eliminate them. A variety of projects are designed to increase agricultural production (~~see Annex XIII, Other Donors' Activities~~). In the irrigated settlements, the GSL, with strong and continuing support from USAID, has fostered the participatory involvement of the water users in the management and control of the water resource, through the formation of user groups and modifications in the structure and orientation of the Irrigation Department. This has resulted in more efficient use of the water, and greater production where it has been implemented. However, attempts to implement a similar approach in the minor irrigation sector have not been as successful, and much still is to be learned about the formation of sustainable natural resource user groups in non-settlement situations.

The production gains that are possible through more effective involvement of the resource users in management and control will be short-lived if the fundamental natural environment in the watersheds that provide the critical water resource is not maintained. The USAID-supported NAREPP is addressing basic environmental policy and implementation issues, and providing essential training in environmental impact assessment to personnel in the key environmental ministries, with special emphasis on those of the central government, and elements of the private sector. The same level of skills may not be necessary in the MOA and M/LIMD, or in the Provincial Councils, but internalization of environmental considerations in their policies and actions, and in those of the clients they serve is essential for appropriate management of natural resources in production processes.

Awareness of production opportunities, sensitivity to environment management needs, effective organizational structures, and cooperation and coordination with government are essential, but not sufficient to ensure an effective and efficient sustainable agriculture. Appropriate information, available in a timely way, is critical to effective management. Significant efforts are being made (~~see Annex XIII—Other Donors' Activities~~) to increase the natural resource information base, and to maintain it in a form that potentially is widely accessible. There is a need, however, to clarify, to evaluate, and to make the necessary policy, organizational and/or

operational changes that will ensure that necessary information is available to natural resource users and managers in both the public and private sectors.

Efforts are also being made to provide security of tenure in a variety of ways (see Annex VIII, Constraints Analysis). A major ADB-supported project designed to improve land use policy and planning is nearing completion. Another ADB-supported project on participatory forest management had been signed recently. But significant problems relating to the implementation of land tenure policies remain.

3. Inter-project awareness and cooperation

The number and variety of projects currently underway to improve the agricultural sector, to rehabilitate and improve irrigation infrastructure, to enhance capacity for appropriate planning and implementation of natural resource-based activities, and to increase awareness of environmental problems is such that the potential for overlap, duplication, and conflict, as well as for synergistic benefits exist. Effective communication and cooperation are necessary for the benefits to be gained, and the problems avoided.

The participatory approach used in the preparation of this Project Paper initiated the process by which the Project will develop and enlist this cooperation. The Core Group of 14 senior individuals, which met regularly during Project design, representing the major agricultural, environmental, irrigation, lands and water ministries and departments, administration at the centre and the District, and the academic community is linked to the full range of active projects. The Project organization, described in the Project Description, will continue and expand linkage at the national and provincial levels, in those provinces where pilot activities will be undertaken.

B. PROJECT DESCRIPTION

1. Project Goal and Purpose

1.1. The Project's goal is to increase the sustainable productivity of the natural resource base in Sri Lanka in ways that will improve people's livelihoods beneficially and equitably now and in the future with due regard for the environment.¹

1.2. The Project purpose is to increase shared control of natural resources in ways that contribute to intensified and sustainable agricultural production while conserving the physical and social environments, particularly those vulnerable to destructive pressures, through public-private partnerships.

2. Integrating Themes

The activities comprising this Project, to move toward its goal (1.1.) and to achieve its purpose (1.2.) are planned to be mutually reinforcing. Three integrated themes cross-cut the activity areas described under subsection 6. The Project will seek:

2.1. To make improvements in the incentive and institutional context in which agriculture and other economic activities are undertaken, so as to ensure both productivity and sustainability;

2.2. To get resource users and planners to consider environmental implications more explicitly and to internalize environmental considerations in decision-making at all levels; and

2.3. To enhance governmental, group and individuals' information and understanding about environmental problems and potentials.

3. Project Approach

The Project is designed to move from (a) Initial Assessment of: (i) present resource uses, problems and potentials, (ii) existing user group activities and capabilities, (iii) legal and regulatory mechanisms governing tenure arrangements, through (b) innovative experimentation, particularly of innovative agricultural production models and program development to c) help augment the spread effects and institutionalization of tested innovations. All activities are designed to strengthen shared productive control of natural resources through public-private partnerships. Since individual users cannot effectively deal

¹References to "natural resources" or to "land and water resources" include forest and other biological resources where appropriate.

with the public sector or the organized private sector, the Project will emphasize organizing and assisting resource users in effective groups and federations/councils.

The Project seeks to contribute to a progressive transformation of rural areas, expanding a range of new opportunities for Sri Lankans and thereby relieving pressure on the natural resource base while using resources in sustainable ways for agricultural and other activities.

Where requirements for resolving identified problems of natural resource use are known, the Project will assist in meeting those requirements with technical assistance, training, and policy and process reform. Otherwise, applied research and pilot field activities will be used to finance technical assistance (\$_. million), training (\$_. million), sector disbursements (\$_. million),

The Project approach will be participatory in that the primary focus will be on resource users and on the agencies of government with which they interact. Private sector and NGO actors will also be involved to draw on their comparative advantages for promoting sustainable natural resource use in rural areas. Assistance will be provided to increase the technical and organizational ability of users to interact effectively with agencies and enterprises on matters relating to the use of production resources. Assistance will also be provided to agencies to improve their capacity to serve the users more adequately.

The Project will invest in identifying technical and institutional constraints affecting productive, sustainable use of natural resources, as well as productive opportunities. It will assess existing user organizations, capabilities and knowledge. As problems are identified, their sources will be identified and addressed. If the source emanates from higher levels in an agency, for example, in inappropriate rules or policies, the Project will assist in obtaining their modification. To ensure awareness and support on the part of the higher levels of government, a National Steering Committee (NSC) and Provincial Steering Committees (PSCs) will be formed (see 2.5.1. and 2.5.3. below, with details provided under 4. Implementation and Monitoring Plan). Changes will be decided on and introduced inductively, with evidence and demand for improvements coming from below, at the same time decision-makers at higher levels (national and provincial) are observing and evaluating progress and experience at local levels.

The Project will work concurrently at three different levels to create capacities for shared control of resources and more productive and sustainable natural resource utilization.

- (i) Some activities will be directed toward the national level, to improve policies and processes that deal with land and water resource use, and to support the implementation of programs at this level where an adequate knowledge base exists.

(ii) Other activities will take place at provincial and divisional levels in two selected Provinces (NCP and Southern) to strengthen institutional capabilities for supporting better land and water resource utilization.²

(iii) To develop practical, field-tested methods of organization, planning, monitoring and evaluation, the Project will work particularly at watershed levels in the two Provinces. This is the focal point of project implementation.

4. Principal Focus of Project Activity

The principal focus of project activity will be on the selected watersheds in the North Central Province and the Southern Province, which are the pilot areas selected. The Provinces, one in the Dry Zone and the other in the Wet zone, are illustrative of the range of physical and social environmental conditions found in Sri Lanka. The initial consultations with user groups and government officials have the technical, administrative and economic feasibility of raising project activities in the 2 pilot areas. Typical watershed areas in the Provinces were tentatively identified. In the NCP, areas covered by the Maradankadawela Divisional Government Area could be selected. An IIMI/TAC watershed study has already started its preliminary surveys in the area and considerable amount of information will be available to enable the Project to start off its activities early. Similarly in the Southern Province, the Nilwala watershed starting from Deniyaya, Panagikanda and ending up in Muruthaewela was considered a typical watershed area where it would be technically feasible to try out innovative ideas involved in this Project especially linking up the beneficiaries on the tea lands with the catchment where additional income generating opportunities could be developed while protecting the environment. Administratively too a considerable amount of consultation that had been conducted with government officials, other agencies and user groups in these provinces have established the willingness and motivation of user groups and government officials getting involved in the proposed project activities.

Watersheds in these areas, therefore, will be selected for innovative work on shared control of resources in the pilot areas. Operationally, watersheds will be delimited in terms of some combination of (i) upper catchment areas, upstream of (ii) one or more command areas, created by control structures such as reservoirs or anicuts, and (iii) irrigation return-flow areas downstream.

Action research, experimentation replication and efforts towards institutionalization will be combined to generate knowledge, methodologies and trained personnel to support activities subsequently on a broader scale. Activities will range from the user group level to the community level to the locality level encompassing an interacting set of communities.

²Corresponding Project Activities will be undertaken at the District level if this level's role in local administration is retained. This design assumes that the Province and Division (AGA and Pradeshiya Sabha) levels will be the principal operative ones below the centre.

Some Project activities can build upon local capabilities created by previous land and water resource management programs (e.g., ISMP). This will permit the Project to achieve more benefits during the life-of-project and to advance faster our knowledge of ways to achieve the Project goal of participatory resource management.

As part of NAREPP, which focuses relatively more on the national level, SCOR activities will concentrate more on provincial, divisional and local levels. Also, while NAREPP deals mostly with non-agricultural resource uses, SCORE will bring agricultural sector activities under the "natural resources and environmental policy" umbrella of NAREPP.

5. Project Components

Four categories of Project activity are planned. Activities have been selected through discussions with GSL representatives, provincial and divisional personnel, and representatives of user groups about production and environmental problems and potentials and about how the Project goal and purpose can be best furthered. Four activity areas are stated summarily below and are elaborated in 7.

1. Strengthening the capabilities of resource user groups to participate in planning, management and shared control.
2. Improving land and other resource tenure arrangements in ways that will further production and conservation goals for the country.
3. Strengthening government, NGO and private sector capacities to support resource planning, management and shared control at different levels.
4. Improving coordination and linkage among agencies, donors, levels of government, resource uses and users with respect to shared control.

6. Project Organization

As an institutional development and strengthening project, SCORE will involve members of the GSL at all levels, non-governmental actors, and particularly resource users, who are its main beneficiaries. More details on Project organization are given in Section D Sub-section 2.

6.1. The Ministry of Lands, Irrigation and Mahaweli Development (M/LIMD), with its major responsibilities for land, water and forest resources, will be the institutional home for SCOR. It will establish a governing body for the Project, called the National Steering Committee on Land and Water Resources Management (NSC). The NSC will include senior representatives of the relevant government agencies, of the

M/LIMD, Ministry of Agricultural Development and Research, Ministry of Environment and Parliamentary Affairs, of the NCP and Southern Provincial Councils, of the non-governmental sector, and of user organizations in the two Provinces. The NSC will be chaired by the Secretary, M/LIMD.

6.2. There will be Provincial Steering Committees (PSCs) to provide complementary guidance and direction at the provincial level.

6.3. The NSC and the PSC will be serviced by Project Working Groups (National Working Group, NWG and Provincial Working Group, PWG) comprising of both full-time project staff and non-full time senior government officials to be established at the National and Provincials level. The Project Core Groups will assist and manage Project implementation.

6.4. The Provincial Working Groups (PWGs) will work with their respective Provincial Councils and guide and assist the work of Watershed Resource Management Groups to be setup by the Project (WRMGs). The WRMGS will be composed of divisional and line agency staff and representatives of User Groups located in the pilot watersheds and responsible for different functions relating to land and water resource management and representatives of the non-governmental sector. The WRMGs, supported by User Groups/Federations/Councils will work closely with the relevant Divisional Government Agents (DGAs, formerly AGAs) and Divisional Secretariats.

6.5. Users will become involved in the Project in different ways.

a. Where groups already exist in the selected watersheds, e.g., in irrigated command areas, they will be brought into Project implementation through a process of consultation and assistance.

b. New user groups will be created with the Project playing a catalytic role where users of certain land, forest and/or water resources are not organized (7.1d).

c. When sufficient institutional capacity and interest have been built up, federations of user groups within a watershed will be set up (2.6.4b.) to work with the WRMGs in local-level and watershed-level planning for sustainable, productive utilization of resources.

7. Project Activities

Project activities are grouped and numbered under four headings to facilitate assessment and cross-referencing when they are discussed in this proposal.

7.1. Strengthening the Capabilities of Resource User Groups In pilot areas, the Project will work with existing user groups to strengthen their ability to plan for and manage the optimal use of land and water resources. At the provincial and national levels it will undertake such activities as will create an enabling environment for user groups to become more effective and productive in their shared control of resources.

- a. The Project will first identify and assess existing local organizations in pilot areas to determine their willingness and suitability to work toward the Project's goal and contribute to various Project activities. This will be done concurrently and in conjunction with 1b. Different kinds of resource uses and users will be involved given the focus on managing soil and water resources within watershed units. It was observed during the field visits that several types of user groups have already started to function. There is however a necessity to strengthen them coordinate efforts and provide guidance for them to get involved in business activities in particular.
- b. In the pilot areas, working with user groups as well as unorganized individual producers, officials and NGO representatives, the Project will undertake constraints analyses, assessing the status and uses of resources in the area and identifying incentive, knowledge and institutional factors that prevent resource users from utilizing land, water and other resources (labor and capital) to best advantage. Participatory rural appraisal will be used and refined to develop methodologies for application in other areas.
- c. The Project will support identification and implementation of appropriate legal status and powers for resource user groups to give them sufficient recognition and authority³ for expanded responsibilities in economic production activities and natural resource management. This activity is consistent with government policy and assumes continuing political support of participatory management of land and water resources.
- d. Where users are not organized in pilot areas, particularly in catchment areas, the Project will support user group creation, possibly through NGOs. Developing viable user groups in rainfed and catchment areas will present a special challenge given their more dispersed and independent economic activities. Experience with irrigation user groups can give some guidance and

³It was observed during the study tour of NCP and SP that there should be a more expeditious way to get the FOs registered and they should have authority to resolve water disputes.

examples, but information on incentives and means for organizing rainfed farmers and other resource users in upland areas are lacking.⁴

Innovative efforts at user group organizing supported previously by USAID offer some useful precedents. Similar efforts are needed under this Project. Research will be supported on experience with user groups outside the irrigation sector as well as evaluation of experience in the irrigation sector. To create and/or strengthen user groups, the Project will support and further experiment with the training and deployment of catalysts such as Institutional Organizers used in previous projects and other methods to work effectively in non-irrigated settings.⁵

- e. The Project will support training of user groups and of trainers who can take leadership roles in this process in pilot and other areas. The aim will be to strengthen different kinds of user groups in skills such as financial management, developing training materials and methodologies that can be used more broadly and extraction of economic products from forest and their processing. As much as possible, existing capabilities for training will be engaged. The assistance of NGOs in developing and providing training will be sought.
- f. The Project will support experiments with establishing economic opportunities for user groups in agriculture, forestry, and other economic sectors that increase incomes compatibly with maintaining natural resources. These activities should strengthen user group capabilities as well as to improve people's incomes and well-being, because such capabilities also contribute to

⁴The project design team in its tour of the SP observed for instance how forest users as groups have been organized for exploitation of forest products such as seed for local industries while replanting at the rate of 100 plants for each plant.

⁵As observed in the SP field tour for instance, creation of immediate income opportunities such as introduction of new methods of irrigation, supplementary irrigation during dry spells in the wet zone, conjunctive use of surface and ground water for irrigation, tapping kitul (caryota.st.) palm and processing its production, etc., will work as sufficient incentives for them to form groups.

these socioeconomic outcomes.⁶ This activity will reinforce Project efforts under 1d.

- g. Special efforts will be made to increase opportunities for women and youth to raise household income and diversify rural economies since decisions about natural resource use involve more than household heads. Research will be undertaken on effects for families and households of expanded economic opportunities.
- h. The Project will support development of and access to Supporting Services and facilities that strengthen user group's financial base and contribute to the local economy in sustainable ways such as, linking users to markets, establishing revolving funds to help groups to borrow, providing matching grants in the form of a Fixed Deposit Scheme in favour of user groups to enable them to raise a loan from a lending institution against this Deposit, discussing with State and private Insurance Firms and drawing up innovative insurance schemes for new crops and investments, backed by a guarantee by the project, providing funds for registration or the preparation of legal documents for the establishment of Production Companies, negotiations with state and private agencies to get storage facilities for user groups, discussing with private sector and securing them with such facilities like land, stores etc to enable them to set up supporting services in selected watersheds, providing seedlings etc., (eg. for economic and agro-forestry), providing information, education and communication materials. Experiments will be undertaken to determine the best modalities for strengthening support services and facilities, including work with NGOs and private sector enterprises.
- i. With resource user groups that have sufficient financial and technical capability as well as solidarity, the Project will assist experiments with production companies, outgrower systems or other models of production organization that can achieve economies of scale and greater value-added from production, e.g. through processing, to enhance household incomes and reduce demands placed on vulnerable natural resources.

