Environmental Guidelines for JICA Development Study on Forestry Development Projects

March 1994

Japan International Cooperation Agency (JICA)

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These Guidelines were prepared by the Japan Overseas Forestry Consultants Association under the supervision of the Japan International Cooperation Agency.

Environmental Guidelines
on
JICA Development Study for Forestry Development Projects

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Preface to the First Edition

With the understanding of the importance of environmental considerations in the implementation of development programs and projects to achieve sustainable development in developing countries, the Japan International Cooperation Agency (JICA) has been promoting environment-related technical cooperation and putting an emphasis on proper incorporation of environmental consideration in development projects.

Recognizing significance of environmental issues, JICA has prepared the Environmental Guidelines on JICA Development Study for Forestry Development Projects (hereinafter, the Guidelines) in order to use in screening and scoping procedures of environmental impacts in JICA development studies on forestry. The Guidelines has been prepared to formulate environmentally sound development projects by identifying anticipated impacts on the environment and properly integrating environmental consideration into development projects.

The Guidelines are designed to assist all those involved in assessing environmental impacts in the preparatory stage of JICA development studies on forestry . Sustainable forestry developments could be achieved only when negative environmental impacts are identified and adequately addressed at the earliest possible stage of development. The Guidelines also provide information and general ideas on environmental considerations in forestry development projects with referance to forestry operations with negative environmental impacts.

The preparation of the Guidelines has been assisted by a number of people, without whose help the task would have been considerably more difficult. I am grateful to all those who have assisted in any way but are, in particular, indebted to the following:

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Vice President
Japan International Cooperation Agency
March , 1993.

Policy Underlying Preparation of Guidelines

1. These guidelines applies to a preliminary environmental study covering the expected environmental impact of the forestry development project. The initial environmental examination is part of the preparatory study conducted prior to the development study on forestry . JICA previously prepared environmental guidelines applicable to a number of sectors, including agriculture and rural development. The guidelines are basically same as those in other sectors in terms of structure, content, style and application. However,the characteristic aspects of forestry are more fully taken into consideration, as described in the following paragraphs.

2. Any forestry development project, particularly a reforestation project, should be for environmental improvement and have a positive environmental impact. In some case, however, there may be negative impacts on environments (including the social environment) depending on silvicultural systems, tree species and forest management systems. There may also be ways to positively enhance the environment.

   Accordingly, these guidelines takes both positive and negative environmental impacts of the project into consideration. Measures for enhancement of positive aspects and avoidance or mitigation of negative impacts are presented in the guidelines.

3. As described in the Tropical Forest Action Plan (TFAP), the basic principle of the forestry development project is "sustainable development". This requires not only the conservation of the environment, including soil, water, ecosystem etc., but also sustainability of production and harvesting of forest products. This "principle of sustainability" has been respected as fundamental for forestry and forest science for a long time. Therefore, sustainability will be particularly emphasized on the checklist in these guidelines.

4. The forestry development project has various stages from preharvest to postharvest, including forest inventory, logging, forest road construction, log transportation, tree plantation, natural regeneration, forest management, soil conservation and log processing and distribution (including timber storing). A number of these operations generally constitute the project . Each operation is different in terms of the effects on the environment. The types of forestry development projects are recognized in these guidelines as shown in Table 3.1.

5. Forestry management generally requires a long-term perspective because trees take a long time to grow until harvest. Accordingly, environmental guidelines in forestry develpment should be designed to comprehensively assess long-term effects as well as short-term ones in the period from establishment to harvesting of forests. These guidelines differ from other guidelines in that they pay more attention to the transformation of natural and social environments with much longer perspective.

Definitions and Terminology

Environmental consideration

The process of studying and assessing the potential significant natural and social environmental impacts of a proposed development project, and proposing practical measures to avoid, to mitigate and minimize negative impacts.

The environmental consideration process proposed in the Guidelines consists of, Screening, Scoping, Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA).

Screening

To assess a proposed project and determine whether JICA development study (forestry) requires IEE or EIA or not. JICA defines the screening done prior to a preparatory study based on available data and independent information as Initial Screening, and the screening done by the preparatory study mission jointly with a recipient country as Joint Screening.

Scoping

To identify significant impacts to be assessed through IEE or EIA for a JICA development study (forestry). These impacts are listed in a file of potential environmental impacts of a proposed project. JICA defines the scoping done prior to a preparatory study based on available data and information independently as Initial Scoping, and the scoping performed by a preparatory study mission jointly with a recipient country as Joint Scoping.

IEE : Initial Environmental Examination

Preliminary environmental review to assess whether EIA is necessary or not for a JICA development study. Generally IEE is carried out over a short period with a limited budget and use of existing data and experience in similar projects. Major study components of IEE include identification of the project outline and of site environmental conditions (Project Description and Site Description), preliminary assessment of negative environmental impacts of the proposed project and evaluation of whether EIA is required in a JICA development study or not.

EIA: Environmental Impact Assessment

For a detailed investigation on potential environmental impacts the proposed project identifies and assesses potential environmental impacts.

The EIA process consists of predictiing the environmental impacts of the project and evaluation of the same, establishment of environmental protection criteria to be observed, and recommending or proposing measures to avoid or mitigate negative impact.

Environmental Protection Measures

Measures to avoid or mitigate potential adverse environmental impacts which might result from the proposed project. The measures include environmental monitoring arrangements to detect adverse impacts at an early stage and provisions to avoid or mitigate potential adverse impact and support positive impacts. They also include, in a broad sense, as components of environmental protection, measures that strengthen environmental administrative institutions and the development of human resources in the environmental sector.

Sectoral Environmental Guidelines

The technical guidelines prepared for environmental consideration that are incorporated in the stages of project planning and implementation.

The guidelines are usually prepared for each of the major development sectors such as the establishment of afforestation projects and forest utilization operations (logging, forest road construction, forest product processing etc.)

PD : Project Description

Description of the outlines and components of a proposed forestry project.

The project description should present information on: 1) project background ; 2) general information such as objectives, executing agency or agencies, beneficiaries and area of the proposed project; 3) project components and scale. The forestry development sector to which the Guidelines apply can be divided into several project components such as logging operations, forest road construction, natural regeneration, nursery practices, erosion control, agroforestry, timber processing and disrtibution of wood products. Major environmental aspects and impacts to be reviewed or assessed in the environmental consideration process can be clearly defined once the aforementioned project components are identified in sufficient detail.

SD : Site Description

Description of environmental conditions with particular significance to the study area of a proposed forestry project.

Under the Guidelines, a proposed project has to recognize the natural and social environment of study areas into account. Natural environments of specific importance include arid and semi-arid lands, seasonal forests, tropical rainforests, wetlands, mangrove forests and tropical highland forests. Social environmental factors worthy of special attention are those which include ethnic minorities, historically important cultural assets, valuable biological species, protected forests and national parks. Major environmental aspects and impacts to be reviewed or assessed in the environmental consideration process can be clearly defined once these environmental features in study areas are identified in sufficient detail.

Environmental Category

Natural and social environments affecting the related populations of a project area.

In the Guidelines natural environmental categories consist of biological and ecological issues, soil and land resource issues, hydrology and air and water quality issues, Sustainable functions of forest resources. Social environmental categories include socio-economic issues, health and sanitary issues, and cultural issues.

Environmental Impact

Significant adverse impact selected for assessment due to their probable occurrence as a result of a proposed forestry project.

Major environmental impact covered in the Guidelines include desertification, soil erosion, soil salinization, involuntary settlement, increase in income disparity, adjustment and regulation of riparian rights and outbreak of endemic diseases.

Environmental Considerations in Development Study

Under the scope of a JICA development study the environmental impacts identified as insignificant through the process of screening and scoping also include minor adjustments of riparian rights, although EIA is not necessary in this case. Such impact, duly reviewed in the course of project planning under JICA development study and its related process, are to be clearly defined.

Chapter 1 Introduction

Chapter 1

Introduction

1.1 Background

In recent years, the global deterioration of natural environments has become more acute as manifested by the destruction of tropical forests, desertification, frequent occurrence of floods or drought, extinction of species and the increase of CO_2 gas in the atmosphere. Furthermore, the rapid increase in population has led to degradation of the social environment such as shortage of agricultural land and fuelwood, thus creating problems in forest conservation and management.

