Appendix 7

Monitoring and Evaluation

APPENDIX 7

MONITORING AND EVALUATION

Table of Contents

List of Tables

Page

List of Figures

Page

APPENDIX 7

MONITORING AND EVALUATION

CHAPTER 1 INTRODUCTION

1.1 Background and Objectives of the Study

Monitoring and Evaluation (M&E) is an effective instrument to implement the program or project. It is composed of a routine process of measuring, recording, and collecting data in relation to the input and output, and a periodic assessment of performance, efficiency and impact of a project in relation to stated object. M&E also contribute to assist the managers and all concerned in terms of their decision-making.

The importance of M&E has already been recognized in the DENR Strategic Action Plan issued in 1997. In the Strategic Action Plan, developing an effective information monitoring and decision support system is listed up as one of the policies to create management mechanism for CBFM. The plan also stated that PENRO and regional office are considered as main focal points of collection, storage and retrieval of field information. These useful data both for the PO and the management side, such as technologies, source of financial and technical assistance as well as markets and prices, is to be stored with networked computer-based system. The strategy placed a high emphasis on the computerized system.

On the other hand, it seems that, except for foreign-funded CBFM project, implementing M&E still have some difficulties at the field level, due to several reasons such as the lack of monitoring fund and equipment. The objectives of this chapter are to grasp the current conditions of monitoring and evaluation (M&E) system of CBFM (Community Based Forestry Management) projects operated by DENR, as well as to formulate a monitoring plan both for the phase of implementation and post-implementation.

1.2 Methodology

Three-step approach was adopted to carry out the study. Firstly, current situation on M&E for CBFM was grasped, collecting the project documents, such as the reporting format. Successively, non-structured interviews were carried out based on the collected information. Target informants were the Project Management Officers of CBFM Unit in CENRO situated within the Study Area, who are in charge of monitoring the CBFM Project. Project Officer of foreign-funded projects was included in the list of informants, because M&E system on foreign-assisted projects would be regarded as informative for the future establishment of M&E system of the Master Plan. Examining the information collected, some constraints are identified, which could be useful information for establishing the proposal for revision of M&E system for CBFMP.

CHAPTER 2 STUDY FOR M&E PLAN FORMULATION

2.1 Current Situation on M&E for CBFMP

2.1.1 Types of CBFM Projects/Programs

There are several components in CBFMP. CBFMP is an umbrella program of CBFMO (Community-Based Forest Management Office) in Forest Management Bureau created by the issuance of DAO 97-11. Following programs described in Table 2.1 are integrated under the CBFMP. The table indicates that almost all the program is funded by the foreign donors, except for the Integrated Social Forestry Program, the management of which was devolved to the LGU prescribed in Local Government Code in 1992.

Table 2.1 Component program under CBFMP

Name of Program	Funding Source
Integrated Social Forestry Program (ISF)	Regular funded program
Community Forestry Program (CFP)	GTZ
DENR-CARP Program	CARP fund
Natural Resources Management Program (NRMP)	USAID
National Forestation Program	ADB/JBIC
ENR-SECAL	World Bank

Source: DAO 97-11, interview with FMB

2.1.2 M&E Scheme (DAO96-29)

DAO 96-29 describes the strategy of the CBFM implementation. Article V of DAO96-29 defines the management of CBFMP, especially role and functions of five stakeholders: National Steering Committee, FMB, RED, PENRO and CENRO. Each has its role and responsibilities, which is shown in Table 2.2. From the viewpoint of M&E, National Steering Committee has a role of policy decision-making, while FMB is responsible for the policy drafting. RED, PENRO, and CENRO are responsible for submitting periodical reports, although the frequency is not clearly defined.

Table 2.2 Responsibilities of Stakeholders in CBFMP described in DAO96-29

Agency	Responsibilities
Steering Committee	To provide overall policy directions
Forest Management Bureau	To draft policies, guidelines, procedure on CBFM To prepare and monitor implementation of national CBFM program of action To develop and maintain improved MIS on CBFMP
Regional Executive Director	To identify division as repository for data and information To submit periodic report to Secretary through Undersecretary for Operations including Monitoring and Evaluation, copy furnished FMB and PAWB
PENRO	To submit periodic reports and maintain database for all CBFMP projects in the provinces
CENRO	To submit periodic report to PENRO for evaluation

Source: DAO 96-29

2.1.3 Personnel on M&E at CENRO level

CENRO is primarily responsible for implementing CBFM. DAO 97-11 defines the personnel who are in charge of the monitoring and supporting field implementation. Regional CBFMO organize CBFM team at the CENRO level to undertake, monitor, support field implementation. DAO 97-11 also defines that the field team is composed of at least three personnel well-trained on CBFM and be deployed full-time and field-based in their respective area of assignment.

Project Management Officer (PMO) under the CBFM unit in CENRO periodically visit their site, and give technical advice to the PO. According to the result of interview, each P MO is assigned to the one or two sites, and frequency of their visit to site is weekly. The P MO at CENRO Ifgao answers their visits as monthly, because of the remoteness of the site from their office.

2.1.4 Reporting System of M&E

Although DAO 96-29 does not define the frequency of reporting, monthly reporting is carried out at field office level. Figure 2.1 shows the communication flow on M&E in CBFMP. According to the interview, PMO of the CBFM Unit prepares Monthly Reports based on the report submitted from POs. Some POs submit their report in dialects, so that PMO must translate into English. Some POs are not capable of preparing reports. One of the purposes of the site visit is to confirm the fact of activities and prepare this report. The content described in the report includes the date and activities of PO in a narrative manner. The report is submitted from the PMO to CENRO and then sent to the RED through the PENRO concerned.

2.1.5 Activity Recording System of CBFMP (CBFM-IS)

At PENRO level, a database system called CBFM Information System (CBFM-IS) is installed. This database system was established as a part of Natural Resource Management Program (NRMP) funded by the USAID. The database system was constructed with a platform of relational-type database software of Microsoft Access 97. Figure 2.2 shows the opening screen of CBFM-IS.

The information contained in this database is classified as follows:

- Project Location;
- Area Profile Information;
- PO Profile & Status Information;
- Milestones;
- Problem/Issues

These data are updated on a monthly basis. Updated report in a paper form is forwarded to the Regional Office from PENRO, with two diskettes. Regional Office compiles these data

2.1.6 Validation

Validation process starts with a submission of completion report by the PO. Contracted PO, with the help of the site coordinator of CBFM Unit in CENRO, prepares the completion report, which is supposed to be submitted to the RED concerned from CENRO. The completion report describes the area and the amount of money requested. Based on this report, the expenses of travel cost and allowances for the validation team is justified, and supposed to be dispatched to the site for validation. The validation team is composed of CENRO, PENRO, LGU Officer, which are dispatched at the end of the year, immediately after that PO submit the completion report to RED.

2.1.7 Evaluation

Accomplishment rate to the target is the only indicator to evaluate the DENR regular-funded projects. The indicator is calculated, dividing the area contracted at the beginning of the year by the planted area that is validated at the end of the year.

2.2 Constraints of Current M&E System

Considering the collected information, it can be evaluated that the current M&E system for CBFM has following constraints.

2.2.1 Institutional Aspect

(1) No prescription in DAO 96-29 on M&E

The most significant constraint is that there is no clear prescription on M&E in DAO 96-29. In DAO 88-97 and DAO 91-04 that describe the implementing rule of the Integrated Social Forestry Program (ISFP), responsible agent of reporting, frequency, and contents are clearly defined. DENR-CARP has more rigid M&E system, which are prescribed in DAO 89-17.

Comparing to other programs such as ISFP or DENR-CARP, M&E on CBFMP are weak with respect to the frequency and the contents of report. Therefore, it is recommended that the rigid monitoring should be established.

(2) No Description in DAO 96-29 on the Frequency of Reporting

In DAO 96-29, there is no clear definition in terms of the frequency of reporting. Therefore, it is strongly recommended to the frequency of submitting report should be clarified by issuing DAO..

(3) No description on the contents of reporting

In DAO 96-29, there is no prescription regarding the contents of report. Reporting format was used in a monthly report at the field office level. However, it is observed that the contents of the narrative report prepared were different from officer to officer, and it might

have a possibility to miss recording the important information, due to the differences of the description. Therefore, it is recommended to standardize contents of the report.

(4) Mismatch between the Evaluation and Communication Flow

According to DAO 96-29, CENRO should submit the report periodically to PENRO for evaluation. However, PENRO does not have a responsibility to evaluate the report, just to submit the report to RED and to make a database for the projects in the provinces, according to DAO 96-29. DAO 96-29 only defines that it is RED that monitors and evaluates the implementation of CBFMP.

Ii is, therefore, recommended that the responsibility of evaluation should be clearly defined, together with the communication flow. Periodical report for evaluation should be submitted to Region directly not through PENRO.

(5) No Description on the Communication Flow in case of Emergency

In current M&E system on CBFMP, the communication flow in the case of emergency is not clearly defined. Communication system in the case for emergency such as forest fire or prevailing of pest is very important, because early resolution prevents the additional damages. It is recommended that the communication flow in the case of emergency should be established.

(6) No Feed-back Mechanism based on the Collected Information

The fact that no feedback mechanism is built-in in the current M&E system for CBFMP is also the constraints. Information is collected from POs through CENRO, PENRO and region, and delivered to FMB. From the viewpoint of information flow, this is a one-way system. Persons at the lower level of organization do not care about how the information they collected is utilized. They collect the information only because it is the order from the top.

To activate the information-collecting activity at the field level, it is recommended that supply of feedback information is required.

(7) Lack of Institutional Settings to grasp the Progress Information on the Foreign-funded Projects at the FMB

In most foreign-funded project under CBFMP, data and information that relate to the progress of project are directly collected from field-level office by FASPO. Expensive computerized monitoring information system have been established in central level and managed it independently. However, the system is abandoned after completing the project, and no one can access to the database, as the case of ENR-SECAL project illustrates.

It is true that foreign donors are eager to collect huge amounts of information and establish M&E system, because they are accountable for the project to the tax payer who burdens the source fund of project. Unfortunately, these data does not share at the FMB, which is responsible for the monitoring the CBFMP. According to the interview with CBFM unit

staff in FMB, there are no institutional settings to exchange information between FASPO and FMB, and these data are collected on a personal communication on an informal basis.

Taking into account for the situation that the management of the foreign-funded project is to be transferred to the DENR after finishing the project, the information should be shared during the project. To attain this, some institutional settings should be established.

2.2.2 Accuracy of Information

Another constraint in the current M&E system is that information is wrongly transmitted and stored. Target to be monitored in CBFMP is the activities of PO. Information collection from PO is the primary source of information. Most POs do not have an experience to record their activities precisely. According to the results of interview, Project Management Officer in CBFM Unit of CENRO collected the information in an oral communication with POs, not based on facts documented. The wrong information produced at the start of the information flow is delivered to the upper echelon of the organization. This situation is crucial at the implementation stage of site development activities, when the activities should be captured in a numerical manner.

2.2.3 Constraints on Recording System of CBFM-IS

With respect to CBFM-IS, following constraints exists, especially for the type of information stored in the system.

(1) Process Description in Milestones.

Information on milestone is a good tool to monitor the progress of projects. Milestone information in the present CBFM-IS focuses only process on the planning stage of CBFM, not on the diagnostic & PO formation stage or implementation stage.

More focus should be placed on these stages, such as the process of procurement of materials, land preparation, planting, re-planting, weeding in the case of forest plantation.

(2) No Storage on Information Necessary for Supervising the Project

At the implementing stage, supervising the project is the crucial task for the side of DENR. Considering the information required for the project supervision, RUP and AWP are the most important source of information, because these are baseline plans for PO activities. RUP describes the target value of five years later, and AWP contains the types of input activities, its timing and duration of input activities during a year. Supervision is normally carried out based on the information, and with comparing the actual progress versus planned one, various kinds of analysis would be carried out by the supervisor, such as the delay of project or its cost overrun. It means that PO's activities should be monitored based on these plans.

Therefore, the information described in AWP should be included in the CBFM-IS.

(3) No Information stored that relates to the Procurement of Materials, such as suppliers of materials/seedlings, unit price, and appropriate technologies ,

Another information required at the implementing stage is that the information that relates to the procurement of materials/seedlings. These include the unit price, name of suppliers. In addition, the qualities of procured goods should be described and stored in the Management Information System (MIS). The quality should be evaluated with a reference to the national standard or technically adequate method. These information will be referenced to should be fed back to the PO at the next procurement. The information is expected to contribute the efficient and transparent implementation of projects.

2.3 Case Studies of M&E System of Related Projects

2.3.1 Objectives

Case studies for M&E system of other projects were carried with an aim to draw best practices carried out in another M&E System of projects that DENR are engaging in. Candidates for case study were selected, based on the several criteria such as

- A project that composed of the forest management or the forest enrichment project;
- A project that are or has been carried out in the project area;
- A project/program that is under the CBFMP; and
- A foreign-funded project

Based on these criteria, following projects are targeted for the case study:

i) DENR-CARP Program;
ii) JBIC Forestry Sector Project;
iii) ITTO-funded Project; and
iv) CECAP Project

2.3.2 Methodology

Document review and non-structured interview was adopted as a methodology. Firstly, secondary information was collected regarding the monitoring system of projects, such as the reporting format and project documents. Secondly, non-structured interviews were carried out based on the collected information. Target informants were the Project Management Officers within the Study Area of the Master Plan, who are in charge of monitoring the CBFM Project. Project Officer of foreign-funded projects was included in the list of informants, because M&E system on foreign-assisted projects would be regarded as informative for the future establishment of M&E system of the Master Plan.

Focuses are placed on the project background, institutional settings for M&E and responsible entity for M&E, indicators, and reporting & recording system, especially in terms of tools such as the form or MIS.