2.6.2. Improving Land and Other Resource Tenure Arrangements For promoting agricultural and other kinds of natural-resource based production that is sustainable, intensive and profitable within rural areas, more attention needs to be paid to (i)

⁶It was observed in the tour of NCP and SP that a large number of non-wood-forest-resources could be extracted from the forest areas. Among them are the medicinal plants, honey bee, reeds, rattan, edible wild fruits, kitul tapping etc., which can provide income and food for the people thus directly contributory to a better livelihood.

people's access to land and water resources, (ii) the terms on which that access occurs, and (iii) the resulting incentives, whether resources will be used in the most sustainable and beneficial ways. Security of tenure and equitable sharing of benefits are generally regarded as essential to achieve the latter results. Project activities will include:

- a. Examination and evaluation of current regulatory and legal mechanisms concerning land and other natural resources. The Project will ascertain the need for changes in existing legislation, to consolidate, modify and implement it as found appropriate.
- b. Applied research⁷ on existing resource tenure arrangements for land, water, and trees as they affect production practices, cropping patterns, investment incentives, time horizons, etc. in catchment, command and drainage areas. Examples include different titling statuses, sharecropping arrangements, rotational land use (thattumaru), absentee ownership,⁸ and other practices. Experience in other countries would be assessed as relevant to Sri Lankan tenure issues.
- c. The Project will undertake policy dialogue at the national level and work with the relevant Ministries and departments to initiate policy and process reform for incentives and institutions that will support more beneficial and sustainable natural resource use in rural areas. This effort will draw on the results of Project studies and experience as well as on policy analyses such as IMPSA and other field experience in the country.
- d. Support for land titling of eligible families in both settlement schemes and on state lands, to be monitored and evaluated for the implications of this for productivity and sustainability of natural resource use. It was observed in the NCP that the uncertainties about issuance of land title occupy significant amount of official time and may be a source of corruption. Hence, this issue must be examined by the Project.
- e. Experimentation with land consolidation to increase productivity and sustainability and reduce pressures on the land. The Project will consider both: (i) consolidation of fragmented private holdings, and (ii) pooling of resources to gain better access to credit, production inputs and economies of scale, to assess implications of alternative methods.

⁷The Tour of NCP gave evidence that production/productivity impacts of different degrees of tenure security are not clear.

⁸In the NCP it was observed that absentee land ownership has an adverse impact on both productivity of the use of the land and water, and on equity.

2.6.3. Strengthening Government, NGO and Private Sector Capacities The following activities aim to increase participatory management. The Project will pool expertise in ways that reduce duplication of efforts and improve the possibilities of coordinated action within and across different levels, providing for participatory inputs.

- a. The Project will work with several ministries and agencies, as well as with donor projects, to establish information systems, including GIS, that will support national and lower level capabilities for monitoring and evaluation of trends and performance in rural areas with regard to intensified agricultural production and natural resource maintenance. Such systems will be designed to be useful for provincial and divisional level decision-makers as well as for local communities and resource users.
- b. The Project will work with national level departments and agencies to raise the level of staff interest and qualification for dealing with agricultural intensification and natural resource management in participatory ways through training information dissemination and other means. Some long-term training is planned under this activity.
- c. The Project will work with provincial councils and their staffs in the two selected provinces to help develop planning, monitoring and evaluation capabilities to support divisional and local level operations for intensified sustainable agriculture and diversified economic activities with due regard for the natural resource base. Some commodity support is planned for this.
- d. The Project will work with divisional offices and line agency staffs in the selected pilot divisions in the two provinces to develop appropriate planning, monitoring and evaluation capabilities to support Project objectives and activities. Once effective materials and methodologies are developed with the pilot divisions, the Project will extend them to other AGA divisions within the two provinces. Some commodity support will be given for this.
- e. The Project will work with selected NGOs which are committed to protecting and enhancing natural resources in cooperation with communities. Such NGOs will be engaged help establish user groups where not existing in the pilot areas, to carry out training and establish economic linkages⁹ and services for groups, to undertake monitoring and evaluation with user groups and communities to raise environmental consciousness and to integrate such

⁹For instance, it was observed in Muruthavela in the SP that development of marketing links alone can increase the income of users by several folds.

considerations into production planning and implementation. NGO capacities to promote shared control and participatory management will be developed.

- f. The Project will work also with the private sector and banking institutions to enhance their capacities to support these kinds of economic and institutional transformations. One aim will be to get adequate and efficient private support services operating in pilot areas, e.g., for processing agricultural commodities, or for surveying in support of titling programs.

2.6.4. Improving Coordination and Linkage for Resource Management For better utilization and protection of natural resources, it is important to have better horizontal and vertical integration. An innovative aspect of the Project is to focus on watersheds as integrated management units, as discussed in 2.3.3.3.2. Coordination efforts at the watershed level have both participatory (4a and 4b) and administrative (4c) aspects:

- a. The Project will work with user groups in selected areas within watersheds, such as irrigated command areas, to introduce local multi-level production planning so that land and water resource uses are more coordinated for intensive, efficient production taking a long-term perspective. This will be done in cooperation with government and private agencies providing services and advice.

These efforts will be monitored and evaluated. Plans will provide for crop diversification or specialization depending on the circumstances, coordination of seasonal schedules, economizing on irrigation water, enhancing crop protection (introducing integrated pest management), making marketing more efficient and profitable, all with a view to ensuring food security as well as raising incomes.

- b. Building on efforts to strengthen user groups, the Project will support federations/councils of user groups which use resources in different parts of the watershed and whose uses have impacts on one another. Such organizations can help improve coordination and cooperation not only among users but also between government agencies and user groups. In SP for instance, the irrigation related user organizations expressed the need to form a user organization centred on various components, of the watershed such as above reservoir, command, drainage, etc., and to link all of them to a federation of users.

Federations will be helped to undertake participatory land use planning at watershed level, including soil and forest conservation, working with the administrative mechanisms established under 4c. Federations will facilitate administrative and technical personnel sharing in local knowledge about sustainable resource use under local conditions.

- c. Watersheds¹⁰ are currently overseen or managed by different government agencies and they often cross administrative boundaries. This makes coherent planning, monitoring and evaluation difficult. The Project will seek ways to achieve more rational, long-term resource management through administrative mechanisms that achieve inter-departmental and inter-jurisdictional coordination, complementing efforts under 4b. In addition forest destruction now taking place in watershed areas in the SP supported by the politicians¹¹ and other is substantial. Users have no means to control such damages. They see strengthening of organizations and federating them at higher levels and linking with agencies and political bodies is the main strategy to control it.

The Watershed Resource Management Teams (WRMTs) proposed for Project implementation will be the main mechanism for this, being inter-departmental and, where the selected watershed crosses administrative boundaries, inter-divisional.

- d. Another focus of Project activity will be to strengthen connections between provincial and divisional planning and implementation. The powers and capabilities of both governmental levels are still being determined and defined with respect to natural resource planning and management. The Project will facilitate productive working relations between these two levels in the selected provinces, to serve as models for evolving productive relations elsewhere. The structures and procedures worked out should include user participation or consultation as part of the coordination/linkage effort.

Appropriate linkages will be explored with local government bodies, such as the Pradeshiya Sabha for land and water resource use or planning.

- e. Responsibility for land and water resource management is diffused within the Government of Sri Lanka. The Project will facilitate better communication and cooperation among government agencies and donors with regard to long-term, sustainable and productive use of these resources.
- f. Coordination among projects affecting land and water resource use is a specific aspect of this. Modalities for this will be developed inductively, as they are likely to be better grounded and more acceptable if flowing out of experience and experimentation in the two provinces with pilot area activities.

¹⁰Watersheds have already destroyed severely. In Muruthavela scheme for instance, 3/4th of the catchment area has already been opened up for development especially tea and cinnamon cultivation.

¹¹Design team observed in its tour of the NCP that political influence frequently is an impediment to more equitable use of the resources.

In conjunction with other components of NAREPP, this Project will work with NGOs and others in the pilot areas to develop and apply education and awareness strategies to reduce adverse uses of natural resources while promoting sustainable agricultural and rural development. A summary overview of Project activities, listed by activity area (output category) is given in Table I.

2.7. Basic design requirements

Achieving Project objectives as ambitious as those of SCOR is possible only on the basis of prior donor and GSL investments and of appropriate deployment of technical assistance activities.

2.7.1. Working relationships and experience This Project is building on a base which USAID has laid with its previous Gal Oya Water Management Project (WMP) and Irrigation Systems Management Project (ISMP). This is the third in a series of projects dealing with land and water management in Sri Lanka, initiated shortly after USAID resumed its assistance program in 1977. Consequently, good working relations have been established with the Ministry of Lands, Irrigation and Mahaweli Development and also with the Irrigation Department and Irrigation Management Division. Other USAID projects have established linkages more broadly within GSL. Special liaison has been established with the Forestry Department. The WMP and ISMP provided experience in creating and supporting user groups which will also be of value in this Project. There are user groups already existing which can utilize assistance under this Project to demonstrate approaches to sustainable productivity.

2.7.2. Interface at divisional and local levels The Project recognizes the importance of approaching resource management problems at the level where decisions concerning actual use are made. It focuses the bulk of its technical assistance below the national level, with specific support capabilities at the provincial and divisional levels and, through the Watershed Implementation Teams, also at local levels.

Table I

LISTING OF PROJECT ACTIVITIES

1. Strengthening the Capabilities of Resource User Groups
 - a. Survey of Existing Local Organizations (in pilot areas)
 - b. Constraints Analysis (in pilot areas)
 - c. Legal Status and Powers for User Groups
 - d. User Group Creation (in pilot areas)
 - e. Training for User Groups and Trainers
 - f. Economic Opportunities for User Groups
 - g. Special Opportunities for Women and Youth
 - h. Supporting Services and Facilities for User Groups
 - i. Production Companies

2. Improving Land and Other Resource Tenure Arrangements
 - a. Regulatory and Legal Mechanisms
 - b. Resource Access and Tenurial Arrangements
 - c. Policy and Process Reform
 - d. Land Titling
 - e. Land Consolidation

3. Strengthening Government, NGO and Private Sector Capacities
 - a. Information Systems
 - b. National Departments and Agencies
 - c. Provincial Councils and Staffs
 - d. Divisional Offices and Line Agency Staffs
 - e. NGO Strengthening
 - f. Private Sector and Banks Strengthening

4. Improving Coordination and Linkage for Land and Water Resource Management
 - a. Local Multi-Level Production Planning
 - b. User Group Federations in Watersheds (in pilot areas)
 - c. Administrative Mechanisms for Watersheds (in pilot areas)
 - d. Provincial and Divisional Planning and Implementation
 - e. Government Agencies and Donors
 - f. Coordination Among Project

2.7.3. National policy support Experiments and learning at field level will not have the desired impacts unless translated into national policies and guidelines. The Project design effort has included consultation with relevant GSL actors through the core group established by, though not limited to, M/LIMD. This group, meeting weekly during the design process, has given extensive input and feedback, augmented by expanded participation in a national workshop on the Project's proposed design. A National Steering Committee which will connect Project learning and implementation needs to the relevant centers of decision-making.

2.7.4. Coordination with related projects As SCOR is a component of NAREPP, it complements and extends into the agricultural sector the efforts NAREPP is making to improve natural resource management generally at the national level through better appraisal, planning and implementation; to promote cooperation between the public and private sectors for natural resource management, to develop impact assessment capabilities, and to encourage broader public participation on environmental issues. Particularly working with NGOs involved in environmental education, assisted under NAREPP, will contribute to progress under SCOR. The Participatory Forestry project supported by ADB has complementary goals, focusing on user resource management in upper catchment areas. SCOR will seek pilot areas that match up with PFP activities so both projects can reinforce and learn from each other.

2.8. End of project status: Project outputs

At the end of the project period, SCOR expects substantial improvements in environmental management and agricultural and other production through shared control of natural resources, as promoted by the outputs described below. These do not represent all of the outputs of SCOR, only the most tangible and measurable ones. The concurrent, less tangible outputs are also important. Indeed, simply producing all of the outputs specified here will not be sufficient, however necessary, for achieving the Project purpose. Changes in thinking and attitudes as well as patterns of cooperation at all levels and assertions of leadership in the natural resource area are essential. These too will be promoted by Project activities though such things are not readily measurable.

2.8.1. Strengthened capabilities of resource user groups, resulting from:

- Defined and implemented legal status and powers of resource user groups for different types of resources (irrigated agriculture, rainfed agriculture, forest activities), defining rights and responsibilities.
- User groups created in catchment, command and downstream areas where resource users were previously unorganized and unable to participate in shared management responsibilities.

- User group representatives and members with training in organizational management, production planning, and environmental protection skills.
- New production opportunities for rural households, with special attention to women and youth, so that incomes are improved in a sustainable way, not damaging the natural resource base upon which rural communities depend.
- Multiple support systems for resource users (agricultural and non-agricultural) providing technical advice, access to credit and to other production inputs, and profitable marketing opportunities, as well as acquisition or creation of assets that increase income streams in sustainable and environmentally friendly ways.
- Models for intensifying production in watershed areas which are sustainable and environmentally sound, to relieve pressure on vulnerable natural resources.

2.8.2. Improved land and other resource tenure arrangements, resulting from:

- Modifications in regulatory and legal mechanisms that will encourage resource users to protect and maintain land, water, forest and other biological resources beneficially.
- Policy and process reforms that give support to shared control of natural resources for their long-term management.
- Accelerated issuance of land titles so that eligible households have secure control over land and water with greater incentive to use these resources sustainably.
- Procedures and incentives for land consolidation that enables farmers to use this resource more efficiently for long-term productivity gains.

2.8.3. Strengthened government, NGO and private sector capacities, resulting from:

- Integrated and accessible information systems for monitoring and evaluating land, water and forest and other biological resources, providing decision-makers at national, provincial, divisional and local levels with what they need to know to assess trends and performance in terms of resource sustainability as well as productivity.
- Increased number of national-level GSL personnel with experience and training in monitoring and evaluating land and water resource uses and maintenance. This will reinforce NAREPP's output of increasing the number of government agencies with trained and operating environmental units.

- Increased number of provincial-level personnel with experience and training in land and water resource planning, monitoring and evaluating at that level and below.
- Increased number of divisional and agency staff with experience and training in participatory natural resource management.
- Increased number of NGO personnel with experience and training in participatory natural resource management, and increased number of NGOs that have experience and financial capability to work with resource users in training and group formation modes and with GSL and private sector entities to improve land and water resource use.
- Increased number of private sector and bank personnel with experience and training providing services to user groups for efficient, sustainable land and water resource use, plus new procedures for private enterprises and banks to work with resource user groups on cooperative basis.

2.8.4. Better coordination and linkage among users and agencies, resulting from:

- Methodologies for local multi-level production planning which enable resource users to cooperate among themselves and with government and private agencies (particularly for credit, technical information, and sales). This will support crop diversification, protection (integrated pest management), and marketing, to increase household incomes.
- User group federations in pilot watersheds to achieve participatory land and water use planning within these areas.
- Administrative mechanisms at the divisional and inter-divisional level which coordinate among line agency personnel to achieve more integrated use and maintenance of land and water resources within designated watersheds.
- Mechanisms in selected Provincial Councils and Divisional Secretariats for carrying out land and water resource planning and monitoring.
- Mechanisms at the national level for GSL ministries and departments dealing with land and water resource management to coordinate among themselves and with donor agencies funding projects to improve natural resource management.

2.9 Project inputs

2.9.1. Technical assistance: SCOR technical assistance (sponsored by USAID) will require a wide range of interdisciplinary skills from Sri Lankan and expatriate consultants to address the needs of different public sector agencies, user groups and private sector

organizations. Long-term TA will cover institutional development, strengthening participatory management policy analysis and other needs at both the national and provincial levels, as listed in Table II. Support will be provided to the M/ILMD and other national agencies as well as to Provincial Councils through the National and Provincial Project Working Groups as well as to divisional agencies through Watershed Resources Management Groups operating under PWG supervision.

Short-term TA to complement the expertise of the NWG and PWGs is listed also in Table II. The areas of expertise may be adjusted to meet implementation needs during the course of the Project. Supporting the Project activities as shown in Table II will provide the criteria for short-term TA since achieving the outputs associated with these activities is essential to fulfilling Project purposes. This table lays out the prospective TORs for short-term and long-term consultants.

2.9.2. Training: Short-term training will be provided for approximately 4,000 resource users and their representatives, an estimated 30 group organizers, 20 trainers from NGOs and/or public institutions, 50 divisional personnel, 30 provincial personnel, and 40 national personnel (public and private sector). Long-term training at the master's level is planned for two professionals in land tenure and resource evaluation, and data base management.

2.9.3. Commodity, facility support: Minimum material inputs are planned in support of this Project, mostly vehicles for facilitating movement within the pilot areas and computer hardware and software for establishing natural resource information systems at different levels of decision-making.