These environmental problems are more serious in developing countries. For instance, an FAO study indicates that from 1981 to 1990 approximately 15.4 million ha of tropical forests were destroyed each year. By comparison, the average annual rate of tropical forest denudation was 11.3 million ha. from 1976 to 1980.

In order to cope with such serious environmental problems, especially in developing countries, the international organizations and aid agencies of developed countries are exploring numerous options for enhancing cooperation on environmental issues. One of the major priorities is an increase in the level of development aid provided to developing countries.

The Japan International Cooperation Agency (JICA) formed an Aid Study Group on Environment (hereinafter, the Study Group) in 1988, aiming at strengthening and promoting international cooperation in the environmental sector. Issues investigated by the study group included: 1) The process of scoping and the discussion of minutes, and 2) formulation and discussion of the environmental guidelines.

1.2 Reason for Guidelines Preparation

Reason for guidelines preparation is to predict environmental concerns, and to describe a screening and scoping process suited to the preparatory investigation stage in forestry development projects undertaken by JICA.

1.3 Application of the Guidelines

The Guidelines are intended to be applied as follows.

(1) At the earliest possible stage, preferably in the identification of proposed projects for development study and the fact-finding of the officially requested development study, initial screening is begun in the JICA as in-house work based upon the documents, relevant data and information submitted from the partner country in order to decide whether Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA) are required for the study.

(2) The results of the initial screening are reviewed with the authorities of the partner country during the JICA preparatory study mission. The formats and checklists appended to the Guidelines are to be used during the review. The environmental impacts which would have a significant effect on the project implementation are identified and screened out. If the joint screening concludes that the proposed project is not expected to result in Significant Environmental Impacts (SEIs), IEE and EIA are judged to be unnecessary.

(3) In cases where an IEE or EIA is considered necessary for the project, the probable SEIs are evaluated based on the appended checklists, and the scope of the IEE or EIA is then worked out. Accordingly, the outcome will be clearly stipulated in the S/W, which the JICA mission and the authorities of partner country will agree upon. In this scoping, an effort must be made to foresee appropriately and concretely the probable SEIs, fully employing the Appendix "Significant Environmental Impacts and Issues." The SEIs that cannot be clearly identified in this scoping stage should be further refined at subsequent stages.

(4) According to the S/W agreed upon, the terms of reference for the consulting services are prepared so as to organize the best-suited study team for the EIA or IEE; this team will subsequently compose an integral part of the M/P and F/S (hereinafter including Pre F/S as well).

1.4 Basic Concepts for Environmental Consideration

The" Report of the Aid Study Group on Environment" 1988, defines environmental consideration as "(1) to study the environmental impact of a development; (2) to assess the results of the study; and (3) to formulate measures to prevent or alleviate the impact if necessary." Under the definition mentioned above, it is essential to address the possibility of sustainable development in preparing the projects. Therefore, environmental consideration should be regarded as, the process of project planning in order to guarantee sustainable development.

Environmental consideration should be undertaken in accordance with the laws, regulations, guidelines and other relevant arrangements that partner countries apply to environmental management. However, it often happens that laws or regulations covering environmental consideration are either non-existent or not applied as expected. What is more difficult is that policies and systems for environmental management differ from one country to another. It is essential, therefore, that environmental consideration procedures be based on the results of intensive consultations and discussions between JICA and the involved agencies of the partner countries regarding environmental policies and regulations, institutional arrangements on environmental management, the state of environmental quality and the socio-economic situation.

The process of environmental consideration in JICA development studies involves, in compliance with the environmental requirements of partner countries, working to secure sustainable development for improvement of living standards of peoples and ensuring that the relevant development projects are harmonious with environmental quality in and around the project areas. For example, inappropriate consideration of the management of natural resources surrounding a project area may result in impediment of sustainable development due to degradation of the project area itself. This may in turn lead to deterioration in the living standard of local people and have other adverse effects. Accordingly, for the sustainability of a proposed development, it is necessary to consider the balance between 1) the benefit and adverse effect of development and 2) natural resources management in and around a project area and the resources required for the social and economic activities of the affected population. In addition, afforestation projects must be seen to contribute to an improved standard and quality of living in and around the project area.

Therefore, the environmental consideration process is regarded as the procedure not only of predicting and assessing degrees of negative impact and to study environmental protection measures, but also of assessing the benefits of a project in a region and a district, the harmony between development and environment, and the degree of environmental enhancement of affected areas; and to monitor the environmental consequence. The monitoring process includes arrangements for monitoring significant changes in the environment during construction of a project and environmental monitoring after the commencement of project operations.

Figure 1.1 suggests the environmental consideration process which DAC has proposed for environmental impact assessment and monitoring of activities in a project cycle.

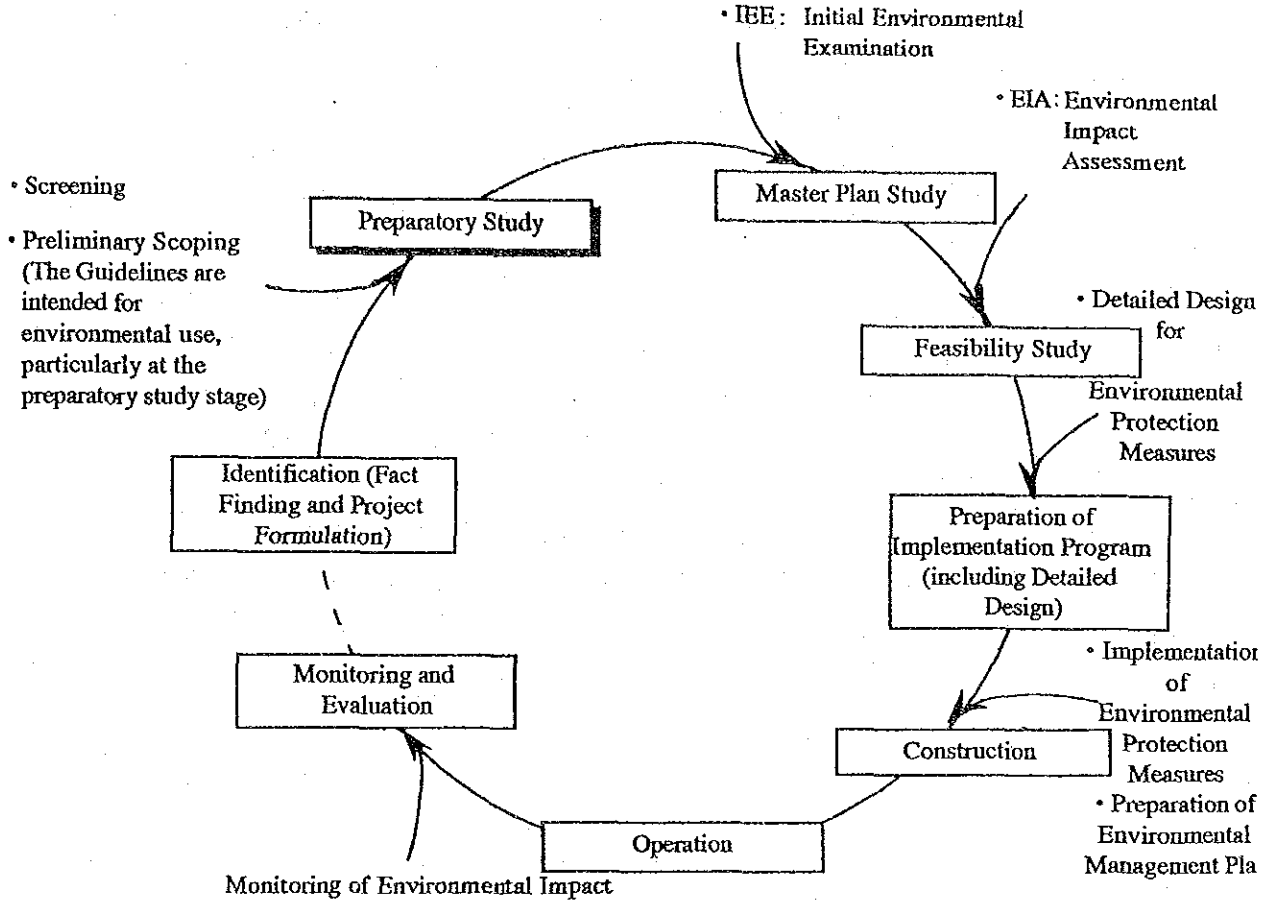

Figure - 1. 1 Process of Environmental Consideration in Project Cycle

The cycle of a development project consists of: 1) project identification and preparatory study; 2) project study, composed of master plan and/or feasibility study with EIA; 3) project implementation, consisting of preparation of implementation program and construction accompanied by execution of necessary environmental measures and preparation of an environmental management plan; 4) project operation with environmental monitoring; and 5) project monitoring and evaluation. The results and findings of monitoring and evaluation are then added to the project formulation of a future project. The environmental management plan in this cycle refers to monitoring environmental changes arising as a result of the implementation of the project.

