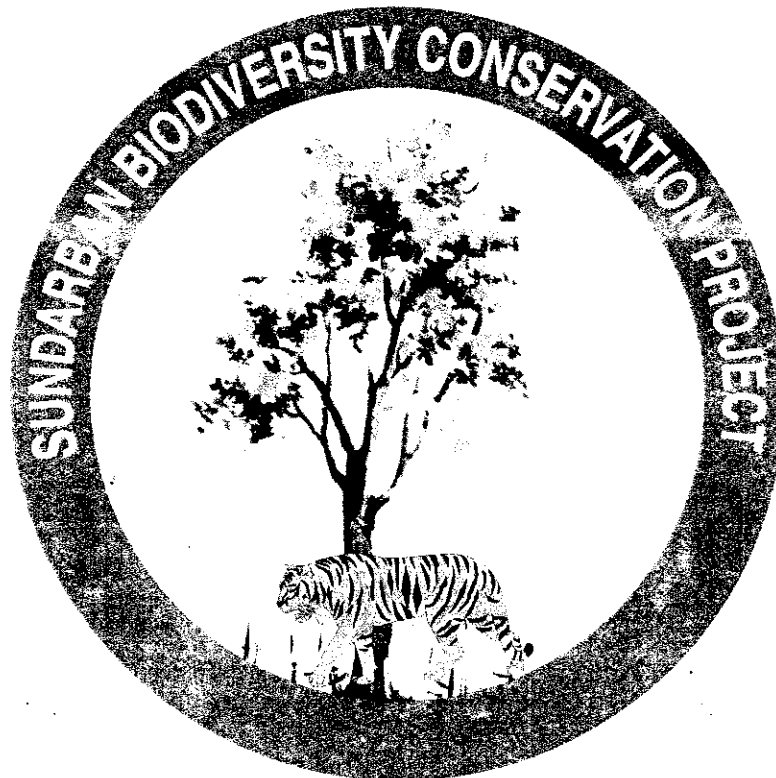


Government of Bangladesh
Ministry of Environment and Forests
Dhaka, Bangladesh

Asian Development Bank
Global Environment Facility
Government of the Netherlands



Inception Report Vol. I

Project Report No. 2
ADB: BAN 1643/3158

June 2000

ARCADIS Euroconsult, The Netherlands
Winrock International, USA
Kranti Associates Ltd., Bangladesh
Nature Conservation Management, Bangladesh

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Sundarban Biodiversity Conservation Project

Inception Report
Vol. I

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PREFACE

This (draft) Report has been prepared by the Technical Advisory Group (TAG) of the Sundarban Biodiversity Conservation Project, to outline the strategy and procedures proposed to be followed during the following 6 years of the Project. It has been prepared on the basis of reading the numerous previous studies, intensive discussions with concerned officers in the Forest Department at many levels, including the Chief Conservator of Forests, and preliminary field observations.

Appreciation is extended especially to the Project Director, and to the Conservator of the Khulna and his staff, for their frequent assistance and thoughtful input though the presentation herein is the responsibility only of the TAG.

The Technical Assistance is under two ADB contracts: TA 1643 for the ADB loan to GoB, and TA 1358 for the donor portion, provided by Global Environment Fund, WB and also by the Netherlands Government.

The Project is budgeted at \$77.5m, as follows: \$33.9m by ADB loan to GoB, \$12.2m grant by GEF, \$15.6m input by GoB, and \$3.1m grant by the Netherlands Government. Also \$6.8m is budgeted as input by PKSf (for loans through NGOs to people in the Impact Zone), \$3.8 by beneficiaries, \$1.9 by NGOs, and \$1.4 m from other sources.

The consultants would welcome comments and suggestions on this (draft) Inception Report.

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LIST OF ACRONYMS

ACF	Assistant Conservator of Forests
ADAB	Association of Development Agencies in Bangladesh
ADB	Asian Development Bank
ADTA	Additional Technical Assistance
CCF	Chief Conservator of Forests
CF	Conservator of Forests
COB	Convention on Biodiversity
CITES	Convention on International Trade in Endangered Species
DFO	Divisional Forest Officer
EMD	Environmental Management Division FD
FAO	Food and Agriculture Organization
FD	Forest Department
FRMP	Forest Resources Management Plan
GEF	Global Environment Facility
GIS	Geographical Information System
GoB	Government of Bangladesh
IUCN	International Union for the Conservation of Nature
IFMP	Integrated Forest Management Plan for the SRF, Jan 1998
IRMP	Integrated Resource Management Plan
IZ	Impact Zone
KNM	Khulna Newspaper Mill
LGED	Local Government Engineering Department
MARC	Multidisciplinary Action Research Center
MoEF	Ministry of Environment and Forests
NWFP	Non-Wood Forest Products
ODA	Overseas Development Assistance, UK
PAM	Project Administration Manual
PD	Project Director
PKSF	Palli Karma-Sahayak Foundation
PMU	Project Management Unit
PP	Project Proforma (GOB)
PSP	Permanent Sample Plot
PRA	Participatory Rural Appraisal
PSC	Project Steering Committee
PY	Project Year
RRP	Report and Recommendations of the President to the Board of Directors, ADB
RUG	Resource User Group
SAC	Stakeholder Advisory Council
SBCP	Sundarban Biodiversity Conservation Project
SMU	Sundarban Management Unit
SRF	Sundarban Reserve Forest
SSC	Sundarban Stewardship Commission
TAG	Technical Advisory Group
UC	Upazilla Council
UNDP	United Nations Development Program
WB	World Bank
WWF	World Wildlife Fund for Nature

1.0 INTRODUCTION

1.1 PURPOSE OF THE INCEPTION REPORT

The primary purpose of this Draft Inception report is to present to the Bangladesh Forest Department, within the Ministry of Environment and Forestry, the consultants' proposed Work Plan for undertaking Project activity. The Forest Department and stakeholders will review the Draft Report with review findings incorporated into the Final Inception Report to be used by the Project Management Unit as a blueprint for Project Implementation.

It is also intended that this Draft Inception Report be reviewed by other parties that will take part in, or who have special interest in, Project implementation. It is hoped that other governmental departments, NGOs and other private organisations, donor agencies, environmental interest groups, and Sundarban stakeholders will offer their inputs during the review process. These inputs will be considered for the inclusion in the Final Inception Report in order to achieve consensus on Project direction from the start and facilitate smooth Project implementation throughout the Project period.

1.2 BRIEF DESCRIPTION OF THE PROJECT

The Project includes the management of the Sundarban Reserve Forest (SRF) including an Impact Zone involving 17 Upazillas, and on the seaward side the SRF extends 20 km into the ocean. The Project site is recognised as having international importance for biodiversity conservation and represents an important step in the commitment of GOB to the requirements of the following international agreements: (i) Ramsar Convention 1971 (for the protection of Wetlands with International Significance), (ii) Convention on International Trade in Endangered Species (CITES), 1973, (iii) Convention on Marine Pollution (MARPOL) 1973, (iv) Convention on the Law of the Sea (UNCLOS) 1982, and (v) Convention on Biodiversity (COB) 1973.

The Project head office is in Khulna with a Project Director (PD), appointed by the executing agency, who leads project implementation through supporting the reform and strengthening of the current Khulna Forestry Circle into an operational Sundarban Management Unit (SMU). The need for strengthened management reflects the broadening of management functions delegated to the existing FD Khulna and Jessore operating circles. Specifically, the SMU will adopt a more outward looking, stakeholder inclusive approach to establishing sustainable resource use while maintaining the integrity of the SRF in the face of increased population pressure and resource demand. This is no small task, given that the area designated as the Project Impact Zone supports a population of about 3.5 million people organised into 17 Upazillas and 144 Unions. About 60 Unions representing 500,000 people already depend largely on SRF resources. Five of these Upazillas have large SRF areas, as their boundaries extend down to the ocean, and 2 Upazillas have marginal mangroves areas. Further the Project introduces a new ecotourism function for the SMU that requires a new range of staff with planning and operational considerations.

The major outcome of the Project is to develop and implement an agreed integrated conservation management plan that embraces sustainable management for the SRF and that has strong support from stakeholders and a demonstrated commitment by the SMU of

the FD. To combine the diverse resources and resource users requires an integrated approach that is inclusive of stakeholders, interest groups, and the multidisciplinary expertise needed to understand the SRF ecosystems complexity. By the end of the Project, the FD, with informed opinion and support of civil society, official agencies, and elected Local Government, will have adapted and embraced this integrated approach with sufficient institutional capacity for sustained professional management of these resources. To facilitate the achievement of these outcomes a number of stakeholder and interest group forums will be established and supported. These include a Sundarban Stewardship Commission (SSC) comprising eminent and knowledgeable people with no vested interest in the SRF who will provide policy direction via the MoEF to the SMU and a strong advocacy voice within political and bureaucratic decision making bodies. The Minister of Environment and Forests will chair the SSC. A Project Steering Committee (PSC) will provide official policy directives for Project implementation and will be chaired by the Secretary MoEF, with officials of involved GoB agencies as members. It will meet twice yearly. A Stakeholders Advisory Council (SAC) will comprise a wide spectrum of stakeholders and interest groups, such as user/extractor groups, Sundarban-related industries, tourism agencies, NGOs, researchers, and local elected and appointed officials. The SAC will provide a voice in SMU and SSC decision making for the stakeholders and interest groups and will be central in the development of integrated resource management plans. The SAC will be a channel for interchange between stakeholders and the SMU via a direct link to the Liaison, Extension and Education Unit. Upazilla Councils (UC), comprised of elected Union and Upazilla office-holders and other interested and prominent persons, will be set up within the Upazillas in the Impact Zone; these are expected to evolve into the main vehicle for the consultation process involving local government and perhaps also civil society. Resource User Groups (RUG) at the community level will involve members with common resource interests in the SRF. These groups will receive training in establishing and maintaining groups, running meetings etc. to facilitate their participation within SRF decision making. Female participation will be specifically encouraged and developed through targeted consultation.

The Project is budgeted at \$77.5 million with funding from a range of source - see Table 1.

Table 1. Project financing (\$ million)

Source	Amount	Source	Amount
ADB loan	33.9	PKSF loans through NGOs	6.8
GEF grant	12.2	NGOs	1.9
Netherlands grant	3.1	Beneficiaries	3.8
GoB input	15.6		
		Total	77.5

Note: that the original budget for US \$88.2 million has been reduced with the withdrawal of the Nordic Development Fund input of US \$4.5 million.

The overall project comprises several implementation contracts including:

- (i). ADTA for the Khulna Newsprint Mill undertaken by Jakko Poyry,
- (ii). Independent biodiversity M&E contract with IUCN,
- (iii). Provision of Micro-Credit by PKSF,
- (iv). Development of water resource modelling by Surface Water Modelling Centre, and
- (v). LGED led community development and infrastructure program in the impact zone.

The Project design also includes contracting opportunities for training and research programs that will be awarded during Project implementation.

1.2.1 PROJECT LOGISTICS

The main Project office will be in the FD Khulna, which is now being renovated. The PD (SMU) and TAG will have offices in the same building, along with access to a training facility that is to be renovated and equipped. Temporarily, the PD and consultants have their offices in a rented building in Sonadanga, Khulna.

1.3 PROJECT RATIONALE

To protect the resources from over exploitation and to retain a sustained and effective management input, additional financial resources and modernisation of management systems are required. Further, there needs to be established means to develop a sustainable financing system to ensure that improved management can be maintained after the Project. The influx of Project funds enables the importation of state-of-the-art technology in the field of Biodiversity Conservation.

1.4 BACKGROUND OF THE PROJECT

The Sundarban Reserved Forest (SRF) in Bangladesh comprises 6017 sq km with remarkable plant, animal, and mangroves ecosystem that contains 3 Protected Areas in the southern part, covering 1397 sq km, which, in 1997, were declared a World Heritage Site. The Sundarban contains the only remaining Bengal tigers in Bangladesh, besides other rare animals, and many species of birds, while the Protected Areas are also very important for breeding of aquatic species both for the Bay of Bengal fisheries and for the riverine areas of southwestern Bangladesh. Conservation of the Sundarban is not just an abstract good for the welfare of tigers, crocodiles, and birds; it has inestimable value as a reservoir of genetic variety, it is a buffer from the ocean, and an essential breeding place for both marine and inland fish and other aquatic life. It is the most important site in Bangladesh for nature conservation and possible ecotourism.

But the doubling of Bangladesh population since Independence has created ecological pressure on all the forests of Bangladesh. Population has increased proportionately more adjacent to the Sundarban with new rice cultivation and shrimp cultivation resulting in immigration. These trends increase the pressure on SRF resources, especially for fishing and collection of firewood and other minor products. Mangroves and roundwood is legally harvested for the Khulna Newsprint Mill, and there are ongoing illegal activities in SRF which FD tries to control with its scarce resources. There is over extraction of wood and of some species of fish. An important rationale of the Project is to present reliable information on actual extractions and then to define sustainable limits. Existing inventories and baseline data are not sufficiently up-to-date for this purpose, requiring new data to be collected and analysed, and sustainable management policies reformed accordingly.

FD has a century-old strong tradition of professional forestry, and has been managing the Sundarban for some 140 years. It has a network of Ranger's stations and Guard posts in SRF, and has been able to keep people from settling inside. It enforces a system of permits for extractions of resources including fish, timber, and non-wood products. Timber is now only legally harvested for the Khulna Newsprint Mill and for sanitation of diseased Sundari. The FD has a number of excellent professional staff with many skills, including some trained

overseas; however, not all this expertise is utilised effectively. The planning and management of SRF is not yet a fully integrated management system. Such a system, requires a process involving input from several disciplines including aquatic resources, non-wood forest products, and wildlife management. These disciplines are not currently included in the forestry training programs. FD currently does not employ multi-disciplinary staff as in economics, sociology, data management, public relations, personnel management, training and tourism. Also, several posts remain unfilled, especially in higher positions due to curtailed recruitment over many years.

The main studies and documents leading up to the present Project are as follows:

- (i). **Chaffey, D.R., Miller, F.R., and Sandon, J.H., 1985.** *A Forest Inventory of the Sundarbans, Bangladesh. Main Report, Land Resources Development Centre;*
- (ii). **Das, S., and Siddiqi, N.A.,** *The Mangroves and Mangrove Forests of Bangladesh.* Bangladesh Forest Research Institute, Bulletin NO.2.
- (iii). **Chaudhuri, A.B., and Choudhury, A. 1994.** *Mangroves of the Sundarbans. Vol 1, India*
- (iv). **Hussain, Z., and Acharya, G., 1994.** *Mangroves of the Sundarbans. Vol.2 Bangladesh*
- (v). **IRMP.** *Integrated Resource Management Plan of the SRF.* Vol. 1, Final Report. Vol. 2, Appendices. UNDP/FAO/GoB, February 1998. This was an extensive series of studies resulting in some 40 technical reports. It was followed by "Report of the Ex-Post Evaluation Mission," UNDP, December 1998.
- (vi). **IFMP.** *Integrated Forest Management Plan for the SRF.* World Bank/Mandela Agricultural Development Corp, ed. J Canonizado and M A Hossain. January 1998
- (vii). **ANZDEC ADBPPTA no. 2724-BAN.** October 1997 Report. *Biodiversity Conservation in the SRF.* ANZDEC/FD/MoEF/ADB. October 1997.
- (viii). **RRP.** *The Report and Recommendations of the President to the Board of Directors on a Proposed Loan and Technical assistance Grant to the People's Republic of Bangladesh for the Sundarbans Biodiversity Conservation Project,* November 1998. ADB, BAN 30032
- (ix). **Loan Agreement.** Loan Agreement (Special Operations) between The People's Republic of Bangladesh and aDB. LAS: BAN 30032.

Of the above, the UNDP/FAO study yielded many technical reports, but as the ex-post evaluation stresses, the management plan did not represent a new management approach for the SRF due to a lack of thought into how to design an integrated management plan implementable by the GOB. Further, the plan was poorly developed in the areas of institutional strengthening and human resource development. Despite numerous studies there remains a lack of quality baseline data for monitoring and evaluation of changes in wildlife and plant species; data on rare or endangered species such as tigers and crocodiles are clearly unreliable as understood from discussion with FD and other stakeholders.

Apart from FD's technical management of SRF, the main problem emanates from high population density in the Impact Zone where due to poverty and limited access to land some are obliged to use SRF for subsistence needs. FD previously addressed this through enforcement and not through proactive people-inclusive strategies that include the impact zone. While the project targets impact zone development, FD is unlikely to become an effective rural development agency, and the sustainability of such programs will require the FD to adopt a partnership approach with both Government and Non-Government development agencies. Though development in the impact zone is included in this Project, it

will need to be implemented in partnership with local and central government and other agencies and institutions.

1.5 INCEPTION PHASE

1.5.1 PROJECT START-UP

The ADB loan for the Project became effective in August 1999. Activities began on 1 March 2000 after signing of a Letter of Intent, with the mobilisation the Team Leader (TL), Management Advisor, and Community Development Specialist. The consultants worked out of a temporary office in Dhaka, and by March 31 had produced Project Report No. 1, the Inception Phase Workplan. The official Project opening date is 1 April, 2000, when the agreement between GoB and ARCADIS Euroconsult was signed. The Inception Phase ended 30 June 2000, which comprised Project Year 1. PY 2 begins on 1 July 2000, with the Bangladesh fiscal year. The loan fund utilization ends on 30 June 2006, so actual project duration is 6 years and 3 months.

1.5.2 INCEPTION PHASE ACHIEVEMENTS

The Inception Phase Workplan listed the following items to be completed by TAG up to 30 June 2000 (pp 20-21). The process applied for the inception phase, presented in Figure 1 presented in Annex 1. Results are given below, in the format to be used throughout the Project in reporting and monitoring.

Table 2. Achievements during the Inception Phase

Output/activity	Indicators/explanation	Results	Comments
Preparation and writing of Inception Report	Workplan is detailed for 2000-2001, and sketched in for remaining years	Achieved	Inception Report (draft), to be presented in Inception Workshop
Review of studies and literature	Library collected, reviewed, and gaps in data and concept noted	Achieved; library 200 books set up	Some documents are still to be obtained
Offices set up	1. Initial temp office in Dhaka 2. Temporary office in Khulna 3. Project office in FD, Khulna	1. Achieved 2. Achieved 3. In process	3. Awaiting funds
Reconnaissance of Impact Zone, & Upazilla profiles to be prepared	1. Recon. Of Impact Zone. 2. Some Upazilla Profiles done	1. Achieved 2. Done for all Upazillas in Satkhira as model	
Start of Community Development & social forestry in Impact Zone	1. Baseline studies in all Upazillas in Satkhira Dist. 2. Social forestry work expected to begin, taking off from earlier projects 3. LGED works in progress	1. Achieved 2. To be taken up after Inception Phase 3. Achieved	1. Baseline data required for M&E 2. Expectation that this could start earlier was over-optimistic as funds not released
Training plan to be consolidated	1.Capacity-building and training budget reviewed 2.Training needs and plan started	1. Achieved 2. Achieved	2.Formatted interviewing started
Initial procurement items identified	1. Procurement of main items for consultancy 2. Identification of procurement needs of SMU and Circle	1. Achieved 2. Partly achieved	2. GoB funds available only from July 2000
Sorting out of budgets	Budgets in Loan, consultancy contract, and detailed ADB budget, had to be sorted out	Achieved	To be further discussed with ADB in Inception Report meeting
Consultants' schedules finalised for PY 2	Finalised in detail for PY 2 and in general for remainder of Project	Achieved	Given in this Report

In addition, to the above items listed in the Inception Phase Workplan the following supporting activities were undertaken:

- (i). Wide consultation with participating agencies,
- (ii). Setting up accommodation and office facilities in Khulna, including Library and preparation of list of books/documents, and maps collection and the design of logo, letterhead, reports' cover, visiting cards,
- (iii). Meetings with Divisional Commissioners, District Deputy Commissioners, and Upazilla, Nirbahi Officers and elected representatives
- (iv). Preparation for the Inception Report and Inception workshops in Dhaka and Khulna.