2.3.3 Major findings

Major findings can be summarized form the several viewpoints: i) institutional aspect; ii) communication flow; iii) Indicator; iv) Verification; and v) Reporting & Recording System.

(1) Institutional Aspect

In foreign-funded projects, special office is set up for implementing the project. For example, JBIC Forestry Sector project established a SUSIMO for each sub-project in CENRO, which responsible for monitoring, supervision and management of projects. ITTO-funded project also set up a Project Management Office (PMO) at local level. In the CECAP project, project offices at local level are composed of two-tier system, such as the Area Management Office (APO) and Zone Management Office (ZMO).

On the other hand, DENR-CARP project makes use of the existing line agencies as PENRO, CENRO, and RENRO.

(2) Line of Communication Flow

In a JBIC Forestry Sector project, ITTO-Project, and CECAP project, data and information collected at the field-level office are directly forwarded to the central-level office in Manila. On the other hand, DENR-CARP adopts an existing organization such as CENRO, PENRO, RENRO. However, built-in mechanism is adopted to prevent the delay of communicating important information. For example, local entities responsible for reporting, such as CENRO Coordinator or PENRO Coordinator are allowed to submit their report directly to National-level coordinator with a radio message, in a case of emergencies when the operational problems arises. In addition, cut-off date for submission of report is strictly defined to prevent the delay of communication.

(3) Indicators

Indicators selected are different from projects to projects, due to the difference of objectives of projects. JBIC Forestry Sector project is an implementation program, thus indicators are selected from the supervisional aspect of project. These include area planted and survival rate, diameter in breast height are the key indicator for monitoring..

On the other hand, the ITTO project are focused on the research aspect of forest management, thus the project selected indicators from the viewpoint of growth monitoring of trees, such the diameter in breast height for each species. The indicator is monitored after plantation.

In the CECAP project, output indicator and outcome (effect) indicators are clearly divided. Taking a woodlot-enrichment sub-component, output indicators are defined as a number of trees planted, and the outcome indicator is defined as an area enriched. It should be noteworthy that in CECAP project a participatory indicator are incorporated as a monitoring process. The number of attendee and a date of completion are monitored for each step of activities by the Area Project Office.

(4) Verification

The JBIC Forestry Sector project adopts a third-party verification mechanism, which the Comprehensive Site Development activities were carried out by PO based on the contract between DENR side, while the results was validated by the third-party NGO contracted by the DENR.

(5) Reporting and Recording System

In the JBIC Forestry Sector Project, the report was prepared by the contracted NGO Validation Team, and submitted to SUSIMO, LGU, CENRO, PENRO, and Regional Office. The report include the findings of the validation such as the validation of boundary/ corner markers, seedling production inventory, survey inventory and mapping of established area, height and diameter of planted tree. The report has annexed documents and tables with pre-defined formats. Photo documentation, map that shows the planted area, and documentation on meetings are expected to be included in the reports. Physical validation was conducted one year after planting at least six-month interval

In the CECAP case, the Project Team prepares four types of reporting format: i) Project Appraisal Form; ii)Project Visit Report; iii) Project Achievement Report, and iv) MIS Report (Management Information System Report) Project . In a planning phase, Project Appraisal Form was prepared by the APO Officer, and was submitted to the Monitoring and Evaluation Office in Manila. The information described in this format was used as a baseline for monitoring. When sub-component entered the implementing phase, the APO Officer prepared Project Visit Report at every time when they visit their sites. The APO Officer also prepared Project Achievement Report for every month and submitted to the Project Coordinator for approval. Project Coordinator submitted them to the committee. Along with the monitoring report submitted to the Project Coordinator, photographs before and after the site are required to be attached.

In addition, the information collected is required to enter the form of Monitoring Information System. The format was submitted from the Project Office to the Monitoring and Evaluation Office in Manila, where the information was stored into the computer for Monitoring Information System.

The monthly report in the DENR-CARP project consists of three parts: i) narrative; ii) statistical; and iii) financial statement. In the narrative part, highlights of accomplishment, justification of deviations from targets, problems encountered, recommended solutions and other related information are supposed to be described. In the statistical part, statistical report on physical and financial status of different activities is expected to be reported. In the financial statement portion, Regional Accountant prepare the report which consists of statement of operations, statement of allotment obligation and balances, status of common fund with schedule, and expenditure by expense claim.

2.3.4 Lessons Drawn form the Case Studies

The analysis of case studies revealed that there arise a couple of points must be considered in designing the revised M&E system for CBFM. These points are: institutional settings; communication flow; and indicators.

(1) Institutional Settings

From the viewpoint of institutional settings for M&E, establishing a special organization and communication flow system for implementing a project is a good way to avoid a delay of communication. The JBIC Forestry Sector project successfully illustrates this point.

(2) Communication Flow

In terms of the flow of information, it is considered good that information collected at the field level be forwarded directly from the field level office to central level office, in order to avoid the delay of information. This is especially true to the case of emergency. The M&E system of the JBIC-funded Forestry Sector project illustrates this point again. However, from the view point of ownership of the project, it is not a good way, since the information is not accumulated at the regional-level offices, and it is troublesome after the project termination when the funds disbursement ends and the management responsibility is transferred to regional-level offices. Considering these situation, it could be an option to adopt an hierarchical structure of the existing organization as a line of communication flow. In this case, built-in mechanism to prevent delay of important information should be established, when designing a communication flow. The M&E system of the DENR-CARP project illustrates this point.

(3) Indicators

With respect to the indicators, several project measures an output indicators, except for the ITTO-funded project. When we focus on the monitoring of participatory process of the project, some participatory indicator should be incorporated, as in the case of the CECAP project, since the CBFMP is based on community participation, although it depends on the objectives of the project component or impact measurement

2.4 Proposal for Strengthening M&E System for CBFMP: Institutional Arrangement

2.4.1 Strengthen the Framework of Financial Mechanism for implementing CBFMP

(1) Rationale

One of the bottlenecks for the current M&E is that the information necessary for the policy drafting does not reach the entities that is in charge of policy drafting. This is a natural course of event, because in a current system the fund manager and the policy drafter are designated at different entities. It is a golden rule that the monitoring is normally carried out in order to perform the efficient use of financial and other resources, thus information is fed back in accordance with the counter-flow of fund.

Current fragmented situation on M&E of CBFMP is partly because the source fund for implementing CBFMP is heavily depending on the foreign fund, which are managed and operated separately from the regular fund. In addition, Integrated Social Forestry Program has already devolved to the LGU in accordance with the Local Government Code in 1991. This means that the management of ISFP is financed by the general fund of local government that derives partly from the Internal Revenue Allotment, which is out of

control on the DENR side. If these various kinds of source funds for CBFMP are managed and operated in a unified manner, and the fund manager feed back the performance of the fund to the policy drafter, then policy drafting will be easily carried out. Monitoring the fund will help to enhance the ownership of the project. In order to ensure the accountability to the donor agency as well as the citizen, the needs to monitor these funds are emerging. Consequently, some kind of common pool fund for implementing CBFMP is required for unified management of CBFMP.

(2) Flow of funds in the Financial Mechanism

In considering the financial mechanism for unified management of CBFM, Community-Based Forest Management Special Account (CBFMSA) and Community Forest Development Fund (CFDF) are expected to function as an institutional settings of common pool fund. The account and fund have already been institutionalized in DAO 96-29.

Figure 2. 3 shows the scheme and the flow of the fund, and the Figure 2.4 shows the flow of document and information for this scheme respectively.

- Two types of CBFMSA are set up at central level and regional level, respectively. The former one is referred the CBFMSA central account, and the latter one is called CBFMSA sub account.
- Initial investment to central CBFMSA will be financed by the international grant, loan, donation or any other source of fund.
- The sub-account of CBFMSA, which is managed by regional level, accepts the transfer of the fund from the central CBFMSA. The amount of money transferred form the central CBFMSA is allocated, considering the policy directions with a reference to the information on the actual implementation of project.
- In a provincial level, Community Forestry Development Fund (CFDF) will be established. This fund is managed and operated by the Community –based Forestry Development Council (CFDC) which are composed of PENRO, LGU, and PO representatives.
- CFDF accepts the transfer of fund from the Provincial Development Fund and Municipal Development Fund, which are managed by the Provincial Development Council and Local Development Council respectively.
- CFDF also accepts the transfer the fund from the Watershed Management Council. This acts as a cost-sharing mechanism of the watershed rehabilitation, although it requires a lot of further discussion and consensus building among stakeholders to materialize this idea.
- PO applies the proposal for the community-driven project that include the component of forest establish and management to the Community-based Forestry Development Council. PO that is eligible for the proposal has a following qualifications: (a) that PO has a legal status, and (b) that PO have a tenurial instrument such as CBFMA or CADC.
- CFDC appraise the proposal and make an contract with PO. Before contracting,

two-day workshop is held to explain the content of contract.

- When the contract signed, the CFDC disburse the fund PO at the commencement of project for procurement of planting materials. The disbursement will be carried out in several tranche.
- PO make an internal auditing and report it to the CFDC.
- PO will also make an transfer of fund from the PO Saving Fund to CFDF, if some kind of benefit are arising. The amount of money transferred from the PO Saving Fund to the CFDF is 25% of the benefit described in DAO 2000-11.
- Half of the shared benefit transferred from the PO Saving Fund is transferred to CBFMSA sub account, and the rest is transferred to the General account of DENR.

In order to implement this, operational rules and regulations should be established in accordance with the related laws and regulations concerning the fund establishment and management. These might include the selection criteria of project, performance & impact indicator of the fund and the procedure for disbursement. The proposed mechanism is still preliminary results and that should be modified through the discussion with stakeholders.

CHAPTER 3 THE M&E PLAN

3.1.1 Introduction

Much more attention has been placed on the evaluation for ODA project. Reflecting these trends, JICA issues the guidelines of evaluation of projects. For example, JICA issued a publication called "Guidelines of project evaluation in JICA". This contains five evaluation criteria that proposed by DAC: i)Relevance; ii)Effectiveness; iii) Efficiency; iv) Impact; and v) Sustainability. The guideline also defines the timing of evaluation. The Table 3.1 illustrate the relationship between the timing of evaluation and evaluation criteria.

In order to ensure equity evaluation, monitoring data is indispensable, as the JICA guideline suggests. This monitoring plan was prepared in order to ensure accurate data collection for evaluation for this Master Plan. This monitoring plan was prepared mainly for the site development component of the master plan, which comprises of several components: i) PO Formation and CBFMA Acquisition, ii) Site Development, iii) Rural Infrastructure Development, and iv) PO Capacity Building. With respect to the component of site development, it has a several sub-component, such as nursery establishment, reforestation, agroforestry, silvopastoral and protection & maintenance.

Table 3.1 Timing of Evaluation and Evaluation Criteria

Types of Evaluation	Relevance	Effectiveness	Efficiency	Impact	Sustainability
Pre Evaluation	●	○	○	○	○
Mid-term Evaluation	●	△	●	△	●
Final Evaluation	●	●	●	△	○
Ex-post Evaluation	△	—	—	●	●

Source：Guidelines of project evaluation in JICA (2001)

（Note）：

● : Verification is carried out based on the performance data

○ : Verification is carried out based on estimation .

△ : Verification is carried out if necessary.

— : Verification is still premature, or finished at that stage.

3.1.2 Contents of the Plan

This plan covers three area of monitoring: i) M&E Plan during the project implementation (plan A); ii) Impact Monitoring Design (Plan B); and iii) M&E Plan after the project implementation (Plan C).

These three plans are designed to collect necessary data for evaluation criteria of efficiency and effectiveness for the plan A, the criteria of impact for the plan B, and the criteria of sustainability for the plan C.

Special attention is placed on the M&E plan after project implementation, considering the lessons learned form past projects situation that M&E activity on the projects generally shrank after the withdrawal of donor agencies, and the termination of financial support for the implementation. This plan adopts a strategy for phase-out approach, which means that the scheme for project implementation could be successfully handed over to the line agencies for management.

3.2 M&E Plan During Implementation: Progress Monitoring

3.2.1 Objectives

The objective of this monitoring plan is to collect necessary data for project management, especially for resources used for project such as fund, time, man-power. The collected data for monitoring also contributes to evaluate its performance from the viewpoint of efficiency and effectiveness.

During the implementing phase, fund release for and payment to a contractor will occur in an agreed payment term such as periodical progress payments, for which progress of physical works, i.e. procurement of materials and seedlings, land preparation, plantation and so on, has to be properly monitored.. The output should be checked and evaluated in accordance with the original plan.

Project director and supervisor require regular information on each project activity to ensure that the project is being implemented effectively and to detect and correct deviations from the project plan. To grasp an amount of work and its quality of contractor is therefore an indispensable work for the project director as well as supervisor that manages a project during its implementing phase.

The plan covers for the period of project implementation stage, not the period of maintenance stage, assuming that:

i) during the project implementation stage DENR would establish an implementing organization for smooth and effective project management; and

ii) after completion of the project, it would be turned over from the implementing organization to regular agencies such as the CENROs for operations and maintenance of the project

The monitoring scheme for post-implementation stage will be discussed in the Section 3.4.

3.2.2 Stakeholders for Project Management

Figure 3.1 -3.4 shows the proposed implementation organizations for the Master Plan (M/P), and Table 3.2 summarizes the stakeholders involved monitoring, their role and responsibilities. There are several stakeholders involved in implementing the project. These include National Forestation Development Office (NFDO), Project Management Offices (PMOs), Sub-poject Site Management Offices (SUSIMOs), Peoples Organization (POs) and Assiting Organization (AO).

Project Director in NFDO will be responsible for overall implementation of project. The director will be also responsible for reporting upper echelon of the DENR, such as Secretary.