2.9.4. Special projects: Providing support to user groups to engage in productive activities by setting up revolving funds and acquiring storage facilities should be possible through loan guarantees to be worked out with the banking system or through credit guarantees to private suppliers. Alternatively, the Project will make funds available to the banking system for loans that create revolving funds and storage facilities. User groups will be expected to make substantial contributions to such assets through their own funds and/or labor. The Project will not make gifts to user groups as this would not establish good precedents for self-reliant management practices.

2.9.5. GSL inputs: GSL's major contribution to SCOR will be operational support for programs at the provincial, divisional and watershed levels. In addition, GSL will: provide training facilities for staff and resource user training, data for establishing information systems on natural resources, other GSL inputs?

Table II

PROPOSED TECHNICAL ASSISTANCE*

<u>LONG-TERM TECHNICAL ASSISTANCE</u>		<u>Project Activities</u>	
<u>National Level</u>			
Resource Management specialist	2a, 2b, 2c, 2d, 2e, 3a, 4e		
Institutional dev. specialist	1c, 1d, 2a, 2c, 3a, 3b, 3e, 3f, 4d,		4e
<u>Provincial Level</u>			
Institutional dev. specialists (2)	1c, 1g, 1h, 1i, 2a, 2c, 3a, 3c, 3e,		4d, 4c, 4d
Resource management specialist (2)	1b, 1e, 1f, 1h, 2d, 2e, 3c, 3d, 4a,		4b, 4c
Agriculture/agro-forestry specialist (2)	1b, 1d, 1f, 3e, 4a		
Entrepreneur development specialist (2)	1a, 1b, 1f, 1i, 3e, 4a		
Water resources specialist (2)	1a, 1b, 1d, 1e, 1g, 1h, 1j, 2e, 3b,		4b
Training specialist (2)			
<u>SHORT-TERM TECHNICAL ASSISTANCE</u>		<u>Person-months</u>	
		<u>Recruited</u>	
		<u>Intly.</u>	<u>Locally</u>
Resource tenure specialist	1b, 1f, 2a, 2b, 2c, 2d, 2e	6	6
Participatory rural appraisal SP	1a, 1b, 2b, 4a	4	-
Participatory resource management	1c, 1d, 1i, 4a, 4b, 4e	6	-
Watershed management (Eng. & Econ.)	1f, 4a, 4c	8	12
Land titling and registration	2a, 2c, 2d	-	8
Resource rights, law and policy	1c, 2a, 2b	6	6
Small business promotion	1i, 1f, 2d, 1h, ij, 3f	6	-
Credit programs	1f, 1g, 1h, 1i -	12	
Marketing programs	1f, 1g, 1h, 1i -	4	

SHORT-TERM TECHNICAL ASSISTANCE

		<u>Person-months</u>	
		<u>Recruited</u>	
		<u>Intly.</u>	<u>Locally</u>
Gender/age concerns	1g, 4a	4	6
Forest-based economic opportunities	1f, 1g	4	10
GIS/LIS/MIS	3a-f	2	15
Land use planning	3c, 4a, 4b	6	8
Environmental impact monitoring	1a, 1d, 2a, 2e, 1f, 1j, 3a, 4b, 4c	6	12
Training	1d, 1e, 1h, 3b, 3e, 4d	6	-
Agro-industries	1f, 1j	6	12
Subtotal		70	111
To be added where needed		10	12
TOTAL		80	123

*includes both expatriate and Sri Lankan technical assistance.

C. FINANCE AND BUDGET PLAN

To be inserted later.

D. IMPLEMENTATION AND MONITORING PLAN

1. Introduction

The central arena of project implementation will be the selected watersheds in the North Central and Southern Province. And the main focus of activity will be formulating, pilot-testing and application of innovative agricultural production models of different modes, optimizing the sustainable utilization of irrigated as well as non-irrigated lands and other natural resources.

The Project will first identify the User Groups and along with them assess the current patterns of natural resources use and the capacities and capabilities of these groups as well as those of non-governmental and governmental organizations. The project will then undertake an analysis of the constraints inhibiting improved and environment-friendly resource utilization, the Project will work with the different groups and help formulate and implement a systematic and comprehensive development plan for the watershed selected. The details of implementation of specific activity areas are discussed under sub-section 3.

In line with the objectives of the Project, the implementation strategy will be focussed on testing and internalizing the new production modes and institutional approaches and processes of the Project within user groups, relevant government structures and other groups. This will contribute significantly to long-term, sustained and profitable management of natural resources and an enhancement of the share of responsibility borne by user groups for these activities.

While concentrating its resources and action in the selected pilot areas, the Project will keep in appropriate focus, the need to create the conditions for successful project processes and activities to have a 'spread-effect'. With this end in view, the Project will invite and secure the participation of groups, governmental and non-governmental, outside project areas in its learning process. The details of this plan are set out under sub-section 7.

The Project will blend performance disbursements, direct support and technical assistance. Performance disbursements will be the financial core of the project, representing approximately __% of total project funds. They will be organized into a series of long-term, cumulative streams reflecting increasing efforts and accomplishments. An indicative list of performance disbursement principles, indicators and disbursement rates are given in Sub-section 4.7.

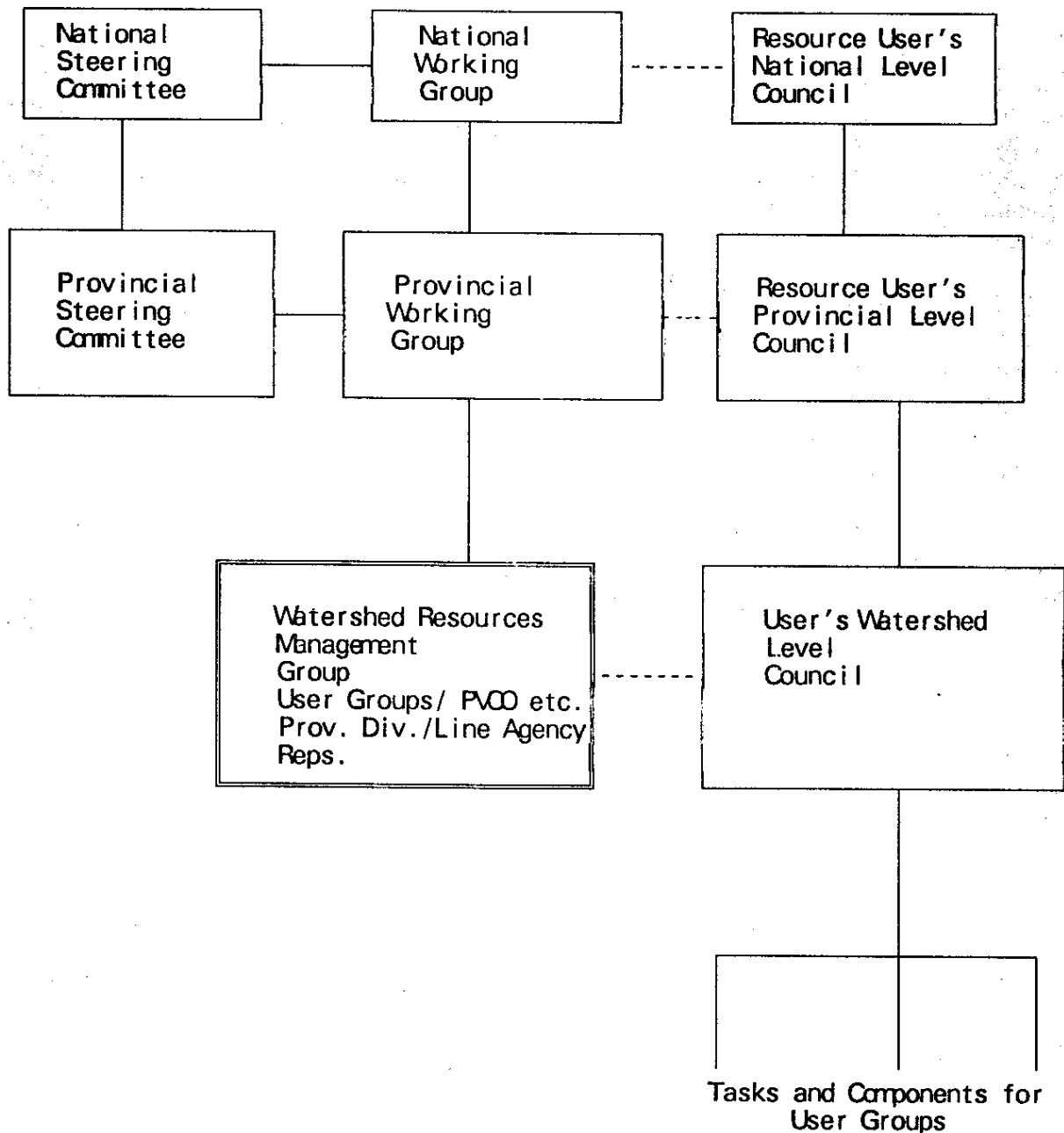
The Project Organizational structure will emphasize its catalytical and facilitating role. It will provide for a high degree of participation by persons involved in land and water resources and environmental management at different levels, through planning, implementation and monitoring.

2. Project Management

2.1. Organization

The overall organizational structure for Project implementation and coordination is presented in Figure 1.

Figure 1 SCOR PROJECT ORGANIZATIONAL STRUCTURE



The primary responsibility for Project operation will lie with the Ministry of Lands, Irrigation and Mahaweli Development as the sponsoring ministry, but this responsibility will be shared with other ministries, particularly the Ministries of Agricultural Development and Research, Environment and Parliamentary Affairs and Policy Planning and Implementation.

The Project will be governed by a National Steering Committee, within which there will be National and Provincial representation. There will be Provincial Steering Committees to provide complementary guidance and direction at the Provincial level.

These Steering Committees will be serviced by Project Working Groups (PWGs) at the National and Provincial levels. The National Project Working Group however, will be an implementing body with 1-2 fulltime and relevant other government officials working on an intermittent basis. Provincial Working Group too will have 6 - 7 fulltime specialists and other relevant provincial level officials working similarly on a intermittent basis.

At the field-level Watershed Resources Management Groups will be established as ongoing entities. Most of the members of the provincial working core group will also work in this group.

Unique characteristics of this organizational structure are:

1. Stronger organizations (working groups) are at the lower levels where project activities are directed;
2. Lower levels are adequately represented at the higher levels of the hierarchy. This will ensure vertical integration and effective participation.
3. Except for the participation of a few specialists in working groups, no new structures are proposed.

The Project will engage the active co-operation of National and Provincial level agencies, as well as from elements of the non-governmental and private sectors including the representatives of user groups. The proposed organization recognizes the authority of the government agencies at the national, provincial, and divisional levels and establishes mechanisms by which effective co-ordination can be achieved.

2.1.1. National Steering Committee (NSC)

The NSC will provide overall leadership, policy direction for the execution of the Project, supervision and co-ordination and will establish effective linkages between the Project and the government at the national and provincial councils levels.

The NSC will be comprised of key policy makers representing the Ministries of Lands, Irrigation and Mahaweli Development; Agricultural Development and Research;

Environment and Parliamentary Affairs; and other relevant government agencies; representatives from the North Central and Southern Provincial Councils; from the non-governmental sector; and from users' National and Provincial level councils, which may be established in the future.

The NSC will be chaired by the Secretary, Ministry of Lands, Irrigation and Mahaweli Development.

The NSC will meet at least once every three months. These meetings will be organized in the form of one to two-day Workshops with well-defined objectives and tasks to be accomplished.

2.1.2. Provincial Steering Committee (PSC)

Provincial Steering Committees will be established under the auspices of the Provincial Councils in the selected provinces to provide guidance and direction in planning and implementation and supervision of those activities carried out in the Province. These committees will coordinate the activities of the provincial and line agencies in the selected pilot watersheds through the Watershed Resource Management Groups. The PSCs will be represented on the NSC to participate in Project governance.

The PSC will include the Chief Secretary, Secretaries in-charge of land, water, irrigation and the environment, relevant divisional level officials, representatives of resource user organizations, and from other relevant agencies and interest groups.

The PSC will be chaired by the Chief Secretary of the Provincial Council.

The PSC will meet at least once per 2 - 3 months. These meetings too will be organized in the form of workshops.

2.1.3. Watershed Resource Management Group (WRMG)

The Watershed Resource Management Group will plan, implement, monitor and evaluate the watershed activities. The WRMG will consist of staff from the relevant provincial, divisional and government line agencies, representatives of the non-government sector (NGOs, private sector, representatives of User Groups and selected resource persons from the universities, if necessary). The government officials represented in the WRMG will interact with the other members of the group effectively to increase its working capacity and become institutionalized. All the full-time technical members of PWG will automatically become members of WRMG.

The WRMG's working arrangements will be decided upon by its members.

2.1.4. Project Working Groups

Project implementation will be assisted and managed by Working Groups comprising senior government officials working on a non-full time basis as well as project staff at both the National and Provincial levels. The two Provincial Project Working Groups will work under the direction of the respective Provincial Steering Committees. Their activities will be co-ordinated by the National Working Group.

The National Working Group (NWG) will be staffed with two full-time professionals selected nationally and/or internationally, as appropriate. They will represent relevant development disciplines and one will be designated as Project Coordinator. The Project Coordinator will function as Secretary of the NSC.

Each Provincial Working Group (PWG) will be staffed with six to seven full-time professionals and one will be designated as Provincial Project Coordinator. The Provincial Project Coordinators will function as secretaries to PSCs. The PWGs will be assisted by short-term specialists and a complement of support staff.

The Project Working Groups will:

- a. provide professional expertise for project implementation
- b. prepare work plans and budgets
- c. conduct regular periodic reviews and analyses
- d. arrange for specialist consultations
- e. prepare terms of reference for consultancies, monitor and evaluate them
- f. provide guidance and technical advice to the NSC and PSC
- g. develop close working relationships with relevant projects, programmes and agencies addressing land, water, irrigation and environmental issues
- h. monitor project progress and performance
- i. sub-contract project work to user organizations, NGOs and others, and monitor performance of the contractors
- j. any other functions that may be decided upon by the NSC or PSCs.

2.2 Formulating annual project plans

The Working Groups will be responsible for the preparation of an Annual Project Implementation Plan, to be developed in close consultation with the WRMGs. The plan will include:

- a) a statement of the objectives for the year,
- b) specific activities to meet the objectives,
- c) human resource requirements for implementation
- d) budgetary requirements and anticipated sources.

2.3. Budgetary allocations

After review of the Annual Project Plans, the NSC will recommend the budgetary allocations. Where resources are to come from individual agency budgets, the competent authority will approve the allocations. Coordination with the Ministry of Finance and USAID in these matters will be provided by the National Working Group and the NSC as the GSL and USAID will need to make budget allocations official.

3. Selection of Watersheds and Step-wise Implementation Schedule

The field work of the Project will be initiated by the selection of watersheds in each of the two Provinces for intensive study and action. Responsibility for watershed selection will rest with the Project Working Groups in consultation with the NSC/PSC. Pilot watersheds will be divided into three "sub-sets". Project implementation will begin in year 1 with the first sub-set of about 2-3 watersheds (selected from NCP and SP) covering about 20,000ha. The second and third sub-sets of water sheds will be added in the second and third years, respectively. In the aggregate the SCOR project implementation will include a core group of about 6 - 8 watersheds covering about 40,000 ha, in the two provinces. Additionally, the project will facilitate the expansion/spread of tested innovations to other watersheds both within and outside the selected provinces.

A 4-phase implementation programme is planned for each one of the "sub-sets" of pilot watersheds:

i. Planning and organizing phase - year 1:

In the first year, the WRMG will first initiate dialogue with the existing and potential users, organize user groups, conduct a participatory assessment of (present) land and water use patterns, capability of institutions including government agencies, NGOs, etc, and conduct a constraints analysis. Based on these, the WRMG will design, through a participatory approach, an integrated plan to improve land and water resources management. During this phase, (while planning for augmenting the resource base for example, tree planting) efforts will be made to enhance the utilization of existing resources through known technologies. This will also provide an economic incentive for existing and potential users to organize into groups. Based on the learning from the design process, two such examples are cited below:

- a. Supplementary irrigation for cash crops in the selected highlands in wet zone.
- b. Linking user groups with markets to improve their income.

ii. **Experimentation and replication phase - 2nd and 3rd years:**

Innovative production and protection modes will be tested and implemented in this phase. eg. Production Companies, exploitation combined with augmenting existing forest resources base for the extraction of non-wood forest resources.

In addition innovations will be tested in the institutional and tenurial areas.

iii. **Consolidation phase - 4th year**

Phasing out of external inputs, such as project financing, technical assistance etc, will begin in year 4 in respect of the watershed selected in year 1. However, a rigorous self-monitoring and evaluation mechanism will be carried out to enhance self reliance of user groups, NGOs etc and as a feed-back mechanism for the core groups.

iv. **Internationalization and spread effects - 5th & 6th year:**

The WRMG will focus on the mechanisms designed to enhance spread effects. It should be noted here that this mechanism has been already initiated in the year 4.