The Inception Workshop, with meetings in both Dhaka and Khulna in the first week in July, 2000 presents how the TAG will implement its responsibilities in the project. ADB has prepared its Project Administration Memorandum (PAM) in draft, which will be completed with final budget details following the Inception Workshop. Also after the Inception Workshop, GoB is likely to revise its Project Proforma to account for any implementation changes.

1.5.3 THE INCEPTION REPORT

The process of developing the report is presented in Figure 1., Annex 1. The draft Inception Report sets out the intended strategy and approach of the Project based on consultant ToRs (Annex 2), synthesis of existing background literature, and data. Most foreign and domestic consultants scheduled for the Project were present during part, or all, of the Inception Phase and have contributed to this Report. The Report is written to enable MoEF, GoB, ADB, and other cofinanciers and participating agencies, to understand the direction of implementation proposed to be taken, and it explains the activities planned by consultants in the Project components. The consultants have tried to distill all the objectives and varied activities, as well as current Bangladesh policies and objectives, into a coherent, concise, and workable plan of action.

1.6 BIODIVERSITY, SUSTAINABLE RESOURCE MANAGEMENT

1.6.1 THE PROPOSED BIODIVERSITY - SUSTAINABLE USE FRAMEWORK.

For many observers the SBCP presents an irreconcilable issue. That is how to implement a Biodiversity Project when the priority is placed on the establishment of sustainable utilization. The TAG has also confronted this issue and continues to refine its thinking in this regard. To reflect the direction of thinking the following section outlines the perspective that is currently being applied.

1.6.2 BIODIVERSITY MODEL

There is a large pool of biodiversity resources within the SRF, that is unchallenged. The management of SRF does however, have limited resources and consequently management has evolved to the current situation focusing on resources that:

- (i). Are known to exist and have exceptional conservation values – as represented in the Sanctuaries and the wildlife linked to the Wider SRF including Tigers.
- (ii). Have a history of use such as timber, nonwood products – primarily Goran, Golpetta, Honey, and Fish
- (iii). Are known, such as Mangroves

For these resources "property rights"¹ have been established including rights and responsibilities. However, the current set of rights and responsibilities in some instances has resulted in non-sustainable use of some resources and are therefore clearly inappropriate given GOB objectives. The realisation that use is non-sustainable has stemmed from the knowledge generated by past and present management systems. The TAG belief is that this approach is **fundamental to the adaptive management systems that currently form the basis for Conservation projects internationally and should form the basis for the SBCP initiatives.**

Therefore, the strategy to address biodiversity management and sustainable utilisation places particular emphasis on moving those resources, for which there is known non-sustainable use, into a more sustainable pattern through improved information systems, research and knowledge generation, and experimentation. As resources are increasingly moved into a sustainable management framework, project resources will be directed at those resources, which are currently not within any active management regime.

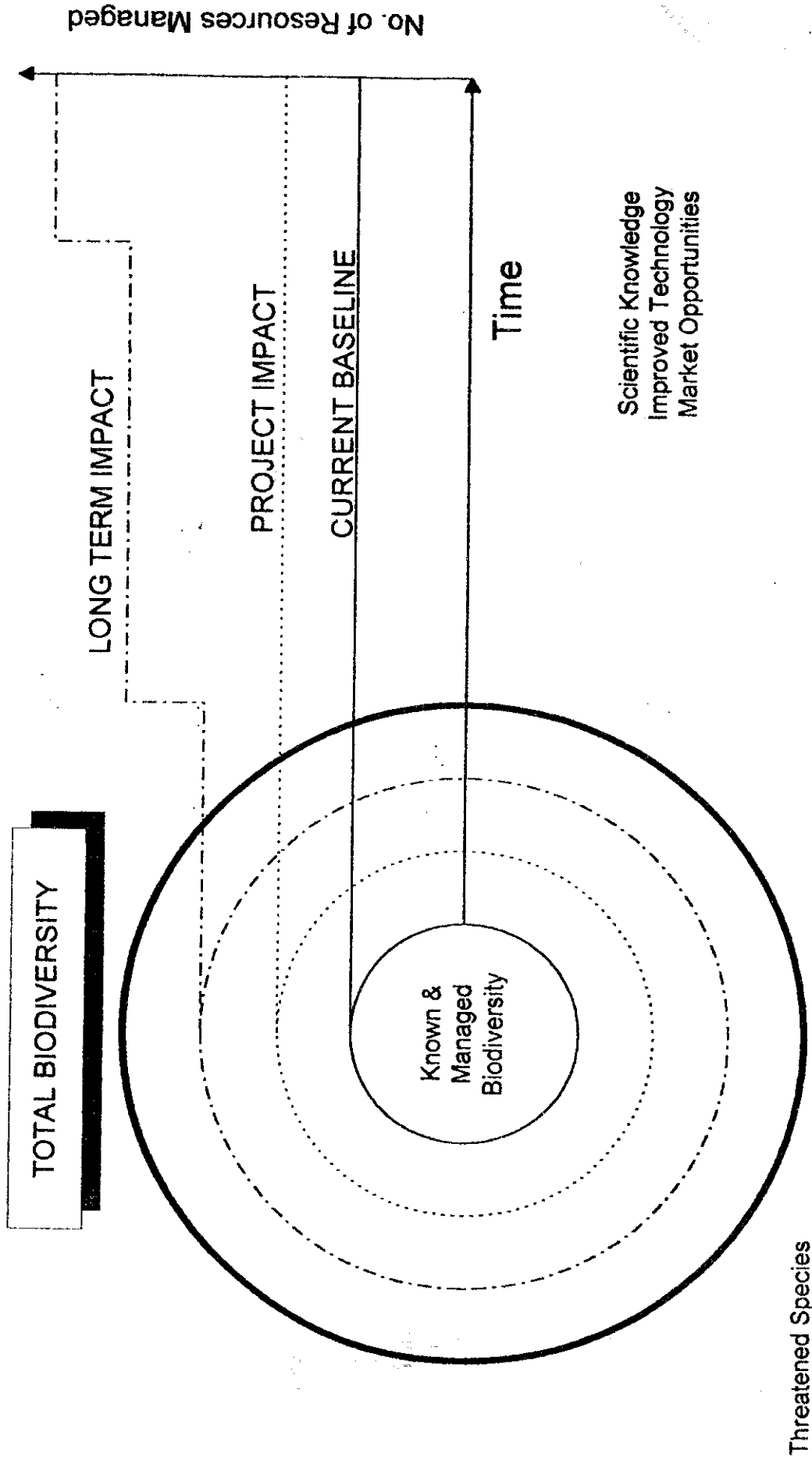
Choices will need to be made based on resources considered to have the highest priority for future management input – either due to potential market opportunities, improved or new technology and or scientific knowledge creating new demands on these resources. To establish priorities, rapid ecological assessments, social perceptions and scientific research will be used to expand the current inventories and knowledge systems. The reasons are clear for not only the SRF but in most places specialists in biodiversity conservation have found that initial assumptions often turn out to be incorrect. The SBCP has many such features with high degrees of uncertainty that will require a **process of adaptive management.**

When it is found that initial assumptions have to be changed, there must be **adaptation of project strategies and interventions.** This should be possible through a user based monitoring program, and wide participation in the collection and evaluation of datasets. These datasets and additional research provide the basis for a **systematic learning process** during the 6 years of this Project, so that the lessons can be applied more widely, for forestry within Bangladesh and for management of mangroves areas elsewhere in the world.

To address the threats and opportunities the SRF faces, management will need to reorientate thinking to acknowledge the mutual dependency of conservation and sustainable resource management to achieve the desired goal of SRF stakeholders. It is important to note that effective management cannot take place in the long term without the support of local communities. For rural livelihoods are dependent on the flow of natural resource benefits, many of which cannot be sustained without effective protection measures. The key need within this process is to strengthen the ability of FD to manage the SRF in partnership with these local communities and in the interests of the stakeholders in a manner that develops common datasets accessible to all stakeholders.

¹ Includes State property

Figure 1: Biodiversity Management



Threatened Species
Species Identification
Potential Products

BIODIVERSITY MANAGEMENT

The concentric circles radiating out from the core of known and managed resources and biodiversity represent the process of adaptive biodiversity management portrayed diagrammatically in Figure 1.

1.6.3 MONITORING AND BASELINE ISSUES

Arising from the discussion in paragraph 1.6.2 above and as contained in the TAG terms of reference, is the need for the TAG to review datasets to determine the current baseline of data. Further, is the need for IUCN monitoring, and the internal FD/SBCP project monitoring, systems to develop a baseline. The reality, as identified by previous projects and their evaluations, is that the baseline presently in place is extremely limited when viewed from the perspective of the total biodiversity (i.e., the outer concentric circle in Figure 1. above). As such, it is unlikely that even in the life of the SBCP, such a baseline will exist. For similar reasons as for Biodiversity Management above, the baseline is going to need to evolve and be continually adapted as information systems are developed and reoriented. For the managed resources – especially those under any sort of use, the current status of the baselines is incomplete. For the unmanaged resources and species (other than the "flagship" of the Tiger) they may be totally absent.

It is suggested that TAG members convene a workshop of interested parties to resolve the issue of what resources should be monitored initially, by what method, by whom, and when. The workshop would also address the issue of a progressive expansion of the baseline as information and knowledge is developed.

1.7 TRAINING

The project has a total training budget of approximately US \$4 million, with further input from research contracts, fellowships etc. The Loan has adopted two methods for implementing training inputs. Firstly, for the training within the TAG contract, the TAG has been asked to develop a comprehensive training needs assessment and associated training program that will be submitted to the ADB for approval. In effect, this represents a design and implement option. Second, there is a large block of contracts and fellowships etc. that will be contracted independently, of the existing contracts.

There has been confusion over which training is in the TAG contract and which is not. This will be resolved during the inception week by ADB. It is proposed that training be addressed through a proposal to ADB to mobilise a training specialist for 3 months who would develop a training program and a detailed implementation program for all the training under the TAG contract. Draft terms of reference for this position is included in Annex 3.

PART 2. PROJECT DESCRIPTION AND OBJECTIVES

2.1 PROJECT GOAL

The TAG has adopted the Loan Agreement as one of the primary source documents along with the RRP. In particular, the Project Framework of the RRP is used to structure and report on the project. This section of the report restates the objectives and then for each objective provides a consolidated statement of the background issues, and the strategy/approach that will be adopted to achieve the objective within the Project Framework structure.

The goal of the Project is stated in the RRP as being:

“to secure the integrity of the environment and biodiversity of the Sundarban”

The Project will contribute to this goal through the achievement of an over-riding objective:

“to develop a sustainable management and biodiversity conservation system”

for all resources in the Project Area.

2.2 PROJECT PURPOSE AND SPECIFIC OBJECTIVES

The stated purpose of the Project is to develop an effective organisation and management of the SRF to develop a framework for sustainable resource use, reduce poverty, improve living standards, promote the sustainable development within the Impact Zone; and promote ecotourism, and environmental awareness. Each of the seven Project components represents a discrete objective. Components 1 and 2 are presented with supporting subcomponent objectives for each of the major groups of resources as well. The following sections present a strategy and general statement of the work plan for each component and subcomponent objective.

2.3 COMPONENT A: EFFECTIVE ORGANISATION OF SRF

While the TAG has limited direct involvement in Component A, the institutional developments are central to the ability to achieve an integrated resource management system for the SRF. The issues within this component are therefore discussed to highlight a possible weakness in the project design in terms of institutional development. The lack of specialist institutional and governance technical skills is a weakness within the RRP ToR's, especially given, the strong institutional and governance issues that need to be considered.

2.3.1 COMPONENT A.1 SUNDARBAN MANAGEMENT UNIT (SMU)

Project documentation describes a new Sundarban Management Unit (SMU) within the FD, which provides the integrated management of the SRF. The SMU, as envisaged, will replace the existing Khulna Forestry Management Circle and was to act as the primary entity for Project Management but over time will be responsible for management of the SRF. The functions of the SMU are: (i) to provide leadership in the move to integrate

natural resource management; (ii) to provide an administrative vehicle for support services for Project and FD program implementation, (iii) to be the contracting agent for environmental monitoring and inspection services; (iv) to develop policy through the Integrated Resource Management Policy committee; (v) to reorganise, modernise, and strengthen administration systems, including the upgrading of staff into one of four full support service units; and (vi) to establish an institutionalised database with links to the existing FD Resource Information Management System (RIMS).

Structurally, the SMU will consist of four operational divisions within a newly defined Sundarban Forest Circle with four functional support units to provide essential services to the SMU operational and management divisions. The four operational divisions are:

- (i). East Sundarban Forest Resources Division,
- (ii). West Sundarban Forest Resources Division,
- (iii). Aquatic Resources Division, and
- (iv). Wildlife and Ecotourism Division.

Details of the program attached to each can be found in Component B.

The functional support service units are:

- (i). Liaison, Education, and Extension Unit,
- (ii). Revenue Unit,
- (iii). Administration and Finance Services Unit, and
- (iv). Database, Monitoring, Research Operations Unit.

Formation of the SMU was a condition of effectiveness, achieved through the appointment of DCF's to functional units and divisions. The SMU currently has core staff but is not yet fully functional in an operational sense. The SMU is to be headed by the PD as part of the project management input, which seeds the new management entity. FD Khulna staff are concerned about what their role in the new entity will be and their subsequent role in the new SMU. It is recommended that FD (Khulna) be given ownership of the SMU development and that this should be considered as part of a reform and strengthening process of the existing Khulna working circle into a more comprehensive management system.

The strategy is to form a working group involving the 8 appointed heads, and the CF along with the PD. This working group would identify the staff needs for the SMU and how these could best be met from the existing cadre positions in the Khulna working circle. As part of this reform, a training program will be developed and implemented to enable staff to move into new technical and administrative roles. For this transition to proceed the existing Khulna staff will need to provide input into project planning as part of the SRF management throughout this transition period.

This raises the issue of Project Management, which is under the PD purview. It is suggested that this be retained, with the following change in emphasis. The SMU will initially be directed by the PD; however, this responsibility needs to be transferred to the SMU Director (with rank DCCF) with support from two CF's. One CF responsible for support services, (i.e., the functional units, the other for the Sundarban operating circle incorporating the four divisions – see Figure 2 below. At all stages the PD will direct Project implementation inputs. As such the PMU will operate as a unit that will catalyse the formation of the SMU and facilitate the transition of the current Khulna operating circle to the SMU.

Figure 2: Organisational structure of SMU

Figure 2-A. Past structure

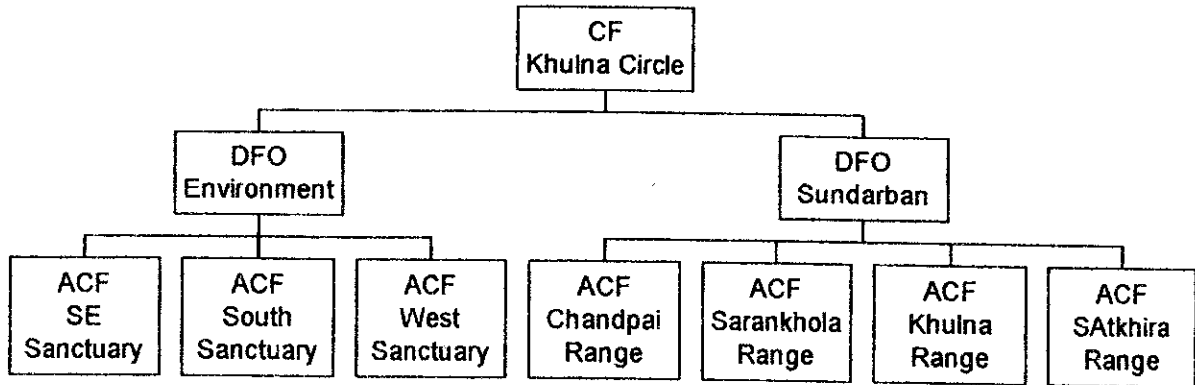


Figure 2-B. At Project Start-up

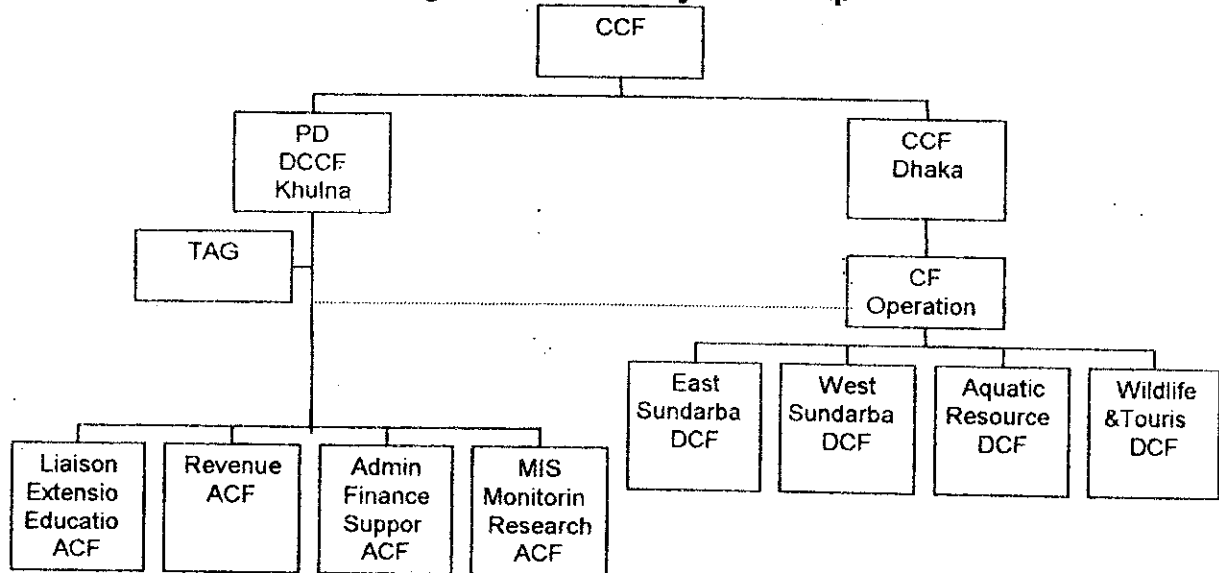
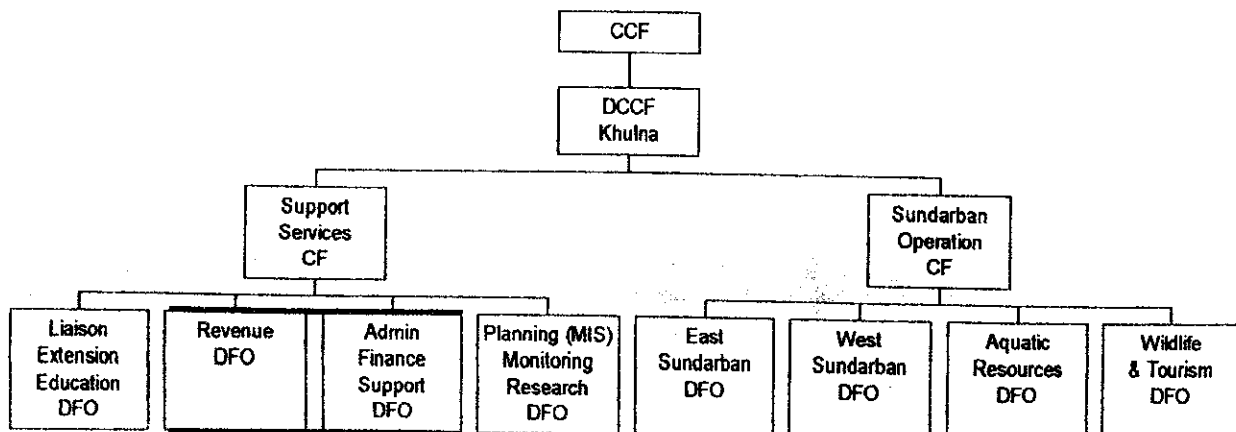


Figure 2-C. Post Project Implementation



The budget sheets show SMU functional units to be staffed by approximately 88 positions funded from GOB sources (presumably being a simple transfer from existing staff salaries). Currently, it is not clear how many of the existing staff could be transferred into new roles. Without a strong commitment from the GOB to staff these positions the SMU will not function efficiently.