The Guidelines address the process involved in the preparatory phase of a JICA development study, and outlines the scope of work involved in formulating the master plan, the basic design and the feasibility study for specific projects, particularly forestry and rural development projects.

Table 1.1 shows the environmental consideration process as it corresponds to each project implementation stage and Table 1.2 indicates environmental considerations applied under development studies undertaken by JICA.

Table - 1. 1 Project Implementation and Environmental Consideration

Stage of Project Implementation			Environmental Consideration Process
Conducted by JICA	Preparatory Study		(Screening and Scoping) Preliminary Environmental Study (PES)
	Master Plan Study	Feasibility Study	Initial Environmental Examination (IEE)
	Feasibility Study		Environmental Impact Assessment (EIA)
Implemented by Executing Agency	Preparation of Implementation Program (including Detailed Design)		Detailed Design for Environmental Protection Measures
	Construction		Implementation of Environmental Protection Measures Preparation of Environmental Management Plan
	Operation		Monitoring of Environmental Impact

Notes:

1. The correspondence between the respective stages and processes indicated above may vary slightly depending on the specific requirements of a project or recipient country.
2. IEE and/or EIA are not required in some projects.
3. Preparation of the Implementation Program includes the detailed design of construction work and necessary facilities for environmental protection measures.
4. PES must focus on the areas described in the guidelines.

Table - 1. 2 Environmental Consideration Process in JICA Development Studies

Process of Development Study		Environmental Consideration Procedures	Checking Items for Environmental Consideration
Project Identification	Identification(Fact finding and project formulation) Receipt of TOR for the requested Study ↓ Review of the TOR	(Initial Screening) To judge necessity of IEE or EIA	
Preparatory Study	Field study Consultation & agreement to S/W Preparation of Preparatory Study Report	(Screening) To confirm results of Initial Screening (Joint Scoping) To Determine Scoping on IEE or EIA To determine allocation of tasks to each government	(Preparation of S/W and M/M) To examine representation of environmental study items agreed upon the basis of screening and scoping (Reporting on Preparatory Study) To clarify screening and scope process and findings/agreed-upon items
Selection of Consultant	Preparation of TOR for consulting firms		(Contents of TOR for Consulting Firms) To finalize IEE/EIA TOR and estimate man-months required for consultants
	Selection of consulting firms		(Selection of Consulting Firms) To evaluate study proposals presented by Consulting Firms
Implementation of F/S or M/P	Preparation of and consultation on IC/R Preparation of and consultation on DF/R Preparation and submission of F/R		(Technical Approach to IEE/EIA) To conduct consultation and to finalize EIA items and methodology in accordance with scoping results (Monitoring) To monitor whether appropriate study is conducted for IEE or EIA (Final Reporting) To clarify IEE or EIA results, recommendations,etc.

TOR - Terms of Reference
S/W - Scope of Work
IC/R - Inception Report
DF/R - Draft Final Report
F/R- Final Report

Chapter 2 Use of the Guidelines

Chapter 2

Use of the Guidelines

2.1 Objectives of the Guidelines

In formulating the development study plan for forestry projects, it is essential to foresee potential significant environmental changes induced by the implementation of the proposed project plan, and to take necessary measures for ensuring appropriate environmental considerations.

Therefore, as a part of the environmental consideration process, the Guidelines have been prepared to assist screening and scoping prior to or in the course of the preparation for the work of the studies. The Guidelines aim at eliciting the benefits of environmental concern, and expediting the appropriate considerations in the subsequent development study conducted by JICA.

2.2 Scope of the Guidelines

(1) User

The Guidelines are designed to assist mainly JICA staff and mission members involved in the preparatory work for development studies.

(2) Intended Studies

The Guidelines are aimed at guiding the preparatory work for the implementation of JICA development studies, i.e., feasibility studies (F/S), pre-feasibility studies (Pre F/S) or master plan studies (M/P) for forestry in developing countries.

The Guidelines are inapplicable directly to small-scale studies such as basic design studies under the grant aid program, detailed design survey for model infrastructure, or technical assistance by JICA for the investment and financing of development projects. However, the overall ideas for the environmental consideration process discussed in the Guidelines allow the user to apply these to small-scale studies as well.

In general, surveys of forest resources in forest development projects consist of two sections: i) plan for forest management, and ii) inventory of forest resources (base of forest management). The case for forest inventory is not necessarily of environmental concern, however, forest management must make M/P, M/P and F/S or screening and scoping in F/S depending on survey elements.

2.3 Preparatory Stage for Development Study

A development study is generally divided into the following two stages:

(1) The study preparation stage, which consists of scrutiny and identification of the official request for the study, preparatory study, and selection of consultants.

(2) The implementation stage of the F/S or M/P by the JICA consultants.

Figure 2.1 illustrates the procedure at these stages.

The F/S and M/P are categorized into two study components, as described below:

-***Main development study,*** which is directly related to the envisioned specific forest development, and consists of studies on the present status of the project area, analysis of development constraints, formulation of the development plan, facility planning, operation and maintenance plans, estimation of costs and benefits, economic and financial analysis, etc.

-***Environmental study,*** which is carried out only when required, and consists of IEE, Pre EIA * or EIA.

The major environment-related work during preparation of the F/S and M/P is outlined below and shown in Figures 2.1 and 2.2.

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* Pre EIA: In the some developing countries, Pre EIA is required by local guidelines. The EIA is intermediate between the IEE and EIA and consist of the description of positive and negative environmental impacts and simple mitigation measures.

(1) Collection of Environmental Data and Information

Data and information such as project outlines and environmental conditions are collected from the project documents and other sources at this stage.
The Japanese Embassy and the JICA field office will ask the partner authority to submit the environmental data, information and paper references with the project documents that include the Terms of Reference (TOR) of the development study.

(2) In-house Preparatory Work

1) Preparation of PD and SD Forms

The Project Description (PD) and Site Description (SD) Forms clarify the project outline, environmental conditions, environmental authorities and institutions, environmental policies, laws, regulations and guidelines, possible mitigation measures mitigating environmental impacts, etc.

2) Initial Screening and Matrix

The members of the preparatory study mission carry out the initial screening and scoping in Japan prior to their field work for the preparatory study. This consists of foreseeing and evaluating the potential SEIs and formulating the field work components necessary for effective environ-mental consideration.

(3) Field Work

1) Survey in Partner Country

It is to be confirmed, in line with the field work plan, that the data and information for the project outline, environmental conditions, environmental authorities and institutions, environmental laws and regulations, particularly the EIA system implemented in the partner country, mitigation measures, etc., which were collected in Japan .

2) Joint Screening and Scoping

On the basis of the collected information, the preparatory study mission and the responsible agencies in the partner country carry out the joint screening and scoping for EIA. (Participation of a high-level decision-maker from the environmental authority is requested as needed.)
Careful attention should be given to the laws, regulations and guidelines on EIA

that are in force in the partner country.

3) Agreement on Scope of Environmental Study

When the IEE or EIA to be conducted in the M/P or F/S is agreed upon as the result of joint screening and scoping, the scope and implementation of such a study are discussed in further detail. Then, both parties sign the S/W agreement after they reach a conclusion. If some special conditions need to be explicitly set out, a Minutes of the Meeting (M/M) is prepared.

(4) In-house Work

1) Reporting on Preparatory Study Mission

The preparatory study mission summarizes the findings and results of the study in the preparatory study report and submits it to JICA.