T/A consultant will assist the implementing organization in managing a project (i.e. supervising). The consultant will also assist the project director to an important decision-making, in addition to prepare a draft implementation plan for each sub-project site.

PMO and SUSIMO will be the organizations to be established specially for project implementation. PMO is responsible for supervising the activities of SUSIMO, and SUSIMO will be responsible for the supervising the activities of PO.

SUSIMO is an acronyms of Sub-Project SIte Management Office. It will be established for each subproject and comprises of three unit: SDMU (Site Development and Management Unit), COSU (Community Organizing and Strengthening Unit) and VBU (Validatation and Billing Unit). SUSIMO-SDMU will play a pivotal role in supervision of the project. Officers in SUSIMO-SDMU will be requested to visit the site every week to trace the activities of PO. SUSIMO-SDMUs will be also requested to keep a record of daily field visit and prepare the weekly report based on the field visit.

PMO will check and review the monthly. In case some delay is found, PMO will order to report remedial and recovery action to SUSIMO-SDMU. In addition, when unclear facts described in the monthly progress report, the PMO will carry out the on-site inspection, to confirm an actual situation of the site.

3.2.3 Types of Monitoring and Information To be Collected

Project management during the implementation phase normally focuses on the three types of information that project director should manage: (1) Cost, (2) Time, and (3) Quality. Corresponding to these resources to be managed, monitoring system needs to be established in respect of:

i) Physical & Financial Monitoring;

ii) Progress Monitoring; and

iii) Quality Monitoring

(1) Physical & Financial Monitoring

Physical & financial monitoring will be carried out with an aim to preventing cost overrun. This type of monitoring is necessary to collect two types of information, such as input indicator and output indicators. Input indicators can be measured with respect to the fund or material input. These data can be collected through the validation & billing request to be submitted to PMO from SUSIMO-VBU.

Output indicators, on the other hand, will be measured with a physical accomplishment of each activity of the project component. The data will be collected through the monthly progress report submitted from SUSIMO-SDMU to PMO. If an input indicator exceeds disproportionally the corresponding output indicator, the project director should notice

that something wrong might happen to the project activity, and should order the project manager and SUSISMO staff to take necessary actions to prevent cost overrun of the project.

(2) Progress Monitoring

Progress monitoring will be carried out in order to prevent a time overrun of a project. Achieving this goal, progress indicator will be introduced to grasp the progress of components. These indicators will be represented by a starting date, date of completion. In the case of meeting or workshop, the contents discussed during the meetings area will also be compiled as a minutes of meeting or proceedings.

Necessary information, timing of reporting, its address of reporting are summarized in Table 3.3- 3.8.

(3) Quality Monitoring

Quality here means that for example seedlings, materials procured, plantation work, quality of construction work, quality of assisting work of PO.

Quality of seeding production at nursery will be measured through the survival rate. These qualities will be to be verified through on-site inspection by the SUSIMO-SDMU. The results of the site inspection are expected to be reported through a site visit report and weekly report to PMO.

Other quality will be judged through the deliverables.

(4) Operational Indicator

Operational indicators are those that characterize the progress of component of the Master Plan. From the output indicators mentioned above, operational indicators that is selected considering a representativeness of a progress of component. Following table shows the operational indicators selected.

Table 3.9 Operational Indicators

Components of the Mater Plan	Operational Indicator
PO Formation and CBFMA Acquisition	Participation Rate per PO
Site Development	
Nursery Establishment	No of seedlings produced
Reforestation	No of Tree Planted
Agroforestry	No of Tree Planted
Silvopastral	Area Extent to planted
Protection & Maintenance	Survival Rate for plantation
Rural Infrastructure Development	Length of the road constructed
PO Capacity Building	Participation Rate per PO

Source: JICA Study Team

3.2.4 Communication Flow

Communication flow for monitoring the progress of project varies according to characteristics of components and its implementing body of contract. As shown in Table

3.10, components planed in the Master Plan can be broadly categorized into three types, from the viewpoint of procurement scheme. It is also sub-classified according to the types of contractors.

The principle for reporting will be that a contractor must make a regular reporting to the project owner. Followings are the classification schemes by procurement category.

Type (a) Force Account:
- (a)-1: Force Account by NFDO
- (a)-2: Force Account by DENR
- (a)-3: Force Account by PO/SUSIMO
- (a)-4: Force Account by LGU

Type (b) Contracted by NFDO, according to the following:
- (b)-1: Consultants (International/Local)
- (b)-2: NGO
- (b)-3: Survey Team
- (b)-4: Academic Agency

Type (c) Contracted by PMO, to the following:
- (c)-1: PO
- (c)-2: AO.
- (c)-3: Contractor

The monitoring plan was prepared for type (a)-3 and type (c), and excludes other types, since there is no need to monitor the component carried out by NFDO force account. Following table shows the relationship the components of the master plan and its types of procurement.

Table 3.10 Types of Procurement and Component

Components	Types of Procurement	Reported From	Reporterd To
Preparatory Work	Type (b)	L.consul.	NDFO
PO Formation and CBFMA Acquisition	Type (a) –3	SUSIMO	PMO
Site Development	Type (c)-1	PO/ SUSIMO	PMO
Rural Infrastructure Development	Type (c)-1, type (a)-1	PO/ SUSIMO	PMO
PO Capacity Building	Type (c)-1, (c)-2	AO	PMO
Institutional Strengthning	Type (c)-1	AO	PMO
Initiative for Cost Sharing Mechanizm	Type (a)-1	NDFO Force Account	

Source: JICA Study Team

3.2.5 Recording & Reporting

(1) Types of Recording

a. PO Record

Contracted PO will be requested to keep following records at their office. Necessary information will be contained in PO form, respectively.

Resources	Types of Record	Remarks
Materials		Material Procurement Record
Seedings	Nursery Record	Seedling Procurement Record Seedling Production Record Seedling Dispersal Record
Labour	Working Record	Daily Working Record
Money	Billing Request	Monthly Accomplishment Report

Source: JICA Study Team

b. SUSIMO Record

SUSIMO will be requested to keep an internal record within their office. The data described in this record is expected to be referenced when preparing a weekly report or monthly accomplishment report. The types of record are summarized in the following table.

Types of Activity	Report
Supervision	Field Visit Report (ad hoc) Weekly Working Record Weekly Report
Billing Request	Monthly Accomplishment Report

Source: JICA Study Team

(2) Types of Reporting

Types of reports to be submitted are as follows:

Table 3.11 Reporting

Responsible Entity	Report	Submitted to
PO	Weekly Record Monthly Record	SUSIMO-SDMU SUSIMO-SDMU
SUSIMO-VBU SUSIMO-SDMU	Monthly Accomplishment Report Weekly Narrative Report w/ Field Visit Report	PMO, NFDO: attn: consultant PMO, NFDO: attn: consultant
PMO	Monthly Accomplishment Report	NDDO attn: consultant

Source: JICA Study Team

3.2.6 Evaluation & Feedback

The T/A consultant will evaluate the progress of project, from the viewpoint of following two criteria: (a) achievement rate; and (b) the degree of progress. The monthly evaluation is carried out, based on the submitted report by SUSIMO to NFDO through PMO.

(1) Monthly Evaluation of Achievement

Evaluation can be based on the accomplishment rate, which can be calculated by dividing achieved target amount over original target amount. The consultant will evaluate this figure by comparing the ratio of amount of fund disbursed over total budget of the activity.

In the case that disbursement ratio exceeds dis-proportionally to the physical accomplishment rate, the consultant will request to SUSIMO to explain the reason of the discrepancies and take necessary action for recovery.

The consultant will also compare the accomplishment rate of each component with other project sites. When achievement rate of certain project site will be significantly low comparing to other sites, the consultant will request to SUSIMO-SDMU to explain its reason for delay, and necessary action for recovery.

(2) Monthly Evaluation of Progress

The consultant will analyze the date of commencement of each activities described in the Annual Work Plan to be submitted to SUSIMO from PO. The consultant compares it with original schedule described in Annual Work Plan. If planned activities are behind the schedule, the consultant will request SUSIMO to explain its delay and action to be taken to recover its delay.

(3) Monthly Evaluation of Quality

The consultants calculates rate of established number of seedling over planned number of seedlings, and compares it with other nursery sites. If it is extremely low comparing to the other site, the consultant will request SUSIMO to investigate its reason and order necessary action.

With respect to other deliverables such as the activities of AO. consultants will review the deliverables of the contracted AO.

3.3 Impact Monitoring Design

3.3.1 Objectives

Objective of this chapter is to design the strategy for impact evaluation. This evaluation aims to measure the effect on the project implementation by funding agencies as well as implementing agencies.

3.3.2 Timing for Evaluation

In accordance with the project cycle, the plan will assume four types of evaluation: i) Prior-evaluation; ii) Mid-term evaluation; iii) Post-evaluation, and iv) Ex-post evaluation.

At the prior-evaluation, baseline value for each impact indicator shall be collected.

With respect to the post evaluation and ex-post evaluation, this is to be carried out, several years after completing the project. This will be to confirm the sustainability of the project

Two types of survey will be designed to collect necessary information for impact evaluation: (a) Baseline Survey (i.e. Pre-Intervention Survey) and (b) Follow-up Survey (i.e. Post-Intervention Survey). Baseline Survey (i.e. Pre-Intervention Survey) has to be

carried out before starting project, because it is necessary to grasp the value of this is to measure the pre-intervention.

3.3.3 Impact Indicator

Generally speaking, requirement for impact indicator should meet the following requirement.

(a) clearly defined;
(b) allow for measuring specific conditions that the project aims to change;
(c) allow for objective measuring as long as it is collected in identical conditions;
(d) be highly sensitive to change in a project situation;
(e) be verifiable (based on accessible information); and
(f) Easy and cheap to collect specifically within a capacity to collect it

Considering the effect that plan has delivers, and the availability of data, following effect indicators were selected both from the natural environment as well as socio-economic environment. When choosing the socio-economic indicators, a viewpoint on poverty monitoring are also considered.

Table 3.12 Effect Indicators

Effect	Indicator	Unit of Measurement
Recovery of Vegetative Cover	Area Extent of Forested	Hectare
Reduction of Soil Erosion	Amount of Soil Erosion	Ton//ha/yr
Reduction of Flood	Peak flow rate at flush event Arrival time to reach peak flow	M3/sec Hour
Maintenance of Biodiversity	Number of Species living within target area	Nos
Improvement of Living Standard	Average Income Length of road Poverty Index	Pesos/HH Km Dimensionless

Source: JICA Study Team

3.3.4 Plan for the Impact Monitoring

Responsible organization for implementing this impact monitoring and evaluation will be DENR.

3.3.5 Method of Measurement and Analysis

(1) Pre-Intervention Survey (Baseline Survey)

The objective of baseline survey is to collect the value of the effect indicators. Specifications for baseline survey are summarized in Table 3.13.

(2) Post-Intervention Survey.

The objective of the Post-Intervention survey is to collect the value of the effect indicators after project implementation, and to grasp the change of indicators. In order to ensure the transparency, identification of the change must be identified in accordance with a scientific method, such as with-and-without method or before-and-after method. Detailed procedures for measuring change are summarized in **Table 3.14**.

(3) Team Building for Surveys

In order to carry out the survey efficiently and effectively, it will be desirable that survey team will consist of the following member of experts and their qualifications are summarized in following table. In order to secure the continuity of the survey method, it is desirable that baseline survey and follow-up survey should be carried out by the same entity. The following table summarizes the members of the survey team and their qualifications.

Tables 3.16 Qualifications for Survey Team

Expert	Qualification
Forestry / GIS	A person who has background knowledge of forest ecosystem as well as knowledge of GIS and satellite image analysis is preferable.
Soil Erosion Expert	The person who has an experience on the on-site measurement of soil erosion, together with the experience on the measurement with radioactive isotope tracer.
Natural Environment	An experience of biological survey as well as hydrological background could be preferable. This position could be divided by two
Socio-Economic Survey	Socio-economic survey with a living standard measurement survey. A qualification with a knowledge or experience on Living Standard measurement survey are preferable.

Source: JICA Study Team

3.4 Monitoring Plan for Post-Project Implementation Stage

3.4.1 Background & Objectives

Adequate land management practice will play a pivotal role to prevent soil erosion in the sloping area and sustain the functionality of invested area of site development. Within the framework of CBFM, POs will be requested to take adequate land management practice within their CBFMA area, as a part of their tenurial management responsibility. The land use plan in the CBFMA area and their management practices has to be described in the CRMF in consideration with the degree of slopes.

Previous practice on CBFM, however, indicated that little attention was paid on the M&E activities for the aspects on land management. M&E activities shrunk after the implementation of foreign funding project, due to the shortage of fund, travel cost, and manpower on the side of DENR. This situation is not preferable from the viewpoint of sustainability of a project. It is therefore necessary to consider the strategy to maintain the activities of CBFM, even after the project termination when financial source are scarce.

This monitoring plan aims to focus on the M&E for land management aspect in the CBFMA area after the project implementation of the Master Plan, thus contributing the effective management in the CBFMA area as well as enhancing the ownership of the project.

The word "Post-project implementation stage" here means the stage after withdrawal of funding agencies. The plan adopts a policy to utilize existing line agencies in DENR, considering the ownership of the project. The plan also focuses on the record keeping activities in community level office, since previous experience revealed the poor management of record keeping activities in the office. The record for the activities will be an important source of information for judging a situation in the investment site and for deciding whether additional activities for maintenance are required. The record also have a possibility to provide a data for calculating the amount of sequestration (i.e. CER; Certified Emission Reduction) for funding scheme such as Clean Development Mechanism (CDM) under UNFCCC.