The Project has identified many practical measures focusing on the SMU and the SRF, which can be strengthened. These include improved organisation and administrative systems, timely information for management purposes, operational systems manual for the SMU to ensure consistent application of the SMU procedures and systems, and development of a range of skills which are somewhat outside the parameters of traditional forestry education but are essential for the proposed management approach for the SRF.

(i) Effective Organisational and Administrative Management

The PP states that the Project will "introduce [a] modern management system," and the Project budget throughout emphasises "effective organisational capacity."

The FD has traditionally focused more on technical forestry management (i.e. its Working Plans) and has paid less attention to institutional administrative management.

Management strengthening measures suggested in RRP are:

- 1) Introducing modern management based on rigorously researched data and plans developed in a participatory manner
- 2) Adopting and enforcing coherent and consistent policies
- 3) Greater openness in managing and reporting
- 4) Charging economic rates for resources extraction, and market rates for tourism
- 5) Developing multidisciplinary skills, with enhanced career opportunities for FD staff
- 6) Commercialisation and privatisation options

Other obvious areas needing emphasis are:

- 1) Developing a more professional personnel management system
- 2) Decentralising decision-making at all levels, particularly in the Sundarban Circle
- 3) Performance monitoring and evaluation, and incentives systems
- 4) Replacing old ledgers and recording procedures with computerised record-keeping

The consultancy has reviewed the main documents of rules and procedures for SRF management² from the Sundarban Circle, which are all several decades old. The current Organization Chart of the FD also dates from more than a decade ago, before forestry was split off from the Agriculture Department. As the Project matures, discussions will be held among SMU, on desired and feasible changes in administration and procedures, and on needed training for the same. The Project will also contract a study into the modernization of management procedures and systems and provide support for its implementation.

As a part of the institutional baseline studies of the Khulna circle, management and organizational systems that a review of equipment will be completed. This report will be presented to the FD and the PD and would guide the FD and PD in the procurement priorities under the Project.

² Celso Lantican and team, Oct. 1997. "Final Report: Institutional Development. Some of its recommendations, such as setting up a new Environment Wing within FD, have already been implemented.

³ *The East Pakistan Forest Manual*, 1968. Part I: *Notifications under The Forest Act and Other Orders Affecting the Public*, Part II; also *Standing Orders (in force since 1943)* 1946, issued by the Bengal FD.

(ii) SMU/Sundarban Circle Operations Manual

In the Terms of References, it is expected that the consultancy will assist SMU to prepare an Operations Manual. This should be compatible with other FD manuals, procedures, and forms, yet specifically adapted to the Sundarban.⁴ The present manuals are several decades old, so revising them is a substantial task. Senior FD staff who have life-long experience with the procedures would have to do the main analysis, but individual consultants, including the legal expert, could advise and give comments in areas of their expertise. This need not be done until the second half of the Project.

(iii) Capacity Building

Human Resources Development Plan

The Loan agreement requires the preparation of a Human Resources Development Plan. This is currently underway and is being prepared by the following steps:

1. TAG is collecting information on the present number and categories of staff in SMU. The Sundarban and Jessore Circles, besides professional staff in the whole FD, including existing vacant posts. Job descriptions, where available, are being collected,
2. The categories for capacity-building are being delineated.
 - (i) Forest Department,
 - (ii) Others including NGO staff, user groups, other agencies, elected local government officials,
 - (iii) Also, training programs in technical areas (fish processing, tourism management, etc.) are to be organised, mostly by contracting out to technically competent agencies,
3. Training programs in earlier forestry projects, especially the Forestry Sector Project, are being reviewed,
4. Existing forestry training centers will be visited.
5. An initial **Training Needs Assessment** is being undertaken, of professionals and forestry field staff in SMU. A format has been prepared (Annex 4), interviews with individual staff members have begun, and recommendations of senior forestry staff noted. Actual jobs performed as against job descriptions, employee opinions of needed skills, and their skills desired, will be reviewed. Causes of job performance problems will be analyzed and appropriate training programs developed.
6. Gaps in training as suggested in the Project documents and budget will be noted. Project consultants and senior personnel in technical areas will recommend training needs in their areas of expertise.

Management of in-country training

In-country capacity building of some 6662 person/weeks is budgeted. The TAG will develop a program for in-country training that will include professional staff and support services to manage the program activities. A Training coordinator will organise and supervise training in Khulna, identify outside trainers, negotiate and prepare draft contracts for outside training, collect/arrange training materials, and contract production of training materials in Bangla.

⁴ Some elements can be adapted from "The East Pakistan Forest Manual", 1968, and the "Standing Orders" 1946, which apply specifically to the Sundarban.

(iv) Data management and information systems

Basic programming for a database for forestry management has already been done under the TA component of FRMP, in FD Dhaka. The Unit is called RIMS-GIS and it prepares digitized GIS maps from satellite information as well as from forest inventory and other kinds of data. There is another relational database (PBMS) in FD for forestry management including budgeting, programming, and monitoring, for which data has been input from the Chittagong Circle. These two databases need to be linked up and expanded for the Sundarban. The minimum data required will be identified and agreed on as part of MIS development by the Project.

There are other sources of maps outside the FD, such as EGIS⁵ which has done extensive work on water systems for the Flood Action Plan and has produced maps of the Sundarban and adjacent areas. The Surface Water Modelling Centre has produced some maps on salinity changes and water levels.

Despite these substantial previous efforts, there is no existing data system for biodiversity conservation and FD requires sustainable forest management. After assessing the existing MIS architecture and suitability, the Project will **adapt/create an MIS that uses data required for informing management on the sustainable use of the Sundarban**. Potential for this database to store and evaluate biodiversity data for the country as a whole, as well as for international users for the international agreements will be considered.⁶ The Project will also **set up MIS for social and economic data** relevant to the Impact Zone and the Sundarban and develop means for integrating this data with the biophysical and ecological datasets. The Project will develop a program for the manipulation of data to enable integrated evaluation of alternate scenario's for strategic issues.

The Project will also adapt/create formats for in-house Project monitoring and evaluation. The MIS consultants will work with IUCN to establish parameters and data requirements for its monitoring and evaluation of biodiversity conservation. As the PP states that the Project will enhance MIS capacity for FD as a whole, attention will be given to developing a database useable for professional personnel management.

The MIS consultants will set up the database so that the performance of the Project can be internally monitored against Project objectives, which is facilitated by the monitoring format (Annex 5) to be used in the Quarterly and Annual Reports.

(v) Revenue system and Finance

A study of the present revenue system will be undertaken under supervision of the recently appointed head of the revenue unit and the Natural Resource Economist in TAG. The study will be designed to develop the knowledge of the recently appointed head and will initially be undertaken by the revenue unit itself. The process will focus on the use of financial instruments as one of the tools for managing the SRF resources as opposed to a purely fiscal objective that most people within the FD currently have.

⁵ Bangladesh Centre for Environmental and Geographic Information Services, funded by Netherlands Government. It has an office in Khulna.

⁶ The Project Proforma (p. 29) states that the database should be useable "for the country as well as for the international users."

The study will develop a data base of revenue data within the unit itself by consolidating all the available datasets into a computerised record – initially within either a database or excel software platform. The data included will include current tax rates, permit charges etc. for all sources of revenues and will be accompanied by a detailed description of the process why which resources are allocated, supervised and revenue derived. Systems for record keeping will be reviewed and as will the systems for managing cash. At the same time there will be a review of FD systems for expenditure and revenue management, a review of work planning procedures and annual budgets.

Market studies data will be taken from the economic valuation project inputs. Data analysis will then be used in working groups with all consultants and FD counterparts to review and develop sustainable resource management plans with revenue and fee scenarios contributed by the revenue unit.

The ToR requires that the present rates will be analyzed against market rates, with supply and demand. The study will inquire about amounts paid by forest users or product purchasers against the official rates. The study will also examine finances of the forest agencies against present and expectable revenues. There are funds available for foreign tours/training and in-country training on forest valuation and revenue— which should in future be based on true valuation of products and true measurements. For example, extractors design boats that contain more than appears, and they often extract several products besides those for which they have specific permits.

Now all receipts go into GoB revenue, with no visible links between income and expenditure on management of the forest. So, for example, launches and boats not in use by FD are not rented out because no money from rental can be utilized for fuel purchase, so there is a loss of potential income to GoB. The Project may propose measures involving the Ministry of Finance for modifying this entrenched system, and if need be, will suggest draft legislation. Alternative strategies may be suggested, for example:

- **Concessions** given by FD as to tour operators, or to extractors of certain products, for a given time, with specified payments to GoB. This can also include build-and-operate agreements as for tourist infrastructure.
- **Partnership of the Sundarban Circle and a Society/Company** for tourism, also for certain categories of extractions, so that at least part of revenue earned goes directly into operations (successfully done in Sri Lanka and India)
- Increases in the FD budget as a **direct percentage** of expected revenues earned.
- **FD collection of "service fees"** so that at least some receipts can be plowed back directly into resource management.

The forest staff do not get any material **incentives** for good performance. An improved personnel management system should be put in place for evaluation of performance and awarding of incentives. In case material incentives cannot be given, there should still be other incentives such as awards, promotions, and desired training and study tours.

Forestry staff do not get any per diem or travel allowance, nor hardship allowance though they are expected to live separated from their families and in very isolated places. The Project has budgeted per diem allowances for them under GoB funding, but this is not present policy.

The TAG and the contracted study of revenue will make suggestions and recommendations not only regarding the above, but for **overall efficient financial management**.

Figure 3: Work Schedule Component A

Calendar year:		PY 1					PY 2					PY 3					PY 4					PY 5					PY 6					PY 7					
Activity	Project year quarters:	4	1	2	3	4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	
Set-up and logistics																																					
Set up temporary Project office in Khulna																																					
Assist in setting up training room & equip in FD Khulna																																					
Assess present FD equipment, advise on procurement																																					
Assess FD boats & related equip. make specifications																																					
Assist procurement/renovation of boats & related equip.																																					
Facilitate Stakeholder Council operation & workshops																																					
Effective administrative management																																					
Collect lists/info on S. Circle staff, other FD prof staff																																					
Analyze SMU tasks & job descriptions, with fit & gaps																																					
Assist S. Circle to analyze org. make new org. chart																																					
Assist in setting up revenue and finance procedures																																					
Assist in plan for per diems, travel allowances, incentives																																					
Facilitate study/impl. of office procedures, computerization																																					
Advise in setting up effective personal man. system																																					
Assist setup of internal M&E system																																					
Promote reforms for transparency, documents in Bangla																																					
SMU operations manual																																					
Assist SMU/S Circle to review existing rules/procedures																																					
Assist in preparation of new Manual etc. & in Bangla																																					
Human resources development & training																																					
Collect job descriptions, discuss actual tasks expected																																					
Advise on selection of SMU Training Coordinator																																					
Arrange priority short training for key SMU/FD counterparts																																					
Visit all forestry training institutes & univ. Forestry Depts																																					
Conduct training needs study of prof staff																																					
Arrange contract for training needs study field/support staff																																					
Investigate non-FD training capacity in-country																																					
Prepare content of proposal for man of int'l training																																					
Prepare content of proposal for Fellowships/study tours																																					
Identify persons/agencies in Impact Zone for training																																					
Prepare & submit Project Training Plan																																					
Advise Training Coordin for all domestic training, materials																																					
Implement Training Plan																																					
Workshops and conferences																																					
Conduct Inception Report workshops in Dhaka, Khulna																																					
Organize workshops with user groups, local govt, NGOs																																					
Plan & hold workshops for integrated forest management																																					
Hold workshops related to mid-Project & final review																																					
Information and data systems, & internal monitoring																																					
Arrange priority needed training for key SMU staff																																					
Review data systems in FD & other agencies, link up																																					
Create MIS for administration, personnel, & finance																																					
Create MIS for Impact Zone social & econ data																																					
Agree on minimum data requirements for SRF manage																																					
Adapt/create MIS for Sundarban management																																					
Organize data management training program for FD staff																																					
Assist FD in data input, cleaning, and analysis																																					
Maintain Proj internal monitoring & reporting system																																					
Revenue system and finance																																					
Contract out study of FD license/revenue system & potential																																					
Arrange foreign/local training on forest revenue systems																																					
Draw up proposals for realistic revenue & finance system																																					
Promote inst. reforms for efficient revenue & finance systems																																					
Policy and legislation																																					
Review GoB policies & int'l conservation agreements																																					
Review progress in reforms under Forest Sector Project																																					
Conceptualize/draft reforms in FD staffing & Forest Act 1927																																					
Propose reforms in FD/ & S. Circle financial manage																																					
Draft adminh/legal means to control Sundarban extractions																																					
Draft proposals legal action re. forestry violators																																					

2.3.2 COMPONENT A.2 SUNDARBAN STEWARDSHIP COMMISSION (SSC)

The Commission is to be formed by Government Decree the SSC is tasked for long run policy development and advocacy for the Sundarban within Government decision making. The TAG is not envisaged as having any direct linkage with the establishment or operation of the SSC.

2.3.3 COMPONENT A.3 STAKEHOLDER ADVISORY COUNCIL (SAC)

An important development in building a platform for improved local governance of natural resources is the establishment of the SAC for local communities and resource users to have a voice in resource management planning and decision making. The Advisory Council will represent the stakeholders that are mobilised by the social community development program undertaken as part of strategic objective 3 below. The TAG will be involved in forming and supporting local community organisations (indirectly through NGO outsourcing) and the establishment of resource user groups. Training will be provided to establish and support these groups to enable more effective participation and linkages with the SAC. Maintenance and strengthening of the SAC network is considered to be necessary and will be reflected in the provision of information, training and technical support.

2.4 COMPONENT B. BIODIVERSITY CONSERVATION AND SUSTAINABLE RESOURCE MANAGEMENT

2.4.1 COMPONENT B.1 FORESTRY RESOURCES

Introduction

The Sunderban Reserved Forest has been under conventional management for over a century, and is intensively managed for the last half century⁷. Four comprehensive inventories were conducted during this time including Curtis (1933), Forestal (1959), ODA (1983) and WB/FRMP (1997). The last inventory forms the basis of the current management plan which is being implemented by the FD for the past two years.

Even though the FD has done much in controlling local use, heavy felling over the last decades has led to serious resource degradation, inducing the GOB to issue a moratorium on timber extraction in 1990. This covered all species except Sundari (*Heriteria fomes*) affected by top-dying, Gewa (*Excoecaria agallocha*) and fuelwood. This moratorium continues to the present day.

The moratorium has played a key role in allowing the Sunderban to recuperate, however other problems continue to threaten both ecological integrity and resource sustainability. These issues are adequately addressed in the RRP, and include salinization, pilferage of timber and firewood, and heavy dependence on wood and non-wood resources by local communities. It is important to note that many of the problems currently facing the Sunderban are anthropogenic in nature. Past plans and management did not place

⁷ For details on the history of management in the Sunderban, see FRMP, 1998. Canonizado J.A. and Hossain, A., 1998. *Integrated Forest Management Plan for the Sundarbans Reserved Forest*. MARDC and FD. GOB/FRMP

adequate importance on the social dimensions of resource management and this has most certainly intensified pressure imposed on this unique ecosystem today.

The current management designed by FRMP (1998) has been partially put in operation by the Khulna Circle. This plan offers a solid technical foundation on which to build a greater emphasis on biodiversity conservation, being the goal of the current project. It focuses mainly on wood resources, and to a small extent on the Golpatta palm (*Nypa fruticans*). In terms of field implementation, however, little is done to affect the quality and quantity of the forest aside from protection and access control (via a permit system), with a small amount of plantation work. All regeneration is based on natural sources, with some enrichment planting.

Biodiversity conservation is limited to the three non-contiguous sanctuaries in the southern third of the forest. These areas, while important as nursery grounds for certain fish species, do not represent the full range of biodiversity in the SRF. They do not take into consideration other potential areas of high biodiversity value such as habitats of rare or endangered flora and fauna, wildlife corridors, nesting sites, the variety of forest types and places minimally disturbed by human activity throughout the SRF. Because of the historical focus on timber and production, there is a lack of population data on terrestrial vegetation of all kinds including non-timber tree species, shrubs, forbs and grasses. Data on wildlife (including mammals, reptiles, birds and insects) is also inadequate. While several biological assessments have been undertaken (BCAS Biological Survey of Protected Areas 1998, Extended Natural Resources Inventory 1997 and others) they are not comprehensive nor compiled in an accessible, compatible framework for integrated analysis, planning and decision-making.