In the latter two phases, the WRMG will provide the services of catalysts, in a reduced scale, if necessary. Only the first subset of watersheds will complete the 6 - year cycle. However, by the end of the project the user groups and supporting actors (government agencies, NGOs private sector etc) are assumed to have improved their capacity to implement a project of this nature. With these and spread effects, the second and third subsets of watersheds and many other watersheds both within and outside of pilot areas should have reached a higher degree of self-reliance.

The step-wise implementation schedule is illustrated in Fig. 2.

Fig. 2 : Step-wise Implementation Schedule

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
First sub-set of pilot watersheds	POP	EXP & REP	CON	I & S		

Second sub-set of pilot watersheds

POP	EXP & REP	CON	I & S
-----	-----------	-----	-------

Third sub-set of pilot watersheds

POP	EXP & REP	CON
-----	-----------	-----

NOTES:

1. POP - Planning and Organization Phase
 EXP & REP - Experiments & replication
 CON - Consolidation
 I & S - Institutionalization & Spread effects
2. Mechanisms to augment spread effects will be initiated in year 4.
3. In addition to new modes of Land and Water Resources and environment management, institutional and legal support are also included here.

3.1. Strengthening Resource User Groups (UG)

3.1.1. Survey of existing local organizations

The survey to be carried out initially in each watershed will provide a baseline for Project evaluation as well as a guide to Project implementation. The survey for the first two watersheds, one in each of the two provinces, will be carried out in Year 1. The surveys for the second pair of watersheds will be carried out in Year 2. The surveys will be under the responsibility of the WRMG, but may be contracted out to NGO or university personnel where this will contribute to Project implementation and capacity-building objectives.

3.1.2. Constraints analysis

The constraints analyses will be the responsibility of the PWGs with collaboration of the WRMGs. It will be carried out in conjunction with the survey of local organizations (3.1.1.). This activity will include sample surveys of rural households in different resource user categories within the selected watersheds and review of available data on the physical environment. Data/conclusions will be reviewed with local communities and officials in the watershed areas, with reports prepared by the end of Years 1 and 2. Analyses will be carried out by the PWGs, in conjunction with the WRMGs.

3.1.3. Legal status and powers

Responsibility for this clearly rests with GSL, but the NWG/PWGs will assess the need for revisions in legal enactments and implementing regulations so that resource user groups in the pilot areas and elsewhere in Sri Lanka have adequate legal recognition and standing to carry out resource management activities. Coordination with the DAS and IMD will be essential, drawing on the legal provisions of statutes that they implement to the extent possible. This activity will begin in Year 1 or 2 and should be completed by Year 5.

3.1.4. User group creation

The creation of UGs in those parts of the watersheds without effective groups will be the responsibility of the WRMGs with the support of the PWGs. This activity will start in Year 1, with strengthening continuing through Year 6. Implementation will be through the WRMGs and/or sub-contract to NGO. Whereas there is less experience with organizing resource users outside irrigated agriculture, this activity will be initially as much experimentation as implementation. The recruitment, training and deployment of organizers and the development of appropriate approaches, methodologies and reinforcement will present special challenges to the Project. The organizers will also work with existing UGs to strengthen their capabilities for shared control of resources.

3.1.5. Training for user groups and trainers

The responsibility for this activity will lie with the PWGs, and the activity will start with preparation of training materials and methodologies in Year 1. The organizers discussed under 3.1.4. will be utilized in this activity, which will continue through Year 6. Effectiveness of training activities will be evaluated in Year 3 and implementation accordingly revised and improved.

3.1.6. Economic opportunities for user groups

Responsibility for this activity will be with the PWGs, with support from the WRMGs and in close coordination with the UGs and other private sector groups. Planning will begin in Year 1, where the attention will be create economic opportunities from the existing resource base in an organized manner. Identifying, doing feasibility analyses and experimentation with new lines and techniques of production that are environmentally benign will present a challenge, but opportunities once developed should diffuse beyond the pilot watersheds based on the benefits they offer. This activity will include training, technical assistance and special studies and will extend through the life of the project. Benefits would go to individuals and households, but their being channelled through groups will increase Project efficiency and enhance the commitment of members to UGs. Development of appropriate technologies and marketing links will be necessary which will be accomplished by NGOs and private sector firms. User Group involvement in selecting and evaluating opportunities, should avoid the kind of mistakes common in the past.

3.1.7. Special opportunities for women and youth

Responsibility for implementing these is with the WRMGs with support from the PWGs, the UGs and other private sector groups. This activity will be associated with 3.1.6. but is separately identified to ensure that attention is paid to this. Planning would start in Year 2, after watersheds are selected and baseline information is in hand. Implementation may involve sub-contracts with or consultants from one or more NGOs particularly concerned with enhancing women's opportunities. Similar efforts would be made for creating youth opportunities. This activity is included because existing user groups, made up mostly of adult males, have proposed that income opportunities for women and youth will help to maintain the solidarity of rural communities and enhance their capacity to manage their resources with a long-term perspective.

3.1.8. Supporting services and facilities

Activity in this area is the responsibility of the PWGs with the cooperation and coordination of the WRMGs, UGs, banking institutions, and other private

sector groups. Planning and implementation in respect of activities which can be adopted immediately will start in Year 1, with experimentation in respect of other relevant activities starting in Year 2. It is not known how best to provide supporting services and facilities to user groups. Government programs in the past have not contributed much to self-managed productive activity. Experience and methods to help this Project promote the latter can be gained from working with user groups already in place such as under several ISMP-assisted schemes which have spontaneously undertaken the kind of intensification of production sought under SCOR. Arrangements for access to extension advice and credit will be facilitated by the organizers referred to above. Particularly helping user groups to store (eg., paddy) and market (eg., vegetables, fruits, etc.) their products collectively can generate substantial income improvements that will solidify the strength of resource user groups.

3.1.9. Production companies

Support for the development of production companies or other forms of organizations that can make production more efficient and expanded will be the responsibility of the WRMGs and UGs, with support from the PWGs, in close cooperation with the private sector. Experimentation would begin in Year 3, with full implementation starting in Year 6 in pilot areas. Some experimentation could start earlier with UGs under ISMP where these need only a little assistance. Production organizations would operate with monitoring of their environmental effects, which is not possible with scattered individual producers.

3.2 Improving resource tenure arrangements

3.2.1. Regulatory and legal mechanisms

A review/analysis for the existing situation at watershed, division, district, province and national levels will be conducted under the responsibility of the PWGs. Year 1 will result in a policy/process review paper to be considered in a national workshop by the end of that year. This will initiate the policy and process reform dialogue activity (3.2.3). Implementation will be assisted by sub-contract with university or similar academic groups. Necessary changes in regulations are anticipated to be implemented starting in Year 3.

3.2.2. Resource access and tenurial arrangements

Developing understanding of the current status of resource tenure arrangements and their impacts on access to resources and on sustainable productivity will be the responsibility of the NWG/PWGs, with NGO and/or university assistance. The research phase will be started in Year 1, with dialogue in Years 2 and 3. Monitoring and follow-on research will continue to the end of

the project. There are a great variety of tenurial arrangements to be assessed for their effect on natural resource use, such as sharecropping, absentee ownership, and rotational cultivation (thattumaru and Kattimaru) and also tree, tenure.

3.2.3. Policy and process reform

This activity will be the responsibility of the NWG/PWGs, with support from relevant agencies. The process of dialogue has already been initiated in the course of Project design, building upon the studies, workshops and discussions provided for under IMPSA. This activity will continue for the life of the project.

3.2.4. Land titling

Formulating this activity to accelerate land titling will be the responsibility of the NWG/NSC though implementing this on an experimental basis will devolve to the PSCs and PWGs. The activity will be initiated in Year 2, with experimentation on procedures in Years 2 and 3 and implementation for the remainder of the life of the project. Pilot projects would test alternative systems of granting titles, with streamlined, accessible land registries at the divisional level. Densification of the national geodetic control grid, contracted at least in part to private surveyors would facilitate implementation. The rate of cadastral survey and granting of titles could be speeded up by new financial arrangements. Research, monitoring and evaluation of the titling program would be an important part of this activity.

3.2.5. Land consolidation

This activity will be the responsibility of the WRMGs, with assistance from the PWGs, UGs and other appropriate government agencies. It will start in Year 3, building upon the knowledge generated in the initial years of the project and the rapport build up with UGs. The first phase, Years 3 and 4, will be for experimentation, building on experience under 4.3.4.1, with further implementation in Years 5 and 6. The purpose is to raise land use efficiency so that there is less pressure on less robust land resources.

3.3. Strengthening institutional capacities

3.3.1. Information systems

The NWG/PWG/GSL will have primary responsibility for this activity, building upon the understanding to be developed with the UGs, DSs, and PCs. Work will start in Year 2, with modification and extension continuing through the life of the project. The systems will utilize existing data to the extent possible and will coordinate with the ADB-assisted project with LUPPD which is

introducing GIS at the district level. As SCOR is working at divisional and provincial levels, there should be complementary efforts between the two projects with regard to information systems. SCOR will also undertake more than GIS.

3.3.2. National level Departments and Agencies

Implementation will be the responsibility of the NWG with the effort starting in Year 2 through the life of the project. Raising the level of staff interest and qualification could be achieved through workshops, seminars, study tours and short-term training.

3.3.3. Provincial Councils and staffs

Implementation will be the responsibility of the NWG/PWGs/GSL, in parallel and in conjunction with the activity for national level departments and agencies (3.3.2.). This work will start in Year 2 and continue through the life of the project, involving workshops, seminars, study tours and short-term training.

3.3.4. Divisional Offices and line agency staffs

Implementation will be the responsibility of the PWGs/WRMGs, with support from the DSs and GSL. The activity will start in Year 1, as soon as the project watersheds are identified and the WRMGs are formed and will continue through the life of the project.

3.3.5. NGO strengthening

This effort will be the responsibility of the NWG and PWGs, working with selected NGOs. The strengthening will start during Year 1 and will continue through the life of the project. By contracting with NGOs for studies, training and UG creation, their skills and commitment for participatory natural resource management are expected to increase. Because this is a purpose of the project, the terms and conditions for implementation should provide for this as well as achievement of the specific activity output.

3.3.6. Private sector and banking institutions strengthening

The NWG and PWGs will have primary responsibility for this, working in conjunction with selected business establishments and banks. Implementation will begin in Year 2 and continue through the life of the project. The same provisos as under 3.3.5 apply for this activity.

3.4. Improving coordination and linkage

3.4.1. Local multi-level production planning

This will be the responsibility of the WRMGs, with support from the PWGs, in close cooperation with the UGs. Experimentation in the pilot watershed areas will start in Year 2, extending through Year 3, with broader implementation starting in Year 4. Where UGs are in existence as under ISMP-assisted schemes, experimentation and technical assistance would begin in Year 1 to build a better knowledge base for work in new areas with new groups. This activity has already been encouraged by the Irrigation Management Division, which would cooperate with its further elaboration and improvement. Precedents and procedures from irrigated areas it is hoped would give some guidance for working in non-irrigated areas.

3.4.2. User group federations/councils in watersheds

The WRMGs will have primary responsibility for this activity, supported by the PWGs. Initial efforts on the first set of watersheds will begin about Year 3 in an experimental mode. Extension to the second set of watersheds could start in Year 4. Monitoring will continue for the life of the project. This will be one of the most challenging parts of SCOR, and even 50% success would represent a significant accomplishment.

3.4.3. Administrative mechanisms for watersheds

The PWGs, in cooperation with the PCs and DSs, will have primary responsibility for this activity. Establishment of the WRMG will be the first step in the development of new mechanisms. This will start in Year 1 and will be supported by funding through the Project. Monitoring, evaluation and modification will continue through the life of the project. If additional mechanisms besides the WRMG are needed, these will be introduced.

3.4.4. Provincial and divisional planning and implementation

The NWG and PWGs will have responsibility for implementation of these activities, starting in Year 1 and continuing for the life of the project. What planning and implementation mechanisms with the staffs of Provincial Councils and with Divisional Secretariats will be most effective is not presently known. As this Project allows for experimentation, each of the PCs and DSs will be encouraged, with NWG and PWGs advice and assistance, to formulate what each thinks will be most effective for promoting better land and water resource use. The effectiveness of alternative modes of organization will be evaluated beginning in Year 3.

3.4.5. Government agencies and donors

The NWG/PWGs will have the responsibility for this activity, with the PWGs focusing on the government agencies and projects that reach the watershed level, and the NWG addressing issues with donor agencies. Preliminary work will be done in Year 1, particularly in relation to donor-assisted projects, with further implementation planned for Year 2 through the end of the Project. The design team has contacted several government and donor agencies involved with projects in the natural resource area, most notably the Participatory Forestry project funded by ADB, which has complementary objectives focusing on the upper catchment areas of watersheds. Liaison with the Department of Forestry is already planned and both SCOR and PFP can benefit from coordination and linkage.

4. Major project inputs

It is anticipated that the Project will be implemented through a Cooperative Agreement, with the majority of the technical assistance being provided by the cooperator/contractor, with a limited number of subcontracts. Among the latter would be a subcontract with a Title XII University for assistance in relation to resource tenure issues, and one or more NGOs in Sri Lanka to manage and provide assistance in the area of group formation, experimentation and institutional strengthening. The assistance needed for the major Project components are:

4.1. Surveys, analysis, and applied research

Resident and short-term technical assistance to conduct the baseline surveys, analyses and applied research (1a, 1b, 2a, 2b, 2d) will be provided by the cooperator/contractor and subcontractor/s, with local research institute such as AAR& TI or university assistance. Where such local assistance is utilized, it will be through a subcontract.

4.2. Experimentation and program development

Resident and short-term TA, in cooperation with UGs, the NSC, PSCs, will experiment and implement project activities (1d, 1f, 1g, 1h, 1i, 2d, 2e, 3a, 4a, 4b). Participation of the NGOs will be through the subcontracts.

Experimentation with different types of group organization, with different forms of group economic activity, and with different approaches to natural resource information dissemination are anticipated. In addition, there will be experiments in ways to accelerate the land titling program utilizing the private sector.

A "guarantee" fund that can be drawn on by cooperating NGOs to support user group activities will be utilized to insure group loans on an experimental basis.

4.3. Capacity building and coordination

Resident technical assistance will be provided to the M/LIMD to enhance capacity for Ministry coordination of its natural resource management agencies, with special attention to the area of data collection, information processing and dissemination (2c, 3a, 3b, 4e). The PWGs will undertake similar capacity building activities with provincial and divisional personnel (3c, 3d, 4d, 4d).

Resident and short-term TA will be provided by the cooperator/contractor to build capacities of the NGOs (3e) engaged in group formation (1d) and to those providing supporting services to economically active natural resource user groups (1h). Similar assistance will be rendered to private sector entities (3f) involved with strengthening user groups (1f-i).

4.4. Training and education

Resident technical assistance will be provided to manage a program of training for the WRMGs and for others as necessary to implement the capacity building, coordination and policy dialogue components of the Project (2c, 3b-f, 4c-e). The training consultant will be responsible for:

- a. developing the training programs in support of the Project purposes;
- b. designing local short courses and identifying NGO or other local sources for short course implementation;
- c. designing and managing local and international study tours associated with resource tenure, watershed resource management and other relevant issues;
- d. arranging for two longer-term MS level program, relating to resource tenure and information systems.

Training activities with user groups and with trainers/organizers (1e, 4a, 4b) will be handled by one or more NGOs specially selected for this task, since this is more to their comparative advantage.

4.5. Policy dialogue

Technical assistance will be provided by the cooperator/contractor, augmented by local assistance, to GSL, NGO and the private sector in relation to policies affecting group formation, resource tenure arrangements, and natural resource management (1c, 2a, 2b, 2c, 3b). This will be coordinated with the NAREPP and other projects providing

related technical assistance to avoid duplication and to optimize the use of available expertise. The cooperator/contractor will provide:

- long-term resident technical assistance in natural resource utilization and management, with an emphasis on agricultural utilization, to assist the M/LIMD and to the NSC in exploring policy changes that would further the implementation of a supportive incentive and institutional environment for more sustainable utilization of watershed resources; and
- short-term resident and local TA relating to resource tenure issues and to group formation.

4.6. Implementation of commodities

As specified in the Project budget, only limited project commodities are anticipated under the Project. The cooperator/contractor will be responsible for commodity procurement. It is not possible to detail the equipment at this time, since the equipment necessary will be dependent upon the watersheds selected for Project action, and upon the degree to which existing agency resources can be utilized. The most likely requirements will be for support of mobility within the pilot watershed areas (vehicles) and for support of information systems and communication (computer hardware software). A commodity needs assessment will be made in the preparation of the first annual work plan.