3.4.2 Target of Monitoring

The site development component of the Master Plan will assume that the development areas are classified into four types of zoning, according to the degree of slope. These zoning will be: (a) reforestation area (b) agro-forestry area, (c) silvopastures and (d) agricultural land. These areas require adequate Operation and Maintenance (O&M) activities. These activities will be indispensable for sustaining function of forested plantation site, as well as reducing the soil erosion from the sloping area. The plan will also assume that some amount of reforestation still continues by communities itself with using surplus of community forestry development fund. Target of categories of land use in the CBFMA area will be as follows:

- Reforestation Area
- Agro-Forestry Area
- Silvopasture area
- Agricultural Land Area

3.4.3 Method for Monitoring during Post-Implementation Stage

(1) Information To be Collected

Each parcel of land should be used in accordance with the zoning described in the CRMF, which was planned in consideration with a degree of slope. First priority on monitoring will be placed on the compliance with these guidelines.

Second points to be confirmed will be that the adequate management practice is adopted in each categories of land use. Following table summarizes the management practices in the sites.

Table 3.17 Land Use Category and Required Management Practice

Land Use Category	Degree of Slope	Management Practice
Reforestation area	>30%	Weeding Firebreaks Inventory Survey Growth monitoring Branch Cutting Thinning
Agroforestry Area	18% <slope< 30%	Contour Bund Establishment Contour Canal Establishment Bench Terrace Establishment Hedgerow Establishment Species Selection Crop Rotation
Silvopasture Area	< 50%	Hedgerow Establishment Species Selection
Agricultural Area	< 30%	Hedgerow Establishment Species Selection

Source: JICA Study Team

Table 3.18 Types of Land Management Practice and Its Timing of Input

Land Management Practice	Timing of Input & Frequency of Input	Responsible Entity for Carrying Out O&M Activity	Responsible Entity for Monitoring O&M Activity
Reforestation Area			
Strip Weeding for Fire Break	At least 1 times every year	PO	CENRO- CBFM Unit
Spot Weeding for Plantation site	3 times, 3 months after planting, 3 month after 1st weeding, 3 month after 2nd weeding	PO	CENRO CBFM Unit
Fertilizer Application	1 times, 3 months after planting	PO	CENRO CBFM Unit
Growth Measurement	Once in every year after plantation	CENRO CBFM Unit	PENRO CBFM Unit
Thinning	7 years after plantation depending on the species and the density of planting	PO	CENRO CBFM Unit
Patrolling	Ad hoc during dry season	PO	CENRO CBFM Unit
Agroforestry Area			
Contour Bund	At the time of land preparation	PO	CENRO CBFM Unit
Contour Canal	At the time of land preparation	PO	CENRO CBFM Unit
Bench Terrace	At the time of land preparation	PO	CENRO CBFM Unit
Hedgerow	Trimming Contour Hedgerow At a interval of 30-45 days, after 1year of plantation	PO	CENRO
Crop Rotation	Ad hoc	PO	DA Office
Silvopasture Area			
Hedgerow	Trimming Contour Hedgerow At a interval of 30-45 days, after 1 year of plantation,	PO	CENRO CBFM Unit
Agricultural Land			
Hedgerow	Trimming Contour Hedgerow 1 times every year	PO	CENRO CBFM Unit

Source: JICA Study Team

(2) Method of Verification

Confirmation of management practice in each zone is to be carried out as a part of supervising activities of CBFM Unit in CENRO. On advance notice from PO, staff in CBFM Unit in CENRO visits the site, and inspect the results of activities. Verification is to be carried out at the presence of the representative of PO, in order to ensure the equity. Table 3.18 summarizes the method of verification for each O&M activities, and its method of keeping record.

3.4.4 Implementing Plan for the Monitoring

A strategy to focus on utilizing the existing line agencies in DENR will be adopted as a basic strategy for this stage of monitoring. The responsibility of monitoring at central level will be handed over from NFDO to CBFMO in FMB, three years after the plantation, when the funding for O&M ends.

At provincial and community levels, the responsibility for monitoring of sub-project will be transferred to PENROs and CENROs from SUSIMOs and PMOs will be established during the project implementation

Staffs at CBFM Unit should be assingned as a full-time, not as a concurrent, in order to make clear responsibility for the staffs in CENRO. Considering the current pattern of staffing, it is necessary to increase CBFM staffs in CENROs in Ifgao Province.

Table 3.19 Role & Responsibilities for Stakeholders Involved in Monitoring

Entity	Role	Responsibility
Central Level		
FMB CBFMO	- To draft a policy on CBFM - To command/supervise CBFM unit in PENRO and CENRO	- Decide important matters for the management of forest. - Drafting a policy on CBFM Forest management
Provincial/Regional Level		
PENRO CBFM Unit	- To monitor all sub-projects in jurisdiction - To make an supervision activities of CENRO-CBFM Unit	- To consolidate the submitted monthly report from CBFM Unit in CENRO - To submit a budgetary request to CBFM Unit in Regional Office.
Community Level		
CENRO CBFM Unit	- To monitor the land use practiced in the the sub-projects in jurisdiction that hand over from the foreign-funded project. - To give a technical advice to PO	- To submit a monthly activity report - To submit a Field Visit report
PO	Community Contractor - To conduct area management activity, in accordance with AWP	- To submit AWP to CBFM Unit in CENRO - To submit monthly accomplishment report to CBFM unit in CENRO - To keep an daily working record

Source: JICA Study Team

3.4.5 Reporting & Communicating Information

At every time when CBFM Unit staffs in CENROs visits the site, the staff has to prepare a field-visit report which contains the date, weather, and findings of the visit.

Staffs in CBFM Unit in CENROs will be requested to keep a daily activity record in order to keep clearly the date of activities,

Staffs in CBFM Unit in CENRO will be required to submit a monthly activity report to PENRO attention CBFM unit, with an endorsement of CENRO. The report shall be submitted until 7th day of the next month. In describing a monthly report, CBFM Unit staff in CENRO requested to make clear the date of activities, and the contents of activities, referencing their daily activity record.

PMO will forward a report to CBFMO in FMB. If monthly report contains urgent matters, it should be forwarded with a facsimile.

3.4.6 Feedback of the Reporting

When expert on supervision receives a field visit report from IU-supervisor, he will review a report in order to find a situation occurring in the reforestation site. When problems finds in terms of supervisional aspect, expert on supervision will issue a letter of immediate action to Chief of CBFM Unit. Chief of CBFM Unit must follow an advice from the expert on supervision.

3.4.7 Recording Field Information in CBFM Unit in CENRO

Recording information on O&M activities should be kept in CBFM Unit in CENRO, in accordance with a procedure described in Table 3.16.

CBFM Unit will be required to establish a filing system, in order to keep an record in a well-organized manner. The filing system shall consist of the following files, such as in-coming communication, out-going communication, copy of contract with PO, annual work plan, results of annual growth monitoring, and daily visit report to be prepared by IU-Supervisor.

3.4.8 Evaluation for Record Keeping Activities of CBFM Unit in CENRO

PENRO together with Regional staff in CBFM Unit will inspect record-keeping activities of CBFM unit in CENRO on semi-annually basis.

Inspection team will confirm the preparedness of documents according to the checklist, and make a rating for evaluation. If there is some missing documents, inspection team will issue a CAR (Corrective Action Request) to CENRO.

Tables

Table 3.2 Role & Responsibilities for Stakeholders Involved in Monitoring

Entity	Role	Responsibility
Central Level		
NFDO Director	- Project Director - To command/supervise T/A consultant	-Monthly Report to Secretary
Consultant	- To supervise overall progress of projects in Philippines. - To carry out research & survey for specific items to be requested by project director - To support decision-making of Project Director	- Monthly report to funding source - Monthly report to NFDO Project Director
Provincial/Regional Level		
PMO	- To monitor all sub-projects in jurisdiction - To supervise an supervision activities of SUSIMO - Disburse fund to PO on request according to the progress of work.	- Monthly report to NFDO attention to the Consultant
Community Level		
SUSIMO	- To monitor the sub-project in jurisdiction - To supervise the work of PO - To give a technical advice to PO - Issue a billing request for PO.	- Monthly progress report
PO	Community Contractor - To conduct Area Development activity, in accordance with AWP - To conduct O&M activity, in accordance with AWP	- To submit AWP to PMO through SUSIMO - To submit monthly accomplishment report to - To keep an daily working record
AO	To assist PO with respect to Community Organizing	- Submission of Monthly Report

Table 3.3 Input and Output (Operational) Indicators (1/2)

Component/Activity	Input Indicator	Output Indicator (Operational Indicator)
1.Preparatory Work		
1.1 Mapping of Sub-watershed		Date of submission of Digital Map
1.2 Socio-economic Survey		Date of submission of survey report
1.3 Silvopasture Development Study		
1.4 Preliminary Study on Community Based Enterprise Development		Date of Completion
1.5 Establishment of Institutional Organization	GOP Input	Date of Issuance of DAO for Setup of Organizations
2.PO Formulation & CBFMA Acquisition		
2.1 Identification of CBFM site		Date of Completion, Map
2.2 CBFM Campaign		Date of Completion
2.3 Consultation w/ Communities & Potential PO Member		Date of Completion
2.4 PO Registration		Date of Completion
2.5 Recruitment of PO		Number of current members
2.6 Approval of Target CBFM Area		Date of Completion
2.7 Perimeter Survey		Date of Completion
3.Participatory Planning		
3.1 Social Survey		Date of Completion
3.2 Planning		Date of Completion
4. Site Development		
4.1 Nursery	Qty of materials Price of materials Qty of seeds Price of seeds	Number of seedlings used Number of seedlings dead
4.2 Plantation Establishment		
4.2.1 Reforestation	Qty of materials Price of materials	Number of Tree Planted
4.2.2 Agroforestry	Qty of materials Price of materials	Number of Tree planted
4.2.3 Silvopastral	Qty of materials Price of materials	Area planted
4.3 Protection & Maintenance	Input of labor	Number of Tree Dead / Survival Rate
4.4 Community Enterprise Dev.		Date of Execution
5. Rural Infrastructure		
5.1 Planning		Date of Completion
5.2 Detailed Design		Date of Completion
5.4 Construction	Qty of materials Price of materials	Length of Road established
6. PO Capacity Building		
6.1 Assistance in PO Formation		Date of Execution
6.2 Assistance in Longterm Strategic Pla		Date of Execution
6.3 Participatory Planing for Site Dev.		Date of Execution
6.4 Organizational Structure & Policy Improvement		Date of Execution
6.5 Managerial Capacity Development		Date of Execution
6.6 Community Enterrprise Dev.		Date of Execution
6.7 Technical Capacity Development		Date of Execution

Table 3.4 Monitoring Specifications for PO Formation and CBFMA Acquisition Component

Work Items	Timing of Reporting	Reporting Items	Reported From	Reported To
(1) Preliminary Identification of CBFMA target Site	Next Week of Date of Implementation Weekly Report	Date of Execution Map	SUSIMO-COSU	PMO NFDO
(2) CBFM Campaign	Next Week of Date of Implementation Weekly Report	Date of Execution No. of Participants List of Participants Vunue Minutes of Meeting	SUSIMO COSU	PMO NFDO
(3) Consultation with	Next Week of Date of Implementation Weekly Report	Date of Execution No. of Participants List of Participants Vunue Minutes of Meeting	SUSIMO COSU	PMO NFDO
(4) PO Registration	Next Week of Date of Implementation Weekly Report	Draft by Law Draft policy	SUSIMO COSU	PMO NFDO
(5) Recruitment of PO Member	Once in a week During the project duration	Current member of PO in number List of members	SUSIMO COSU	PMO NFDO
(6) Approval of Target CBFM Area by PO	Next Week of Date of Implementation Weekly Report	Date of Execution No. of Participants List of Participants Minutes of Meeting	SUSIMO COSU	PMO NFDO
(7) Perimeter Survey of Selected Area	Next Week of Date of Implementation Weekly Report	GPS Coordinates Map of CBFM Area	SUSIMO COSU	PMO NFDO
(8) CBFMA Acquisition	Next Week of Date of Implementation Weekly Report	Date when PO applies the CBFMA Documents of apply	SUSIMO COSU	PMO NDFO
(9) Evaluation on the PO Formation	Next Week of Date of Implementation Weekly Report		SUSIMO COSU	PMO NFDO

Table 3.5 Monitoring Specifications for Participatory Planning Component

Work Items	Timing of Reporting	Reporting Items	Reported From	Reported To
(1)Preliminary Identification of CBFMA target Site	Next Week of Date of Implementation Weekly Report	Map Date of Execution	SUSIMO-COSU	PMO NFDO
(2) CBFM Campaign	Next Week of Date of Implementation Weekly Report	Date of Execution No of Participants List of Participants Minutes of Meeting	SUSIMO COSU	PMO NFDO

Table 3.6 Monitoring Specifications for Site Development Component

Work Items	Timing of Reporting	Reporting Items	Reported From	Reported To
Nursery Establishment & Operation Purchasing materials Land Preparation Sewing Survival Rate	Next Week of Date of Implementation Weekly Report	For each steps, Date started Date of completion No of Participants List of Participants	SUSIMO-SDMU	PMO NFDO
Plantation Establishment & Soil Conservation Work [Expected Process] Purchasing Materials Brushing Staking Hole Digging Hauling/Planting Fertilizer Application	Next Week of Date of Implementation Weekly Report	For each steps, Date started Date of Completion No of Participants List of Participants	SUSIMO-SDMU	PMO NFDO
Protection and Maintenance [Expected Process] Weeding, replanting Fertilizer Application Survival Rate Survey	Next Week of Date of Implementation Weekly Report	For each steps, Date started Date completed Output qty No of workers participated	SUSIMO-SDMU	PMO NFDO
Community Enterprise Development	Next Week of Date of Implementation Weekly Report	Date held Venue Draft by-law draft policy Member list of Board Member	SUSIMO COSU	PMO NFDO