Another key weakness alluded to previously is the lack of social data regarding use patterns and demand among the users, especially in the Impact Zone. This information is crucial for developing sustainable use levels as well as effective, equitable and socially sound management policies and practices. It also forms the basis of the partnerships with local communities that are a major output for the SBCP. To fill this gap, the SBCP will commission a PRA study of resource use patterns and demand for wood and non-wood products among users in the IZ in the upcoming months.

At present there appears to be a considerable amount of confusion within the FD and the SBCP as to what is meant by "participation" and "participatory management." These terms are used widely in the RRP, yet are not defined in concrete terms. As a result there are many divergent perceptions on this issue as well as the aim and strategies of the project. This will be a major obstacle to project planning and implementation if it is not addressed during the inception period. It is highly recommended that a workshop be organized to specifically address the issue of participation in SRF and develop a set of mutually agreed upon operational principles to guide the project for the next 6 years.

Aside from the lack of financial, human and material resources characterizing the current management approach, the main weaknesses can be summarized as:

- a lack of biodiversity focus in planning and implementation;
- a lack of social data, awareness and methods to integrate these factors into daily operations;
- a lack of human resources to carry out these activities;
- a fear (sometimes justified) or lack of political will on the part of the GOB/FD to meaningfully engage users in management;

- a lack of structured linkages and appropriate processes to facilitate participatory management.

Understanding these weaknesses and devising ways to overcome them will be the major focus of research and project activity in the upcoming months. Technical inputs will also be addressed as outlined in the individual TORs, but it is in the social arena where true progress must be made if the Sunderban is to be conserved in the long run.

The last issue that must be acknowledged is the inherent contradiction between biodiversity preservation (genetic, species, ecosystems and the processes to maintain them) and commercial consumptive use. With respect to sustainable harvesting, all species are not created equal. Due to basic biological constraints, some have a better potential to be harvested on a sustainable basis than others. If commercial consumptive use of SRF resources is to continue, it is important to choose the right resources, the right level of use, and determine who has priority usage. There will be trade-offs, and it is hoped that the SBCP, in conjunction with the FD and other colleagues, will develop a system to identify them and decide if they are acceptable or not. It is hoped that this kind of analysis will form a framework for sustainable use in the SRF.

Under Component B, Biodiversity Conservation and Sustainable Resource Management, the Forestry Program will be carried out in an integrative, team-based fashion. Planning and implementation within the TAG will involve close collaboration between the three consultants covering terrestrial vegetation resources, namely mangroves, non-wood forest products, and honey. The team will also include the local consultant for non-wood forest products and the SBCP team leader for selected projects. The mangrove specialist will cover all wood products such as timber, firewood and poles; the non-wood specialist will focus on palms, grasses, and other botanical resources, and the honey specialist will address relevant production and conservation issues specific to this resource. All team members will work closely with the Community Development Component to help develop constructive linkages between the FD and resource users, and to improve local economic benefits from sustainable use of SRF biota.

To increase the capacity of the FD, consultants will work with counterparts and other relevant staff in the Khulna and Jessore Circles both on an individual basis as well as a team. While each consultant will have his/her own work plan, there will be numerous synergies and areas of overlap which will emerge in the upcoming months as a new management structure (SMU) is designed by the FD with TAG input. We cannot predict the outcome of this process at this time, but it is hoped that these preliminary steps will form the basis of a more holistic operational framework with a greater focus on biodiversity and social responses.

Details of inception phase activities of the three consultants in the forestry program are included below. It should be noted that each consultant has spent less than one month in the country to date, and thus the major area of activity has been on project familiarisation. Planning, therefore, is in a very early phase.

The Forestry resource sub-component is presented in two parts – one for wood resources and one for non-wood resources.

Wood Resources

Much data on forestry management of the Sundarban Forest Reserve (SFR) has been accumulated in recent years through various projects including the UNDP/FAO Integrated Resource Management for the SFR (1998) and the World Bank Forest Resources Management Project (1998). Management issues arising from these and other experiences are reflected in the Forestry Resources Matrix given in Annex 6.

This Matrix is generally in line with the proposed forestry activities that were identified during project formulation. The Monitoring and Evaluation Matrix on Forestry, see below presents a list of 21 more or less distinct activities that will be implemented under the Forestry component. Most of these activities are included in the RRP, but some supporting review and planning activities have been added. This list excludes all non-wood and "honey" activities and social forestry in the impact zone, which has been dealt with separately. Forestry activities have been grouped in four (4) categories:

(i) Review and planning

Time has been reserved for further review and analysis of existing data, identification of project intervention areas in the SFR, optional additional data collection and detailed programme planning. Most of these activities will take place between July and December 2000. An important objective of the planning exercise is to compile maps for planning and monitoring purposes, to be done through an appropriate agency, of the field implementation locations. For this much use will be made of existing maps of e.g. the 1:50,000 LGED Thana map project (UNDP, 1994) and EGIS. Detailed planning periods are also foreseen in 2001, 2002, and onwards for the works to be carried out in the respective following years, and will among others result in contributions (e.g. zoning, sustainably harvestable volumes) to the Integrated Conservation Management Plan for SFR (2002). All activities in this category have been added, but budget implications are negligible.

(ii) Field forest management

These activities include forest rehabilitation measures on in total 17,000 ha, and comprise enrichment planting, assisted natural generation primarily, Golpata planting, trial plots, tree nurseries, monitoring on sampling plots, etc. Little information is available with the project team on the intervention localities and specific needs and timing, but this will be collected and worked out in the coming months. Much experience has been built up within the TAG-team with the planned activities in the recently completed (i.e. in May 2000) Rehabilitation of Mangrove Forests Project in the Mekong Delta, Vietnam, where challenges in resource management and protection are similar to those in the SFR (e.g. over-exploitation, conversion into shrimp farms, high population pressure, vast and inaccessible terrain, etc.). Reportedly, considerable experience seems to be available with nursery and planting techniques within the SFR. Under this category fall also the development of a Continuous Forest Inventory (CFI) and Sundari harvesting.

(iii) Constructions and maintenance

Various interventions are foreseen to improve living and working conditions for FD field staff, such as construction or upgrading and maintenance of offices, camps, jetties, pontoons. Most of these activities require only some advisory input of the TAG-team. Exploring appropriate localities and design work will start in July. Sufficient consultant's input is available for establishment of the Mangrove Arboretum, for which use will be made of experience built up in existing botanical gardens (e.g. Dhaka and elsewhere). All

Non-Wood Resources

(i) Goal and Objectives

The goal of the NWFP sub-component is:

"to create an equitable, enforceable and ecologically sound system of management for non-wood forest products in the SRF overseen by the Forest Department and involving all the stakeholders."

Specific objectives include:

- (i). Determine current use patterns and demand for each of the major NWFPs.
- (ii). Determine sustainable extraction levels for Golpatta.
- (iii). Review current permit and revenue system (with NatRes).
- (iv). Estimate the current value of NWFP extraction and evaluate the impact of proposed changes in the permit and revenue system, as well as increased production (with Nat Res).
- (v). Develop alternative management strategies that involve users (with Mangro and ComDev).
- (vi). Develop sustainable harvest and management guidelines.

(ii) Strategy

The strategy for the NWFP sub-component is to work within the existing system and suggest incremental improvements. Work will focus on the species currently harvested in the highest volumes: golpatta (*Nypa fruticans*), hantal (*Phoenix paludosa*) and selected grasses. Species harvested in small volumes by local people and those with potential for development will addressed to a lesser extent. The frameworks devised by Peters⁸ (1994) and FAO⁹ (1997) will guide this work.

Participatory management models will be explored using pilot projects to test their applicability in the SRF before incorporating them into management prescriptions. One idea in this respect is to reduce demand for NWFPs in core areas of the SRF by intensifying production in the periphery and in the IZ. Another is providing conditional access rights to degraded sites for organized user groups in exchange for restoration and protection services. These ideas will have to be further discussed with FD colleagues to ascertain their applicability in the SRF.

Other aspects of strategy include:

- (i). search for and develop linkages and cooperation between FD, harvesters and other stakeholders including businesses, money lenders, LGED and NGOs.
- (ii). improve the skills, knowledge base and operational capacity of the FD in NWFP management and development by working closely with counterpart(s) and providing opportunities for training and study tours.

⁸ *Sustainable Harvest of Non-timber Plant Resources in tropical Moist Forest: An Ecological Primer*. Biodiversity Support Program. Washington DC.

⁹ *Market Analysis and Development: An Approach to Planning Sustainable Tree and Forest Product Enterprises*. FAO Community Forestry Field Manual No. 8. Rome.

- (iii). explore opportunities to enhance the involvement of women, landless people and marginal farmers in NWFP processing and development activities such as shingle making.

(iii) Assumptions

- (i). The GOB/FD staff will have the resources, political will, and motivation to carry out recommendations and involve resource users in NWFP management by operating with more transparency and giving serious consideration to local needs, constraints and aspirations.
- (ii). NWFP users will be more motivated to practice sustainable harvesting if they are assured of resource access and availability over a long time period,
- (iii). NWFP users will not change their behaviour unless they are convinced that the FD is operating in a transparent fashion.

(iv) Activities

A draft list of activities and implementation schedule is included in Section 3.0. These are based on the TOR but include several new activities as well. Collaborations with other TAG members and a work program for the domestic consultant in NWFP are also included. Activities not included in the initial TOR include:

- (i). Topical PRA research on resource use patterns and demand;
- (i). Stakeholder workshops, including an initial session with the FD on participatory management;
- (ii). Overseas training in NWFPs at Regional Community Forestry Training Center in Bangkok, Thailand;
- (iii). Study tour to Nepal (in conjunction with Wildlife);
- (iv). Pilot project in alternative management.

(v) Contextual Issues

Current status of the resource base

While it is impossible to make an accurate assessment of the NWFP resource base in this short time frame, the good news is that there appears to be no outstanding ecological sustainability problems. Most certainly there are areas of localized degradation and possible extirpation, but overall the SRF has viable populations of the major commercial NWFPs. The other good news is that due to the part of the plant being harvested (leaves/fronds/stems), these NWFPs have a high potential to be harvested on a sustainable basis. (Please refer to the Forest Resource Matrix in Annex 6.)

Local people are reportedly harvesting small quantities of other plants as well, although this use is not recorded by the FD. This is important information, however, as this use may represent yet another area of concern. For example, they could be: a) endangered or threatened in the country as a whole; b) endemic to the SRF; c) occur in very small/vulnerable populations in the SRF; d) be of high value to members of the local community, or e) have development potential.

Shiva (1994¹⁰) identified numerous species that may have development potential. It should be noted, however, that it is the opinion of the consultant that introducing new forms of commercial extraction will induce even greater pressure on the Sunderban and thus may

¹⁰ Shiva, M.P., 1994. *Report on Mangrove Non-Wood Forest Products*. Integrated Resource Development of the Sundarbans Forest. UNDP/FAO.

have a negative impact on biodiversity. Thus the development of new species of NWFP's will be given a lower priority at this time.

Implementation issues

Under current conditions, direct utilization of NWFPs pose few problems to the conservation of biodiversity in the SRF. It is the secondary, or indirect, effects of extraction that appear to be of greater concern. These occur because of the overlap in user activity; for example, a group of grass cutters may not only cut grass but also hunt wildlife.

Another issue is the apparent selected codependency that has developed over years of human use in this region. For example, Spotted Deer (the primary prey of tigers) now rely to a certain extent on the new growth of Sun Grass (*Imperata cylindrica*) stimulated by periodic harvests by human users. This issue will have to be addressed in the management planning of the Wildlife Sanctuaries especially, where all extractive activities are slated to be banned.

(vi) Initial Needs Assessment

Human resources

It is recommended that 2 NWFP Specialists be trained for the SMU: one to oversee the technical aspects of production and harvesting, the other for extension, marketing and development. Under the present configuration selecting these candidates from the Khulna Circle (production) and the Jessore Circle (extension) makes sense. Involving a representative from the local chapter of ADAB would also be of value in order to build capacity of the local NGOs in this field. Aside from working closely with these individuals, it is anticipated that they will participate in training, conferences and study tours over the course of the project.

Material resources

At present there are very few material resources in the Khulna FD for NWFPs. These include a reference library, publications, manuals, computer hardware and software (including GIS and internet), and readily accessible database. Survey, production and maintenance tools may also be lacking.

HONEY

(i) Goals and Objectives

Prepare an overall strategy for the Sunderbans Reserved Forest (SRF) and Impact Zone (IZ) that will transform the destructive method for honey collection from the giant honey bee (*Apis dorsata*) into a sustainable and ecologically compatible system consistent with forest management requirements. Enhance the socioeconomic welfare of local bee keepers and honey hunters through improved management and marketing. Encourage and assist the further development and implementation of a management system for *Apis cerana*, the Asian hive bee, utilized in the IZ. Review the success of the previous introduction of the European honey bee (*Apis mellifera*) into the IZ and investigate the feasibility of additional introductions.

(ii) Strategy

The consultant will be fielded for a total of 10 months from 2000-2004. It is anticipated that a counterpart from FD will be assigned to this subcomponent and will work closely with the consultant for the life of the project. The counterpart will oversee daily activities and maintain regular contact with the consultant via email.

The three major target groups and some corresponding issues are listed in table 3 below.

(iii) Activities

For a detailed description of proposed activities and schedule please refer to Appendix XX. The main activity groups are briefly described below.

Research

1. In the SRF:
 - Verify traditional honey hunting practices and ecosystem impacts
 - Determine economic returns to Mowalis
2. With the FD:
 - Review current fee schedule for honey collection
3. In the IZ:
 - Verify present management practices for the Asian hive bee
 - Determine the current size of the beekeeping community.
 - Identify needed inputs to optimize production.
 - Establish the scope and success of the European honey bee, and improve outdated management practices.
 - Identify and establish collaborative linkages with NGO participation

Table 3: Target Beneficiaries for Honey Sector Support

Target Group	Issues
Honey and wax collectors (mowalis)	What is the current economic value of honey collection to the mowalis? How would they be impacted by changes in forest management policy for example, zoning and rotational harvests?
Giant honey bee population	What are the ecological impacts of honey collection on the giant honey bee?
Villagers in the IZ	What are the prospects for introducing domestic beekeeping? How would it affect household incomes and national production levels? Would it reduce the impact on the giant honey bees in SRF?

Training

- Develop a beekeeping training program for mowalis and villagers in the IZ.

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2.4.2 COMPONENT B.3 AQUATIC RESOURCES

Approach to Aquatic Resources

The goal of the Aquatic Resources Program is to achieve sustainable management and biodiversity conservation for aquatic resources of the SRF on the basis of rational plans and participation of all key resource users and interested parties.

The project will design and implement a sectoral management and research system, which will achieve long-term sustainable development of the aquatic resources of the Sundarban. The Project area consists of SRF, the impact zone, and the marine zone. The capacity of the FD to effectively manage the aquatic resources of the SRF will be strengthened through training in all aspects of fisheries and aquatic resources management, including conservation awareness and appropriate fishing gear and catching methods. Baseline assessments will be carried out of selected fish stocks, current exploitation levels will be analysed, and habitats of endangered species will be studied to gain better understanding of the status of aquatic biodiversity. From these assessments a comprehensive Fisheries Management Plan will be developed in an inclusive and participatory manner, with criteria for sustainable use of aquatic resources. Regular fishery patrols will be carried out to ensure that the plans are implemented. Participation and public awareness campaigns will be undertaken with fishing communities which rely on the SRF to ensure they are fully aware of modern fisheries management and conservation practices. New regulations, enforcement methods, and ways of working in co-operation with resource users will be introduced.

A 6-point strategy will be implemented to achieve the goal of the Aquatic Resources Program:

- (i) Improvement of the instructional capacity of the FD to manage the aquatic resources by establishment and strengthening of an Aquatic Resources Division within the SMU,
- (ii) Implementation of aquatic biodiversity conservation and sustainable resource management measures,
- (iii) Easing of aquatic resource exploitation pressure in the SRF from communities living in the impact zone by measures aimed at reducing poverty, including alternative employment generation through selected aquaculture activities, development of new aquaculture opportunities, improved organization of aquatic resource user groups, and facilitation of user group participation in aquatic resource management.
- (iv) Development of ecotourism (which can include sport fishing for sea bass and dolphin watching) and public environment awareness of aquatic resources (through videos and television programs, books, and special events), and
- (v) Improvement of planning, monitoring, and applied research capacity for aquatic resources.

The aquatic resource management system will be an important component of an overall integrated biodiversity management plan for the Sundarban. This will be developed through the establishment of species databases, management plans and a comprehensive fisheries institutional framework. Fisheries stakeholder groups will be formed and centrally involved in the preparation of plans to enable their effective participation within the Stakeholders Advisory Council that will negotiate the Integrated Resource Management Plan with the SMU. As participants they will be informed on the value of various fisheries and the costs and trade-offs involved for alternative fisheries management scenarios. Sustainable Use Guidelines

2.4.3 COMPONENT B.3 WILDLIFE AND ECOTOURISM MANAGEMENT

Background

Sundarban wildlife resources include 373 faunal species including Royal Bengal Tiger and 41 other mammal species, 35 species of reptiles, 186 species of birds, 30 species of snakes, 8 species of amphibians, 120 fish species and 334 floral species. The protection and conservation of these wildlife resources is of substantial economic, cultural and scientific significance to SRF, Bangladesh, and World Heritage. The most important wildlife species are tiger, spotted deer, wild boar, crocodile, turtle, dolphin, python, otter, birds, snakes and fishing cat.

Of the 334 indigenous floral species, 62 of them grow in the three sanctuaries with varying intensities with higher concentration in the East sanctuary where salinity is the lowest. The flora cover include trees dominated by Sundari, Gewa, Keora species, shrubs, grasses, vines and fruiting trees. The flora cover serves as source of food for a number of wildlife species such as deer and monkey for browse, fodder and fruit berries. The population and intensity of plant species needs to be identified for the proper management of wildlife habitat.

A review of past studies indicates that management of SRF wildlife resources has not been effective, resulting in continued illegal use through poaching by the surrounding communities to meet their livelihood needs. As a result, these resources have undergone various levels of depletion and at least six of the fauna species had been extirpated including Javan rhinoceros, wild buffalo, swamp and hog deer and marsh crocodile. The level of depletion, by species, varies reflecting the relative economic value of each for skin, meat, shell, teeth and claw. These species include crocodile, marine lizard, turtle, deer and tiger. Already a total of 21 the faunal species including RBT and 25 species of birds had been listed by IUCN as endangered and another 15 as threatened faunal species.

* The tigers and wild life of Sundarban had been the subject of field studies by a number of experts as well as international and national institutions including IUCN, WWF, The World Bank, FAO/ UNDP. These studies had been limited both in space (habitat area), time, but the resultant data and its analysis is often inadequate to provide the information for planning and management purposes. Furthermore, this information is based on field studies carried out several years ago, the most recent of which was in 1993 by Tamang (UNDP/FAO IRMP) and thus quite outdated. In concurrence with the above situation, the RRP assessed that there was little current understanding of SRF wildlife populations including how to protect their habitat and conserve the existing stock.