4.7 Performance disbursement principles and benchmarks

Two principles underlie performance disbursements:

- a. Compensation for real financial costs of performance;
- b. Compensation for political costs of performance.

This means that there will not necessarily be in all cases a direct correspondence between government budgetary costs of carrying out activities and the level of the disbursement. There are three general categories of performance expected of the government under this Project:

1. Ground-level participation in project implementation;
2. Capacity-building at various governmental levels;
3. Reform of policy, process and institutions.

In Annex X, an analysis is presented of how these principles and these categories would be translated into a program of performance disbursement of Project funds, in support of Project implementation and the achievement of Project purposes. Such an analysis is too detailed to be included in full in this Project Paper. Benchmarks for

assessing the progress of Project activities toward achieving their objectives are also proposed as means for guiding and monitoring the implementation of this plan.

5. Time line for project implementation

	<u>Yr 1</u>	<u>Yr 2</u>	<u>Yr 3</u>	<u>Yr 4</u>	<u>Yr 5</u>	<u>Yr 6</u>
1a. Existing Local Organizations	STUD	---				
1b. Constraints Analysis	STUD	---				
1c. Legal Status of User Groups	DIAL	--	IMPL	-----		
1d. User Group Creation	- - -	-	IMPL/EVAL	-----		
1e. Training User Groups/Trainers	IMPL	-----	EVAL/IMPL	-----		
1f. Economic Opportunities	- - -	IMPL/EXP/EVAL/IMPL	-----			
1g. Special Opportunities	- - - - -	EXP/EVAL/IMPL	-----			
1h. Supporting Services/Facilities	- - -	IMPL/EXP/EVAL/IMPL	-----			
1i. Production Companies	- - - - -	EXP/EVAL/IMPL	-----			
2a. Regulatory/Legal Mechanisms	STUD	---	DIAL	--	IMPL	-----
2b. Resource Access/Tenurial Arrangements	STUD	/	DIAL	/	IMPL	-----
2c. Policy/Process Reform	DIAL	-----				
2d. Land Titling	- - - - -	EXP/STUD/EVAL/IMPL	---			
2e. Land Consolidation	- - - - -		EXP/EVAL	----	IMPL	---
3a. Information Systems	- - - - -	IMPL/EVAL	-----			
3b. National Departments/Agencies	DIAL	---	IMPL	-----		
3c. Provincial Councils and Staffs	- - - - -	IMPL	-----			
3d. Divisional Offices and Staffs	IMPL	-----				
3e. NGO Strengthening	IMPL	-----				
3f. Private Sector/Banks Strengthening	DIAL	---	IMPL	-----		

	<u>Yr 1</u>	<u>Yr 2</u>	<u>Yr 3</u>	<u>Yr 4</u>	<u>Yr 5</u>	<u>Yr 6</u>
4a. Local Multi-Level Planning						
	-----	EXP/EVAL/IMPL	-----			
4b. User Group Federations						
	-----	EXP/EVAL/IMPL	-----			
4c. Admin Mechanisms in Watershed						
				IMPL/EVAL	-----	
4d. Provincial/Divisional Coord						
				IMPL	-----	EVAL/IMPL

4e. Government Agencies/Donor Coord						
				IMPL	-----	

STUD = Studies
DIAL = Dialogue
EXP = Experimentation

EVAL = Evaluation
IMPL = Implementation
- - - Planning/Preparation

6. Monitoring plan

Monitoring during the project will concentrate on performance at the interface between the UGs and the governmental sector, but will include the necessary oversight of Project activity at the other levels. The cooperator/contractor will be required to obtain the necessary data on each of the four project components to report on the degree to which the indicators of progress have been satisfied. Reports will be provided that meet USAID and GSL requirements.

Most of the data necessary for reporting will be obtained through a system of process documentation which will be an important mechanism for continuous learning from the field activities. This will be supplemented with information from the normal monitoring activities of M/LIMD, M/ADR and other government agencies. The Project will strengthen a national research organization such as AR & TI to undertake monitoring and evaluation (M&E) of SCOR. The selected agency will be accountable to the Project for the activities.

The cooperator/contractor will design a special monitoring element to determine changes in the roles and benefits of women in the course of the Project.

7. Spread effects and institutionalization

Even though the SCOR project will utilize a limited number of watersheds in its learning and development stages, it is anticipated that implementation will be on a much wider area. Towards this end, a significant spill over or "spread-effect" is expected as a low-cost expansion of the adoption of innovations tested and introduced by the SCOR project. Two processes are relevant here:

- i. autonomous expansion once the validity of the SCOR approach is demonstrated;
- ii. augmentation of spread-effect by a well designed program/mechanism.

Both these will help internalize or institutionalize the SCOR approach. Moreover, the active involvement of the key actors relevant to land and water resource management, (namely users, government agencies, local government bodies, NGOs, and the private sector) at all stages of project (design, implementation, M&E, etc.) will also lead to reactions consensus among them on activities and processes, and guarantee a higher degree of sustainability. The autonomous and "planned" spread of SCOR approach to non-project areas should involve the replication of essential supporting services, as well as the utilization of appropriate practices and processes.

Expansion of some of the supporting services, such as provision of financial credit under group auspices, can occur essentially autonomously in the private sector, once the validity of the approach is demonstrated. Other services, such as the provision of technical advice on environmental protection practices and feasibility advice on new economic ventures may more appropriately be provided by the non-governmental and/or governmental sectors.

Sri Lanka is fortunate in having a strong NGO sector with proven ability to work with local people, especially the poor. As such, the sector is in demand to serve as a vehicle for project implementation, for many externally-funded projects. While the Project design effort has made a preliminary assessment of the capacity and availability of NGOs in the Provinces to assist in the implementation of the Project, it has not assessed the potential for this sector to expand the project activities to the wider area. To augment this effort a special mechanism starting in the 3rd year of the project will be launched. These will include field days, planning workshops, review and follow-up sessions, etc. for participants from representative watersheds which were not included in SCOR pilot areas. The project will attempt to make this assessment during years 2 and 3, considering two basic models: expansion and cloning.

The expansion model implies that the NGO would expand its staff and resources to be able to undertake the necessary work on the larger scale. This model anticipates that it will be possible for the NGO to mobilize, and manage an expanded human and financial resource operation, and to apply it over the wider area. Almost always, this means professionalizing the NGO. There are examples in India where this had been successful; most focus on providing a limited range of services, and many are supported by external donor funds.

The clone model starts from the assumption that expansion of the NGO is inadvisable because of the difficulty of managing a larger activity, and from the fear that growth means distancing from the client group. Critical to the success of most NGOs is a high degree of leadership. The clone model assumes that this leadership can be found widely, an assumption that is not always valid.

With the exposure to SCOR practices and processes in pilot areas, these participants may introduce innovations in their respective watersheds. Planning workshops and review sessions may help them in these efforts. The project may also provide "catalysts" to augment the spread-effects in such areas and conduct M&E in selected sites.

E. EVALUATION PLAN

1. Final Evaluation

The activities of the Project will be carried out across a number of levels with different starting and ending times. Therefore, it is difficult to specify in detail a priori the elements of an evaluation plan. For each of the activities, outputs and indicators have been specified, and the evaluation will determine the degree to which the anticipated outputs have been achieved. Since the individual activities are anticipated to be synergistic, it is logical to try to evaluate the project in a more holistic manner. The three integrating themes of the project provide a basis for this aspect of the evaluation, to go beyond the specific assessment of outputs and impacts.

The final evaluation should identify the degree to which there are improvements in the incentive and institutional context in which natural resource-based economic activity takes place. The baseline information that will have been collected at the start of the project will provide reference points for judging the degree and location of improvements in production environments of natural resource users. Of special interest in the evaluation will be the degree to which the resource users have increased their control of natural resources and the impact of increases in control on their production decisions affecting sustainability.

The evaluation should determine the degree to which environmental considerations have been internalized in group and individual production decisions as well as in the thinking of government, NGO and private sector actors. This will be more difficult, but it can be inferred from a study of resource-related decisions and practices. Project reports, and particularly the research and process documentation that will be carried out, should provide basic information needed for the evaluation.

The enhancement of people's access to and understanding of information about natural resource potentials and problems will be evaluated to determine the changes in the types of resource information entering accessible data bases, in the forms whereby information is made available to agencies and to groups at the local levels, and in the purposes for which that information is used.

In addition to the evaluation of the substantive achievements of the project, there will be the normal evaluations of the performance of the participants in the Cooperative Agreement, of the technical assistance personnel and cooperating government and non-governmental bodies, and of the financial performance of the project.

2. Mid-Term Evaluation

The mid-term evaluation will be done in 1995, to determine the progress of activities and to identify significant findings that may suggest changes in the direction and/or emphasis of project components. This will be an important evaluation since it

is scheduled to occur when most of the research and experimentation will have been completed and information will be available to chart the implementation phase of the project. The make-up of this evaluation team will be partly determined by the composition of the team handling the mid-term evaluation of NAREPP. The evaluation of SCOR should be complementary to that of NAREPP and could be carried out in conjunction with the scheduled 1995 evaluation of the parent project, with the addition of local and/or expatriate experts in the areas of resource tenure. Provision is made in the project for this type of external consultancy.

3. Interim Evaluations

This Project has been designed in a participatory mode, with GSL and user group inputs to the design from the very initial stages. It is conceived as a learning process project as well. So annual reviews and reporting of progress will be needed to continue the participatory nature of the project, to enhance the dialogue, linkage and coordination efforts, and to involve user groups more fully with governmental, NGO and private sector participants.

It will be desirable for these evaluations to be carried out "in situ" with national and provincial participants together with the representatives of user groups where exists, in the evaluation spending time at watershed level, observing the progress and problems. As soon as federations of user groups are established at watershed level, evaluations should be conducted with them, giving user representatives an opportunity formally participate in the process of evaluations.

The Provincial Steering Committees and National Steering Committee members will be involved in the evaluation process, and the annual progress/evaluation reports will be formally reviewed by the PSCs and NSC as well as by user federations. WRMGs will be given an opportunity to comment and make suggestions on these reports too, since participation is valid and valuable for administrative participants as well as for community and group-level actors.

4. Baseline Survey

The project will support the establishment of several "benchmarks" in respect of the status of resources and their uses, about user group activities, about the state and efficiency of operation of line agencies and the private sector groups, degree of shared control of resources, level of livelihood of a cross section of users and, finally about the state of the environment. The subsequent progress and achievements realized by the Project will be assessed against the benchmarks hither to established. It is suggested that the baseline survey is completed before the commencement of project activities in proper.

SCOR PROJECT LOGICAL FRAMEWORK (LOGFRAME)

<u>Narrative Summary</u>	<u>Objectively Verifiable Indicators</u>	<u>Means of Verification</u>	<u>Important Assumptions</u>
GOAL			
To increase the sustainable productivity of the natural resource base in Sri Lanka to improve livelihoods beneficially and equitably	Investment in land improvement and intensification of agricultural production	Monitoring private investment in land, and agricultural production statistics	Shared control of resources will create incentive and institutional environment for productive and conserving resource uses; acquisition, analysis and dissemination of information will create greater environmental awareness
PROJECT PURPOSE	<u>Conditions Indicating Achievement</u>		
To increase shared control of resources in ways that contribute to intensified, sustainable production and reduce pressures on environment through private-public partnerships	<u>Strengthened User Group Capabilities</u> <ol style="list-style-type: none"> 1. Number of user groups established 2. Number of UGs assisted by Project 3. Number of UG members/ reps trained 4. UG legal status and powers 5. New UG productive opportunities 6. Income increases due to Project support services/facilities 7. Models for production intensification 	Project records	UGs with training and incentives will remain viable; legal status will contribute to sustainable production; UGs will respond to production opportunities/services; production opportunities/services will strengthen members' commitment to UGs
	<u>Improved Resource Tenure Arrangements</u> <ol style="list-style-type: none"> 1. Changes in regulatory and legal mechanisms governing tenure 2. Policy and process reforms 3. Issuance of land titles 4. Area of land consolidated 	Project records LCD records	Changes in mechanisms and policy reforms will improve resource access and sustainable benefits; users with more secure rights will manage resources more sustainably
	<u>Strengthened Govt, NGO & PS Capacity</u> <ol style="list-style-type: none"> 1. Integrated accessible information systems 2. National, provincial and division personnel trained under Project 3. NGO and private enterprises gaining experience working with user groups in participatory management mode 	Project records	Information systems will be used and will affect decision-making; training will improve performance of trainees and their organizations; NGOs and private enterprises with experience in participatory mode will continue working in this mode
	<u>Improved Coordination and Linkage</u> <ol style="list-style-type: none"> 1. Methodologies for local multi-level production planning, area covered by LMLPP, production increases from LMLPP 2. User group federations established 3. Land use plans for watersheds prepared by user group federations 4. Coordinating mechanisms at divisional, provincial and national levels 	Project records	LMLPP leads to more efficient and sustainable resource use; user group federations will undertake rational land use planning; land use plans will lead to more rational land and other resource use; donors and GSL ministries willing to consult and cooperate to improve natural resource development and use

INPUTS/ CATEGORIES

Budget (millions US\$)

	USAID	GSL
1. Technical assistance	\$ _____	\$ _____
2. Training	_____	_____
3. Commodities, facilities	_____	_____
4. Research support	_____	_____
5. Evaluation & contingencies	_____	_____
7. Operational support	_____	_____
TOTAL	\$ _____	\$ _____

USAID and GSL records

GSL counterpart funding

OUTPUTS

Magnitude of Outputs

Strengthened User Groups

1. Legal status and powers	Enactment by GSL	Documentation
2. UGs created in pilot WSs	60 new UGs created	Project records
3. Existing UGs assisted	240 UGs assisted (training)	Project records
4. Training of organizers	30 organizers trained	Project records
5. Production opportunities	20 new kinds of opportunities	Project records
6. Support services/facilities	Loans guaranteed to 150 UGs	Bank records
7. Models for intensification	10 experimental models	Project records

Improved Tenure Arrangements

1. Modifications in regulatory and legal mechanisms	As needed	Documentation
2. Policy and process reforms	As needed	Project records
3. Issuance of land titles	Est. 30,000 titles	LCD records
4. Land consolidation	4 pilot area programs	Project records

Strengthened Capabilities

1. Information systems	1 natl, 2 prov'l, 4 div'l	Project records
2. Training and practical experience of personnel in part'y resource mgmt	120 persons (national, provincial, divisional) as part of PRM cadre	Project records
3. Training of NGO & private sector personnel	20 NGO and 20 private sector staff	Project records
4. NGOs & private enterprises get experience & assistance in part'y resource mgmt	5 NGOs and 5 private enterprises engaged in Project implementation with UGs	Project records
5. Procedures for engaging NGOs & private sector in PRM	Experimentation as needed	Project records

Improved Coordination & Linkage

1. Methodologies for local multi-level prod'n planning	As needed, started under ISMP	Project records
2. Local production planning	Acreage to be determined with UGs	IMD/DAS records
3. User group federations	4 watershed UG federations	Project records
4. Watershed land use plans	4 watershed land use plans	Project records
5. Coordinating mechanisms	4 divisional, 2 provincial 1 national (with donors)	Project records

ECONOMIC ANALYSIS

This Annex focusses on the assessment and evaluation of selected benefits, evaluation of selected costs and finally comparison of benefits with costs. In the first section, benefits are assessed and classified into two categories viz., direct and indirect (tangible). This is done in respect of each project activity. Second section evaluates the benefits and the final section compares some selected benefits and costs and conducts an economic evaluation of the SCOR Project.

1 Assessment of project benefits

A series of project benefits are identified in respect of some of the selected activities. Other activities will lead to the production of some intermediate benefits which are a pre-requisite for the attainment of other benefits. The benefits are identified as either direct or indirect. The latter denotes both directly unmeasurable and/or the intermittent benefits referred to above.