2) Preparation of Terms of Reference for Environmental Study

The mission and responsible JICA officials prepare the terms of reference for the consulting firms that will carry out the M/P or F/S and for the environmental study, as necessary.

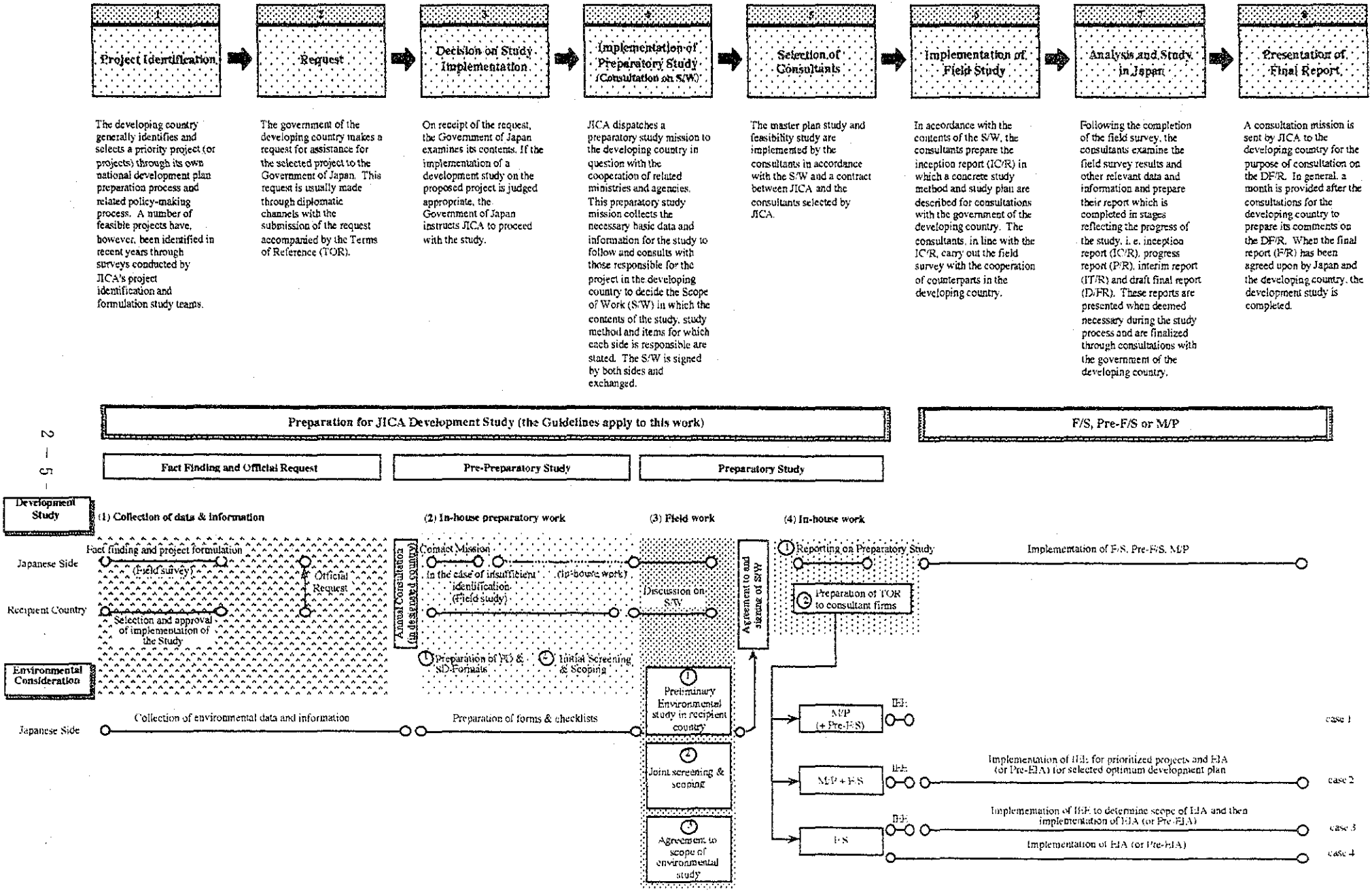

Figure - 2 . 1 Implementation of Development Study and Associated Environmental Consideration

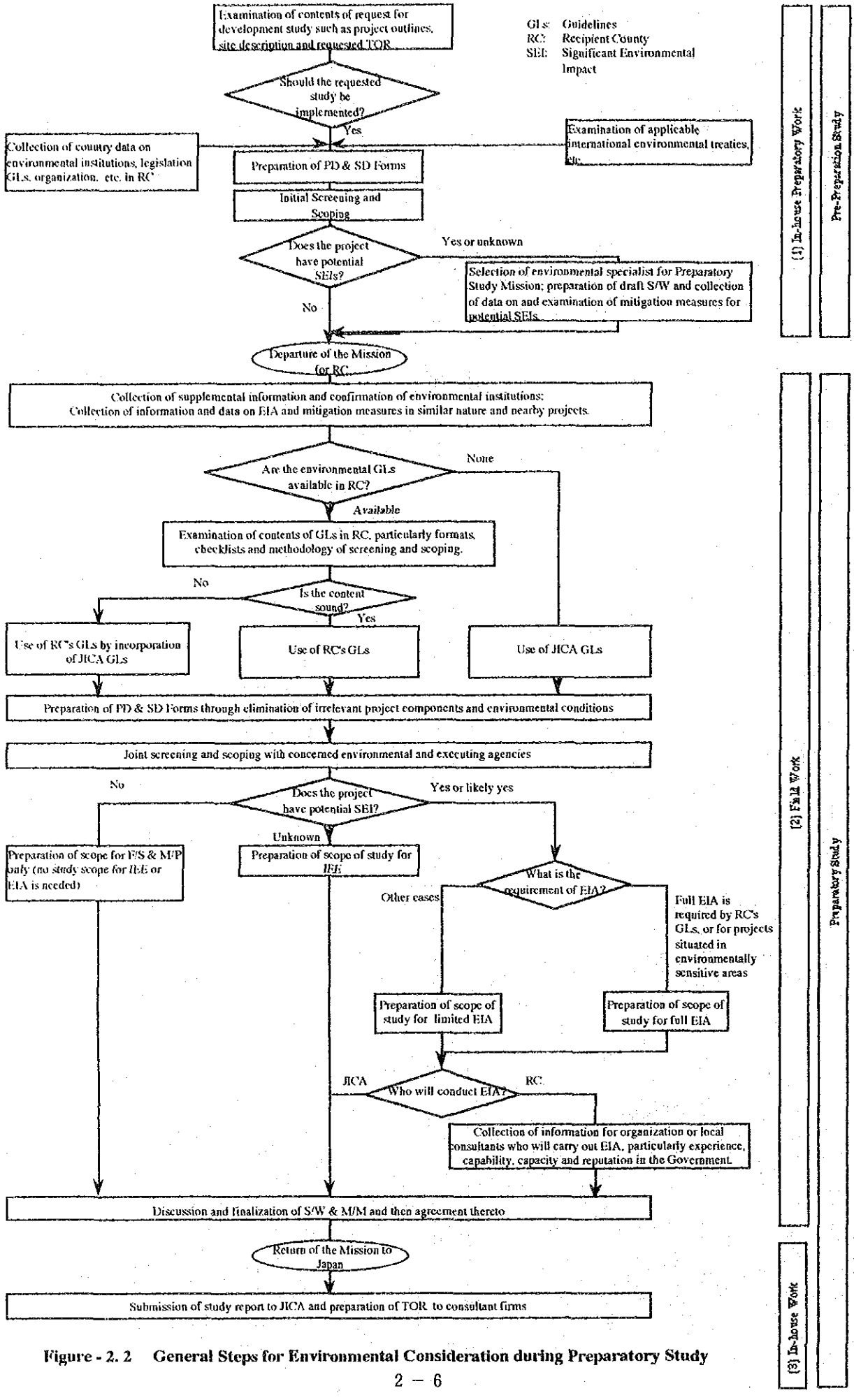

Figure - 2. 2 General Steps for Environmental Consideration during Preparatory Study

Chapter 3 Guidelines

Chapter 3

Guidelines

3.1 Components of the Guidelines

The Guidelines for screening and scoping have been structured as follows:

(1) Preparation of PD and SD Forms

a. General
b. Project Description (PD) Form
c. Site Description (SD) Form
d. Sample PD and SD Forms

(2) Initial Screening and Scoping Matrix

a. General
b. Screening Checklist
c. Scoping Matrix
d. Samples for Screening Checklist and Scoping Matrix

(3) Joint Screening and Scoping Checklists

a. General
b. Scoping Checklist
c. Samples for Joint Scoping Checklist

(4) Overall Evaluation

(5) Preparation of S/W and M/M

(6) Preparatory Study Report

3.2 Key Points to be Noted

(1) Basic Points

It is imperative that the Guidelines be used with due consideration to the environmental policy and situation in the partner country, particularly with regard to institutions, legislation, guidelines, etc..