Past FD management plans for SRF focused on forest management objectives with only limited wildlife activities for the three sanctuaries established since 1966 in the southern less accessible part of SRF. The Wildlife Act of 1973 amended in 1974 protects wildlife population and prohibits forest operations in sanctuaries. Since 1996, the sanctuaries were extended to a total of 139,699 ha (31227ha for East Sanctuary, 36971 for South Sanctuary and 71502 ha for West Sanctuary) However, with the exception of limited protection activities, the studies conducted to-date have given no indication of any wildlife management system in place either in the sanctuaries or SRF.

Protection operations of the sanctuaries are hampered with numerous deficiencies in the form of staffing, communication equipment, infrastructure, mobility, training, operational budget and field allowance for the staff working under Sundarban hardship conditions

(World Bank 1997). Consequently, only a limited number of the protection activities can be carried out due to poor mobility, equipment, staff and funds.

The responsibility for wildlife activities has been recently moved from the Environment Management Division (EMD) to the recently created Wildlife Management & Eco-tourism Division headed by a DCF within the SMU. The organisation and job description of this division will involve the movement of EMD resources and functions into this Division.

Four priority areas of wildlife management have been identified and include: (i) improved protection; (ii) research & studies; (iii) sustained utilisation and (iv) evaluation of FRMP's conservation plan for the sanctuaries and preparation of a long-term wildlife conservation management plan for SRF.

Wildlife Management Objectives

1. Protect and preserve the existing population and improve the habitat and health conditions of Royal Bengal Tiger (RBT), spotted deer, wild boar (tiger preys) as well as the threatened crocodile and turtle species aimed at improving SRF biodiversity and promote eco-tourism.
2. Develop, update and expand a wildlife information database on the population and habitat conditions of RBT and other major wildlife species, adequately responsive to the information requirements, of planning, managing and conserving Sundarban wildlife resources.
3. Promote the sustainable, economically and biodiversity sound utilization of Spotted deer, crocodile, turtle, lizard and other suitable wildlife species for training, demonstration, restocking and possible commercial purposes.
4. Formulate a long-term conservation management plan for SRF wildlife resources focused on the sanctuaries.

Approach

The Wildlife Management Programme will pursue the SBCP's integrated resource development and management approach and will concentrate on improving the existing wildlife management situation assessed as the highest priority constraint affecting SRF wildlife resources. Linkages between the Wildlife Management program and programs within the biodiversity group (Eco-tourism, fisheries, forest and NWFR) and community development program in the impact zone, will be identified and collaborative measures determined and implemented. A consultative process in the form of regular dialogue, reviews, exchange of technical and progress reports and a follow-up and feedback system with the most relevant TAG members, PD, FD forestry and wildlife staff, relevant local and national institutions, community leaders, local government, IUCN and other relevant NGOs, will be pursued both during planning and implementation stages of the work plan.

Assumptions

The success of achieving the above objectives will depend on: (i) effective implementation of integrated biodiversity conservation management approach described above; (ii) an appropriate organizational set-up with well defined and clearly understood job descriptions for the Wildlife Management Division; (iii) closer collaboration among the programs in the biodiversity group, between the biodiversity group and community development, and among the various divisions in the East and West Sundarban Wood and Wood Products Divisions. The proposed work plan should be considered flexible and will be subject to revision on the basis of progress and constraints encountered during its implementation.

Strategies

- (i) Strengthen the protection and law/regulation enforcement capabilities of the wildlife sanctuaries and SMU Wildlife Management Division.
- (ii) Protect and preserve the existing breeding sites of seriously depleted and threatened wildlife species including crocodile, turtle, lizard and other species as needed.
- (iii) Prepare a program to enhance public awareness and extend conservation education on the economic, scientific, cultural and environmental importance of protecting and conserving SRF declining wildlife resources.
- (iv) Formulate a research programme involving inventory, research and studies to collect and generate the required information to plan and manage SRF wildlife resources on sustainable basis and to establish and continuously update a computerized information database for SRF wildlife resources on sanctuary and major resource basis. Further to establish information linkage with national, regional and international wildlife research and educational institutions.
- (v) Establishment of economically and biodiversity viable pilot farms for spotted deer, crocodile and other species of interest to private enterprise.
- (vi) Carry out a feasibility study on the viability of wildlife by-products enterprises as an employment and income generating source for people in the impact zone.

Planned Activities

Population Protection and habitat improvement

The protection and law/regulation enforcement capabilities of the Wildlife Division, particularly at the sanctuary level, to control poaching, prevent illegal resource harvesting and habitat disturbance will be substantially upgraded. This will include improving staff mobility, communication and the preparation of a proposal on a sustainable financial mechanism to ensure the availability of operational funds for wildlife management activities on continuous basis at all times. The population status of threatened faunal species such as crocodile, turtle, lizard and dolphin will be assessed and effective protection and control measures of their breeding sites will be proposed and implemented.

In close consultation with the Community Development program as well as community leaders in the impact zone, an anti-poaching proposal will be prepared and ways and means for its effective implementation will be recommended. In support of this and other wildlife management activities, an objective review of 1973 Wildlife Act will be carried out for the purpose of recommending appropriate amendments.

Since at the present time there is a lack of a wildlife management system in the sanctuaries, a pilot "management prescription" for implementation in one of the sanctuaries will be prepared and implemented. The results of the pilot package will be replicated in other sanctuaries. Furthermore, to motivate and improve the efficiency of the sanctuary staff who are function under SRF hardship conditions, a proposal on field allowance will be prepared for the consideration of Project Director and FD. The Wildlife Management Division(WMD) will be assisted to justify the need for such a provision and implement the approved proposal.

The needs of habitat improvement for the well being of tiger and other wildlife species related to the construction of fresh water ponds, Killas, excavation of existing ponds, establishment of an operational veterinary clinic in the South sanctuary, the status of

browse and wildlife food crops, observation towers and patrol camps, and maintenance of the existing facilities and infrastructure in the sanctuaries, will be assessed. On the basis of this assessment, a proposal for improving the habitat conditions will be prepared and will assist the WMD in the implementation of the proposal. The training needs of the WMD in various areas and levels of wildlife management will be assessed and a training plan will be prepared involving overseas and local training and will assist in its implementation.

The biodiversity conditions of the existing sanctuaries as suitable habitat for various faunal and floral species including birds, in terms of factors such as salinity and vegetative cover, will be studied to determine their representativeness in comparison to the overall SRF. Conditions based on the result of the study, a proposal on the establishment of additional sanctuary (s) or annex to the existing ones, will be prepared and the WMD will be assisted in the implementation of the approved proposal.

Research/Studies and planning

In order to update and complete information on the population, population distribution habitat conditions, prey/food situation and carrying capacity for tiger and other wildlife species, a wildlife inventory and specific studies will be planned and will assist the WMD in their implementation, which will be sub-contracted to appropriate institutions. The FD proposal on "Tiger project" will be evaluated and reformulated in consultation with available studies, appropriate institutions and wildlife specialist and will assist in the preparatory implementation of the approved project.

Proposals on implementing feasibility studies by appropriate experts or institutions on pilot deer and crocodile farming/ranching, for training, demonstration and sustained utilization and wildlife by-products processing plants as income generating enterprises for the communities in the impact zone will be prepared. The WMD will be assisted in the preparation of terms of reference and implementation of these studies.

The FRMP's proposed plan on the conservation management of wildlife resources in the sanctuaries will be evaluated. Based on the evaluation results and using the existing and new information generated from the proposed research/studies, a long-term wildlife conservation management plan for SRF sanctuaries will be prepared for discussion with TAG members, Project Director and Khulna Forest Circle. The WMD will be assisted in the implementation of the approved plan.

A wildlife resource database on sanctuary and population basis for RBT and each of the major wildlife species including their distribution and habitat conditions, will be established. The WMD will be assisted in the development of the database, training of staff and operation.

Need for Local wildlife Consultant

As indicated above, the major activities of wildlife management program include upgrading of protection capacity of the Wildlife Management Division and planning and implementation of an extensive research and studies task. Both types of these activities require expertise in various wildlife management disciplines. In the absence of any trained personnel in the newly established Wildlife Management Division or the Khulna Forest Circle, the Wildlife Management Specialist would benefit from the support of a local wildlife management consultant to help him in the planning and implementation of the planned activities. Alternatively, the Wildlife Specialist would have to shoulder the entire workload

Expected Results

1. An effective wildlife organisation and management system capable and responsive to the protection and conservation needs of SRF wildlife resources, particularly in the three sanctuaries,
2. Protected habitat for threatened crocodile, turtle and lizard wildlife species.
3. An updated and detailed inventory of the population of Royal Bengal Tiger, other major wildlife species and their habitat conditions responsive to the planning and management requirements of sustainable conservation of these species.
4. A long-term and realistic wildlife conservation management plan aimed at sustainable protection and utilisation of SRF wildlife resources for biodiversity, income generation and eco-tourism development purposes.

2.4.4 B.4 INTEGRATED CONSERVATION MANAGEMENT PLANNING

Although the programmes now developed for the forestry-, aquatic- and wildlife resources (above) are very preliminary, and with little being done yet on the ecotourism component, work has started on designing a first diagram for achieving Integrated Conservation Management Planning (Figure 9). This diagram was extensively discussed within the TAG team and with the FD team in Khulna.

The diagram basically is in accordance with the RRP (Section 39-45 and 50), and describes the process that will be used to integrate of resource uses. Core of the planning forums will be the Sundarban Management Unit, which will consist of both the four functional units (Liason, Revenue, Administration, and Database) and the four operating resource management divisions. The initial draft of the integrated plan will involve the SMU operational and functional units sharing sector planning proposals and then evaluating alternative resource use and management scenarios based on their perceived sustainability, resource demand, resource availability etc.

This process of planning will be informed by the completion of an economic valuation study that in the TOR will develop an estimate of Total Economic Value. This is to be achieved using existing datasets which is not possible as to complete a TEV study requires an estimate of non-use values option values which require contingent valuation surveys that are not available. The economic valuation study will be undertaken as a "learning exercise" for local University and FD staff and will, at each stage, provide opportunities to participate in training and implementation activities. The study is still in design but will follow the following steps:

- (i). Determine the appropriate assessment techniques based on the decisions that are required,
- (ii). Define the boundaries of the systems involved in the valuation – for example the indirect use values will impact an area wider than within the impact zone,
- (iii). Identify the components, functions and attributes of the SRF ecosystem and rank each in terms of their importance,
- (iv). Relate the components, functions and attributes to the type of use value (direct, indirect, non-use),
- (v). Identify the information sets that will be needed to assess each form of use (or non-use) which is to be valued and how to obtain the data,
- (vi). Use available information to quantify the economic values where possible,

- (vii). Implement the appropriate appraisal measures,
- (viii). Undertake a series of scenario analyses.

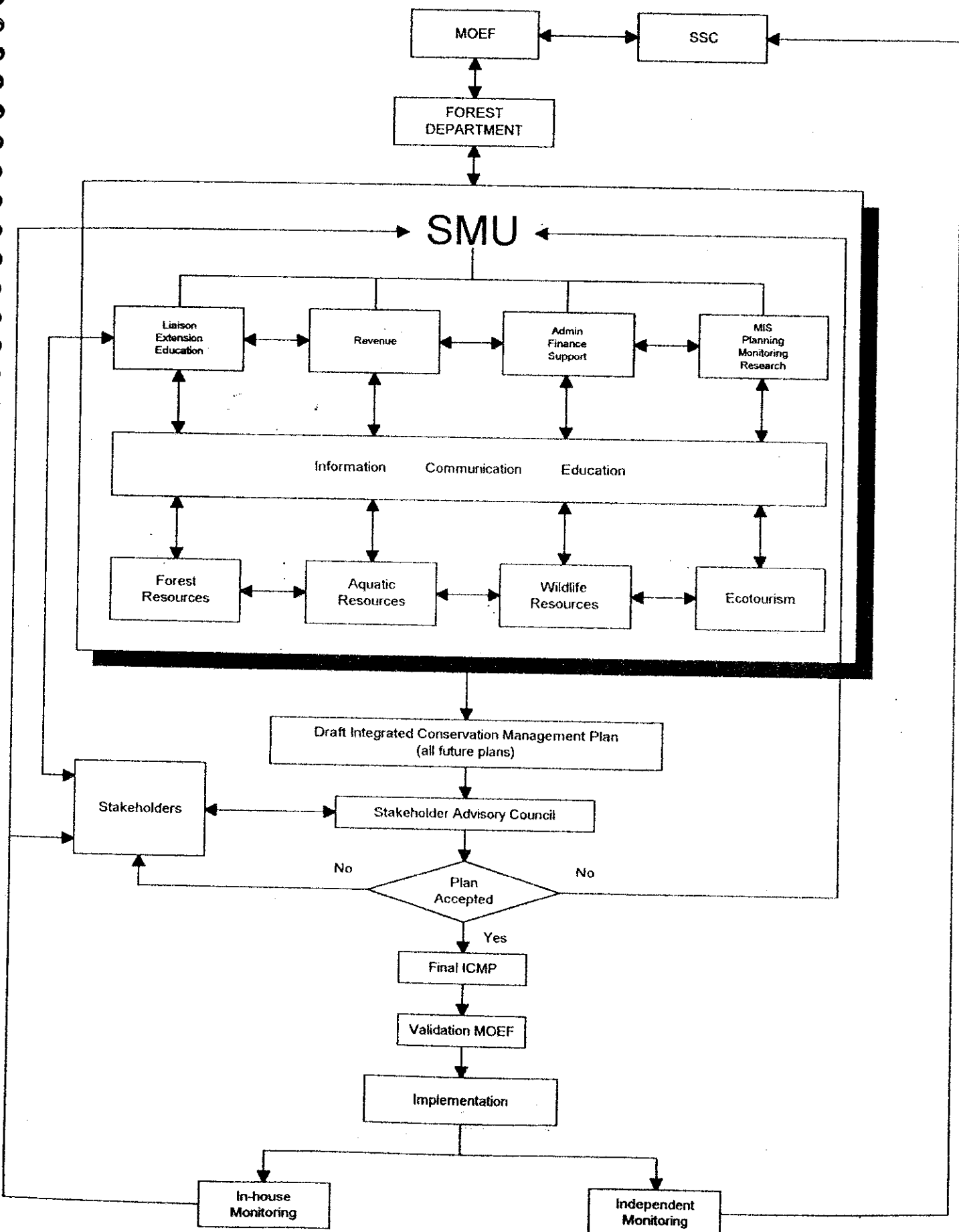
The economic value of resources and revenue studies will both be used to inform the trade-offs by developing one of the decision metrics. Other metrics will relate to social justice, the need for location specific community support, existing resource users, current status of the resources, the need for employment, and the ease of management etc. Once the proposed scenarios are developed and agreed upon within the SMU the preferred portfolio of management strategies will be integrated into a comprehensive planning document along with resource needs, supporting reforms of regulations and standing orders etc. The integrated document will together form the basis of significant discussion between the SAC and the SMU. The SAC is has the authority to ask for a review or changes to the plan and the FD will need to derive a consensus position with the SAC on a final document. It is envisaged that the initial planning processes may take some time and require several iterations until all the players and stakeholders have a common information and knowledge base. If accepted, the plan will be forwarded to the MOEF for validation, where after implementation starts. In case a plan is not acceptable for the SAC it will be returned to the SMU for further work.

The MOEF and Sundarban Stewardship Commission, headed by the Minister MOEF, will be informed on implementation progress through independent monitoring (IUCN).

Figure 8: Integrated Conservation Management Planning Implementation Schedule

Activity	Project year ¼	Schedule									
		PY 1 4	PY 2 1 2 3 4				PY 3 1-4	PY 4 1-4	PY 5 1-4	PY 6 1-4	PY 7 1-4
Integrated Planning											
Preparation of an integration strategy		■									
Consolidation of plans for individual resources			■	■							
Consensus building workshop					■						
Additional data collection					■						
Draft plan preparation						■	■				
Workshop						■	■				
Finalisation of ICM-plan							■	■			
Valuation Studies											
Review all past studies and information sources			■								
Concept paper on Economic Valuation					■						
Workshop and meeting with Revenue team – appropriate valuation/assessment techniques					■						
Valuation study Area Boundaries agreed					■						
Study area Value components, functions, attributes identified through project workshop with stakeholder representatives						■					
Value components ranked						■					
Assemble components, functions and attributes into value categories						■					
Identify information and data needs for values, methods to obtain data						■					
Collect Data – review secondary sources, consultants and other experts, Project sourced data bases, input to Project data collection						■	■				
Quantification of values – peer review							■	■			
Develop planning scenarios and implement appropriate appraisal measures							■	■			
Report and communicate study							■	■			

Figure 9: Proposed Integrated Planning Decision Process



2.5 COMPONENT C. SOCIOECONOMIC DEVELOPMENT OF THE IMPACT ZONE

2.5.1 PURPOSE AND STRATEGY FOR THE IMPACT ZONE

The Impact Zone comprises 17 Upazillas (formerly Thanas) around the periphery of the SRF and the Project will support the social and economic development of the Impact Zone through 3 specified kinds of activities:

NGO operations for social mobilisation and organisation of user groups to exploit SRF resources only on a sustainable basis, with activities for their alternative livelihood activities including micro-finance services. This is to be implemented by facilitating NGO mobilisation and training in the Project area, with credit made available to the NGOs by the Palli Karma Sahayak Foundation (PKSF) for micro-credit lending for income activities

Social forestry. This is enhancement of the social forestry program already under way by FD of the Jessore Circle and the Coastal Circle, which have jurisdiction in the Impact Zone.

Local infrastructure development. This is for building roads, bridges, schools, domestic water facilities, etc. by LGED, which is already well organised for this and has a set-up in every Upazilla.

The consultants believe that these activities, in and of themselves, may not lead directly to sufficient achievement of the Project goal of protection of SRF and its biodiversity. The activities form part of a wider strategy of catalyzing attitudes and institutions in the Impact Zone, including information and public relations, and which will be integrated with the other components to create social and economic incentives.

During the Inception Phase, members of TAG together with staff of FD, carried out a reconnaissance of all the Upazillas of the Impact Zone. There are approximately 200 Unions (groups of villages) in the Impact Zone. An important finding of the reconnaissance was that the 'Sundarban Users', who enter the forest for extraction activities, are concentrated in about 60 of these Unions. Many of these Unions are in three Upazillas: Shyamnagar in Satkhira District, Koira in Khulna District, and Sharankola in Bagerhat District. Therefore, it is suggested that the social and economic development of the Impact Zone will focus development activities, as far as practicable, in these Unions.

The Community Development team of TAG, together with staff of FD, has completed an Upazilla Profile of Shyamnagar Upazilla (see TAG Technical Report), which clearly identifies the focus Unions. Profiles for the remaining Upazillas will be completed by December 2000, enabling all the concentration Unions to be clearly identified.