Activity area	Nature of benefit	Direct/indirect
1.1 Assessment of present situation		
Assess the present levels of land and water use patterns in different components of the watershed and capacities of relevant institutions and organizations	This by itself will not produce any benefits; but it is a pre-requisite for all future development plans/work	Indirect
1.2 Constraint analyses		
Identify constraints to optimum utilization of land, water and other resources while protecting environment	This will also not produce any direct benefits. But the results of the analysis will be a pre-condition for design of a development plan for the watershed	Indirect

1.3 Watershed user groups

a. Strengthening existing user groups through;

enhancing capacity and providing legal support	This is a precondition for the efficiency and sustainable user groups and will lead to:	
	-improved O&M of irrigation systems	Indirect
	-enhanced sustainability of systems	Indirect
	-new investments on land & water resources	Indirect
	-business activities improved and income expanded	Indirect
	-protected environment	Indirect
	-reduced costs	Indirect
	-trees planted and cared for increased	Direct
establish coordination and linkages	Establishment of coordination and linkage mechanisms are the key to innovative business activities and improved marketing. They will finally lead to improved production, profits and better livelihoods.	Indirect
support watershed based user group councils	Establishment of councils among different user groups will enhance their bargaining power and improve stability. This will eventually lead to sustainable user groups.	Indirect

b. Support user group creation where absent:

creation of user groups -benefit streams are similar to above

1.4 Design and implementation of a watershed development plan through participatory mode

a. Planning and implementation

*identify watershed	-no direct benefits	
*design and implement new economic opportunities	-more employment -increased income -increased livelihood	Direct Direct Indirect
*land titling programme	-incentive for enhanced investment in land and water resources -increased income	Direct

*improving tenure	-increased agricultural production -increased in trees planted and environment protected	
*dissemination of information	-This by itself will not have benefits. But encouraging the application of knowledge will lead to several other benefits including production and protection	Indirect

b. Action research/ Experimentation

*experiment with land consolidation	The benefits accrued to experimentation are initially confined to the experimental area. However, through the internalization of tested innovations and by designing spread mechanisms spillover effects are expected. These effects may finally lead to increased yield, expanded production through better use of inputs, lowered production cost due to economies of scale, etc.	Direct /Indirect
*experiments with innovative economic opportunities, e.g., non-traditional irrigation opportunities in schemes and in uplands in the wet zone through participatory group efforts.	-sustainable and increased income (farming mtds, agro-processing, fuel types, irrigation methods) -more employment opport. created -frustration of rural people reduced	Indirect
*experiment with new production modes, e.g., various types of production companies.	-lowered production costs (economies of scale) -increased income (production/sale/value added) -increased employment	Direct Direct Direct

1.5 Institutions and policy reform for watershed development
(These will only be based on previous experimentation)

*policy dialogues and process reform	-change of staff attitudes concerning user groups -production/income increased due to better policy atmosphere	Direct Direct
*establish information	-increased production	Direct

systems & improved dissemination	-increased profitability -protected environment through tree planting & pollution control	Indirect
*capacity building of agency staff	-staff attitudes changed -work efficiency improved	Direct Indirect
*capacity building of private sector staff	This is a pre-condition for strengthening of user groups and creation of groups where they do not exist	Indirect
*capacity building of state and private agencies	This will lead to improved provision of supporting services including better coordination involving user groups	Indirect

1.6 Internalization and Spread Mechanisms

*continuity and sustainability of benefit streams cited above.	These activities will help internalize efforts introduced by the project and assist expanding innovation to non-project areas, facilitate new "green investments" and thereby enhance benefits. Hence, it is a pre-requisite for internalization of project processes beyond its life span.	Direct
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2 Evaluation of benefits

Evaluation of the benefits that may be derived from project activities listed above is attempted in this section. It must be noted that some benefits can be directly measured and assigned a direct value while others cannot be quantified at this stage with sufficient accuracy. It is considered that two watersheds are selected for development in the first year. Major activities in the first year will include: assessing existing resource use patterns and capacity/capability of institutions/organizations, participatory planning of experiments/ programmes, strengthening of user groups for local control of resource, etc. Most of the implementation activities will start in the year 2 and continue for about 2 years. The third year is considered as the beginning for internalization when watershed teams will begin to phase out. In the second year, in addition to the implementation work in the formerly selected two watersheds, the third watershed will be selected. In the fourth year of the project, the fourth watershed will be selected for development. It is assumed that the average area of a watershed will be about 10,000 hectares, from which the catchment area will be about 2,000 hectares and the command and drainage area is about 5,000 hectares. The rest of the area of 3,000 hectares will comprise household gardens and the highland areas.

For the purpose of evaluation, the benefits are grouped into eleven main categories. The evaluation of benefits under these categories is shown below.

Benefit area 1: Decreased government expenditure on irrigation systems

There is evidence from several major irrigation schemes that user groups can take over the management of irrigation systems. Since they are managing the systems the expenditure which the government has had to incur on their operation and maintenance has come down ¹. In the meantime, evidence suggests that the quality of work undertaken by these groups is much superior when compared to the work undertaken by contractors. This means improved sustenance of the irrigation systems as a result of creation of user groups.

The actual expenditure on O&M of a major irrigation system is in the region of Rs.950 per hectare per season. The breakdown of this expenditure shows that material cost is about Rs.37 which has to be incurred even when users carry out the activity. Therefore, the cost which can be saved on the part of the government due to user group creation is about Rs.913 per hectare per season.

The above experiences have already been registered in respect of major schemes in the dry zone. Similar experiences have not yet been recorded in the wet zone areas and in minor irrigation systems since such programmes have not been established yet. The present project will help demonstrate such experiences in respect of the wet zone areas and the impact can be significant. This aspect is not included in the economic analysis performed in this section although the benefits are likely to be substantial.

Benefit area 2: Improved protection of the environment

Improved protection of the environment is brought about by planting trees and their after care as a group, developing environmental consciousness and awareness among the resource users and assisting authorities in protecting forests in the catchment areas in particular by providing information on timber felling activities. These activities themselves help conserve the environment and improving environmental quality. There is evidence that all these activities are taking place in several areas of the country ². The actual impact of these activities on the

¹ For instance, the present departmental allocation for operation and maintenance of the PSS in Polonnaruwa is Rs.161,039 and Rs. 590,354 respectively. This is 50% less than what it was before the formation of distributary channel organizations. With DCOs undertaking the O&M work, each farmer carries out O&M tasks in respect of his channel area. In the case of common channels, task is accomplished through group work mainly in the form of Shramadana.

² For instance, in Deniyaya area, environmental protection groups have been set up by the resource users especially the youth. They have conducted environmental protection campaigns and awareness building programmes. In Kamburupitiya, user groups have taken over planting 100 reed plants for each plant felled. In Muruthawela scheme, members of some farmer organizations have brought to the attention of the authorities incidence of illicit felling of timber in the catchment areas. In several other areas such as Nuwara Eliya, Kothmale, Udawalave, etc. peoples organizations have planted forest

protection of the environment is difficult to quantify due to the intangible nature of the benefits except in the case of tree planting. In the latter case, taking the value of timber produced alone, it is noted that the present value of a good timber species planted 25 years ago is Rs.10,000. This is in addition to several other non-quantifiable benefits which could be generalized from this area such as providing fodder, erosion control, provision of fuelwood, decrease the speed of wind and reduce desiccation effect, provision of shelter belts, etc.

For the purpose of economic analysis, activities such as introduction of agroforestry practices and other activities such as tapping kitul palm, bee keeping, cultivation of medicinal plants and other trees such as reeds, bamboo, etc. is included. The breakdown of major benefits which could be generated in one watershed area of hypothetical size of 10,000 hectares where different activities will be undertaken is as follows:

Category	Extent (ha)	Proposed use
Catchment	1,000	Trees for timber
Highlands	2,500	Agroforestry
Catchment + } highland }	1,500	Medicinal plants, kitul tapping, bee keeping, goat rearing, etc
Command + } drainage }	5,000	Paddy and other high-valued crops with new irrigation

It is assumed that trees will be planted in 1000 hectares of the catchment area (timber trees) at a density of 50 trees per hectare. In the area where agroforestry and other conservation farming practices will be adopted will have trees planted at a density of 10 trees per hectare. The area under agroforestry will produce several other items such as fodder, beekeeping, pasture, etc. In the 1,500 hectares (500 ha of catchment and 1000 ha of highland), tapping of existing kitul palm together with new planting on a rotational cycle of planting in 4 years and by felling 20% of non-productive palms one year after planting, cultivation of medicinal plants, other trees such as bamboo, timber and fruit trees and, goat rearing will be undertaken. In the command area too trees can be grown along canal bunds, in reservations and other fallow areas which however, is not taken into account in the calculation of benefits.

It is assumed that the area under agroforestry and other conservation farming practices will yield net returns at the rate of Rs.5,000 per hectare commencing from the year 4 although such income is expected to start from the year 3. The area where forestry in association with other activities such as kitul tapping, medicinal plant cultivation/extraction, planting/extraction of reeds

trees along irrigation canals, roadside, reservoir catchment areas, etc.

and rattan, etc. will provide profits at the rate of Rs.5,000³ per hectare starting from the fourth year. In fact, this source of income could be realized from the beginning of year 2. From year 8 onwards, the profits are expected to rise up to Rs.8,000 per hectare since by then the bamboos and some kitul trees could be harvested and rattan may have matured for harvesting. Development of local processing industries might add more value, also. The profits are expected to rise further up to Rs.10,000 per hectare by the 11th year as a result of further intensification of cultivation/ plants and tree extraction, and the development of processing industries. It is assumed that the profits are maintained at this level until the 25th year. In addition, several other benefits such as improved land use, erosion control, moisture conservation, etc. may also take place from which the other crops might benefit. However, these positive aspects are not included in the economic analysis. The economic analysis does not consider the value of the trees planted in the catchment and command areas for timber purposes.

The benefits which can be expected from the start of year 4 can be shown as follows:

Agroforestry area --- Rs.5,000 x 2,500 ha. x 4watersheds = Rs.50,000,000
Year 4-25

Non-wood forest --- Rs.5,000 x 1,500 ha. x 4 watersheds= Rs.30,000,000
resources utilization Year 4-7

Rs.8,000 x 1,500 ha. x 4 watersheds= Rs.48,000,000
Year 8-10

Rs.10,000 x 1,500 ha. x 4 watersheds= Rs.60,000,000
Year 11-25

As trees grow, the benefits are likely to be more which however are not included in this analysis. The trees planted in the catchment and highland areas can be harvested for timber by the 25th year. The timber value is also not included in the analysis.

Benefit area 3: Increased user income through expanded agricultural production

Evidence is recorded from several parts of the country as well as in other countries where increased agricultural production has become possible as a direct result of the formation of user groups. Expanded agricultural production in the order of Rs.81.50 per acre has been recorded in one place in Gal Oya Left Bank where increased area of 717 acres were brought under cultivation in the lower reaches of a particular canal from the water saved in head areas. In

³ When Kitul is planted at a density of 148 palms per hectare, the net returns per hectare at the 12th year amount to Rs.37,200 (Abeyasinghe, A.M.A, 1992). In fact tapping and removal of excess and unproductive palms in existing natural plantations at half the above density will alone yield Rs.18,600 per hectare from the 3rd year. For estimation of benefits, the net returns of only Rs.5,000 per hectare are used.

Parakrama Samudra Scheme (PSS) also an additional area of 500 acres in the tail reaches were planted from the water saved in the head-end areas. Similar experiences were also observed in several other irrigation systems where FOs have been strengthened in Sri Lanka. It is likely that paddy yield might increase as a result of application of fertilizer and agro-chemicals at the correct time in right quantity which hitherto was not possible due to institutional and other problems. In several ISMP schemes FOs have started to embark on the production of seed paddy, adoption of proper water management practices and the application of technical knowledge all of which facilitated by the work of FOs. However, the full benefits resulting from these activities have not been quantified and documented.

The increased production may also take place through increases in yield per unit area and increased cropping intensity. These have been proven under major schemes but not very clear under minor schemes and in the wet zone areas.

A third possibility is to utilize groundwater for supplementary irrigation during the dry season. In the wet zone areas of Deniyaya, Kotapola, Telijjawila, etc., there is considerable extent of land where crop production can be intensified by introducing supplementary irrigation during the dry season which extends for about 2-3 months. In the minor schemes in the dry zone, groundwater can be used in conjunction with irrigation water during the dry season. The impact on agricultural production will be much significant in minor schemes and in the wet zone.

Assuming one watershed area will have a minimum of 125 hectares utilizing supplementary or new irrigation facilities and the cultivation of cash crops will produce profits of Rs. 25,000 per hectare, the returns per watershed will be in the region of Rs.3,125,000. For calculation purposes, it is assumed that the benefits will be realized only in year 3 although the benefits could be realized starting from year two.

The above benefit stream will continue for 20 years and more. Planting competitive and high valued crops can produce bigger profits.

Benefit area 4: Increased user income due to new economic products

In schemes where new practices such as introduction of high-valued field crops into the paddy-based farming systems and, non-agricultural enterprises such as duck and prawn farming have been introduced, gross farmer income has recorded an increase. With diversified cropping alone, farmer income has registered an increase by about 3 times. Therefore, a positive case exist where the introduction of new economic opportunities has led to increased farmer income. In addition to direct income increase, such opportunities will also result in more employment creation not only in direct production but also in the supply of services required in respect of these products and in processing industries. Diversified cropping with less water consuming crops will save irrigation water from which additional area can be cultivated which hitherto was not possible due to lack of water. The benefits from these activities cannot be quantified due to paucity of data.

Benefit area 5: Increased income due to new employment opportunities

The new employment opportunities created will provide gainful employment particularly for the youth. Such experiences have already recorded in major irrigation schemes such as Rajangana, Nachchaduwa, PSS, Giritale, Kaudulla, Minneriya, etc. where the FOs have established salaried positions such as managers and employed irrigators. These benefits cannot be quantified due to paucity of data.

Benefit area 6: Increased income due to better marketing

Formation of farmer groups and their engagement in economic activities such as civil contracts, bulk sale of agricultural inputs, delayed marketing of agricultural products have developed bargaining power in these groups. Activities such as delaying marketing until the price increases and development of direct contacts with the consumer centres have given opportunities for such groups to engage directly in marketing and thereby to reap better profits. For instance in Minneriya scheme, FOs purchased paddy in bulk and sold when the price shot up two months later. This alone gave them a profit amounting to Rs.2,890 per hectare ⁴. In schemes such as Nachchaduwa, Kaudulla, Minneriya and PSS, the FOs had started to engage in the bulk purchase of and sale of fertilizer and other agro-chemicals and selling to farmers at lower cost. In some schemes, selling of inputs at lower rate has forced the private traders to come down in their prices thus controlling the price of chemicals and fertilizer. These activities will have far reaching benefits to the agricultural community.

Benefit area 7: Decreased cost of agricultural production

As FOs have begun to involve themselves in the sale of agricultural inputs and provide them to the member farmers at prices lower than the market price, the cost of production has been lowered. Evidence from areas such as Nachchaduwa, PSS, Kaudulla, etc. suggests that the farmers have been able to cut paddy production cost by Rs.500 per hectare merely by supplying fertilizer and other agro-chemicals at a cost lower than the open market prices. It should be noted however that in this particular case the "savings" to farmers would have otherwise gone to the traders of agro-chemicals. Hence, it is a "cost" to the traditional traders of such inputs.

Hence, the direct production cost savings from an area of 5,000 hectares are in the region of Rs.2,500,000. Estimation for the 4 watersheds is given below:

$$5,000 \text{ ha.} \times \text{Rs.}500 \times 4 \text{ watersheds} = \text{Rs.}10,000,000$$

As more user groups are formed and new technologies are introduced the reduction in cost can still be larger. It is assumed that this benefit will be realized only in year two of the project even though it has already taken place in several major schemes. However, this has not yet taken place in minor systems and in the wet zone areas where the effect could be much more

⁴ Profits by delaying sale of paddy amounted to about Rs.10,000 per 8 tons in Polonnaruwa area. This works out to Rs.5,780 per person or Rs.2,890 per ha.

significant.

Benefit area 8: Increased farmer savings and investments

The formation of FOs and their engagement in economic activities have enhanced income of the FOs. By undertaking contract works within irrigation schemes, membership fees and the collection of fines have enriched the reserve funds of these organizations. In schemes such as PSS, Giritale, Nachchaduwa, Rajangana, Kaudulla, Padaviya, etc. the FOs have thus been able to save funds and deposit such savings in the bank accounts opened in the name of the organization. On an average, FOs in PSS have built up reserves of about Rs.257 per member of the organization as at present (1992)⁵. It should be noted that in addition to these reserves the FOs have re-invested their savings in other profitable ventures such as purchase of agricultural inputs, paddy sales, undertaking contracts, etc. These are significant achievements compared to the era before their formation when they did not have even a bank account. Now they operate group accounts. For instance, the four organizations referred to above have invested Rs.160,943 on agricultural and other economic activities during the current year. These are significant achievements compared to the period before the formation of FOs.

Benefit area 9: Enhanced sustainability of land and water resources

It is to be highlighted that evidence is observed whereby group activities have contributed to the sustainable management of land and water resources. These can be basically divided into four areas namely, better utilization of water resources, enhanced sustainability of the irrigation system, protected environment including the conservation of land and water resources and control of illicit felling of trees mainly for timber. These experiences have been reported in irrigation systems where FOs have been working for the last 5-6 years. However, most of them except the effective utilization of water resources, cannot be quantified due to inadequacy of relevant data.