Table 3.7 Monitoring Specifications for Rural Infrastructure Development

Work Items	Timing of Reporting	Reporting Items	Reported From	Reported To
(1) Participatory Planning	Next Week of Execution in Weekly report	Date held Participants Contents of Plan	SUSIMO COSU	PMO NFDO
(2) Detailed Design	At the beginning At the completion	Date started Drawings Date completed	T/A Consul.	NFDO
(3) Construction	At the beginning of construction work	Date started Estimated duration for each steps Expected date of completion for each step	L. Contactr	PMO

Table 3.8 Monitoring Specifications for PO Capacity Building Component

Work Items	Timing of Reporting	Reporting Items	Reported From	Reported to
(1) PO Formation	Next Week of Date of Implementation Weekly Report	Date of Execution No of Participants List of Participants Minutes of Meeting	AO	PMO
(2) Long-Term Strategic Plan	Next Week of Date of Implementation Weekly Report	Date of Execution No of Participants List of Participants Strategic Plan	AO	PMO
(3) Participatory Planning for Site Development	Next Week of Date of Implementation Weekly Report	Date of Execution No of Participants List of Participants Formulated Plan	AO	PMO
(4) Organizational Structure & Policy Improvement	Next Week of Date of Implementation Weekly Report	Date of Execution No of Participants List of Participants Revised Organizational Chart Revised Policy	AO	PMO
(5) Managerial Capacity Development	Next Week of Date of Implementation Weekly Report	Date of Execution No of Participants List of Participants Minutes of Meeting	AO	PMO
(6) Community Enterprise Development	Next Week of Date of Implementation Weekly Report	Date of Execution No of Participants List of Participants Minutes of Meeting	AO	PMO
(7) Technical Capacity Development	Next Week of Date of Implementation Weekly Report	Date of Execution No of Participants List of Participants Minutes of Meeting	AO	PMO

Table 3.13 Specifications for Baseline Survey

Effect	Specifications for Baseline Survey
Area Extent of Forested Land & Pasture Land	Indicators : Forested Area; Canopy Cover Pasture area; Area extent of coverage of vegetation Survey Method : Satellite Image Analysis (a) Prepare a Satellite Image, preferably high-resolution satellite image (b) Carry out field reconnaissance & demarcate the project area
Reduction of Soil Erosion	Specifications for Baseline Survey for On Site Effect : Survey Point : At the foot of slope where project site include Items : Amount of soil erosion Method of Measurement : Tracer Method Specifications for Baseline survey for Off Site Effect Monitoring Point: DPWH site When necessary survey team adds a additional point, selecting from a downstream reach of sub-watershed. Monitoring Parameter : Discharge, Water Level, Sediment Load
Maintenance of Biodiversity	Count the species of mammals. Area of Sampling: NIPAS Area Survey Method : trap survey focusing on indicator species
Reduction of Flood	Source of Information : Monitoring Data measured by DPWH Monitoring Point : Observation point by DPWH Measured Item : Discharge, Water Level, Sediment Load Frequency of Monitoring: - Storm Event - Ordinary Water Stage: 8 times per year
Improvement of Living Standard	Survey Method : Social Survey Survey Item: Based on Living Standard Measurement Survey Family Income and Expenditure Survey by NSO is also considered

Table 3.14 Method for Impact Measurement and Evaluation

Types of Effect	Specifications for Post-Intervention Survey
Recovery of Vegetation Surface	Method: Before and After Method Procedures : (a) Prepare the satellite image that covers the target area (b) Overlay the previous satellite images (c) Extract the change area by overlay operation in GIS. (d) Calculate the area extent that covers the area.
Reduction Of Soil Erosion	On Site Effect : Method: Before and After Method Procedures: Compare the amount of soil gathered at field work Off Site Effect: Method: Before and After Method Procedures; (a) Collect archived data at DPWH (b) Estimate the amount of soil, that is contained in water. This portion could be carried out, using indicators of suspended sediment. (c) Compare the amount of soil, with the value of baseline survey.
Maintain Biodiversity	Method: Before and After Method. Procedures: (a) Carry out bio-inventory survey. (b) Compare the number of species identified at the baseline survey.
Flood Mitigation	Method: Before and After Method Procedure: (a) Collect archived data at DPWH (b) Prepare hydrograph at storm event with a data of Baseline Survey (c) Prepare hydrograph at storm event with a post-intervention survey. (d) Compare the hydrograph at storm event, especially focusing on the peak discharge, and the time to reach the peak.
Improving Living Standard	With and Without Method。 Quasi-Experimental Design Method is applied to Poverty Index, in order to measure the social impact. Poverty Index was calculated according to the definition of NSO. Procedure: (a) Define, as a Experimental Group, villages that CBFM activities are carried out (b) Define, as a control group, villages that CBFM activities is not been carried out in a study area. (c) Compare the impact indicator.

Table 3.15 Method of Verification and Record Keeping

O&M Activity	Method of Verification At Sites (Procedures)	Method to Keep Record of Verification
Strip Weeding	Visual Inspection and measurement Before the strip weeding, IU-supervisor are asked to take a photo of the site. After strip weeding, on arrival at site: (a) Measures a length and width of strip weeding. (b) Write down the value measured at step (a) (c) Take a photo of completed site.	Photo Procedures; (a) Take a photo before weeding (b) Take a photo after weeding (c) Photo are layout in a same form that can demonstrates the difference of situation before and after the weeding. The photo should be captured a information on the date, name of site,
Spot Weeding	Visual Inspection and measurement Before the strip weeding, IU-supervisor are asked to take a photo of the site. After spot weeding, on arrival at site: (a) Count the number of spot that finishes (b) Write down the number of spot finished weeding (c) Take a photo at a finished spot weeding site.	(a) Record a number of spot that finishes weeding
Fertilizer Application	Check by voucher and stock ledger of fertilizer (a) Confirm the number of bags of fertilizer to be procured by PO (b) Confirm that the quality of fertilizer meets the technical specification of contract. (b) Confirm the amount of fertilizer used by PO.	(a) Describe a daily visit report on the information of fertilizer, Report the brand name of fertilizer, name of producer, with a copy of Boucher,
Inventory Survey	Visual Inspection & Measurement (a) Count a survived and dead trees by species (b) Write down the number of dead seedlings by species (c) Describe the situation of seedlings from the viewpoint of quality (e.g. the worm bites) (d) Take a photo of representative trees that shows a bad condition.	Preparation of Field Visit Report Field Visit Report should contain following items - Date, Weather - Attendant - Number of seedlings planted - Number of seedlings survive - Number of seedlings dead Photos should be attached to the report that shows a situation of seedlings, with a caption. Narrative description should be focused on the difference of mortality between species, and the situation of insect attack.
Growth Measurement	(a) Select a sampling tree (b) Identify species (c) Measure a DBH, (d) Measure a Tree height	(a) Record a DBH (Diameter of Breast Height) (b) Record a Tree height
Thinning	(a) Take a photo before activity (b) Take a photo after activity	(a) Photo with a caption of the number of trees thinned, data, number of participants, name list of participants.