2.5.2 USER GROUP ORGANISATION AND ALTERNATIVE LIVELIHOOD ACTIVITIES

Introduction

The Project Loan Agreement and related documents stress community development as a key activity for improved social and economic status in the Impact Zone through alternative income-earning activities such as forestry from homestead and roadside plantations, village poultry programs, apiculture, and ecotourism. In addition, by working largely through NGOs, the Project will raise conservation awareness, organise SRF resource users into stakeholder groups, provide training and micro-credit to support alternative sources of income, and implement social development programs. The Project will also foster links

between the FD, LGED, other Government programs and community groups to promote conservation and expand access to other programs of social and economic development.

In order to achieve these, the Project will assist local NGOs in organising local user groups to represent the key stakeholders (including wood-cutters, fisherfolk, shrimp fry collectors, tour operators, women's groups, fuelwood collectors, etc.) and offer social and economic development opportunities including provision of micro-credit.

The Project will follow a strategy that requires the development of close partnership between local SRF-dependent communities, and resource users/extractors (with NGOs to assist them in organization, representation, and social and economic development), and the SMU. For the entire Community Development program, two activities are essential preconditions:

- (i) Identification of the size, location and nature of the Sundarban user communities
- (ii) Understanding of the specific priority needs of each community and the establishment of an effective organization of user groups to deal with these issues

Identification of Sundarban User Communities

To carry out the first activity, Upazilla Profiles are being prepared for each Upazilla by the TAG Community Development team with staff of FD (for an example see TAG Technical Report No.1: Profile of Shyamnagar Upazilla). Profile Outlines are presented in Annex 8. Profiles will be prepared consecutively, allowing about two weeks for each, and will be completed by 31/12/2000.

Organization of User Groups

The second main activity is: "Understanding the specific priority needs of each community and establishment of effective organization of User Groups." For this, local NGOs will be engaged by the Project on initial 2-year contracts.

As specified in the Loan Agreement (Schedule 6, para 7), such NGOs shall be selected through each Upazilla Coordination Committee, according to the procedure and criteria agreed upon within the ADB Forestry Sector Project (details in Annex 9). During the Impact Zone reconnaissance and preparation of the first Upazilla Profile, it was found that this procedure worked well and suitable, capable, and locally active NGOs have been short-listed.

Also as specified in the Project Loan Agreement (Schedule 6, para 8), participating NGOs will be fully familiarised with the Project approach in a start-up workshop to be organised by the Khulna Chapter of ADAB. Since community development activities will be initiated on a District by District basis, such a start-up workshop may be organised for each District at the appropriate time.

The process to be followed by the selected NGO for each concentration Union will be:

- (i) Enumeration of user community families in each village on a house-to-house basis, including the collection of limited basic data on each family,
- (ii) Organisation of two structured needs assessment workshops (one for men and one for women) in each village, for all regular SRF users,
- (iii) Organisation of primary user groups of 20-30 persons, with generally common occupation(s) in each group, and support of such groups,
- (iv) Provision of leadership training to selected group members,

- (v). Arrangement for each group to elect a representative for Union associations of user groups (local community organisations), and for meetings representing all the groups in each village when appropriate,
- (vi). The process will be preceded by a short training program for the relevant NGO staff, to be organised by the TAG Community Development Team.

Specific proposed plans for these activities, including drafting NGO terms of reference and contracts, will be prepared on a district by district basis, starting with Satkhira District (for which a technical report covering these points will be prepared by 31st July 2000).

Exploitation of SRF Resources on a Sustainable Basis

Project objectives, it is essential that User Groups be organized at levels high enough so their voices are heard, and also so that professional findings and attitudes about conservation percolate to micro-communities and individuals. Therefore, it is envisaged that TAG, FD, and participating NGOs will encourage the User Group Union Associations to federate on a District basis, so they might participate in the Stakeholder Advisory Council, and thereby:

- (i). Participate in SRF-related planning and implementation of activities,
- (ii). Discuss the regulation of their own extraction practices (according to agreed norms set up in consultation with the SMU) and the ending of unsustainable practices, through agreements with the SMU,
- (iii). Participate in community-based planning and implementation by LGED of the provision of improved access to social services and rural infrastructure: clean drinking water facilities, sanitation, rural roads, and education.

These activities will be supported by a program of User Group and community environment education, provided for in the NGO contracts and carried out by the NGOs with staff training support from the TAG.

2.5.3 ALTERNATIVE LIVELIHOOD ACTIVITIES

The Upazilla Profiles and Village Needs Assessment workshops (see above) will identify of priority development needs and issues among the user communities. Considerable work along these lines was done during Project preparation, which has been summarized in RRP Appendix 2: Social Assessment and Strategy. Priorities established in this Report are confirmed by the main conclusions of the (first) Profile of Shyamnagar Upazilla (see Annex 8), which found:

“a clear need for users to be better organised in village groups and in larger federations, to participate in the improvement of their living conditions and in the future management of SRF resources.”

Other important identified needs are:

- (i). Improved employment opportunities for both men and women,
- (ii). Land for the establishment of permanent homesteads,
- (iii). Safe drinking water and sanitation,
- (iv). Improvement of education opportunities.

SRF users expressed the view that alternative forms of employment, if available, would be better, rather than having to under-take the risks and hardships involved in extracting SRF resources. Based on the specific needs and opportunities identified in each Upazilla

Profile, NGO contracts for the initial 2-year period will include provision for measures to improve employment and alternative livelihood activities. Where appropriate, these will include the facilitation of social forestry activities, to be undertaken by User Groups in co-operation with FD and will also include, the development of suitable User Groups into Local Contracting Societies for construction and/or maintenance of rural/local infrastructure.

User Groups will also help the District and Upazilla administration and the Union Parishads, to identify suitable common property, for example borrow pits and other water bodies, which may be leased to User Groups for fish cultivation. In addition to this, during the initial 2-year contract, NGOs will provide these user groups with specific technical training and support for their activities.

Some User Groups already have credit programs of their own and may be able to link up with these Project activities. In other cases they already obtain credit from PKSF and may be able to increase such provision. Nevertheless there will remain some NGOs which will need to establish a new link with PKSF to provide User Groups with the credit needed for small-scale income generation. Given that PKSF was supposed to designate, within one month after the Bank loan becomes effective, a full-time supervisor to be based in the SMU's office in Khulna, PKSF will be asked to modify, in the Project context, its principle of working with only one partner NGO in each Upazilla. PKSF will be asked to make available its other criteria for accepting partner NGOs, so that these can be taken into account at the time of selection of project NGOs. Finally, before finalizing NGO contracts on a District by District basis, PKSF will be consulted to ensure that the selected NGOs meet its criteria.

Aquaculture Development

A number of aquaculture activities have previously been suggested for implementation by the Alternative Income Generation Program in the impact zone using the micro-credit program and NGOs. There is concern about the sustainability of some of these activities and the resultant impact on sustainable resource outcomes. Therefore, some activities suggested in Project documents may no longer be appropriate. The following alternatives will be evaluated by the TAG:

- (i). Start-up of Selected Activities. The Project will select a fisheries NGO active in the area to mobilise individuals for fish nursing, fish selling, pond harvesting, borrow pit culture, utilization of large ponds, and fish transport;
- (ii). Both ARD and TAG will determine the appropriateness of stimulating fish processing and fishing boat procurement,
- (iii). Training will be added to the TOR of the aquatic resources team to train NGO staff and other local persons.
- (iv). Potential Aquaculture opportunities will be assessed with feasibility studies (followed by introduction and dissemination) for the following aquaculture income-generating activities:
 - Golda feeds using mollusc meat
 - Mollusc culture
 - Finfish cage culture
 - Crab culture
 - Backyard aquaculture
 - Crab meat processing, in collaboration with a partner fish processing company
 - New aquaculture feeds based on composted mangrove leaves

2.5.4 COMMUNITY DEVELOPMENT

Throughout the initial 2-year contracts, NGO activities and performance will be monitored by TAG and FD. In this connection, it is suggested that SMU engage the assistance of the staff of the FD Circles involved in Social Forestry, especially the Jessore Circle. These Circles will, be involved with implementing Social Forestry activities with a number of officers permanently posted in the Impact Zone (as well as Divisional Forest Offices in Khulna, Bagerhat, and Pirojpur).

The development process in each Upazilla will particularly address those needs prioritized by women's groups. It is estimated that about 50% of the micro-credit borrowers will be women, and it is expected that these women will participate in village groups. NGOs are expected to recruit a large number of women for Project-related activities

On completion of the initial NGO contracts, a joint evaluation of the first phase (two year) development process will be carried out on a District basis jointly by FD, TAG, concerned NGOs, and concerned User Groups, using criteria agreed in advance and specified in the original contracts. The evaluation will include a social and economic assessment by TAG of the comparative merits of different types of income/employment activities and programs, including those undertaken elsewhere in the country, and the provision of training to NGO staff on the most promising types.

In each District, initial development activities will be limited in size and scope to ensure successful implementation, and will be expanded during the 2nd phase where potential and capability has been demonstrated which justifies the expansion of the community development program comprising:

- (i). Formation of additional User and Women's Groups (if required),
- (ii). Revision and expansion of income/employment generation activities based on outcome of evaluation and training,
- (iii). Provision of training and market identification to support such activities,
- (iv). Further provision of credit from PKSF as required, and
- (v). Expansion and deepening of biodiversity education activities

After a 2-4 year phase, a final evaluation (using the same approach as in the first evaluation) of both phases of the development process will be carried out on a District basis, according to previously agreed criteria, and Project-funded NGO support to User Groups and Federations will be scaled down. This evaluation will include a final social and economic assessment by TAG of the comparative merits of different types of income/employment activities and programs undertaken in the Project.

2.5.5 SOCIAL FORESTRY

A main finding of the Upazilla Profile of Shyamnagar Upazilla (see Annex 8) is that social forestry, especially plantation on common property, embankments roads, government land, etc. as an important and realistic intervention to improve employment and income for the poorest and most deprived of members of the user communities.

There is considerable experience of implementing such programs, among staff of the Social Forestry Circles of FD (who also took part in the Upazilla Profile field work), staff of local NGOs, and members of User Communities themselves. It is planned to follow in detail the approach which has worked well in the Coastal Greenbelt Project, especially the provision

for payment of local people for maintaining and caring for seedlings while they are getting established.

Bearing this in mind, it is proposed to follow the benefit-sharing system of the Coastal Greenbelt Project:

Local people caring for trees	55%
Forest Department	10%
Land-owner	10%
Closest agricultural landowner	10%
Cost of planting and nursing	10%
Union Parishad	5%

Specific plans for social forestry will be included in the Action Plans prepared as part of each Upazilla Profile, following close consultation with the relevant FD staff. As stated above, the first such plan will be prepared in July 2000 covering the concentration unions in each of the three Impact Zone Upazillas of Satkhira District.

2.5.6 LOCAL INFRASTRUCTURE DEVELOPMENT BY LGED

The Project has an investment commitment of \$9 million to the construction of 'rural social infrastructure', mainly schools, roads, bridges, and water supply, to be implemented by LGED. These investments are budgeted over the whole Project period, and detailed plans for investment throughout the Impact Zone have already been prepared by LGED.

From discussions with LGED officers in Dhaka, Satkhira, and Khulna, it is understood that execution of road, bridge, and school construction has already started, following participation of the Union Parishad (UP) Chairman in each Upazilla in the planning process through the Upazilla Coordination Committee. A number of specific suggestions can be made to integrate this program more effectively with overall Community Development activities of the Project and to make it more effective in advancing Project objectives. These are as follows:

- (i). The reconnaissance of the Impact Zone found that users are concentrated in about one third of the Unions of the Impact Zone-- and these will be clearly identified by the Upazilla Profiles to be completed by December 2000. This identification provides an opportunity in future years to concentrate rural infrastructure investment in these Unions, providing more direct benefits to the Users themselves and so reducing the pressures which push them towards unsustainable extractive activities.
- (ii). The gradual organization of primary User Groups, and Union Associations of User Groups, federated on a District basis, will provide opportunities for Users to influence the Stakeholder Advisory Council and the Upazilla Coordinating Committees and so participate in community-based planning and implementation by LGED for this infrastructure development.
- (iii). NGO community development contracts will include provision for the development of suitable User Groups into Local Contracting Societies, which can undertake the construction and/or maintenance of rural social infrastructure. Initial discussion with several LGED Executive Engineers confirmed support for this idea and identified several possible activities where such Societies might be engaged.

Further, it may be noted that the needs of the user communities, especially for water supply and sanitation provision, are large and pressing, and that some local NGOs have

considerable experience and knowledge in delivering such provision in an effective and participatory way. In view of this, ways may be found to involve them directly in delivering project LGED investments. Also, further opportunities for user community employment and income generation may be provided by the identification of suitable common property, for example water bodies such as borrow pits controlled by government agencies, and their leasing to User Groups for fish cultivation. Opportunities exist for coordinating such activities with the LGED investment program.

During the preparation of Action Plans based on Upazilla Profiles, the above possibilities will be specifically identified and appropriate provision made in NGO contracts after detailed discussion with LGED. The budget planned for this component allows for these measures to be incorporated on a year-by-year basis, since most of the investment will be made after the first two years.

2.5.7 COMMON PROPERTY RESOURCES

Activities in the Impact Zone will focus first on the extracting and user groups, for which NGOs will play an important role in catalysing organisation and in training. For some groups, means of alternative livelihood will have to be identified, but for other groups, jointly managing extractions so as to not deplete or damage the resources will be the goal. For this, TAG will provide a Common Property Resource Specialist with experience in similar natural resource issues. There are many concepts and examples from Asian countries, as well as from Bangladesh,¹¹ on this subject.

TAG will assist in establishing individual frameworks for common property resource agreements and functional relationships, as between user groups/associations, with FD and any other relevant organisation. The legal and regulatory issues will be examined. The Project will then facilitate the institutionalisation and widening of these agreements for enhancement of the common good.

2.5.8 INFORMATION, PUBLIC RELATIONS, AND CIVIL SOCIETY

An important part of the Project is information, education, and communications. IRMP and FRMP emphasize information dissemination and public education. But without going beyond that and promoting civil society organization, this will not have the desired impact on biodiversity conservation. Part of the Impact Zone activities from the beginning of the Project is to mount a vigorous program of public information and public relations, including activities such as:

- (i). Programs in schools and colleges,
- (ii). Formation of youth groups, as for visiting conservation areas,
- (iii). Liaison with newspapers, television, and radio reporters,,
- (iv). Distribution of brochures and other literature,
- (v). Consultation with Union and Upazilla Members, and
- (vi). Chairman, and participation in Local Government meetings,
- (vii). Collaboration with local NGOs involved in public interest issues,
- (viii). Holding of public workshops and seminars,
- (ix). Meeting with Members of Parliament and other leading persons in the area,
- (x). Arranging separate contracts/agreements with NGOs for much of this work.

¹¹ Smithsonian Institution, 1987. *The Commons in South Asia: Societal Pressures and Environmental Integrity in the Sundarbans of Bangladesh* (essays by Bangladesh experts). Washington DC.

2.6 COMPONENT D. ECOTOURISM AND ENVIRONMENTAL AWARENESS

[The program in this section is a predraft input. This reflects the ongoing difficulty in obtaining mobilisation permission for the concerned consultants]

2.6.1 TOURISM POTENTIAL

The Project has been conceptualised with a basic assumption that SRF is a potential tourist destination, for both international and domestic tourists, and that income from tourism will partially substitute for GoB for loss of income in declining extraction of mangroves for timber and the paper industry. The Project budget, especially under GEF, provides substantial support for development of Sundarban tourism. GoB considers income from tourism as replacing part of the revenue formerly derived from legal logging. The RRP emphasises tourism as a potential source of income to people in the Impact Zone, who can work as guides, product sales, and service providers to offset reduced forest extractions.

2.6.2 CURRENT TOURISTS

At present a few hundred international tourists visit the Sundarban every year. Many of them are from the expatriate community in Dhaka, or their friends and relatives, and some are low-budget young European environment enthusiasts or bird watchers. Bangladesh is not yet an important destination for professional-managed international tourism.

Domestic tourism holds more immediate potential for the Sundarban, while still requiring a clear strategy and persistent effort. Throughout South Asia domestic tourism is growing rapidly, particularly patronized by young urban professionals, and honeymooners. In India, Nepal, and Sri Lanka, this is a rapidly growing market, to which private tour operators have adapted. Bangladesh has few opportunities for "exotic" locations for Domestic tourism, so there is scope for developing this in SRF, and indeed, the number of domestic tourists is said to be increasing at about 15% a year. The proposed strategy is to catalyze the growth of the domestic sector through training, provision of infrastructure, and tourism management skills as a means of developing attractions and products for foreign tourists in the medium to long run.

The main problem in project implementation is identification of who will be trained? who will co-ordinate all tourism and the training and co-ordination required? The consultants will identify private tour operators, and work with the Parjatan Corporation as a potential key implementing agency. The consultants will try to identify institutions and set in place a sustainable system for supporting high-quality tourism in SRF.

2.6.3 TOURISM INFRASTRUCTURE AND MANAGEMENT

The FD proposes to set up a Sundarban Information Centre in Khulna. This can be a specific and useful outcome of the Project. However, it will have to be designed and managed as a professional tourism and public relations undertaking.

FD also proposes to set up lodge huts need to be constructed, or arrangement to lodge tourists in the Impact Zone with arrangements for intensive day trips. Launches have to be

obtained and maintained properly. Parjatan Corporation is building a 30-room Tourist Motel in Mongla, and part of it is already functional. The intention is to attract both tourists and personnel from ships stopping at Mongla. Parjatan Corporation is also planning to initiate Sundarban day trips from Mongla, similar to those now offered by commercial tour operators from Khuina.

However, FD has limited capacity to play more than a cursory role in the sector through the issuance of permissions for tour or travel operators. The FD role is therefore seen to be largely one limited to co-ordination and the provision of an enabling environment for private sector investors to develop products and services in a sustainable and responsible manner in the SRF. Further the FD will need to provide supervision of the overall sector development within its estate. Currently, FD have no staff with professional tourism training, and would not be able to take the lead in this area. Parjatan Corporation will be assessed for its ability and interest in adopting this role in the Project particularly in advertising and public relations, and perhaps it in tour management.

2.6.4 PUBLIC INFORMATION AND AWARENESS

This is an extensive and continuous task, with consultancy responsibility under both Components B and C, and there is a substantial GEF budget for a "public education system." The Sundarban Circle has no capacity in such activity, so the consultants must rely on staff of the SMU Liaison, Extension, and Education Unit (for which 14 staff are budgeted, including "Thana Liaison Officers"). If these posts are not filled, the Project must create an alternative for minimum liaison and extension presence in the 17 Upazillas.

An active program of public information is to be mounted in the Impact Zone. This program would also have to extend throughout Bangladesh to attract domestic tourists, as from schools and colleges, and different kinds of associations. Audio-visual materials will have to be prepared. The Project cannot do justice to this large task except through contracting the activities out to tourism and public relations agencies supervised closely for quality and effectiveness.