In countries where environmental regulations and guidelines requiring IEE or EIA have been established, the screening and scoping should be conducted in accordance with these regulations and guidelines.

In countries where there are no such requirements, screening and scoping are to be conducted in accordance with the Guidelines, after fully explaining the Guidelines and having understanding of a counterpart authority on environmental consideration.

(2) Avoiding Duplication of Studies

Unnecessary duplication of specific study items should be avoided, particularly socio-economic ones, which are already included in the scope of a development study of the F/S or M/P, among the environmental items.

(3) Deepening Environmental Consideration by Stages

The process of implementing a development study comprises a sequence of stages including examination of the requested study, execution of a preparatory study, selection of consultants and implementation of the M/P or F/S. Environmental considerations should be repeated accordingly at each stage.

With reference to the figure and tables presented in Chapter 1, it is therefore prerequisite to clearly understand environmental issues that define a environmental study and its role in each corresponding stage. Based upon this understanding, preparatory work for a development study should proceed step by step so as to identify significant environmental impacts anticipated on a development project. The formats that appear in the Guidelines may be properly adapted, when necessary, considering specific social, economic and environmental quality and conditions in a partner country.

3.3 Preparation of PD and SD Formats

3.3.1 General

(1) Purpose of Project Description (PD) and Site Description (SD) Forms

Forms for the Project Description (PD) and Site Description (SD) of the proposed project (hereinafter referred to as "the Project") are prepared to summarize the basic data required for screening and scoping activities on the requested development study for a forestry project.

(2) Preparation Process

1) Preparation of PD and SD Forms in In-house Work

In line with the request document for the development study of the proposed project, preparatory PD and SD forms are prepared on the basis of the available data and information submitted by the partner government. Information necessary for preparing the forms includes:

- Background information and objectives of the proposed project in the requested development study (clear long-and short-term objectives and background information necessary for justifying the proposed project);
- Brief description of the proposed project;
- Major components and development scale of the proposed project;
- Information on national and local environmental authorities concerned and on relevant environmental laws, regulations, and guidelines, particularly for EIA procedures;
- Information on the socio-economic and natural conditions of the proposed project area;
- Information on environmentally sensitive areas in and around the proposed project area.

Although the available information for the proposed project is usually limited at this stage, it is important to collect, to the extent possible, the country environmental profiles that include the following information:

- Country data on forestry and rural development, relevant environmental considerations, and environmental information published by the United Nations and other

international organizations;

- Adopted international environmental treaties for conservation of wetlands, fauna and flora, etc., that apply to the proposed project area and vicinity, if any.

2) Completion of PD and SD Forms in Field Work

In order to conduct appropriate and precise screening and scoping on the proposed project, it is necessary in the course of the field work to improve and supplement the forms with additional data and information available in the partner country. The preparatory PD and SD Forms prepared in the in-house work are refined accordingly, and thus completed.

3.3.2 PD Formats

(1) PD Form

Major items on the PD Form (attached Form 1) to be filled in are as follows:

1) **Study Title (Project Name);**
2) **Project Type;**
3) **Background Information and Objectives of Project (long-and short-term objectives, justification and other background information on proposed project);**
4) **Brief Description of Project;**
5) **Major Components and Development Scale of Project;**

(2) Filling in the PD Form

In line with the items detailed below and shown on the PD Form, required details should be entered clearly and briefly.

1) Study Title (Project Name):

Study title (project name) of the project that is proposed by the partner country.

2) Project Type:

Description of forestry development

3) Background Information and Objectives of Project:

Objectives and justification of the proposed project, as well as any related long-term or regional development plan, policy or strategy.

4) Brief Description of Project :

(i) Outline of Project Area

- Location (name of the country, province, district and nearby major city).
- Present situation and features of the project area.

(ii) Project Area

Description of the study area or project area in hectare or km^2

(iii) Beneficiaries and Benefited Area

Benefited population and area.
(gross area, affected both directly and indirectly, is acceptable, however, "gross area" must be indicated as such.)

(iv) Major Project Components

Summary of project components that appear in item 5, "Major Components and Development Scale of Project", below.

(v) Executing Agencies

Name of the executing agencies for the proposed project and any related agencies.

(vi) Environmental Agencies Concerned

Names of the environmental-related government organizations at the national and regional levels or the environmental department of the local government.
Name of NGOs which are active in the proposed project area (those, if any, which oppose implementation of the proposed project should also be named.)

Table 3.1 Type of Forestry Development Project

Type of project		Components	Case Examples
1. Forest Management Projects (Management and development use of forests and establishment of re/afforestation)		Project of forestry operations which combine "2. Re/Afforestation Projects" with "3. Forest Exploitation Projects"	Thailand: National Forest Management Project. JICA (forest inventory, management plan)
2. Re/Afforestation Projects	Industrial re/afforestation	Re/Afforestation project for establishment of timber resources and industrial forests	Uruguay: National Afforestation 5 Year Project. JICA Malaysia: Benkokka District of Sabah State Settlement and Afforestation Project. JICA Indonesia: Industrial Afforestation Project. JICA
	Re/Afforestation as social forestry	Re/Afforestation project for production of fuel wood, fodder tree and wood for home consumption for the residents	India: Alabari Hills Afforestation Project. IBRD India: Gujarat Community Forestry Project. IBRD Bangladesh: Community Forestry Project. ADB Morocco: Fuelwood Project. JICA
	Environmental re/afforestation	Re/Afforestation project for preservation or improvement of natural environment, (e.g. Soil and water conservation projects.)	Philippines: Marikina, Establishment of Forest of Water Conservation. JICA Mexico: Mexico City Environmental Afforestation Project. OECF
3. Forest Exploitation Projects		Project concerning harvesting, forest roads, facilities, machines, and distribution of the development use of forests	Guiana: Upper Demara Forestry Project. IBRD/IDB (harvesting, sawmill, road)
4. Development Project of Forest Industries (Timber processing and timber distribution)		Project concerning forestry and forest product processing industries (e.g. sawing, plywood, timber storage and distribution facilities and market organizations.)	Laos: Second Forestry Development Project. ADB
5. Development Project of Forest Sectors (Project of promoting forestry and forest products industry)		Project concerning forestry and forest industry operations including forestry and forestry administration, reinforcement of management organization, forestry research, education and training and perfection of extension.	Philippines: Forestry Sector Loan. ADB/OECF

Project Description (PD) Form

Form 1

1. **Study Title (Project Name)**

2. **Project Type**

3. **Background Information and Objectives of Project**

4. **Brief Description of Project**

Outline of Project Area :

Project Area : _____ ha (plantation area) and _____ ha(district area)

Beneficiaries & Benefited Area : _____ persons _____ ha

Major Project Components :

Executing Agencies :

Environmental Agencies Concerned :

5. **Major Components and Development Scale of Project**

	(1) Main Project Components (Development activity)		*(2) Type of Operation*	*(3) Scale of Project* (ha, m^2, m)	*(4) Dimensions of major facilities*	*(5) Remarks*
a.	Logging operations	☐				
b.	Forest road construction	☐				
c.	Re/Afforestation	☐				
d.	Natural regeneration	☐				
e.	Nursery practice	☐				
f.	Erosion control	☐				
g.	Agroforestry	☐				
h.	Timber processing	☐				
i.	Distribution of wood products	☐				
j.	Others	☐				

5) Major Components and Development Scale of Project

(i) Main Project Components

Projects for forestry developments are categorized by 9 major components hereunder, with brief descriptions. The component(s) applicable to the Project should be identified and marked with "x" in each column corresponding to the development type of the project (whether new project or rehabilitation). Where a project consists of several components, each component is to be marked with "x", depending on the nature of the project.

a. Logging operations

This includes various types of projects, such as timber harvest projects, or for a further breakdown, commercial cutting and extraction projects for industrial purposes, as well as cutting by local residents for personal use (including fuelwood). It also includes felling, bucking, yarding, timber transportation and timber storage.