Figures

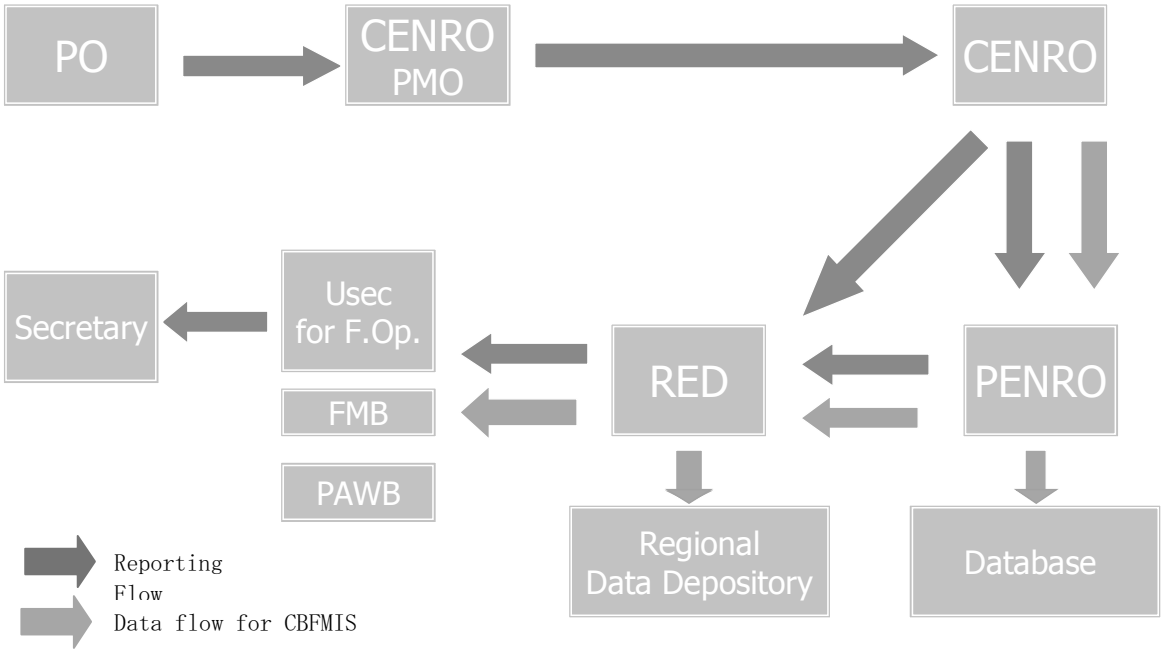

Figure 2.1 Communication Flow of CBFMP

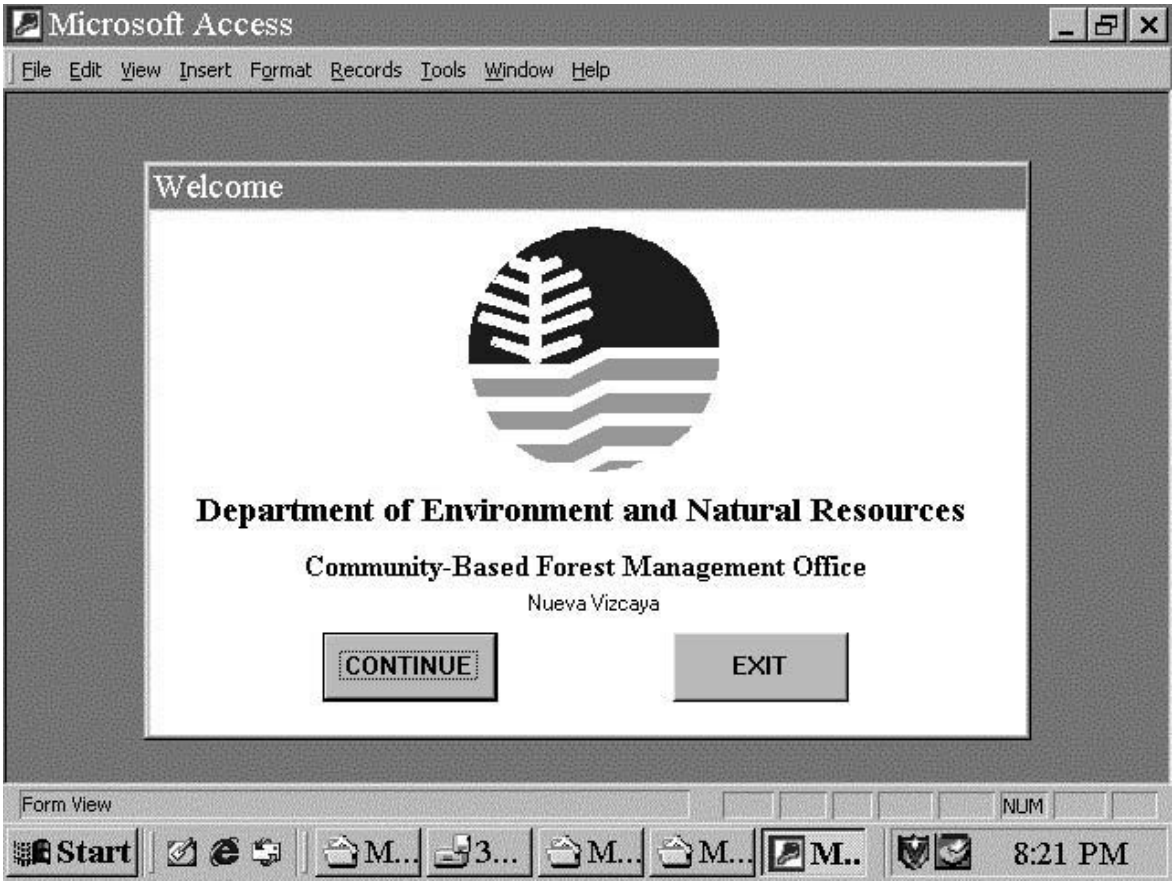

Figure 2.2 Opening Screen of CBFM-IS

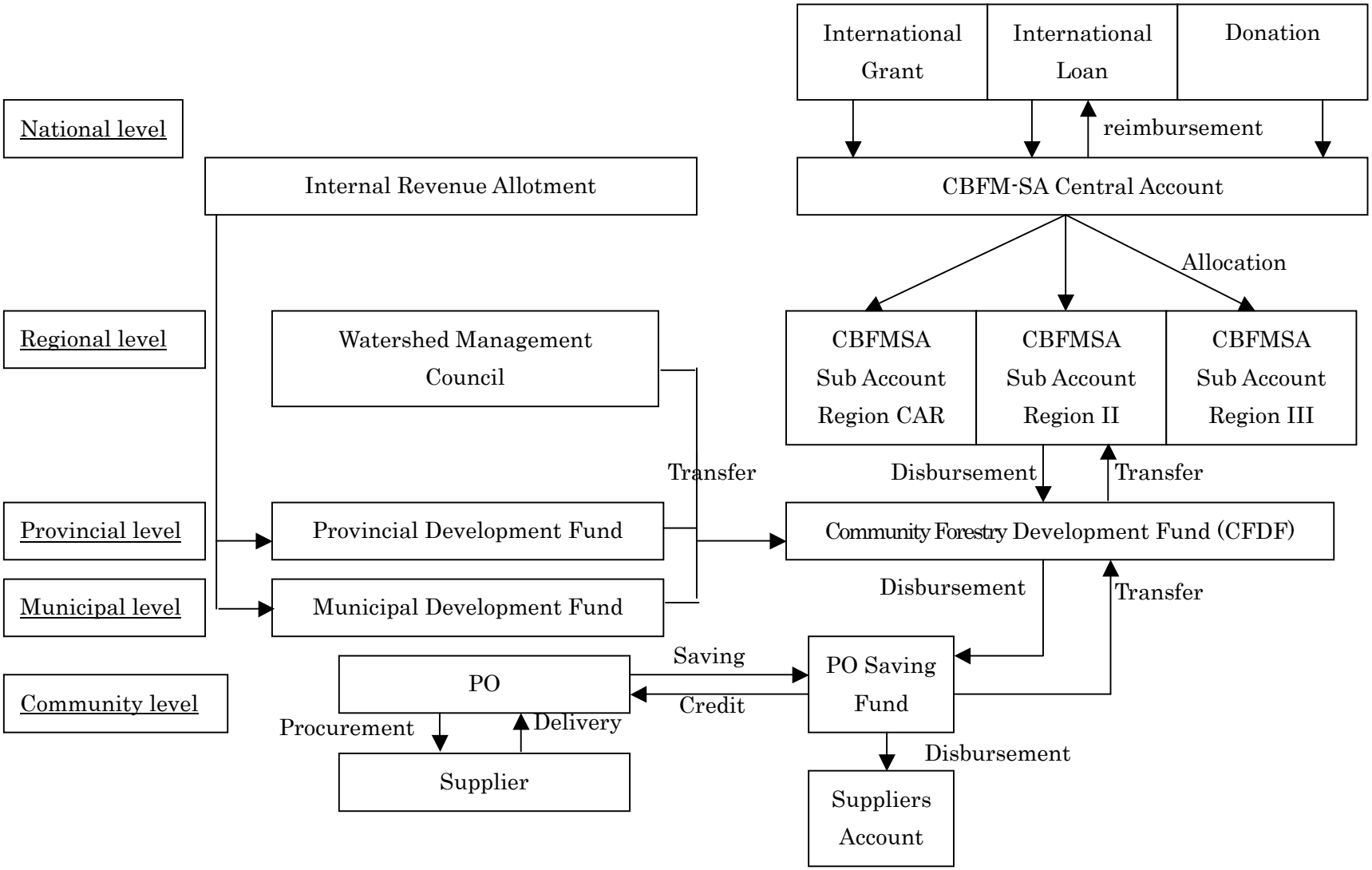

Figure 2.3 Proposed Financial Schemes for CBFM with Community Contract

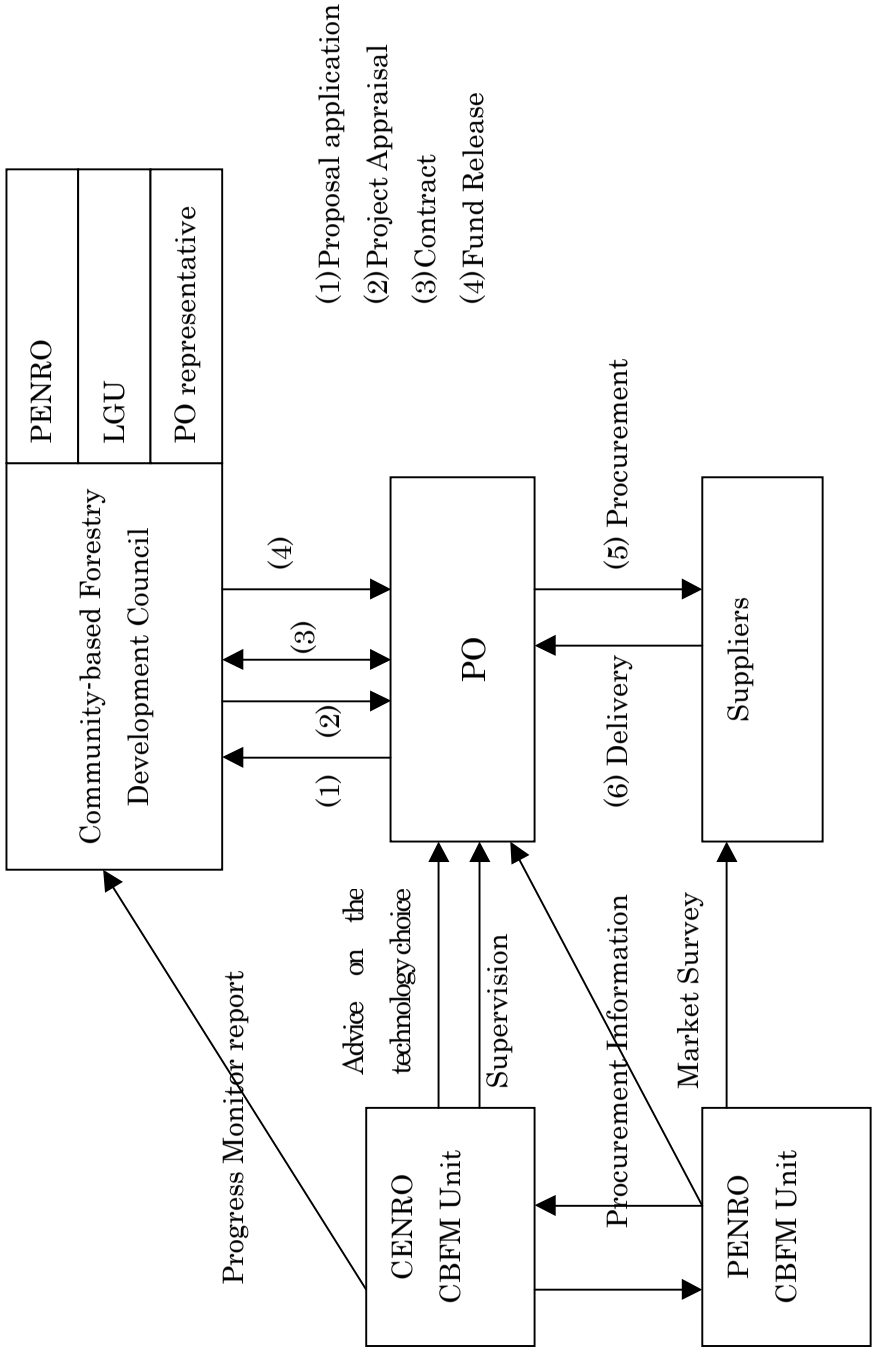

Figure 2.4 Flow of Document and Information in Common Pool Fund with Community Contract

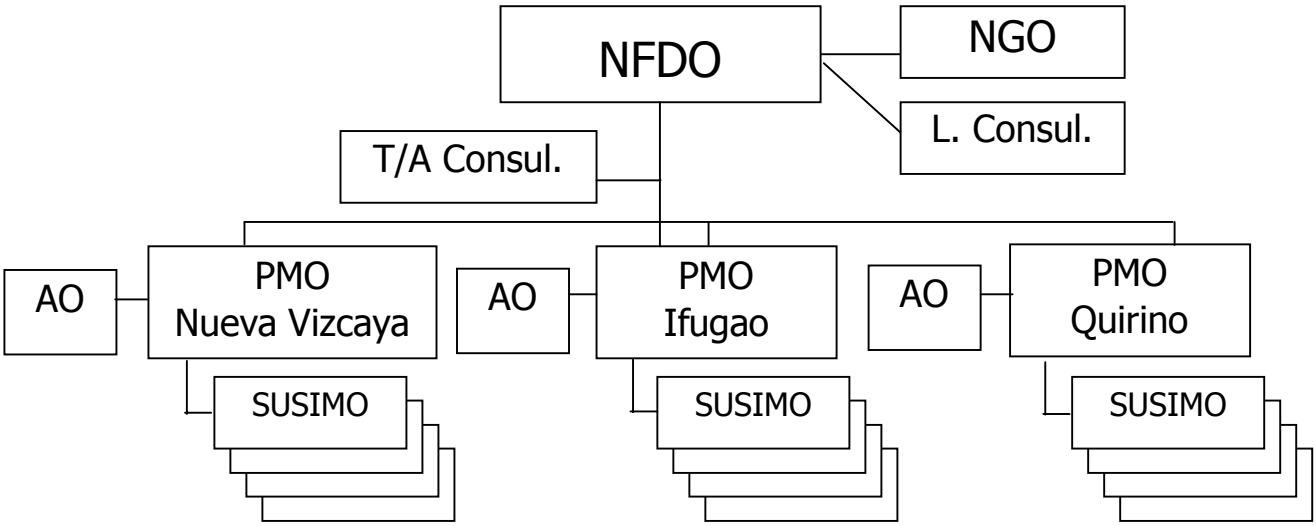

Figure3.1 Overall Framework for Implementation

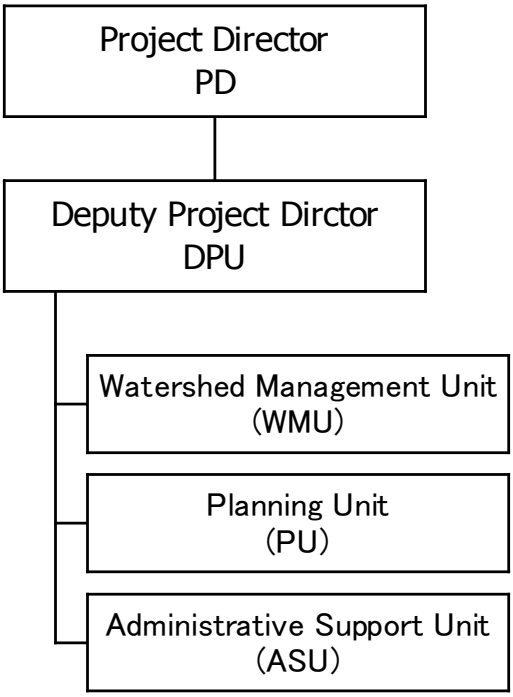

Figure 3.2 Organizational Chart of NFDO

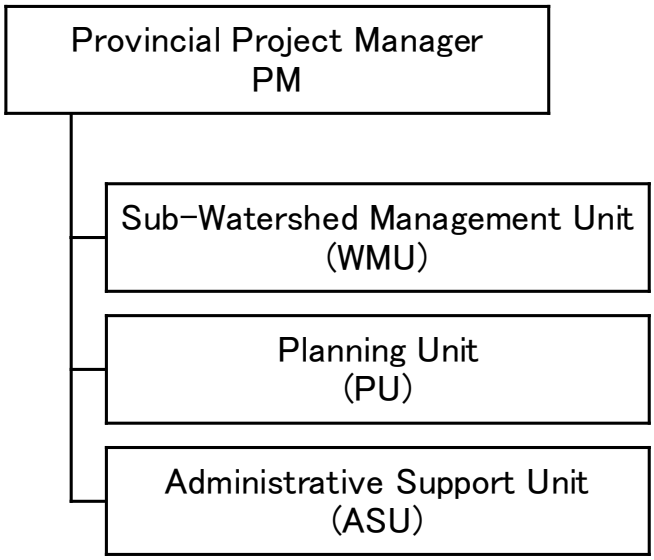

Figure 3.3 Organizational Chart of PMO

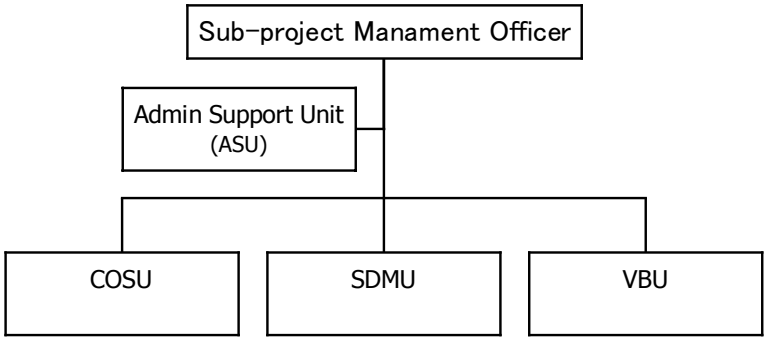

Figure 3.4 Organizational Chart of SUSIMO

Appendix 8

Breakdown of Unit Costs for Cost Estimation

List of Tables

Page

Table 8.1 Cost Breakdown for unit cost of Assisted Natural Regeneration (ANR)