Figure 11: Ecotourism and Environmental Education Implementation Chart

[to be completed by the Consultant on arrival]

2.7 COMPONENT E. TAG, MONITORING, CONTRACTING AND RESEARCH STUDIES

2.7.1 PROJECT IMPLEMENTATION CONTRACTS

There are a number of activities that are unallocated to implementation agencies that will be developed with a design and implement framework. The following section briefly describes these in general terms only, as the current ARCADIS consortium contractor may not be the implementing contractor.

(i) Management of Foreign Training

Substantial funds are earmarked for foreign training/tours, which will be defined in full the Project Training Plan. Following consolidation of these budget items, utilization of the Project funds will require prospective service providers to provide proposals to the ADB. The largest part of GEF funding for foreign training is for ecotourism. According to an understanding with ADB in Manila, ARCADIS Euroconsult, assisted by this consultancy, will submit a proposal for managing a package of overseas training/ tours, for which it will need to appoint a person in the ARCADIS Euroconsult head office. But details of persons to be trained, place, and exact length of training, will be decided as the Project proceeds.

(ii) Management of Foreign Fellowships and Study Tours

A Fellowship and Study Tour Program is included within the design and implement arrangements, for which management would have to be negotiated. Contractors will be requested to provide detailed proposal for this package. ARCADIS Euroconsult will be providing a proposal for this in an attempt to use their in-house database of training institutions, programs, and courses around the world, and it has strong in-house capacity and long experience in managing such programs. A draft program and timetable will be incorporated in the training program. It is desirable to send a few persons for training, for skills not currently available in FD. How this could be facilitated quickly may be discussed in the Inception Phase workshop.

(iii) Research and studies

The Loan Agreement specifies studies to be conducted in the following:

- (i). Sundari mangroves top-dying disease,
- (ii). Tiger and ungulate ecology,
- (iii). Biodiversity Inventories,
- (iv). While other possible studies include internet site development, community video production, and ecotourism training.

Many other studies and research projects have been suggested under the several Project Components, which are listed in Annex 10. A program of research studies will be developed and then as part of annual work planning detailed Terms of Reference will be prepared for new contracts within each Project year and submitted for approval. Most of these will have to be contracted out. A small Research Studies Working Group will be formed, including the PD and Team Leader, to ensure stakeholder input to identifying issues and priorities. To the extent possible, studies should be undertaken by those institutions that have relationship with FD so as to strengthen overall capacity. This could include the Bangladesh Forest Research Institute in Chittagong, and the two University

Forestry Departments. The Research and Studies Working Group will assign the consultant and counterpart initiating the study, or another person, to supervise and appraise the procedure and the product, and to incorporate it in Project planning and implementation. The studies will be published as Technical Reports or Technical Notes

(iv) Remote sensing system

A contract will be offered for an agency to develop a remote sensing system specifically for the Sundarban, which will make possible assessment of land and vegetation and integration with other information concerning the Sundarban such as the GIS system in FD (called RIMS), the Environment and GIS Support Project (EGIS, which has an office in Khulna), and data with the Centre for Surface Water Modelling. There are suggestions that aerial photography might be more effective or could be combined with satellite imagery. The consultants will look into the existing remote sensing data management in FD and the various alternatives, and make recommendations.

2.7.2 MONITORING CONTRACTS

The Project is to establish an inspection and certification system as an independent unit that reports to the CCF of FD and outside the SMU. This is a critical task as the design has to be acceptable to both GoB and the funding/donor agencies, besides the stakeholders. Designing of this system will be achieved through contracting an appropriate agency or firm to review the current situation, propose a range of alternatives to the SSC which will selected an appropriate form and structure. The experience of providing certification and inspection services learned by agencies such as the Rainforest Alliance, Smartwood, and SGS will be reviewed and incorporated into the design.

The (draft) PP states that this Inspection and Certification Unit should be accountable to the CCF and the SSC. It is suggested here that its operations should be transparent, and that copies of its reports must be sent to the SSC, SAC, and the Project Steering Committee. Those committees in any case will need its independent information for their planning. In view of the Stakeholder Council participation in FD planning, as proposed in this Inception Report, reports of this Unit should also be sent to this Council.

(i) Surface water modeling

Surface water modelling is to be contracted to understand changes in river patterns, salinity, and water/land levels. The Surface Water Modelling Centre, has already submitted a technical proposal for this work, which includes most of the features proposed to be investigated. A technical note for has been written in response.¹² The consultants are in discussion with the SWMC to ensure that the full range of scenarios are included.

The following briefly outlines the potential role this contract may play.

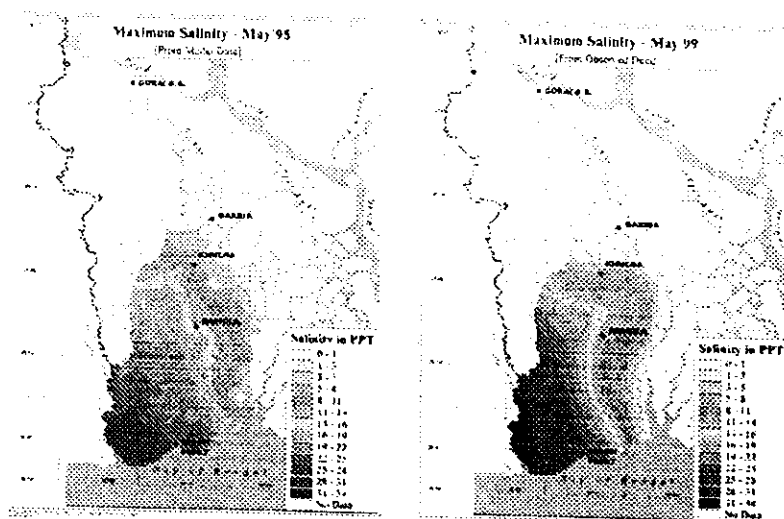
The ecosystem in the Sundarbans is complicated due to the coexistence of interdependent natural phenomenon like tide and wave, fresh water flow, sediment and siltation, salinity and pollution in the water. Scientific analytical tools like mathematical modelling could be extremely useful to understand such phenomenon in a comprehensive way. Models can replicate nature only with the availability of sufficient field data involving long series of temporal and spatial distribution. In this circumstances the services of Surface Water Modelling Centre (SWMC), one of the pioneer in mathematical modelling and satellite

¹² Note on Surface Water Modeling by the Conservator of Forests, Khulna

based survey works in complicated situations like the Sundarbans would be extremely useful to provide the following out put for the decision makers for bio-diversity conservation.

- (i). A Digital database with the data collected through this activity and by various agencies/projects, for important environmental indicators of the Sundarbans and the surroundings.
- (ii). A Digital Elevation Model of the Sundarbans.
- (iii). A deterministic hydrological model of the Southwest Region to estimate the volume of fresh water in the area.
- (iv). A one-dimensional hydrodynamic model describing water level and flooding patterns.
- (v). A one-dimensional salinity model describing temporal and spatial variation of salinity in the area.
- (vi). A one-dimensional water quality model of areas affected by pollution.
- (vii). Maps of such output, an example is presented in the next page.
- (viii). Impact mapping of the baseline condition against different development scenario like increase/decrease in upstream freshwater inflow, rehabilitation of upstream polders, dredging in the peripheral rivers, shrimp culture, development of the Mongla Port and Mongla EPZ and tidal cyclone and surges developed in the Bay of Bengal.
- (ix). Map showing the drainage pattern in the rivers of Sundarbans.
- (x). Maps showing siltation pattern in the rivers.
- (xi). Report on causes of siltation in the rivers of Sundarbans
- (xii). A sustainable monitoring capability of the Forest Development.

Considering wide variation of the environmental indicators from season to season and from year to year, a continuous data collection for 4 years could be most effective to tap pertinent data for evaluating water environment of SRF. This timeframe is expected to covers at least one severe dry and one severe wet year. However due to budgetary constraint, surface water modelling for 3 years covering 2 dry and 2 wet season is envisaged. The work is expected to start in September 2000 and will continue till the end of 2002.



2.8 COMPONENT F. STRATEGIC OBJECTIVE EFFLUENT TREATMENT

This component is not part of the TA contract and is contingent on Component G. below. IF the future of the KNM is defined in terms of an ongoing operation the component will mobilise resources to install pollution abatement technology to minimise the risk to the SRF resources and ecosystems.

2.9 COMPONENT G. ADVISORY TECHNICAL ASSISTANCE TO THE KNM

This component falls outside the TAG contract and is being implemented by ADB direct hire contracts to Jakko Poyry. The initial ADTA contract has been completed and te report is now being circulated for review. The importance of the resultant decision is that it will influence the work plan for the Forestry Resource Management Plans and the subsequent integrated resource management plans. The decision process will be observed and the results incorporated into the planning process.

PART 3 RELATION AMONG PROJECT COMPONENTS

3.1 A CONSULTATIVE PROCESS FOR EFFECTIVE SRF MANAGEMENT

3.1.1 IDENTIFYING INSTITUTIONS AND PROCEDURES

The overall finding of the ex-post evaluation of the UNDP-funded IRMP¹³ was that the result integrated management plan was largely unusable by the GOB, despite the production of some 40 volumes, these were not integrated into a cohesive practical plan. Further the social aspects were one dimensional being just a survey: "the people surrounding the SRF cannot be simply counted and then ignored in the planning process. In addition the management, integration, and coordination aspects lacked rigorous study and analysis.

It was assumed by the technical people that "integration, collaboration, and coordination would *somehow* take place." The large issue of population pressure on forest resources was not addressed. These findings have direct relevance to the ADB project which has a very similar mandate. Further to this the TAG is not currently supported by an institutional specialist, who has experience in development of governance for natural resources at the local level. This is considered to be a significant gap in the current skill base.

The Project will also ascertain from West Bengal and other states in India, the present and expected roles of village Forest Protection Committees, which are now an important thrust of the forestry sector there. Such Committees or Associations could perhaps be set up in the Impact Zone. The Project will also ascertain the role of Panchayats (3 tiers) in these matters following implementation by various States of the Panchayat Amendment to the Constitution of India, to see what experiences might be applicable to Bangladesh.

The Project will stimulate evolution of broad-based proactive organisation having institutionalised collaborative links with the FD and which will facilitate a consultative process between FD and the institutions and people of the Impact Zone. The TAG Common Resources Specialist and the Legal Specialist will assume important roles in this.

3.1.2 ROLE OF LOCAL GOVERNMENT AND LOCAL INSTITUTIONS

Though social and economic development of the Impact Zone is being promoted under this Project through the SMU, the main responsibility must ultimately lie with local government and the local administration, along with the sectoral departments.

Whatever the doubts and past experiences about some elected local leaders, there must be faith in the democratic process and the evolution of civil society, because there are no other options. If the Project and GoB openly place faith in elected office-holders, gradually the people will become aware that it is up to them to elect and work with representatives who uphold the public interest.

In view of the goal of the Project of building up a long-term system for management of the Sundarban, one must note that the apex body to be set up, the Sundarban Stewardship

¹³ Thomas Hopkins et al/UNDP/FAO/GoB, Dec. 1998. "Joint Ex-post Evaluation Mission. Integrated Resource Development of the SRF. Pp. li1,

Commission, does not have representation from either FD or Local Government.¹⁴ All its members are specified (in the Loan Agreement), except for 3 which are to be appointed (with prior approval of the Bank). So it is suggested here that one seat on the Stewardship Commission should be reserved for a representative of FD, and 2 seats for representatives of elected Local Government, i.e. Upazilla Council Chairmen/members from 2 of the 5 Upazillas with a large geographic association with the Sundarban area). To ensure selection of sincere persons, SMU should nominate individuals from among elected office-holders, to be approved by GoB.

3.1.3 ROLE OF CENTRAL GOVERNMENT INSTITUTIONS AND AGENCIES

Social and economic development of the Impact Zone cannot be assigned to the FD. The Project will only begin some activities which should be taken up and enlarged by local administration and the main nation-building departments. The workshops and liaison efforts made throughout the Project will keep in focus the need for the main departments of GoB to build on social and economic activities of the Project so as to reduce people's destructive activities in the forest.

A key measure would be to liaise with the Law Department, GoB, to appoint special prosecutors in the Impact Zone to expedite cases of poaching and stealing timber, which tend to be supported by local powerful persons and so are seldom firmly dealt with in local courts. If the people of the Impact Zone have confidence in the judicial system, they will more readily report or hand over persons engaging in destructive activities.

3.1.4 RECOMMENDED STEPS TO DEVELOP A CONSULTATIVE PROCESS

Step 1. Establish good relations with local administration (Commissioners, Dy Commissioners, Nirbahi Officers, etc.) to promote confidence in elected local leaders and build up consensus for a long-term consultation process to support the FD in Sundarban management.

Step 2. Establish good relations with Union Chairmen and Members (already in place, and with Upazilla officers (when elected), to advance a public relations and public education program

Step 3. Work jointly with LGED, Union, and Upazilla leader to ensure that building infrastructure is linked to the purpose of the Project by improving living standards in locations where people over exploit Sundarban resources. Alternately, decisions about infrastructure construction could be made as encouragement and reward for attitudes and actions relating to the Project goal.

Step 4. Arrange that elected Local Government office-holders are represented in the Sundarban Stewardship Commission and the Stakeholders Council so as to promote support for SRF issues in the Impact Zone.

Step 5. Seek the co-operation of elected and appointed local government office-holders in building up user groups and their federations, community organizations and their

¹⁴ The PP states that the PD will be the Member-Secretary, but this is not in the Loan Agreement. The Loan Agreement states that one representative of the Stakeholders Advisory Council will be on the Stewardship Commission, whereas the PP states that this Council will be represented only by the PD.

federations, women's groups and their federations, etc., and where desired, registration of these groups (preferably under the Societies Act).¹⁵

Step 6. Seek the cooperation of local government in public relations and education programs, as in orientation of officeholders, seminars, school programs, NGO forums, television and radio, and public events, and invite them to participate and officiate.

Step 7. Work with all concerned Union Councils to prepare a Sundarban Conservation Plan of positive actions to:

- (i). Promote public opinion concerning conservation of SRF,
- (ii). Promote community self-regulation of over-extractions, and
- (iii). Establish positive cooperation with FD in its entire management responsibility.

Step 8. Catalyze Forest Protection Committees of citizens and leaders who have a sincere commitment to long-term environmental management, with FD official acknowledgement of their role in identifying and handing over violators.¹⁶

Step 9. Arrange with SMU and the Circles to establish a clear procedure of consultative planning, at least once a year, in the Impact zone

Step 10. Take steps to encourage GoB to appoint Special Prosecutors and to expedite handling of cases of Wildlife poaching and other gross violations of FD rules, and publicise these cases,

Step 11. Eventually, try to build up a sustainable umbrella organisation with a legal basis in the parts of the Impact Zone connected with SRF, that will promote civil society activities, coordinate with relevant agencies, actively promote environmental interests, plan jointly with FD, and sustain the achievements of the Project.

3.2 INTEGRATION: A NEW BIODIVERSITY MANAGEMENT SYSTEM

It is most important that the FD management system should develop in-built institutional procedures to integrate the consultative process (as identified in section 1.6) in the Impact Zone with forest resource management, as the following:

- (i). Appointment of (selected) elected LG representatives by rotation on the Stewardship Com-mission and on the Stakeholder's Council, as suggested above,
- (ii). FD training of UP and Upazilla Chairmen and members and other leaders in their roles in monitoring and supporting Sundarban conservation,
- (iii). FD training of NGO personnel and user group leaders for their roles in further training and monitoring of Sundarban conservation,
- (iv). FD formal and fixed participation in Upazilla Councils in the Impact Zone (already in place),
- (v). FD periodical offers to adjacent Union Councils to participate in their meetings (already being done in some cases),

¹⁵ In Bangladesh most legal registration of groups so far has been under the Cooperatives Act, partly because of the tradition of BRDB. But the Societies Act (originally 1862), administered by the Social Welfare Dept, is much simpler and easier to deal with and should be introduced in the Project Area, where people wish to have a legal basis for their groups. Also, the Companies Act (in variants such as non-profit company, limited company, or partnership) is suitable for groups where their investment is to be protected.

¹⁶ This is already being done in West Bengal, among communities on the fringes of the Sundarban.

- (vi). FD collaboration with other agencies active in local government and local administration, such as:
- with police in regard to violations
 - with Border Guards and Customs in regard to smuggling and poaching
 - with the Law Department for vigorous prosecution of violators
 - with Departments of Land and Revenue as regards changes in land and water
 - areas, and mangroves areas in adjacent Upazillas
 - with Upazila Sundarban Conservation Councils
 - with education officials in regard to programs and activities in schools, etc.
- (vii). FD setting up a systematic procedure to involve Impact Zone people in its planning, with open monitoring, planning, and budget information FD statements and actions assuring citizens that its records and procedures are open and transparent.

In the latter part of the Project, a new institutional framework may be conceived whereby these can be integrated, and whereby revenue generated from Sundarban extractions and tourism can be directly utilized integrated for management of this resource. This may take the form of a partnership between FD and tourism and other agencies— as has successfully been done for tourism in India - and/or formation of a Trust, Society, Foundation, or Non-Profit Company, under the Forest Department.

This should increase, not decrease, the role and effectiveness of the FD, because it will do its job more successfully with the support of the population, and in the long run it will take on more responsibilities and acquire more resources.

3.3 POLICY AND LEGISLATION

TAG (with its legal consultant) will assist SMU in conceptualising and drafting policy statements and legislation for consideration by GoB, for which a domestic consultant with legal background will be assigned. This activity will address legal and institutional reform issues mentioned in the Loan Agreement, Schedule 6:

- (i). Restructuring of FD staff,
- (ii). Possible amendments to the Forest Act (1927),
- (iii). Issues of revenue both valuation of SRF products, and need for a financial reforms,
- (iv). whereby some of the revenues earned are directly utilized for operations, and
- (v). Legal and licensing measures to phase out unsustainable forest extractions.

This work will also consider issues such as the official role of local government in managing local resources within its jurisdiction, and rules regarding modernization of administrative procedures. Following consultations at all levels, draft legislation will be written up for consideration by MoEF.

PART 4.0 PROJECT IMPLEMENTATION RESOURCES

4.1 TAG ADMINISTRATION PLAN

4.1.1 INTRODUCTION

The Project will be administered by a Project Management Unit (PMU) set up in Khulna during the Project inception period. The PMU will mostly rely on the Forest Department (FD) to provide administrative support during Project implementation. However, the PMU Project Director and his staff will be supported by a Technical Advisory Group (TAG) of consultants for which FD administrative support is not applicable. For this reason, the TAG requires special administrative provisions in order to establish and maintain effectiveness. This section describes plans for developing the TAG administrative capacity.

4.1.2 OBJECTIVE

To establish a consultancy team (TAG) that will provide support to Project activities for FD organisational strengthening, conservation activity planning and implementation, community development interventions in the Impact Zone, ecotourism development, and the development of a sustainable resource management framework.

4.1.3 DESCRIPTION OF ADMINISTRATIVE SUPPORT FUNCTIONS

The activities required to establish TAG and support Project activities include: 1) office facilities set up; 2) provision of accommodation & messing facilities; 3) foreign and local consultant fielding; and 3) development of administrative procedures for accounting, purchasing, personnel management, data management, Project public relations etc.