With regard to effective utilization of water resources, following benefits have been attributed to the strengthening of FOs:

Water used directly as a result of formation of user organizations in Muruthawela scheme

⁵ The reserve funds and the membership in respect of four FOs in PSS are given below:

Organization name	Amount (Rs)	No. members
Pulasthigama	99,807	191
Kegalugama	118,651	250
Ambanganga	42,148	265
Galthambarawa	29,388	320
Total	289,994	1,126
Savings per member	257.84	

has come down from 17 ac.ft to 12 ac.ft. in 1991/92. This is expected to be further dropped down to 9 ac.ft. in the near future. For a water-short system like Muruthawela, where the total command is not brought under cultivation in a typical season, these savings of water can be utilized to increase the area cultivated by about 50%. This which is a direct benefit resulting from the FOs. In PSS, the amount of water issued in one irrigation has come down from 1,300 ac.ft. in the last Yala (1991) to 900 ac.ft. during the present Yala (1992) season. Assuming there are 15 irrigations per paddy crop, the water saved thus comes to about 6,000 ac.ft. Assuming a water duty of 10 ac.ft. per crop, 600 acres of area can be cultivated with paddy from the water saved. This is equivalent to about Rs.8,160,000 assuming a paddy yield of 100 bushels per acre and the sale value per bushel is Rs.136. These are significant achievements directly as a result of formation and strengthening of FOs in irrigation schemes.

The economic benefits accrued to the component of 'participatory management in irrigation schemes' are clear. Ex-post evaluation of several irrigation rehabilitation projects in Sri Lanka have demonstrated that improving water management contributes significantly to project benefits (Aluvihare and Kikuchi, 1991). The contrast between two major rehabilitation projects, TIMP and Gal Oya, shows substantially higher internal rates of return and benefits-cost ratios for the latter project, where participatory water management was an integral part of rehabilitation design. In smaller projects, more focussed on water management and less on physical rehabilitation, economic returns were seen to be even higher, with rates of return exceeding 70-80%.

Other project benefits will not necessarily accrue entirely to the individuals and groups doing the work. Positive externalities will result from improved land, water and forest management practices in the catchment areas of the watersheds. A World Bank study on vegetative approaches to watershed conservation shows that the costs are low and it is more efficient and sustainable compared to mechanical structures (IMPSA, 1991).

A benefit-cost analysis of the Phewa Tal watershed programme in the Middle Hills of Nepal showed that on-site benefits of forest, grazing and paddy management were nearly double the costs of the programme (Fleming, 1983 quoted in IMPSA). It was shown that forest productivity would double with simple management, fodder yields would increase five times and erosion losses would be cut to one-third with pasture protection and stall feeding, and nutrient savings would be substantial with simple farm practices (IMPSA, 1991).

The improvements toward sustainable management of land, water and forest resources will enhance incomes downstream, or at least prevent their decline, as well as in the catchments themselves. Benefits of this type are difficult to estimate, but they have been shown to be substantial elsewhere in the region.

Benefit area 10: Improved coordination, policy reform and awareness building among agency staff

Another area where benefits can be expected is improved coordination of services operated by the government agencies. Expected benefits from such coordination mechanisms may be similar

to those generated from the dialogues organized among the concerned officers by projects such as Gal Oya Water Management Project, ISMP, IMPSA, etc. These experiences suggest that by putting the different officers together has helped a lot in making each other aware about the programmes and activities which would eventually bring about better coordination and avoid duplication of efforts, facilitate learning from each other's experiences. Such activities will lead to effective delivery of services including bringing about better awareness of government programmes among the rural people. The ultimate effects are better utilization of land, water and other resources, reduce frustration of rural communities and protection of the natural resources. They can't be quantified accurately since some of the benefits are intangible.

The possible benefits from coordinated research, experimentation, capacity building and policy/process reform are even less tangible than those discussed above. They could be many times the amount needed to satisfy the Project's economic viability; they could also be negligible if project implementation is ineffective.

Benefit area 11: Tenure alternatives

There is no useful information available about the economics of land tenure alternatives in Sri Lanka. There is, however, international evidence to consider. The economic impact of land titling in Northeast Thailand has been demonstrated by the World Bank to be substantial; an internal rate of over 80% was found for a massive titling project (essentially a programme to regularize encroachments).

3. Economic analysis

Ex-ante economic analysis of projects like SCOR is far from straightforward. Even financial cost-benefit analysis, which ignores shadow pricing, externalities and other indirect and intangible costs and benefits, cannot be used in such projects because the value of most of the benefits is essentially unknowable. Giving people shared control and resource management rights and responsibilities is one step further removed from the productive process than is supplying them with irrigation infrastructure, inputs, etc; the link between project inputs and results is therefore more tenuous.

Much of the SCOR project will be devoted to process and policy reform, research and experimentation, none of which lend themselves to ex-ante economic analysis. Even the number of years over which Project benefits are expected to accrue cannot be specified in the absence of concrete knowledge about what sorts of interventions the project will have.

Based on the discussion on quantification of some selected benefits and costs, the estimated worth of the project is \$ 14.41 million and the Benefit:Cost ratio is 2.27. Accordingly, based on evaluation of the direct benefits alone, it can be concluded that the investments on the SCOR are highly beneficial. The details of the calculation are presented in Table 1.

Table 1: The value of selected benefits required to offset project costs of \$ 15 million spread over six years (All values in US \$ million)

<u>Year</u>	<u>Costs</u> (at year 1992) Discounted	<u>Benefits</u> (at year 1992) ⁶ Discounted	<u>Net cash flow</u> (Discounted at 10%)
1	3	2.73	-2.73
2	3	2.48	-2.48
3	4	3.00	1.25
4	2	1.37	3.35
5	2	1.24	3.35
6	1	0.56	3.35
7			3.35
8			3.80
9			3.80
10			3.80
11			4.10
12			4.10
13			4.10
14			4.10
15			4.10
16			4.10
17			4.10
18			4.10
19			4.10
20			4.10
21			4.10
22			4.10
23			4.10
24			4.10
25			4.10
	11.38		25.79
			14.41

Total Discounted net cash flow = \$14.41 million

Benefit	= \$ 25.79	
<hr/>	<hr/>	= <u>2.27</u> at 10%
Cost	= \$ 11.38	dis. rate

⁶ See notes on next page

Note:

Income from agroforestry is calculated as follows:

Extent proposed under the Project is 2,500 ha where intensification of land use will be adopted. The benefits are estimated on the basis of a net income from one hectare equals Rs.5,000. This income can be realized starting from the year 2 since annual crops planted within the trees can provide income by the end of the same year. This stream of benefits is expected to continue throughout the life span of the Project and beyond.

Income from the intensive utilization of the existing resources is calculated as follows:

This involves reforestation and extraction of forest-based products through the formation and strengthening of users' groups. Some of the activities proposed are: tapping existing Kitul trees and propagation in a planned manner so that plantation of the desired density could be maintained; cultivation and harvest of rattan and reeds; planting timber species in the catchment area; cultivation and extraction of medicinal plants; tree fodder and pasture cultivation combined with dairying and goat rearing. These activities are to be implemented in the catchment of size 500 hectares and 1,000 hectares of highland per watershed of size 10,000 hectares.

The expected benefits are calculated as follows:

*Year 1-3: Benefits from organized tapping and processing of Kitul are expected in two watersheds selected for implementation in the first year. Kitul-based products alone will generate Rs.37,200 net income per hectare provided a palm density of 60. However, since the palm density of existing but natural plantations is less than this, the returns would be expected half of Rs.37,200 per hectare. However, returns from year 1 through 3 are not included.

*Year 3-7: $\text{Rs.5,000} \times 4 \text{ watersheds} \times 1,500 \text{ ha} = \text{Rs.30,000,000}$

*Year 8-10: $\text{Rs.8,000} \times 4 \text{ watershed} \times 1,500 \text{ ha} = \text{Rs.48,000,000}$

*Year 12-25 and beyond:

$\text{Rs.10,000} \times 4 \text{ watershed} \times 1,500 \text{ ha} = \text{Rs.60,000,000}$

Income resulting from the additional area planted within the command is calculated as follows:

Evidence indicates that FOs operating in about 9,275 hectares of command can save water which is sufficient to cultivate about 200 hectares of land with paddy. This means if FOs are strengthened within a command of 5,000 hectares, the water thus saved can irrigate an additional area of 107 hectares. Assuming net returns per hectare of paddy are Rs.4960 for two seasons, the net income from the additional area planted through the water saved from activities of the user organizations is Rs.4,245,760.

The net income from 500 hectares of area where intensive irrigation practices will be adopted is calculated as follows:

The project proposes to increase production from the command by innovative irrigation methods such as supplementary irrigation. The extent per watershed where this will be carried out is 500 hectares. It is assumed that intensive cultivation with cash crops will produce a net income of Rs.25,000 per hectare per annum. The direct benefits from four watershed are therefore equivalent to:

$$\begin{aligned} \text{Rs.25,000} \times 4 \text{ watersheds} \times 500 \text{ ha} &= \text{Rs.50,000,000} \\ &= \$1,250,000 \end{aligned}$$

This stream of benefits will continue until the year 25 and beyond.

ANALYSIS OF NATURAL RESOURCE MANAGEMENT CONSTRAINTS ON ECONOMIC GROWTH

This analysis supplements the analysis provided in the NAREPP Project Paper (Sri Lanka: 383-0109). It focuses primarily upon the natural resource management constraints relating to the need for increased agricultural production, an area not specifically addressed in the NAREPP Project Paper (USAID 1990).

1. Land and Water Management for Irrigation

Irrigation constitutes the largest single user of water in Sri Lanka, and it is by far the largest consumptive user of water. With two-thirds of the water in the dry zone, and one-third of the water in the Wet Zone currently utilized, there is an obvious need to improve the efficiency with which irrigation water is utilized. There are two basic ways in which this can be accomplished: (1) by increasing the technical efficiency of irrigation practices; and (2) by increasing unit-water agricultural and economic productivity. There are a number of constraints to achieving each of these goals.

Technical water use efficiency is defined as the ratio of water productively used by crops to the supply diverted for use. Typically, the determination of technical water use efficiency is carried out at the system level, with losses primarily in the form of deep seepage and surface drainage. However, in Sri Lanka, there is significant recovery of surface drainage water by downstream users, and the real potential for increasing technical efficiency is unknown. Similarly, deep seepage either recharges the groundwater reservoir or reappears as drainage water. The only potential for real saving in irrigation water is in the last system before drainage to the sea. Even here, a significant reduction in flow to the sea can have serious adverse impacts on the productivity of the coastal zone by changing the position of the salt water interface and reducing nutrient contributions to biologically active estuaries. The lack of information about the amount of water reaching the sea, and the environmental implications of reductions is a serious constraint on improving water use efficiency. Some greater knowledge about this is expected to be generated under NAREPP.

The potential for increasing the unit productivity of water in both production and profitability terms is likely to be much greater than increasing technical efficiency. A variety of factors constrain the ability of farmers to achieve increased production and profitability. The lack of secure land tenure, the lack of user participation in decisions about the amount and timing of water availability, their inability to gain economies of scale with respect to purchasing of inputs, operation of holdings and marketing of produce, and inappropriate government commodity price and import policies are illustrative of these constraints.

2. Watershed Management

There is increasing concern for the environmental impact of inappropriate activities in the upper catchment areas of major reservoirs. This concern usually focuses on the acceleration of soil erosion, commonly associated with deforestation, though there are few direct studies to define the extent or cause of the problem. Most of the evidence is derived from data on sedimentation in the major reservoirs, supplemented by visual observations. While concern for the useful life of major reservoirs is appropriate, there are important environmental impacts on the vast number of smaller reservoirs. These include deterioration of water quality as well as loss of capacity through sedimentation.

The major constraints on remedying the problems of watershed management include the lack of adequate economic alternatives to utilization of the watersheds for agricultural and other activities, the lack of appropriate institutional mechanisms for economic and land use planning on a watershed basis, inadequate understanding of cause and effect relationships between watershed use practices and environmental problems, and a lack of understanding by persons living and working within the watershed of the cumulative impacts of their individual actions.

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IMPSA 1992

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SOCIAL SOUNDNESS ANALYSIS

This Project has taken as its main scope the development of selected watersheds, to try out innovative experiments in order to achieve its objectives. The people in the rural areas has always looked upon a watershed (which includes the upper catchment areas, the command areas and the drainage) as one single unit, since their livelihood is so closely tied to its resource base. It has therefore provided a sustainable natural resource use base for the community. Due to colonial legislation like the Crown Lands Ordinance, the forests and catchments were taken out of the people and vested with the crown. The people were given individual allotments under large irrigation schemes and the usefulness of the drainage was forgotten. All these has led to environmental degradation and uncontrollable loss to land water and environment resources.

Although it is not possible immediately to measure the socio cultural impacts directly attributable to the project, yet in the long run the social/environmental impacts can be assessed through targeted research.

The Project Beneficiaries

The SCOR project will have both direct and indirect benefits to the people. The direct and immediate beneficiaries will be the people living within the watersheds. This project will provide them with opportunities to form viable farmer organizations, embark upon income earning activities, they will have access to land coming under the catchment for their use in innovating cropping patterns. The government and agency officials and farmers in this area will receive training which will make them better equipped and more empowered to analyze problems, develop plan and implement programs. Above all their resource will be used to perform activities directly benefiting the Community. The private sector will be enriched with better credit and marketing sources to enhance their income earning capacities with the development of agro industries and processing activities. The unemployed youth will be provided with employment opportunities and improvement of their skills. The farmers will be enriched with better cost effective waste control technologies to control pollution etc.

Indirect project beneficiaries include all those who benefit from training programs, namely the school children and adults. A sense of awareness about the need to protect environment will be developed. At national and provincial levels the beneficiaries include the policy makers, those who could use the lessons learnt from the experiments for their area watershed development. The project will also curb the opportunities of those who mismanage environment and help to degrade the forests and catchments. Once the users are organized they will be more responsible and alert and alive to such unsocial activities presently found in watershed areas.

GSL Commitment to the Project and Participation

The Government commitment to the protection of environment and enhancement of the natural resources base has been proved by the measures it has already taken in this direction.

The core group of Government officials from all Ministries and Departments connected to Land, Water and Environment is directly responsible for the preparation of this project paper. The response received by the design team when it visited the Provinces and the field goes to prove this point further.

Socio Cultural Feasibility

One of the novel approaches of this project is the recognition of the watershed as one unit in keeping with peoples cultural acceptance of this fact from very ancient times. Unfortunately, attempts to protect environment problems concerning the watersheds up to recent times has been prompted as a regulatory approach than that of a community based approach. A number of laws aimed at solving this problems has not met with success. Therefore there is an urgent need to get the support of all sections living within the watershed to be made responsible to its protection and development.

Risks and Assumptions

Socio-cultural risks to the project are posed on several fronts. One risk is the transformation of the administrative mechanism presently taking place in the Provinces and Districts as a result of the devolution of powers and functions of government under the 13th amendment and the Pradeshiya Sabha set up. There is still some confusion as regards the division of authority amongst each sector, there is also the suspicion by the Provinces about those activities coming down from the centre. This has to be overcome through close dialogue, establishing close relationship and also by involving the provincial and divisional officials in project activities as already outlined in the Projects Organizational Chart.

The existing laws and regulations may restrict the implementation of innovative experiments. This may be true in the case of forest uses or establishment of certain types of company modes. The only way this can be overcome is by looking for feasible alternatives while at the same time canvassing for policy changes at national level.

These risks should be understood by the Project Working Groups right at the outset so that the implementation policies will not be effected due to the presence of these constraints. Alternative strategies should be worked out well ahead and experiences in other countries may be useful in arriving at such decisions.

SCOR INSTITUTIONAL/ADMINISTRATIVE ANALYSIS

This analysis supplements that provided in the NAREPP Project Paper (Sri Lanka: 383-0109) 1990. It focuses primarily on the institutional capacities and arrangements that will affect implementation of the SCOR component of NAREPP: the legal situation concerning resource user groups and their formation and operation; the functioning of government agencies in the land and water resource sector; and the capabilities of non-governmental organizations (NGOs) for supporting participatory natural resource management.

1. User group laws and institutions

Sri Lanka has a long history of legislation concerning agricultural (land and water) resource user groups, but with regard to forest resources, laws have focused on permissions or prohibitions for individuals, not groups. In how far new or amended legislation is needed to cover user groups not specifically involved with land and/or water will need to be assessed by the Project in its first year. Possibly some interpretation of existing laws or new implementing regulations based on them will be sufficient.

Legislation concerned with land and water use in the agricultural sector was similarly focused on individuals until the Paddy Lands Act of 1958 (Herring 1984). This went beyond the individual focus of its predecessor, the Paddy Lands Act of 1953, to establish Cultivation Committees (CCs) made up of landowners and tenants. The law applied only to irrigated areas. One task of the CCs was to help implement the land and tenancy reform called for by the law, but another was to plan local production, especially in irrigated areas (on a yaya or tract basis), including collective actions to use water more efficiently and to protect the crops.