Under the "Concept of Operation" column, describe the system used, such as clear cutting (including belt and group clear cutting), shelter wood and selective cutting (including single tree and group selective cutting). Also, mark the yarding method (either tractor yarding or skyline yarding) and transportation method as well.

Under "Size of Project", describe the total targeted area, total forest stand volume, and the average annual cutting volume.

In the "Main Structure and Machinery" column, describe the most important tools necessary for the project.

Under "Notes", describe any details on the above descriptions that are necessary.

b. Forest road construction

This includes the construction of new roads and improvements or repairs to existing ones, including forest roads, feeder roads, forest railroads and timber yards (used in cutting, afforestation, forest management, erosion control,

etc.).

Under "Concept of Operation", describe the types of roads to be used and constructed (repaired).

Under "Size of Project", describe the length of construction and the size and area of the roads and other facilities.

Under "Main Structure and Machinery", describe any engineering work such as bridges, and any heavy machinery used in construction.

Under "Notes", describe any environmental preservation provisions accompany the construction work.

c. Re/Afforestation

This includes any project components that have to do with re/afforestation work. In other words, this includes industrial re/afforestation for growing industrial materials, plantation or social forestry for household usage, such as fuelwood for local residents, and environmental forest plantation for erosion control, stopping desertification, shelter forest plantations, etc. It also includes other types of re/afforestation, such as site preparation, planting (including fertilization), regeneration of man-made forests through coppicing, supplementary planting, replanting, tending (weeding, vine cutting, clearing, thinning, etc.) and protection.

Under "Concept of Operation", describe the species names and their harvesting ages.

Under "Size of Project", describe the total targeted area of re/afforestation and the average annual planting area.

Under "Main Structure and Machinery" describe the heavy machinery used in the afforestation, any facilities to be used, as well as any chemicals or fertilizers to be used.

Under "Notes", describe any details on the above descriptions that are necessary.

d. Natural Regeneration

This includes all projects with a purpose in natural regeneration. In other words, this includes natural regeneration that is involved in industrial silviculture, social forestry and environmental silviculture. Also, the components of regeneration, such as any pregeneration system, seed tree system and enrichment planting.

Under the "Concept of Operation", describe the management plans, planned species, and cutting cycle.

Under "Size of Project", describe the targeted area for regeneration and average annual regeneration area.

Under "Main Structure and Machinery" describe any machinery, facilities, chemical, and fertilizers to be used.

Under "Notes", describe any details on the above descriptions that are necessary.

e. Nursery Practice

This includes project components having to do with nursery establishment, seedling production and breeding.

Under the "Concept of Operation", describe the breakdown between central and local, and the species that will be used.

Under "Size of Project", describe the size of any facilities, nurseries, seed or scion orchards and other nursery facilities.

Under "Main Structure and Machinery" describe any machinery used for watering work, and tending work, as well as any chemicals and fertilizers.

Under "Notes", describe any details on the above descriptions that are necessary.

f. Erosion Control

This includes any projects having to do with stream work, hillside work, etc., concerning erosion control.

Under the "Concept of operation", describe the type of erosion control to be used.

Under "Size of Project", describe the execution area, construction equipment, scale and the number of places it is to take place in.

Under "Main Structure and Machinery" describe any heavy machinery to be used for erosion control, as well as any chemicals and fertilizers.

Under "Notes", describe any details on the above descriptions that are necessary.

g. Agroforestry

This includes any project components having to do with land usage in mixed agriculture and forest areas or mixed grazing and forest areas.

Under the "Concept of Operation", describe the type of agroforestry system to be used.

Under "Size of Project", describe the targeted area and number of sites the project is to take place.

Under "Main Structure and Machinery" describe any of the infrastructure and heavy machinery needed for agroforestry, as well as any chemicals and fertilizers to be used.

Under "Notes", describe any details on the above descriptions that are necessary.

h. Timber processing

This includes all physical and scientific aspects of any project components, having to do with the sawmill industry, plywood industry, particle board industry, woodcraft/furniture industry, chip/paper pulp industry and charcoal making industry.

Under the "Concept of Operation", describe the type of industry (from above) and the material wood supply situation for each.

Under "Size of Project", describe the area of the facilities, annual (monthly) wood production amount, amount of material wood consumption and the amount of water consumption.

Under "Main Structure and Machinery" describe any infrastructure, heavy machinery and chemicals used in the processing work.

Under "Notes", describe any details on the above descriptions that are necessary.

i. Distribution of wood products

This includes any project components having to do with shipping, timber storage, sales and other distribution work.

Under the "Concept of operation", describe the type of work as listed above.

Under "Size of Project", describe the areas of the facilities and storage spaces, and the amount that they annually (monthly) handle.

Under "Main Structure and Machinery" describe any infrastructure and heavy machinery needed for a distribution project and any chemicals used.

Under "Notes", describe any details on the above descriptions that are necessary.

6) Remarks

This includes any issues to be written in detail among the development activities mentioned above.

3.3.3 SD Formats

(1) SD Form

The present socio-economic status and the natural conditions of the project area are described on the SD Form (see attached Form 2). Environmentally sensitive areas should specially be examined on the form. The description focuses, in particular, on the following environmental conditions of the project area:

1) Study Title (Project Name)

Name of project used in the request from the partner country.

2) Present Socio-economic Status of Project Area

Land ownership, land use, economic activities, customs, indigenous people or community, public health conditions, population, etc.;

3) Natural Conditions of Project Area

Climate, topography, geology, hydrology, soils, vegetation, rare species or ecology, etc.;

4) Environmentally Sensitive Areas in Project Area or Vicinity

Area under specific designation as national parks, protected forest, bird sanctuaries, etc.;

Socio-economically sensitive areas ;

Environmentally sensitive natural land ;

5) Other Information

Description of cases where SEIs were observed in a project area, in its vicinity or in similar areas.

Site Description (SD) Form

Form 2-1

1 Study Title (Project Name)

2 *Present Socio-economic Status of Project Area*

(1) Land ownership :

(2) Land utilizations :

(3) Economic activities in and around the project area :

(4) Customs (forest utilization rights) :

(5) Indigenous people or community :

(6) Public health conditions :

(7) Population :

(8) Others :

3 Natural Conditions of Project Area

(1) Climate :

(2) Vegetation :

(3) Topography :

(4) Soils :

(5) Hydrology and drainage conditions :

(6) Ecosystems :

(7) Rare species or fragile ecology :

(8) Others :

4 Environmentally Sensitive Areas in Project Site or Vicinity

* N.A. : Not Applicable

Environmentally Sensitive Area		In Project Area			Vicinity of Project Area		
		Appl.	N.A.	Unknown	Appl.	N.A.	Unknown
a. Area under specific designation							
S1.	Habitat of fauna and flora listed in CITES	☐	☐	☐	☐	☐	☐
S2.	Migratory bird habitat	☐	☐	☐	☐	☐	☐
S3.	Wetland designated under the Ramsar Convention	☐	☐	☐	☐	☐	☐
S4.	Heritage sites listed in the World Heritage Convention	☐	☐	☐	☐	☐	☐
S5.	Protected forests	☐	☐	☐	☐	☐	☐
S6.	National parks	☐	☐	☐	☐	☐	☐
S7.	Wild life(flora and fauna) sanctuary	☐	☐	☐	☐	☐	☐
b. Socio-economically sensitive areas							
S1.	Areas inhabited by indigenous peoples, ethnic minorities, nomads, etc.	☐	☐	☐	☐	☐	☐
S2.	Historical remains, cultural assets, aesthetic sites	☐	☐	☐	☐	☐	☐
S3.	Area likely to suffer from significant negative economic impact	☐	☐	☐	☐	☐	☐
c. Environmentally sensitive natural land							
S1.	Arid and semi-arid lands (including savanna, thorn forest, dry tropical forest, etc.)	☐	☐	☐	☐	☐	☐
S2.	Seasonal forests	☐	☐	☐	☐	☐	☐
S3.	Tropical rain forests	☐	☐	☐	☐	☐	☐
S4.	Tropical high land forests	☐	☐	☐	☐	☐	☐
S5.	Swamp	☐	☐	☐	☐	☐	☐
S6.	Peatlands	☐	☐	☐	☐	☐	☐
S7.	Mangrove forests	☐	☐	☐	☐	☐	☐
S8.	Coral reefs	☐	☐	☐	☐	☐	☐
S9.	Mountainous, steep-sloped, erodible or devastated lands	☐	☐	☐	☐	☐	☐
S10.	Closed water bodies such as lakes, swamps or reservoirs	☐	☐	☐	☐	☐	☐

5 Other Information

(2) Filling in the SD Form

In line with the items indicated on the SD form and detailed in 1), 2) and 3) hereunder, required information about the project area should be completed clearly and briefly.