4.2 ACTIVITY SCHEDULE AND CONSIDERATIONS

The Work Plan for Project Administration establishment is shown in the bar chart at the end of this section. Points of detail and clarification are presented below by major activity.

4.2.1 OFFICE FACILITIES PLAN

The TAG, plans to share occupancy with the PMU in Khulna FD office facilities that are currently awaiting completion of refurbishment. The plan is to renovate the FD office previously occupied by the IRMP across the street from the office of the Conservator of Forests. Renovation activities started in mid April and completion was planned by 30 June. However, work has been stopped due to funds flow problems. The consultants then established a temporary office in their guest house and furnished the office with equipment purchased under GEF funds.

It is hoped that funds allocations problems will be resolved during the Inception Work Shops and that work will resume on the identified Project Office thereafter.

4.2.2 TAG ACCOMMODATION & MESSING FACILITIES

Arcadis Euroconsult, as the lead consulting company, has arranged to lease consultant accommodation and to contract for the provision of food and beverages. Arrangements were made for renting three houses in early April. The houses were then fixed up and furnished and consultants moved in as they arrived between early April and end June. Guest house staff were hired as the need arose. Administrative policies and procedures were developed for guest house management.

4.2.3 FOREIGN AND LOCAL CONSULTANT MOBILIZATION

The TAG consultants originate from four companies and have been fielded under two different contracts. There are 14 foreign consultants and 8 local consultants. By end June all but 2 foreign consultants and 2 local consultants have been fielded. (See consultant fielding schedule in figure 13 below).

The consultants that were duly approved for fielding by the FD and the ADB have arrived on schedule and have contributed to development of this Draft Inception Report. The MIS foreign specialist was not approved by the FD and is currently working on another project in Bangladesh. The TAG now plan to field this specialist in late July providing he will be approved by then. The foreign Ecotourism specialist, the foreign Information specialist, and the local MIS specialist were not fully approved by ADB by mid June and will not contribute to the Draft Inception Report. They will be fielded immediately upon approval which is expected before end June.

The local Fisheries specialist resigned from the Project during his period of orientation to the Project. The local Legal specialist likewise withdrew from the Project. The TAG is now actively seeking good replacements for these vacant positions.

4.2.4 TAG ADMINISTRATION PROCEDURES DEVELOPMENT

The most important administrative procedures required by TAG have been put in place by mid June. These are the purchasing, accounting, and personnel functions.

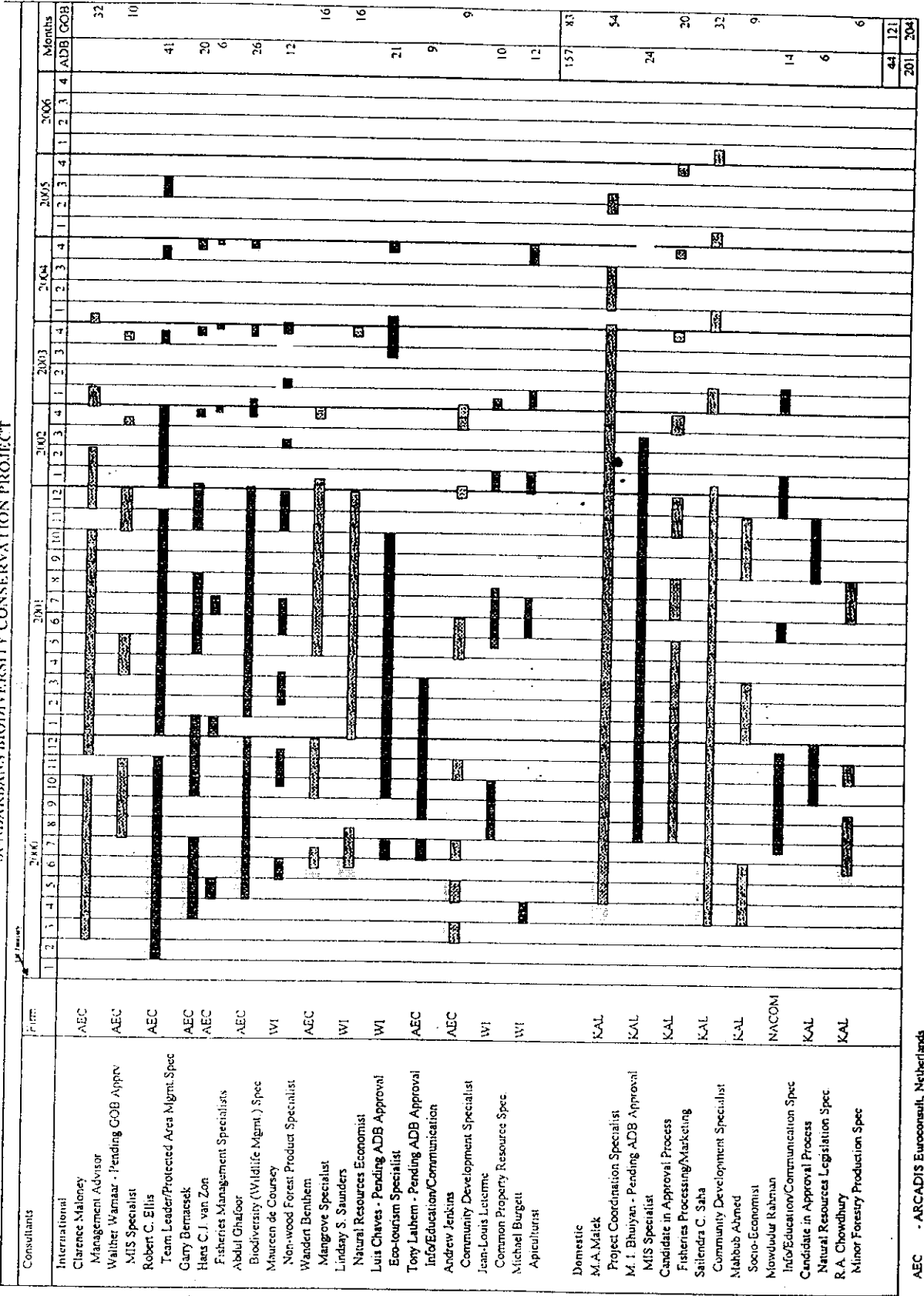
The TAG will utilize the Arcadis Euroconsult Dhaka office to assist in purchasing activity. The TAG will dictate procurement needs, required delivery times, and product specifications. Arcadis staff will canvass the international and local markets for product availability and pricing, obtain quotes, and arrange for terms of payment etc. The ultimate responsibility for making payment will rest with TAG management. TAG management will also be solely accountable for adhering to Project purchasing guidelines established by the GOB and funding agencies.

TAG Project accounts will be handled under the Arcadis Accounting System. This system has now been installed on Project computers, a trained accountant has been hired, and the system implemented. This system replaces the temporary accounting on Excel spreadsheets which had been in place since Project start.

The TAG do not intend to hire employees on a direct basis. The procurement of office staff, drivers, and other personnel will be done through a service contract with a private company. The consultants will be managed through contractual agreements. There will be no need to develop special Personnel Policies by TAG consultants. Nevertheless, there will be a set of standardized rules for managing the office and guest facilities to maintain consistent treatment of all involved in the Project.

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Figure 13: TAG Consultant Mobilisation Schedule and Performance



AEC - ARCADIS Euroconsult, Netherlands
WI - Winrock International, USA
KAL - Kranti Ass. Ltd., Bangladesh
NACOM - Nature Conservation Management, Bangladesh

Figure 14: TAG Implementation Schedule

Activity	Project year ¼'s				PY 3	PY 4	PY 5	PY 6	PY 7
	PY 4	1	2	3					
Provide consultants' accomod. & messing in Khulna									
Install an accounting system with trained accountant									
Provide temp consultants' office in Khulna, & equipment									
Field & orient 12 foreign consultants for Incept Report									
Field & orient 5 local consultants for Incept Report									
Develop strategy and procedures for purchasing									
Devise procedures for staff/personnel management									
Set up consultants' library and reference materials									

4.3 PROJECT BUDGET AND FINANCIAL MANAGEMENT

Project funding has been adjusted since the completion of the RRP and the Loan agreement. The Nordic Development funding for the effluent treatment program at the KHM has not been approved and has resulted in the loss of US \$4.5 million and the associated US \$0.5 million of GOB counterpart funding. The success of Government of Netherlands cofinancing for approximately G 3.1 million will reduce the amount of the ADB loan. There needs to be clarification in term of the disbursement categories for both the loan and the GEF with respect to the changes in the financing to enable a final schedule to be agreed upon.

The major components received financing based on the following allocations:

Component A: Effective Organisation of SRF	\$13.5 million
Component B: Biodiversity Conservation	\$13.3 million
Component C: Impact Zone –Socio-economic	\$24.7 million
Component D: Ecotourism and Environmental Educ.	\$ 2.7 million
Component E: TAG, Contracts, Monitoring	\$14.5 million
Contingencies	\$12.9 million

The final inception report will present a budget by the agreed expenditure categories, and financiers, with the next year presented on a quarterly basis following the clarification of the above issues during the inception workshop in early July.

4.4 TECHNICAL ASSISTANCE

4.4.1 EXPERTISE FOR BOATS AND MARINE EQUIPMENT

The existing Project budget calls for a large investment in boats, including the purchase of 14 launches and reconditioning of old boats, for SMU, tourism, and for economic development in the Impact Zone. FD staff is gathering a list of existing boats and marine equipment with notes about condition. Boat-building and marine equipment expertise is required to review the renovation of very old launches, replacement of some engines, making recommendations about the FD shipyard workshop, setting standards for country boats. An short-term expert has been identified to make technical recommendations and set criteria for contracts for purchase and renovation. A major budgeted item is renovation and O&M of the existing old marine workshop, drydock, and slipway, for which decisions will be made based on the technical assessment and FD capacity. A boat expert is clearly

required, in view of the considerable investment in boats and related equipment and O&M (section 3.2.6). Therefore the PD and TAG have requested ADB to arrange finance from GEF for a boat expert for 2-3 months spread over 3 visits to examine the list against present equipment and requirements for the Project.

4.4.2 GENDER SPECIALIST

The Domestic Community Development Sociologist (Mahbub Ahmed) is budgeted for 9 months. However, in review of the need for a sociologist it is considered that the sociologist input could be reduced and reallocated to enable a gender specialist to join the team. The gender specialist would review and recommend within the Project Operations manual the required levels of gender bias to ensure adequate inclusion of women in consultative, and decision making roles associated with the Project. Special emphasis will be placed on the role of women in resource user groups, the needs for special women stakeholder groups, and the need for youth groups, the representation of women in the SAC. An important aspect is the participation of women in the integrated resource management process where resource access and benefits will be traded-off for sustainable outcomes. This process needs to adequately reflect the needs of the poor, disadvantaged and women. A potential candidate is known to project management and holds the appropriate qualifications. This would address the emphasis on women's roles in Project activities.

PART 5.0 MONITORING AND EVALUATION, AND REPORTING

5.1 INPUT-OUTPUT MONITORING

The RRP (para 80) states that 3 forms of monitoring and evaluation will be carried out:

- 1) Benefit M&E, following ADB guidelines and using TAG reports, Project surveys, and NGO baseline studies
- 2) Performance monitoring (in the Impact Zone, using the existing PKSF system)
- 3) Independent conservation monitoring by IUCN

TAG will monitor its inputs of resources and consultant time in relation to output in a TAG Monitoring Table (Annex 11) to be updated in every Quarterly Report. The Quarterly Reports will provide quantitative information, where possible, under each Component.

In the Annual Reports particularly, input-output monitoring will be linked to the list of Project Targets and the Monitoring Mechanisms in the Logical Framework in RRP, in 3 sets of relationships, following ADB guidelines.¹⁷

(i) **Inputs to outputs** (expenditure and equipment purchased, funding research and the product, funding for training and number of persons trained, consultants' time related to output, etc.)

(ii) **Outputs to effects** (direct effects such as: recorded extractions from the Sundarban, functioning enterprises for alternative income, number of tourists, new capacity for data management in the Sundarban Circle, etc.)

(iii) **Effects to impact** (participation of stakeholders in FD planning; reduction in certain extractions, reduction of industrial water pollution, etc.)

The Annual Reports will address project activities in relation to underlying assumptions, government policies, legal and administrative issues, institutional issues, and risks, as related to Project investment and overall Project objectives.

5.2 BENEFIT MONITORING

5.2.1 BENEFIT MONITORING FOR SRF

Following the ADB guidelines for benefit monitoring, many aspects of institutional capacity and performance (Project outputs, effects) can be directly linked with Project activities, such as are shown in the Logical Framework. The following are specific examples, for which the information and data system will have to be specially designed:

- (i). Increased number and better qualifications of Sundarban Circle staff,
- (ii). Training given and placement of FD staff so as to utilize the training,
- (iii). Annual Biodiversity Management Planning, by FD with participation of the Sundarban Stakeholder Council,
- (iv). Increased revenue (in categories where it is agreed that this is feasible),
- (v). Declining incidence of recorded illegal extractions,
- (vi). Functioning of the Sundarban Information Center in Khulna,
- (vii). Number of public-interest groups and associations formed in the Impact Zone, etc.,

¹⁷ ADB, March, 1992. *Benefit Monitoring and Evaluation: A Handbook for Bank Staff, Staff of Executing Agencies, and Consultants*. This document contains models of BME reporting for irrigation, roads, and some other sectors, but not for biodiversity.

As regards technical M&E of biodiversity, the information and database system being developed by the Project will include existing data on animals and plants in the Sundarban from inventories in the 1980s and 90s, updated wherever possible and including the forestry sample plot data sets. The Project will finance special studies as of mangroves, tigers, crocodiles, and turtles. As part of the contracting of these studies systems will be put in place to ensure that raw data is provided in electronic form to the information and data center for inclusion in the SMU database. Systems for the analysis, interpretation and reporting of this data will be also be established.

5.2.2 BENEFIT MONITORING IN THE IMPACT ZONE

As regards formation of groups and alternative income-generating activities in the Impact Zone, benefit M&E¹⁸ comprises the following:

- (i). Preparation and analysis of benchmark information. This is being undertaken for each Union (having many User Groups), and will be updated annually.
- (ii). Benefit monitoring. This will rely on the existing PKSF monitoring system, as well as NGO monitoring and direct Project monitoring,
- (iii). Studies to evaluate benefits of a specific activity. Special studies are planned.

From the 60 or so Unions in the Impact Zone where Sundarban Users are concentrated, about four Unions per Impact Zone District are being selected for baseline data, giving a total of 20 Unions. The selection will be weighted towards Districts with higher numbers of Users. From each of these 20 Unions a relatively typical village will be selected, with a User Community composition which reflects that of the Union as a whole. After enumeration of the Users, 20 families will be selected randomly from among the User population. These selected households will constitute the sampling units.

During the baseline study both the head of the household and the senior women family member (if different) will be interviewed separately. Three types of data will be collected by semi-structured questionnaire:

- (i). Information on the household socio-economic status, including self-assessed poverty status and changes in status,
- (ii). Information on involvement in Sundarban resource extraction activities, including the way such activities are organised and structured,
- (iii). Information on changes in occupation and/or income related to external forces, including project-related activities.

Data will be processed using both simple percentage contingency analysis and advanced correlational analysis involving regression. Separate focus group discussions will also be held with the men and women from the selected households, using a simple check-list covering the same topics.

There will be an annual update of the baseline survey, based on the analyzed baseline survey data. For this two representative households will be selected from each village for longi-tudinal case-studies through annual in-depth interviews. If desirable, the entire baseline study may be repeated for comparison purposes at the time of project completion.

Other important M&E data from the Impact Zone is likely to become available, such as:

- (i). Information on handling of prosecution of persons violating FD rules,

¹⁸ Asian Development Bank BME Handbook, 1992.

- (ii). Data on number of Union/Upazilla office-holders participating in FD planning,
- (iii). Tours from schools/colleges in the Impact Zone through the SRF,
- (iv). Number of User Groups active in Upazilla Councils and the Stakeholder Council,
- (v). Number of public-interest groups/associations catalyzed in the Impact Zone.

5.3 INDEPENDENT BIODIVERSITY CONSERVATION MONITORING AND EVALUATION

The International Union for the Conservation of Nature will have a separate contract under the Project for biodiversity conservation monitoring, to be undertaken by its office in Dhaka supported by its regional office in Bangkok. TAG will facilitate this and will structure its information and data systems following consultation with IUCN. The draft IUCN proposal has been reviewed and discussions are planned with IUCN to discuss the need to develop a stronger work plan as the basis for the contract. There appears to be a need to finalize the concept of the independent monitoring input in terms of what format it is expected to take, one of auditing existing FD and Project systems or one of total independent data collection and analysis and a comparative assessment through time and with Project and or FD monitoring baselines. Further to this is a need to resolve the issues of obtaining a baseline and the methods that will be applied to establish a baseline.

The main problem is insufficient baseline data. Existing species inventory data are mostly from the 1980s or early 90s and there are many gaps, especially for rare species, which it will be difficult to fill up during the Project. TAG will cooperate with IUCN in formulation of its Workplan to deal with these issues, and will assist in logistics for its M&E work.

5.4 Project reporting

TAG will produce the following reports:

- (i). Project Reports:
 - Inception Report (Draft Table of Contents can be found in Annex 12)
 - Quarterly Reports (Draft Table of Contents can be found in Annex 12)
 - Annual Reports, (Draft Table of Contents can be found in Annex 12)
 - Draft Final Report, and Final Report
- (ii). Technical Reports, including:
 - Upazilla Social and Economic Profiles
 - Human Resources Development Plan
 - Data Management Plan
 - Biodiversity Management Plan
 - Stakeholder Plan
 - Ecotourism Development Plan
 - SMU Operations Manual
 - Draft Legislation
- (iii). Materials, including
 - Training materials
 - Promotional materials

These will be submitted to the Project Director. The consultants will produce these in close consultation with SMU and the Khulna Circle. The training and promotional materials would

ANNEXES

- ANNEX 1** INCEPTION PHASE FLOW DIAGRAM
- ANNEX 2** CONSULTANT TOR'S
- ANNEX 3** DRAFT TOR FOR PROPOSED TRAINING SPECIALIST
- ANNEX 4** TRAINING NEEDS ASSESMENT FORMAT
- ANNEX 5** MONITORING FORMAT
- ANNEX 6** FOREST RESOURCE MATERIAL MATRIX
- ANNEX 7** LIST OF UPAZILLA IN IMPACT ZONE
- ANNEX 8** UPAZILLA PROFILE- PROFORMA AND EXAMPLE
- ANNEX 9** NGO SELECTION CRITERIA
- ANNEX 10** LIST OF PROPOSED STUDIES
- ANNEX 11** TAG MONITORING TABLE
- ANNEX 12** DRAFT TABLE OF CONTENTS - QUARTERLY AND ANNUAL REPORTS