Item		Unit	No. of Units	Unit Price	Unit cost /ha
First year	ANR				
	Location and staking of regeneration (200/md)	m.d. per ha	3.00	170	510.00
	Releasing(underbrushinge,200/md	m.d. per ha	3.00	170	510.00
	Ringweedingand cultivate(150wildg/md	m.d. per ha	4.00	170	680.00
	Sub-total : plantatior		20.62		**1,700.00**
	Supplemental planting				
	Ringweeding (1m radius,300sqm/md	m.d. per ha	4.19	170	712.30
	Staking	m.d. per ha	0.80	170	136.00
	Hole digging	m.d. per ha	2.67	170	453.90
	Seedling hauling	m.d. per ha	1.83	170	311.10
	Planting	m.d. per ha	2.67	170	453.90
	Seedling cost	sdling	*400*	5	2,000.00
	Tools & materials				400.00
	Sub-total		12.16		**4,467.20**
	Maintenance and protectior				
	Ringweeding trees(4passes,120spos/md	m.d. per ha	25.00	170	4,250.00
	Replanting,20%(incruding sdlng.transport.	m.d. per ha	2.43	170	413.10
	Fertilizer application(2passes,40g/spot)	m.d. per ha	2.50	170	425.00
	Fertilizer cost				680.00
	Seedling cost		80	5	400.00
	Sub-total				**6,168.10**
	Total : Ist year				**12,335.30**
Second year	Maintenance and protectior				
	Ringweeding trees(3passes,150spos/md	m.d. per ha	20.00	170	3,400.00
	Fertilizer application(2passes,100g/spot)	m.d. per ha	2.5	170	425.00
	Fertilizer cost				680.00
	Patrol work	m.d. per ha	1.33	170	226.10
	Total : 2nd year		27.04		**4,731.10**
	Infrastructure				
	Graded trail(1m-wide,50m/ha)	m.d. per ha	0.33	170	56.10
	Foot path(1m-wide,50m/ha)	m.d. per ha	0.33	170	56.10
	Bunkhouse(1unit/200ha)	m.d. per ha	0.55	170	93.50
	Materials				350.00
	Lookout tower(1unit/200ha)	m.d. per ha	0.10	170	17.00
	Materials				50.00
	Sub-total		162.11		622.70
	Grand total cost				**17,689.10**

Source: Modification based on MC2000-19

Note: The cost of nursery facilities and nusrey operations are represented as cost of a seedling

Table 8.2 Cost Breakdown for unit cost of Forest Stand Improvement (FSI)

Item		Unit	No. of Units	Unit Price	Unit cost /ha
First year	Enrichment planting				
	Ring brushing (1m radius 300 sqm/md)	m.d. per ha.	4.19	170	712.30
	Staking(500 spots/md)	m.d. per ha.	0.80	170	136.00
	Hole digging(150spots/md)	m.d. per ha.	2.67	170	453.90
	Seedling transport/ hauling(240sdlg/md)	m.d. per ha.	1.83	170	311.10
	Planting(150sdlg/md)	m.d. per ha.	2.67	170	453.90
	Seedling cost	sdling	*440*	5	2,200.00
	Tools & materials				200.00
	Sub-total				**4,467.20**
	Maintenance and protection				
	Ringweeding /spot(3passes,120spots/md)	m.d. per ha.	10.00	170	1,700.00
	Replanting,20%(incruding sdlng.transport.)	m.d. per ha.	2.43	170	413.10
	Fertilizer application(2passes,40g/spot)	m.d. per ha.	1.00	170	170.00
	Fertilizer cost				272.00
	Seedling cost	sdling	88	5	440.00
	Patrol work	m.d. per ha.	1.33	170	226.10
	Sub-total				**3,221.20**
	Total : Ist year				**7,688.40**
Second year	Maintenance and protection				
	Ringweeding trees(3passes,150spots/md)	m.d. per ha.	8.00	170	1,360.00
	Fertilizer application(2passes,100g/spot)	m.d. per ha.	1.00	170	170.00
	Fertilizer cost				272.00
	Patrol work	m.d. per ha.	1.33	170	226.10
	Total : 2nd year				**2,028.10**
	Grand total cost				**9,716.50**

Source: Modification based on MC2000-19

Note: Model (5x5m.Apporoximetly Spacing)

The cost of nursery facilities and nusrey operations are represented as cost of a seedling.

Table 8.3 Cost Breakdown for unit cost of Tree Stand Improvement (TSI)

Item		Unit	No. of Units	Unit Price	Unit cost /ha
First year	Access improvement				
	Trails opening	m.d. per ha.	0.50	170	85.00
	Road improvement	m.d. per ha.	1.00	170	170.00
	Road turn out,(optional)40/md	m.d. per ha.	1.00	170	170.00
	Tools				150.00
	Sub-total		20.62		**575.00**
	TSI implementation				
	Diagnostic sampling/planting		1.00	170	170.00
	Marking trees to be removed/girdled		1.00	170	170.00
	Removal of climber/vines		3.00	170	510.00
	Cutting of undesirble vegetation		5.00	170	850.00
	Sub-total				**1,700.00**
	Supplemental planting				
	Brushing (strip 2m wide,300sqm/md)	m.d. per ha.	1.11	170	188.70
	Staking	m.d. per ha.	0.33	170	56.10
	Hole digging	m.d. per ha.	1.11	170	188.70
	Seedling transpotation/hauling	m.d. per ha.	0.76	170	129.20
	Planting	m.d. per ha.	1.11	170	188.70
	Seedling cost	sdling	*167*	5	2,000.00
	Tools & materials				200.00
	Sub-total		4.42		**2,951.40**
	Maintenance and protection				
	Ringweeding/spot(1m radius)	m.d. per ha.	5.00	170	850.00
	Replanting,20%(incruding sdlng.transport.)	m.d. per ha.	0.89	170	151.30
	Fertilizer application(2passes,40g/spot)	m.d. per ha.	0.42	170	71.40
	Fertilizer cost				113.30
	Seedling cost		33	5	165.00
	Patrol work	m.d. per ha.	1.33	170	226.10
	Sub-total				**1,577.10**
	Total : Ist year				**6,803.50**
Second year	Maintenance and protection				
	Ringweeding/spot(3passes,100spots/md)	m.d. per ha.	4.17	170	708.90
	Fertilizer application(2passes,100g/spot)	m.d. per ha.	0.42	170	71.40
	Fertilizer cost				113.30
	Patrol work	m.d. per ha.	1.33	170	226.10
	Total : 2nd year		27.04		**1,119.70**
	Grand total cost				**7,923.20**

Source: Modification based on MC2000-19

Note: The cost of nursery facilities and nusrey operations are represented as cost of a seedling.

Table 8.4 Cost Breakdown for unit cost of Reforestation

Item		Unit	No. of Units	Unit Price	Unit cost /ha
First year	**Planting**				
	- Brushing(Strip 2m-wide,300sq/md)	m.d. per ha.	11.11	170	1,888.70
	- Staking(Strip 2m wide,500sqm/md)	m.d. per ha.	3.33	170	566.10
	- Digging planting holes	m.d. per ha.	11.11	170	1,888.70
	- Hauling of seedlings to planting sites	m.d. per ha.	7.64	170	1,298.80
	- Planting	" "	11.11	170	1,888.70
	Tools and Materials				200.00
	Seedling cost	Sdlg. per ha	*1666*	5	8,330.00
	sub-total: Plantings		44.30		**16,061.00**
	Maintenance				
	- Ring weeding (3passes, 120spots/md)	m.d. per ha.	41.67	170	7,083.90
	- Fertilization applied at 1st ring weeding	m.d. per ha.	4.17	170	708.90
	- Replanting of fail spots (20%)including tran	m.d. per ha.	8.86	170	1,506.20
	- Seedling cost	Sdlg. per ha	*333*	5	1,665.00
	- Patrol work	m.d. per ha.	1.33	170	226.10
	- No fire bonus	ha	*1*	150	150.00
	Fertilizer application (2passes, 40g/pass)				1,133.33
	Tools				200.00
	sub-total: Maintenance		56.33		**12,673.43**
	Total : 1st year	Total of md			**28,734.43**
2nd year	Maintenance				
	- Ring weeding (3passes, 150spots/md)	m.d. per ha.	33.33	170	5,666.10
	- Fertilization application (2passes, 40g/pass)	m.d. per ha.	4.17	170	708.90
	- Patrol work	m.d. per ha.	1.33	170	226.10
	- No fire bonus	ha	*1*	150	150.00
	Total : 2nd year		38.83		**6,751.10**
3rd year	Maintenance				
	- Ring weeding (2passes, 200spots/md)	m.d. per ha.	16.67	170	2,833.90
	- Patrol work	m.d. per ha.	1.33	170	226.10
	- No fire bonus	ha	*1*	150	150.00
	Total : 3rd year		18.00		**3,210.00**
	Infrastructure				
	Graded trail(1m-wide,50m/ha)	m.d. per ha.	0.33	170	56.10
	Foot path(1m-wide,50m/ha)	m.d. per ha.	0.33	170	56.10
	Fireline const'n(10m-wide,120m/md)	m.d. per ha.	4.17	170	708.90
	Fireline maitenance(200sqm/md)	m.d. per ha.	2.50	170	425.00
	Bunkhouse(1units/200ha)	m.d. per ha.	0.55	170	93.50
	Materials				350.00
	Lookout tower(1units/200ha)	m.d. per ha.	0.10	170	17.00
	Materials				50.00
	sub-total: infrastructure		7.98		**1,756.60**
	Grand total for operation				**40,452.13**

Source: Modification based on MC2000-19

Note: Model(Gmelina 2 by 3 spacing)

The cost of nursery facilities and nusrey operations are represented as cost of a seedling.

Table 8.5 Cost Breakdown for unit cost of Agroforestry

Item		Unit	No. of Unit	Unit Price	Unit cost /ha
First year	**Plantation establishmen**				
	Spot brushing for mango(50spots/md)	m.d. per ha.	2.00	170	340.00
	Brushing(strip2mwide,300m/md)	m.d. per ha.	4.17	170	708.90
	Staking holes(500 spots/md)	m.d. per ha.	0.80	170	136.00
	Dig planting holes for mango(50 spots/md)	m.d. per ha.	2.00	170	340.00
	Dig planting holes (150 spots/md)	m.d. per ha.	2.57	170	436.90
	Sdlng. transportation/hauling	m.d. per ha.	1.83	170	311.10
	Planting(150 sdlg./md)	m.d. per ha.	2.67	170	453.90
	Seedling cost(grafted mango)	sdlng.	*100*	60	6,000.00
	(other fruits tree)	sdlng.	*300*	20	6,000.00
	Tools & materials				200.00
	Sub-total		16.04		**14,926.80**
	Maintenance and protection				
	Ringweeding trees(4passes,100spos/md)	m.d. per ha.	16.00	170	2,720.00
	Lodging of grsses & weeds (2passes)	m.d. per ha.	10.00	170	1,700.00
	Fertilizer aplication(2passes,100g/spot)	m.d. per ha.	1.00	170	170.00
	Fertilizer cost	ha			1,062.50
	Patrol work	manday	1.33	170	226.10
	Tools				15.00
	Sub-total : maintenance		28.33		**5,893.60**
	Total : Ist year				**20,820.40**
Second year	**Maintenance and protection**				
	Ringweeding trees(4passes,120spos/md)	m.d. per ha.	13.33	170	2,266.10
	Lodging of grsses & weeds (2passes)	m.d. per ha.	10.00	170	1,700.00
	Replanting,20%(incruding sdlng.transport.	m.d. per ha.	2.12	170	360.40
	Seedling cost	sdlng.	*20*	60	1,200.00
	Seedling cost	sdlng.	*60*	20	1,200.00
	Fertilizer aplication(2passes,100g/spot)	m.d. per ha.	1.00	170	170.00
	Fertilizer cost				1,062.50
	Patrol work	m.d. per ha.	1.33	170	226.10
	Total : 2nd year		17.78		**8,185.10**
Third year	**Maintenance and protection**				
	Ringweeding trees(2passes,150spos/md)	m.d. per ha.	5.33	170	906.10
	Lodging of grsses & weeds (2passes)	m.d. per ha.	10.00	170	1,700.00
	Patrol work	m.d. per ha.	1.33	170	226.10
	Total: 3rd year		16.66		**2,832.20**
	Infrastructure				
	Graded trail(1m-wide,50m/ha)	m.d. per ha.	0.33	170	56.10
	Foot path(1m-wide,50m/ha)	m.d. per ha.	0.33	170	56.10
	Fireline const'n(10m-wide,120m/md)	m.d. per ha.	4.17	170	708.90
	Fireline maitenance(200sqm/md)	m.d. per ha.	2.50	170	425.00
	Sub-total : infrastructure		7.33		**1,246.10**
	Grand total cost				**33,083.80**

Source: Modification based on MC2000-19

Note: Model (pure fruits trees 5 by 6+Mango10 by 10)

The cost of nursery facilities and nuesrey operations are represented as cost of a seedling.