1) Study Title (Project Name)

Name of the proposed project used in the request for the development study;

2) Present Socio-economic Status of Project Area

(i) Land ownership:

Proportion of the forest owned by government, townships, private bodies, local communities, etc. and land ownership of non- forest areas.

(ii) Economic activities in and around the project area:

Major forestry and other industrial activities in and around the project area;

(iii) Customs:

Riparian rights, water rights, shifting cultivation, illegal occupation, etc.;

(iv) Indigenous people or community:

Ethnic and tribal groups or nomadic peoples;

(v) Public health conditions:

Forestry related diseases such as schistosomiasis, malaria, onchocerciasis, elephantiasis, trypanosomiasis and yellow fever;

(vi) Population:

Population, density and distribution, growth rate, etc.;

3) Natural Conditions of Project Area

(i) Climate:

Mean annual and monthly precipitation, dry and wet seasons, highest and lowest temperatures, etc.;

(ii) Vegetation:

original vegetation and major present vegetation

(iii) Topography:

Topographic parameters such as altitude and dominant land tilt;

(iv) Soils:

Special soils, i.e., peat soils, acid sulfate soils and saline soils, if any ;

Rocks: especially those which are easily broken or eroded.

(v) Hydrology and drainage conditions:

Main features of rivers and other water bodies (discharge, size of catchment area, etc.);

Describe damage records of overflood, shortage of water and mud flow, etc.

(vi) Ecosystems:

Describe variable flora and fauna which must be conserved.

(vi) Rare species or fragile ecology:

Endangered fauna and flora or valuable ecological systems (refer to Red Data Book, International Union for Conservation of Nature and Natural Resources: (IUCN).

4) Environmentally Sensitive Areas in Project Site or Vicinity

Each impact mentioned in the following items will be examined.

In case where any of the following environmentally sensitive areas are located in the project area and vicinity, the corresponding column for applicable (Appl.), not applicable (N.A.) or not readily known (Unknown) should be marked with an "x". "In Project Area" indicates the area under the project. "Vicinity of Project Area" means nearby area including upstream or downstream basins, that may be adversely affected by the implementation of the project.

a. Area under specific designation

S1. Habitat of fauna and flora listed in CITES:

The countries that are signatories to the Convention on International Trade in Endangered Species of Wild Fauna and Flora are listed in International Treaties and Declations initiated by the United Nations and UNEP.

S2. Migratory bird habitat:

The countries that are signatories to the International Convention on the Preservation of Migratory Bird Habitats are listed in International Treaties and Declations initiated by the United Nations and UNEP.

S3. Wetland designated under the Ramsar Convention:

The countries that are signatories to the Convention on Wetlands of International Importance Especially as Waterfowl Habitat (concluded in Ramsar) are listed in International Treaties and Declations initiated by the United Nations and UNEP.

S4. Heritage sites listed in the World Heritage Convention:

The countries that are signatories to the World Heritage Convention are listed in International Treaties and Declations initiated by the United Nations and UNEP.

S5. Protected Forests :

The protected forest areas designated by national or local authority in the partner country should be listed, when the areas are located in or around the project site.

S6. National Parks:

The protected National Park areas designated by landscape, recreation and the national or the local authority in the partner country should be listed, when the areas are located in or around the project site.

S7. Wildlife (flora and fauna) Sanctuary:

Wildlife Sanctuary areas of biological and scientific importance designated by the national or the local authority in the partner country should be listed, when the areas are located in or around the project site.

b. Social environment

S1. Areas inhabited by indigenous peoples, ethnic minorities, nomads, etc.;

S2. Historical remains, cultural assets, aesthetic sites;

S3. Area likely to suffer from significant negative socio-economic impact (riparian rights, etc.);

More detailed definition of the above socio-economic items are presented in Appendix A, "Significant Environmental Impacts and Issues".

c. Natural environment

S1. Arid and semi-arid lands (including savanna and thorn forest, dry tropical forest, etc.):

These areas are in changes of desertification due to the project and are normally defined as dry lands which receive average annual precipitation of 200 - 1000 mm. per year.

S2. Seasonal forests:

These areas are defined the same as monsoon forests which are found in tropical and sub-tropical zones experiencing a distinct rainy and dry season. These forests are often in danger of becoming degraded to become savanna with significant human disturbance.

S3. Tropical rain forests:

They are characterized by extreme biological diversity.

These areas are in danger of degradation in term of bio-mass by the project.

S4. Tropical highland forests (including Moss Forests):

Tropical highland forests are defined as mountainous forest areas occurring in elevations of 1000m and over with much precipitation. In such areas the risk of landslides and soil erosion is high when the forest cover is disturbed and the flow control function of the forest is diminished.

S5. Swamp:

Swamp are defined as marshes, fens, herbaceous or wooded swamps, lagoons, etc. These areas are easily damaged by logging operation and forest road construction.

S6. Peatlands:

Peat lands are defined as deposits of decomposed humus in areas where ground water and acidity are high. These areas are easily damaged by logging operations and forest road construction.

(Peat lands mean specifically tropical peat soils in the Guidelines.)

S7. Mangrove forests:

These are mangrove forest areas which have been disturbed only slightly by human activities and are thus characterized by the wealth of biological diversity.

S8. Coral reefs:

These are coral reef areas which have been disturbed only slightly by human activities and are thus characterized by the wealth of biological diversity.

These areas are degraded by soil washed into the sea following forest disturbance due to logging operations, forest road construction and tree planting operation.

S9. Mountainous, steep-sloped, erodible or devastated lands:

Those lands which are subject to soil erosion or landslides.

S10. Closed water bodies such as lakes, swamps or reservoirs:

Closed inland bodies of water such as lakes, swamps and reservoirs located downstream of a project site are, in some cases, affected by the project through water level changes or contamination.

More detailed definition of each of the above listed natural land areas is given in Appendix A, "Significant Environmental Impacts and Issues".

5) Other Information

Any available information pertaining to the following cases should be described briefly:

Description of cases where SEIs were observed in or in the vicinity of the project area, or at a similar project site.

Flight course and return destination of migratory birds.

Others.

3.3.4 Sample for PD and SD Formats

Completed samples of PD and SD Forms are attached for reference.

Sample of Project Description (PD) Form

Sample Form 1

1. *Study Title (Project Name)*

Afforestation Project in C hills area

2. **Project Type**

Afforestation Project (include social forestry)

3. **Background Information and Objectives of Project**

In accordance with the request of the government of B state in A country, the F/S will be undertaken mainly for afforestation in social forestry, providing seedlings for private sectors and wild life conservation will be conducted. The purposes of the project are rehabilitation of degraded forest, increase of fuelwood supplies, soil conservation and balancing of ecosystem in C hills area in the state.