This legislation was superseded by the Agricultural Productivity Law of 1972, which maintained CCs but added higher-level Agricultural Productivity Committees (APCs) based in Agricultural Productivity Centres which were constructed throughout the countryside after 1972. While this law focused efforts on irrigated areas, Agricultural Productivity Committees and Centres covered and served rainfed areas as well. This brought upland farmers as such into organizations for the first time. The APCs were empowered to remove control of land from individuals who did not use this resource as efficiently and intensively as possible. Thus, land and water resource use was a primary motivation of this legislation. The Agricultural Lands Act of 1973 added agricultural tribunals to the array of local institutions active in rural areas.¹

¹ We will not discuss here rural organizations like the Rural Development Societies which were not given any direct land and water resource management role (Uphoff and Wanigaratne 1982).

In 1977, the APCs and CCs were abolished, being replaced by Cultivation Officers and Agrarian Service Committees based in Agrarian Service Centres, provided for under the Agrarian Services Act of 1979. Instead of user organizations such as the CCs and APCs had been (the APCs also included strong representation of officials along with farmer-representatives), the Agrarian Service Committees had a representative majority, and instead of farmer groups at the field level, farmers elected Yaya Palakas (tract managers) to act on their behalf as intermediaries with the Agrarian Service Centres.

The Irrigation Ordinance enacted in 19__ to cover practices in irrigated areas specified various rights and duties of individuals but did not establish resource user groups. Instead, it gave legal recognition to a long-standing traditional practice of having farmers meet before each cultivation season in what are known as kanna meetings. Under the Ordinance, kanna meetings were chaired by the GA or his representative. These meetings would establish a cultivation calendar of activities. Dates were set for having channels all cleaned, the first water issues for land preparation, the first water issues for planting and crop growth, building protective fences, etc.

By tradition, most irrigated tracts had an irrigation headman (Vel Vidane, called Watte Vidane in Tamil-speaking areas), who oversaw and coordinated farmer activities in the past. This role was given some status under the Irrigation Ordinance and was given legal recognition by the Paddy Lands Act of 1953. Such headmen entitled to payment of a share of the paddy produced. After 1977, Yaya Palakas in irrigated areas assumed Vel Vidane responsibilities. But such roles did not have any formal accountability to an organized and empowered user group. Rather their accountability was upwards, to the Irrigation Department or Department of Agrarian Services.

Various informal experiences with water user groups, building on traditional community roles and responsibilities had continued. The first recognized one was established at Minipe in 1978 by the Deputy Director of Irrigation for Kandy. The USAID-supported Water Management Project begun in 1979 provided for experimental introduction of farmer organizations in the Left Bank of the Gal Oya irrigation scheme in Ampare district, starting with a pilot area of over 5,000 acres in 1981, using Institutional Organizers (IOs). By the end of that project, there were over 500 field channel groups, federated through a structure of distributary canal organizations (DCOs) and area councils up to the project level, covering over 25,000 acres with participatory management. After some initial resistance to this approach, the Irrigation Department and other agencies started cooperating in a regime of water management that, together with physical rehabilitation, almost doubled the efficiency of water use. Farmers reported increased yields associated with better water management of from about 40-60 bushels per acre to 80-120 bushels per acre (Uphoff 1992).

In 1984, encouraged by experience at Minipe and Gal Oya, the Ministry of Lands and Land Development established an Irrigation Management Division which introduced the INMAS program of participatory water management in major irrigation schemes. Farmer organizations were introduced through Project Managers, and in some schemes with assistance from Institutional Organizers and/or selected Gal Oya IOs appointed permanently as Institutional Development Officers.

The structure of farmer organizations was basically the same as created at Minipe and Gal Oya in consultation with farmers.² This was the first widespread establishment of resource user groups. As of 1991, the number of field channel groups recognized by IMD is _____, and the number of DCOs is _____. There are __ Project Committees managing major schemes in a participatory management mode with a majority of farmer-representatives. In many places now, a farmer-representative serves as chairman of the Project Committee. Under the USAID-assisted Irrigation Systems Management Project, covering schemes in Polonnaruwa, Kurunegala and Ampare districts, farmer organizations have undertaken a variety of activities going beyond irrigation management to increase farmers' share of value-added and to meet various social needs of the community (IMD 1991).

The Agrarian Services Act was amended in 1991 to strengthen legal provisions for agricultural user groups. Farmer organizations established in major irrigation schemes under the INMAS program (or under the Gal Oya WMP and ISMP) are able to get legal recognition under this act, either by applying to the Commissioner of Agrarian Services or to the Secretary of M/IMLD or his agent. The amended Act also gives farmer organizations (including in upland areas) options of legal registration under the Commissioner of Agrarian Services, under the Cooperative Law as farmer cooperative or under the Company Law as farmer companies.

There is a long-standing possibility for user groups to become organized and registered as cooperatives. The country's Cooperative Law dates back to 1910, with many subsequent amendments. One in 1958 [?] provided for producer cooperatives. Basically, however, the provisions of cooperative law and their implementation have applied to consumer, credit or marketing cooperative activities, not to collective management of land and/or water resources. The provision for producer cooperatives could be relevant and useful for fishermen cooperatives, such as might exist or be formed for exploiting reservoir or river waters. These could be assisted and/or formed under SCOR.

The Agrarian Services Act as currently amended may provide sufficient basis for user groups under SCOR, but this needs to be explored with the relevant authorities once the situation of existing and potential user groups is known in the pilot watershed areas.

² The Gal Oya Water Management Project had provided for an expatriate consultant to draft a law for establishing water user associations as one of that project's first activities. The draft was essentially a translation of a similar enacted in Pakistan (without widespread success). Fortunately, the Ministry decided not to enact the law without some field experimentation. The system of organization evolved with farmer inputs in Gal Oya was much simpler and was based on more bottom-up involvement of resource users (not top-down establishment of organizations by government officials, as the draft law provided). The INMAS program was able to extend the Minipe-Gal Oya model of organization without passage of any law. The model was accepted because it suited farmers' interests and capabilities.

2. Government institutions concerned with resource management

The listing and analysis of government institutions concerned with "environmental management" in the NAREPP project paper annex (XI) deals only in passing with those that would be relevant for SCOR, mentioning the Ministry of Lands and Department of Agriculture.

The main ministry involved with implementation of SCOR will be the Ministry of Lands, Irrigation and Mahaweli Development (M/LIMD). The following departments, boards and commissions would be involved and most have already been consulted in the design process:

- Department of Forests (involved with implementing the ADB-funded Participatory Forestry Project)
- Department of Irrigation (concerning control structures and command areas within any major irrigation schemes in selected watersheds)
- Department of the Land Commissioner (central role in SCOR)
- Department of Land Settlement (if watersheds involving land settlement schemes are chosen for pilot areas)
- Department of Survey (concerning land titling)
- Department of Wildlife Management (if nature reserves are in watersheds)
- Irrigation Management Division (concerning water user associations in any major irrigation schemes in selected watersheds)
- Land Reform Commission (if land distribution becomes involved)
- Land Use Policy Planning Division (central role in SCOR)
- Mahaweli Economic Authority (if selected watersheds include any settlement areas under Mahaweli authority)
- Water Resources Board (concerning water resource planning decisions)

Closely associated with Project activities, given their concern for sustainable and productive utilization of land and water resources will be the Ministry of Agricultural Development and Research. Two major departments under this Ministry are particularly important:

- Department of Agriculture (which is responsible for research and extension)
- Department of Agrarian Services (which is responsible for provision of production inputs, including facilities for banking credit)

A third ministry with definite involvement in SCOR's area of concern, which is already very closely involved with NAREPP, is the Ministry of Environment and Parliamentary Affairs. Its secretary has served on the Core Committee for SCOR, and this Ministry has expressed interest in SCOR because it represents one of the first substantial links between environmental protection and agricultural production activities. The Ministry of Policy, Planning and Implementation will have a role because of its concern with coordinating development efforts, especially donor-assisted ones. Because SCOR is concerned with capacity building at decentralized levels of government, the Ministry of Public Administration, Provincial Councils and Home Affairs will also have a role in project implementation.

The structure of regional and local administration/government below the centre has been changing in recent years. The District, of which there are 24, was the main linchpin of administration, with elected District Development Councils. But with the government's policy of devolution (cite relevant acts), the main focus of administration and representation is the Province, of which there are 9, subsuming the existing District administrations. The powers of the chief District official, the Government Agent (GA), are being revised from those of executive authority to roles of coordination.

The Division is becoming a much stronger unit of administration/government, with the Additional Government Agent (AGA), now to be called the Divisional Government Agent (DGA), taking on executive and coordinating functions. He will serve also as the secretary to the Pradeshiya Sabha, an elected body of which there will be one or two per Division. There are currently 280 Divisions. While the Project design calls for work in a specific number of Provinces (2), the number of Divisions to be involved is less certain because with a watershed basis for determining and delimiting pilot areas, and since watersheds can cross two or even three Divisions, SCOR anticipates working in somewhere between 4 and 8 Divisions.

The legal authority of Pradeshiya Sabhas at present is derived from existing statutes governing urban councils and municipal councils, assigning them public health and sanitation, markets, weights and measures, and similar "urban" responsibilities. Thus they are not involved in land and water resource management, apart from urban uses. The Project will work closely with the concerned DGAs and their respective District Secretariats, particularly through the Water Resource Management Teams to be constituted at the divisional level to deal with the pilot watersheds. Liaison will be maintained with the relevant Pradeshiya Sabhas, and they will be involved with participatory natural resource management to the extent practicable and relevant.

3. Non-governmental organizations concerned with resource management

3.1. NGOs The NAREPP Project Paper has an analysis of NGOs concerned with resource management. The Nation Builders Association, which has been involved with organizing water users in irrigation schemes and with forest replanting efforts, is very relevant for the SCOR program of activity. Others which are characterized as more specifically "environmental" NGOs, such as March for Conservation and Wildlife and Nature Protection Society or the Environmental Congress, are more involved in public education and less with action research or experiments at local levels. The latter we hope to get involved in the pilot areas through the NAREPP component they are already engaged to help implement.

IIMI has done a survey of NGO experience and capabilities for improving irrigation management through user organization (Dayaratne and Wickramasinghe 1990). There are a number of NGOs with some capability in this area, e.g. the Freedom from Hunger Campaign Board (Hower 1984), CARE, the National Development Foundation (Perera 1988), and Sarvodaya Shramadana (Jungeling 1989), though not all of this experience has been positive and effective. Just because work is done by NGOs is no guarantee that it will be successful. Accordingly, the Project must

select carefully which NGOs to work with and must be prepared to invest in some upgrading of capabilities, which is indeed planned as part of the Project.

3.2. Private sector The NAREPP Project Paper likewise analyzes capabilities of business and professional organizations that could become cooperators in this area of innovative work. Different kinds of private businesses and organizations would be appropriate for SCOR than for NAREPP. For implementation of activities aiming to achieve shared control of natural resources, the most important private sector role will be in providing supporting services to user groups. This will require identifying private sector suppliers of inputs and buyers of commodities who are willing to share the benefits of economies of scale with users who have become organized to intensify and make more profitable as well as sustainable their economic activities, agricultural or non-agricultural.

Such enterprises are likely to be found at the level of provincial and district towns more than in Colombo or Kandy. Accordingly, the PPSs will explore possible private partners based in Anuradhapura, Polonnaruwa and Galle as the first step toward enlisting private sector participation in SCOR activities. Less than with NGOs, it is not expected to find private bodies with much experience working with organized users. So Project staff, working with provincial and divisional officials and local chambers of commerce, will undertake to be active "brokers" with private enterprises. Identifying and assisting them to become effective in cooperating in participatory resource management is one of the Project activities and thus having strong businesses to work with is not a prerequisite for Project implementation.

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PERFORMANCE DISBURSEMENT CRITERIA AND BENCHMARKS

The basic principles of performance disbursement are discussed in 4.1 in the body of the Project Paper. Here are some applications of these principles in operational terms, followed by a set of benchmarks that could be used for guiding and monitoring Project implementation.

1. Establishment and operation of WRMTs

Pattern:	<u>Amount</u>	<u>Year</u>
Regulations for WRMT drafted & approved	20%	1
WRMT established	10%	2
WRMT action	60%	2-6
WRMT evaluated	10%	6

2. Capacity building at national, provincial and divisional levels

Pattern:		
Agencies to benefit are identified	10%	1
Capacity-building plan drafted & approved	20%	1
Capacity-building plan implemented	60%	2-4
Capacity-building plan evaluated	10%	5

3. Legal, regulatory and process reform

Pattern:		
TORs for studies drafted & approved	10%	1
Studies completed	10%	2
Reform implemented	70%	3-4
Outcome evaluated	10%	5

Illustrative Allocation of Performance Disbursements among Activities¹
(amounts in \$US 000)

<u>Category</u>	<u>Total</u>	<u>S T A G E</u>			
		<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
WRMT	4000	800	400	2400	400
50% of total		20%	10%	60%	10%
Capacity-building	2000	200	400	1200	200
25% of total		10%	20%	60%	10%
Reform	2000	200	200	1400	200
25% of total		10%	10%	70%	10%
Total	8000	1200	1000	5000	800

<u>Yearly flow</u>	<u>Y E A R</u>					
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
WRMT	800	880	480	480	480	880
Capacity	600	400	400	400	200	0
Reform	200	200	700	700	200	0
TOTAL	1600	1480	1580	1580	880	880

Share by level

	<u>Natl</u>	<u>Prov</u>	<u>Divl</u>	<u>Local</u>
WRMT	20%	10%	20%	50%
Capacity	40%	30%	20%	10%
Reform	60%	40%	0%	0%

Division of disbursements by level and by year

	<u>Y E A R</u>						<u>Total</u>
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	
National	520	456	676	676	296	176	2800
Provincial	340	288	448	448	188	88	1800
Divisional	280	256	176	176	136	176	1200
Local	460	480	280	280	260	440	2200
TOTAL	1600	1480	1580	1580	880	880	8000

¹ WHOEVER WORKS ON THIS -- SEE NOTE AT BOTTOM OF SPREADSHEET PERFDISB.WK1

Benchmarks for GSL, PC and DS performance

Performance disbursements are assumed here to be made in return for government actions, not for overall project progress. This means that if the project succeeds without, or in spite of the lack of, government participation, the government should not receive budget support. The following illustrate benchmarks that could be formulated and agreed on.

Benchmarks by SCOR activity area

1. Strengthened user groups
 - c. Legal status and powers
 - Regulations and laws drafted, passed and implemented
 - h. Support services
 - Enabling regulations for private input/output marketers and banks drafted, passed and implemented
 - Government line agencies belonging to WRMTs meet expected performance during project implementation
2. Improved tenure arrangements
 - a. Modification in regulatory and legal mechanisms
 - Legal/institutional research designed and carried out
 - Gaps, overlaps and inconsistencies of land tenure laws rectified
 - Need for Registration of Title Act vs. reinforcement/modernization of Deeds Registry
 - Needs assessment of Survey Department, Land Commissioner's Department, Agrarian Services, etc.
 - Needs assessment of civil courts system re its handling of land-related cases
 - Necessary legal/institutional changes drafted and implemented
 - c. Policy and process reforms
 - Research on effects of tenure arrangements on productivity and sustainability designed and carried out
 - Rationalization of chain of responsibilities for titling programs
 - Shift from reactive process of regularization of encroachment to active process of resettlement
 - d. Issuance of land titles
 - Support to Survey Department and other agencies whose lack of resources represent constraint on rate of titling
 - Support to Registry of Deeds and/or new Registry of Title needed to streamline them and enhance their accessibility

- e. Land consolidation
 - Simplified legislation regarding production companies drafted, passed and implemented
 - Land Commissioner's Department and Agrarian Services Department conduct consolidation exercises in pilot watersheds with user groups

3. Strengthened capabilities

- a. Information systems
 - Mechanisms for sharing of data among departments and agencies established
- b-f. Training
 - Numbers of government employees taking part in training, with proviso that they be reassigned to posts where training will be used

4. Improved coordination and linkage

- b. Watershed land use plans
 - Participation of LUPPD, Agriculture, Forestry, and Lands in WRMT with user groups federations in land-use planning exercises
- c-d. Coordinating mechanisms
 - Steering committees established in areas of concern to the project, composed of representatives of appropriate agencies

MEMBERS OF THE CORE GROUP

- Mr. L.U. Weerakoon, Secretary to State Minister for Irrigation
Mr. O.C. Jayawardena, Secretary, Project Ministry of Lands and Land Alienation
Mr. D.M. Ariyaratne, Director, Irrigation Management Division, MLI & MD
Mr. S. Berugoda, Director, Land Use Policy Planning Division, MLI & MD
Mr. S. Wickremaarchchi, Land Commissioner
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Mr. C. Ranasinghe, Provincial Land Commissioner, Southern Province
Prof. M. Karunanayake, Prof. of Geography, University of Sri Jayawardenapura