Table 8.6 Cost Breakdown for unit cost of Silvopastral: Contour hedgerows

Year	Item	Unit	No. of Units	Unit Price	Unit cost /ha	Remarks
First year	**Planting**					
	(a) Fodder tree hedgerows					
	- Cultivate planting strips (1 meter wide, 40 m per m.d.)	m.d. per ha.	12.5	170	2,125	5 hedgerows x 100 meters per hedgerow = 500 meters dvidided by 40 meters per m.d. = 12.5 m.d. per ha
	- Planting by direct seeding	m.d. per ha.	1	170	170	
	- Planting by cuttings (200 cuttings per m.d.)	m.d. per ha.	7.5	170	1,275	3 rows per hedgerow (top, middle, bottom) x 100 meters x 5 hedgerows per ha = 1,500 meters x 1 cutting per meter =1,500 cuttings divided by 200 cuttings per m.d. = 7.5 m.d..
	- Seeds	kg. per ha	1	200	200	
	- Cuttings	no. per ha.	1,500	5	7,500	3 rows per hedgerow (top, middle, bottom) x 100 meters x 5 hedgerows per ha = 1,500 meters x 1 cutting per meter =1,500 cuttings. Kakawate, Dapdap and other fodder species that can be planted by cuttings.
	(b) Pasture legumes and pasture grasses					
	- Cultivate planting spots (2 x 2 m spacing)	m.d. per ha.	10	170	1,700	2 m x 2 m spacing = 2,500 per ha. divided by 250 per m.d.= 10 m.d. per ha
	- Plant legumes by direct seeding	m.d. per ha.	2.5	170	425	1,250 planting spots per ha divided by 500 planting spots per m.d. = 2.5 m.d. per ha.
	- Plant pasture grass tillers, runners, slips (propagules)	m.d. per ha.	5	170	850	1,250 planting spots per ha divided by 250 planting spots per m.d. = 5 m.d. per ha.
	- Seeds	kg. per ha	2	100	200	
	- Pasture grass propagules	no. per ha.	1,250	0.5	625	
	Tools and materials	lot	1	200	200	
	sub-total: Planting				**15,270**	
	Maintenance					
	- Ring weeding of hedgerows	m.d. per ha.	7.5	170	1,275	5 hedgerows x 100 sq. m.per hedgerow x 3 passes =1,500 sq. m. divided by 200 sq. m. per m.d. = 7.5 m.d. per ha.
	- Ring weeding of pasture legumes and pasture grasses	m.d. per ha.	25	170	4,250	2,500 planting spots x 2 passes = 5,000 divided by 200 spots per m.d. = 25 m.d. per ha.
	- Fertilization (labor)					To be done simultaneous with ring weeding. No extra
	- Cost of Fertilizer	kg. per ha	100	10	1,000	
	- " No fire" bonus	ha	1	150	150	
	sub-total: Maintenance				**6,675**	
	Total : 1st year				**21,945**	
Second yeae	Maintenance					
	- Ring weeding of hedgerows	m.d. per ha.	7.5	170	1,275	5 hedgerows x 100 sq. m.per hedgerow x 3 passes =1,500 sq. m. divided by 200 sq. m. per m.d. = 7.5 m.d. her ha.
	- " No fire" bonus	ha	1	150	150	
	Total : 2nd year		8.5		**1,425**	
Third year	Maintenance					
	- " No fire" bonus	ha	1	150	150	
	Total : 3rd year		1.00		**150**	
	Grand total for operation				**23,520**	

Note: Study team estimation

Table 8.7 Cost Breakdown for unit cost of PO Capacity Building (1/2)
(for rehabilitation communities for 5.0 years)

Item	Unit	Q'tv	Unit Cost (PHP)	Amount (PHP)
1 Remuneration				**198,000,000**
1.1 Team Leader/Social Forestry Specialist	month	960	45,000	43,200,000
1.2 Assistant Team Leader/Enterprise Development Specialist	month	600	30,000	18,000,000
1.3 PRA Specialist/Training Coordinator	month	600	30,000	18,000,000
1.4 Agricultural/Livestock Specialist	month	240	35,000	8,400,000
1.5 Financial Management Specialist	month	240	35,000	8,400,000
1.6 Community Organizer	month	5,600	15,000	84,000,000
1.7 VAT (10% of the above)				18,000,000
2 Direst cost				**120,080,000**
2.1 Field allowance	month	7,280	3,000	21,840,000
2.2 Vehicles rental & operation 4WD	month	960	40,000	38,400,000
2.3 Motorcycle operation	month	960	2,000	1,920,000
2.4 Inland travel expenses	month	7,280	2,000	14,560,000
2.5 Office rental	month	960	20,000	19,200,000
2.6 Office equipment	unit	16	610,000	9,760,000
2.7 Local communication	month	960	5,000	4,800,000
2.8 Office stationary	month	960	5,000	4,800,000
2.9 Printing	month	960	5,000	4,800,000
3 Meeting/Training/Campaign				**48,400,800**
3.1 Assistance in PO Formation	PO	112	0	0
3.2 Assistance in Participatory Planning for Site Development	PO	112	0	0
3.3 Preparation of detailed implementation program				3,012,800
3.3.1 PO capacity building needs analysis	PO	112	6,950	778,400
3.3.2 Formulation of long-term PO strategic plan	PO	112	13,000	1,456,000
3.3.3 Preparation of detailed implementation plan (I/P) for POCB	PO	112	6,950	778,400
3.4 Organizational structure and policy improvement				9,340,800
3.4.1 Socialization of CBFMP and PO	PO	112	0	0
3.4.2 Continuous membership expansion and management	PO	112	27,800	3,113,600
3.4.3 Creation and updating of working groups and PO structure	PO	112	13,900	1,556,800
3.4.4 Benefit sharing ahd other additional policy formulation	PO	112	27,800	3,113,600
3.4.5 Networking and policy advocacy	PO	112	13,900	1,556,800
3.5 Managerial capacity development				14,862,400
3.5.1 Training				14,862,400
(1)Pre-membership training	PO	112	27,800	3,113,600
(2)Coop development training	PO	112	26,000	2,912,000
(3)Financial management training	PO	112	13,900	1,556,800
(4)Leadership training	PO	112	13,000	1,456,000
(5)Gender training	PO	112	13,000	1,456,000
(6)Training on project managemnet and evaluation	PO	112	13,000	1,456,000
(7)Entrepreneurship training	PO	112	26,000	2,912,000
3.5.2 On the job coaching	PO	112	0	0
3.6 Technical capacity development				17,292,800
3.6.1 Training				17,292,800
(1)Training on fire protection	PO	112	13,900	1,556,800
(2)Training on forest protection	PO	112	13,900	1,556,800
(3)Training on SALT	PO	112	26,000	2,912,000
(4)Training on silvo pasture	PO	112	26,000	2,912,000
(5)Training on plantation establishment and maintenance	PO	112	26,000	2,912,000
(6)Enterprise skill training	PO	112	26,000	2,912,000
(7)Field visit	PO	112	22,600	2,531,200
3.6.2 Burning and timber pouching control and management	PO	112	0	0
3.6.3 On the job coaching	PO	112	0	0
3.7 PO enterprise development				778,400
3.7.1 Business Planning	PO	112	6,950	778,400
3.7.2 On the job coaching	PO	112	0	0
3.8 Annual review and updating of I/P	PO	112	27,800	3,113,600
Total				**366,480,800**

Table 8.7 Cost Breakdown for unit cost of PO Capacity Building (2/2)
(for non-rehabilitation communities for 5.5 years)

Item	Unit	Q'ty	Unit Cost (PHP)	Amount (PHP)
1 Remuneration				**95,040,000**
1.1 Social Forestry Specialist	month	1,056	90,000	95,040,000
2 Direst cost				**8,448,000**
2.1 Field allowance	month	1,056	3,000	3,168,000
2.4 Inland travel expenses	month	1,056	2,000	2,112,000
2.7 Local communication	month	1,056	1,000	1,056,000
2.8 Office stationary	month	1,056	1,000	1,056,000
2.9 Printing	month	1,056	1,000	1,056,000
3 Meeting/Training/Campaign				**102,468,200**
3.1 Preparation of detailed implementation program				5,905,200
3.1.1 PO capacity building needs analysis	PO	296	6,950	2,057,200
3.1.2 Formulation of long-term PO strategic plan	PO	296	13,000	3,848,000
3.2 Organizational structure and policy improvement				20,572,000
3.2.1 Socialization of CBFMP and PO	PO	296	0	0
3.2.2 Continuous membership expansion and management	PO	296	27,800	8,228,800
3.2.4 Benefit sharing ahd other additional policy formulation	PO	296	27,800	8,228,800
3.2.5 Networking and policy advocacy	PO	296	13,900	4,114,400
3.3 Managerial capacity development				35,670,600
3.3.1 Training				35,670,600
3.3.2 On the job coaching	PO	296	0	0
3.4 Technical capacity development				38,263,200
3.4.1 Training				38,263,200
3.4.2 Burning and timber pouching control and management	PO	296	0	0
3.4.3 On the job coaching	PO	296	0	0
3.5 PO enterprise development				2,057,200
3.5.1 Business Planning	PO	296	6,950	2,057,200
3.5.2 On the job coaching	PO	296	0	0
Total				**205,956,200**

** Cost Breakdown for Capacity Building of 1 POs is represented as that for POs.*

Table 8.8(1) Cost Breakdown for unit cost of Community Organizing and PO Formation (for rehabilitation communities for 2.5 year)

Item	Unit	Q'ty	Unit Cost (PHP)	Amount (PHP)
1 Direst cost				**27,930,000**
1.1 Field allowance	month	3,990	3,000	11,970,000
1.2 Motorcycle operation	month	3,990	2,000	7,980,000
1.3 Inland travel expenses	month	3,990	2,000	7,980,000
2 Survey/Meeting/Training/Campaign				**33,314,200**
2.1 Preliminary identification of CBFM target sites	Barangay	112	0	0
2.2 CBFM campaign				2,626,400
2.2.1 Campaign Material Development	set	112	9,550	1,069,600
2.2.2 Campaign Meeting	set	112	13,900	1,556,800
2.3 Consultation with the communities / Potential PO Members	Barangay	112	13,900	1,556,800
2.4 Identification of CBFM target sites	Barangay	112	9,550	1,069,600
2.5 FO Registration				1,556,800
2.5.1 G.A for PO Formation and Election of PO Officers	PO	112	6,950	778,400
2.5.2 Formulation of By-Laws and Policies	PO	112	6,950	778,400
2.6 Approval of CBFM sites by PO (G.A.)	PO	112	6,950	778,400
2.7 Perimeter survey of CBFM sites				20,815,000
2.7.1 Material for Monuments	Ha	181,000	75	13,575,000
2.7.2 Assistant Surveyors	Ha	181,000	40	7,240,000
2.8 Recruitment of CBFM members and consensus building				4,911,200
2.8.1 Consensus building meeting	PO	112	20,850	2,335,200
2.8.2 Team Building	PO	112	11,500	1,288,000
2.8.3 Environmental Education and Value Formation	PO	112	11,500	1,288,000
2.9 CBFMA acquisition				0
2.9.1 Application of CBFMA	PO	112	0	0
2.9.2 Acquisition of CBFMA	PO	112	0	0
Total				**61,244,200**

Table 8.8(2) Cost Breakdown for unit cost of Community Organizing and PO Formation (for no-rehabilitation Communities for 3.0 years)

Item	Unit	Q'ty	Unit Cost (PHP)	Amount (PHP)
1 Direst cost				**33,516,000**
1.1 Field allowance	month	4,788	3,000	14,364,000
1.2 Motorcycle operation	month	4,788	2,000	9,576,000
1.3 Inland travel expenses	month	4,788	2,000	9,576,000
2 Meeting/Training/Campaign				**88,184,380**
2.1 Preliminary identification of CBFM target sites	Barangay	296	0	0
2.2 CBFM campaign				6,941,200
2.2.1 Campaign Material Development	set	296	9,550	2,826,800
2.2.2 Campaign Meeting	set	296	13,900	4,114,400
2.3 Consultation with the communities / Potential PO Members	Barangay	296	13,900	4,114,400
2.4 Identification of CBFM target sites	Barangay	296	9,550	2,826,800
2.5 FO Registration				4,114,400
3.5.1 G.A for PO Formation and Election of PO Officers	PO	296	6,950	2,057,200
3.5.2 Formulation of By-Laws and Policies	PO	296	6,950	2,057,200
2.6 Approval of CBFM sites by PO (G.A.)	PO	296	6,950	2,057,200
2.7 Perimeter survey of CBFM sites				55,150,780
2.7.1 Material for Monuments	Ha	479,572	75	35,967,900
2.7.2 Assistant Surveyors	Ha	479,572	40	19,182,880
2.8 Recruitment of CBFM members and consensus building				12,979,600
2.8.1 Consensus building meeting	PO	296	20,850	6,171,600
2.8.2 Team Building	PO	296	11,500	3,404,000
2.8.3 Environmental Education and Value Formation	PO	296	11,500	3,404,000
2.9 CBFMA acquisition				0
2.9.1 Application of CBFMA	PO	296	0	0
2.9.2 Acquisition of CBFMA	PO	296	0	0
Total				**121,700,380**

Table 8.9(1) Cost Breakdown for unit cost of Participatory Planning (for rehabilitation communities for 2.0 year)

Item	Unit	Q'ty	Unit Cost (PHP)	Amount (PHP)
1 Direst cost				**22,344,000**
1.1 Field allowance	month	3,192	3,000	9,576,000
1.2 Motorcycle operation	month	3,192	2,000	6,384,000
1.3 Inland travel expenses	month	3,192	2,000	6,384,000
2 Survey/Meeting/Training/Campaign				**8,680,000**
2.1 Social survey on CBFMA area occupants	PO	112	15,750	1,764,000
2.2 Planning of CBFMA area management				6,916,000
2.2.1 Strategic planning	PO	112	17,000	1,904,000
2.2.2 Resource inventory survey	PO	112	0	0
2.2.3 Formulation of CRMF and AWP	PO	112	15,500	1,736,000
2.2.4 Authorization of CRMF and AWP	PO	112	9,750	1,092,000
2.2.5 Socialization of CRMF and AWP	PO	112	19,500	2,184,000
Total				**31,024,000**

Table 8.9(2) Cost Breakdown for unit cost of Participatory Planning (for non-rehabilitation communities for 2.5 year)

Item	Unit	Q'ty	Unit Cost (PHP)	Amount (PHP)
1 Direst cost				**27,930,000**
1.1 Field allowance	month	3,990	3,000	11,970,000
1.2 Motorcycle operation	month	3,990	2,000	7,980,000
1.3 Inland travel expenses	month	3,990	2,000	7,980,000
2 Survey/Meeting/Training/Campaign				**22,940,000**
2.1 Social survey on CBFMA area occupants	PO	296	15,750	4,662,000
2.2 Planning of CBFMA area management				18,278,000
2.2.1 Strategic planning	PO	296	17,000	5,032,000
2.2.2 Resource inventory survey	PO	296	0	0
2.2.3 Formulation of CRMF and AWP	PO	296	15,500	4,588,000
2.2.4 Authorization of CRMF and AWP	PO	296	9,750	2,886,000
2.2.5 Socialization of CRMF and AWP	PO	296	19,500	5,772,000
Total				**50,870,000**