4. **Brief Description of Project**

Outline of Project Area	:	Semi-arid hills area in B state in western part of A country, which has been heavily deforested.			
Project Area	:	183,000	ha (plantation area)	and 10,460,000	ha(district area)
Beneficiaries & Benefited Area	:	Many and unspecified persons		183,000ha (area) and related watershed	
Major Project Components	:	Tree plantation, Natural regeneration, Seedling production, Soil conservation, agroforestry, etc.			
Executing Agencies	:	Ministry of Forestry and Environment			
Environmental Agencies Concerned	:	Ministry of Forestry and Environment			

5. **Criteria for initial Environmental Examination (IEE) and Environmental impact Assessment (EIA)**

	(1) Main Project Components (Development activity)		(2) Type of Operation	(3) Scale of Project (ha, ㎡, m)	(4) Dimensions of major facilities	(5) Remarks
a.	Logging operations	☐				
b.	Forest road construction	☐				
c.	Re/Afforestation	☒	Planting fuelwoods or fodder trees	183,000ha	Not applicable	
d.	Natural regeneration	☒	Regeneration by coppice	22,000ha	Not applicable	
e.	Nursery practice	☒	Nursery developments	10 local nurseries	Not applicable	190.18 million seedlings production
f.	Erosion control	☒	Check dam constructions	150 dams	Not applicable	
g.	Agroforestry	☒	Distribution of Seedlings for farm forest (inter-cropping)	750,000,000 seedlings	Not applicable	
h.	Timber processing	☐				
i.	Distribution of wood products	☐				
j.	Others	☒	Wild life (fauna and flora) sanctuaries		Dam and reservoir constructions	

Sample of Site Description (SD) Form

Sample Form 2-1

1 Study Title (Project Name)

Afforestation Project in C hills area

2 Present Socio-economic Status of Project Area

(1) Land ownership : State lands, private lands and community lands

(2) Land utilizations : Agriculture, grazing, gathering grass and gathering fuelwoods in shrubs

(3) Economic activities in and around the project area : No other noteworthy industries than agriculture

(4) Customs (forest utilization rights) : Forests in community lands are commonly used.

(5) Indigenous people or community : Farmers, seasonally shifting stock breeding farmers and tribal groups in mountains

(6) Public health conditions : No noteworthy endemic diseases

(7) Population : Population of C hills including outside of project area is 15,500,000.

(8) Others : Problems exist about resettlement of residents living inside of wild life (fauna and flora) sanctuaries.

3 Natural Conditions of Project Area

(1) Climate : 390-920mm of annual mean precipitation, 19-26℃ of annual mean temperature, 44℃ of annual maximum temperature, 0℃ of annual minimum temperature

(2) Vegetation : Original vegetation is under seasonal forest or savanna forest, however, present vegetation is under agricultural land or bare land.

(3) Topography : Mountains lower than 1,000 meters of elevation

(4) Soils : phyllite, granite, lime stones, quartz, etc. of Precambrian era gravel soil, sandy soil, sandy loamy soil, and in some areas saline soil and sandy dune exist

(5) Hydrology and drainage conditions : Project area dominates the upper reaches of a tributary of D river in A Country

(6) Ecosystems : Notable ecosystems have extinguished other than wild life sanctuaries.

(7) Rare species or fragile ecology : Tigers in wild life sanctuaries

(8) Others :

Sample Form 2-2

4 Environmentally Sensitive Areas in Project Site or Vicinity

* N.A. : Not Applicable

Environmentally Sensitive Area		In Project Area			Vicinity of Project Area		
		Appl.	N.A.	Unknown	Appl.	N.A.	Unknown
a. Area under specific designation							
S1.	Habitat of fauna and flora listed in CITES	☒	☐	☐	☐	☐	☒
S2.	Migratory bird habitat	☐	☐	☒	☐	☐	☒
S3.	Wetland designated under the Ramsar Convention	☐	☒	☐	☐	☒	☐
S4.	Heritage sites listed in the World Heritage Convention	☐	☒	☐	☐	☒	☐
S5.	Protected forests	☐	☒	☐	☐	☐	☒
S6.	National parks	☒	☐	☐	☒	☐	☐
S7.	Wild life(flora and fauna) sanctuary	☒	☐	☐	☒	☐	☐
b. Socio-economically sensitive areas							
S1.	Areas inhabited by indigenous peoples, ethnic minorities, nomads, etc.	☒	☐	☐	☒	☐	☐
S2.	Historical remains, cultural assets, aesthetic sites	☐	☒	☐	☒	☐	☐
S3.	Area likely to suffer from significant negative economic impact	☐	☒	☐	☐	☒	☐
c. Environmentally sensitive natural land							
S1.	Arid and semi-arid lands (including savanna, rangeland, etc.)	☒	☐	☐	☒	☐	☐
S2.	Seasonal forests	☐	☒	☐	☐	☒	☐
S3.	Tropical rain forests	☐	☒	☐	☐	☒	☐
S4.	Tropical high land forests	☐	☒	☐	☐	☒	☐
S5.	Wetlands	☐	☒	☐	☐	☒	☐
S6.	Peat lands	☐	☒	☐	☐	☒	☐
S7.	Mangrove forests	☐	☒	☐	☐	☒	☐
S8.	Coral reefs	☐	☒	☐	☐	☒	☐
S9.	Mountainous, steep-sloped, erodible or devastated lands	☐	☒	☐	☐	☒	☐
S10.	Closed water bodies such as lakes, swamps or reservoirs	☐	☒	☐	☐	☒	☐

5 Other Information

(1) The dam construction project in the neighboring area has been suspended due to the opposition from people who live in a damsite.

(2) The proposed resettlement plan of minorities who live in the wild life sanctuary for the purpose of wild life conservation in the project should be reviewed, since it involves involuntary resettlement.

3.4 Initial Screening and Scoping Matrix

3.4.1 General

(1) Purpose of Initial Screening and Scoping Matrix

Initial screening is the first step in determining whether the requested development study requires particular environmental consideration procedures (i.e., IEE or EIA) or not, and is carried out during the in-house preparatory work on the basis of the request document for the proposed project from the partner country and PD and SD formats.

The checklist for initial screening is used to identify the SEIs among those potential environmental impacts which may be induced by the implementation of the proposed project, and to elicit major study subjects for the subsequent field work to be conducted by the preparatory study mission.

(2) Initial Screening and Scoping Procedure

Since there are many partner countries of technical assistance and they exhibit diverse socio-economic and natural environments, there are no absolute criteria for initial screening to evaluate the degree of environmental impact.

The evaluation in the initial screening is, hence, carried out in accordance with: (i) criteria for partner countries' regulations for IEE and EIA, (ii) the presence of areas specifically designated under international environmental treaties, and areas such as national parks, natural preserves, protected forest etc., and (iii) the potential significance of the following key issues to be addressed under the initial screening procedure.

1. Social Environment

1. Socio-economic Issues

Whether the project impacts negatively or positively on socio-economic activities such as daily human life, economic activities, transportation, community structure and dynamics, and institutions.

2. Health and Sanitary Issues

Whether the project significantly affects hygiene or induces forest related diseases, or generates positive impacts on health.

3. Cultural, Property and Landscape Issues

Whether some historically, culturally, aesthetically, socially or scientifically important areas are situated in the project area.

II. Natural Environment

1. Biological and Ecological Issues

Whether or not habitats for rare species or ecologically fragile areas are located in the project or surrounding areas.

2. Soil and Land Resources

Whether the project significantly induces land devastation, soil erosion, soil contamination, etc., or whether the project has a positive effect on soil and land resources.

3. Hydrology and Air and Water Quality

Whether the Project significantly affects the hydrological regime of rivers, lakes and swamps; ground water hydrology; air or water quality.

4. Sustainable functions of forest resources

Whether or not the project significantly harms the sustainability of material resources of forests in terms of quality and volume or damage sustainable public interest such as environmental conditions.

3.4.2 Screening Checklist

(1) Format of Screening Checklist

In the initial screening, the attached Form 3(Screening Checklist) is to be completed. The joint screening in the partner country use the same format as Form 3.

Form of Screening Checklist

Form 3-1

1. **Study Title (Project Name)**

2. **Name of Country**

3. **Criteria for Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA) in Recipient Country**

	(1) Main Project Components (Development Activity)	(2) Type of Operation (Type of Activity)	(3) Condition of IEE	(4) Condition of EIA	(5) Remarks
a.	Logging operations		ha or more (cutting areas)	ha or more (cutting areas)	
			m^3 per year or more (harvest volume)	m^3 per year or more (harvest volume)	
b.	Forest road construction		m or more	m or more	
c.	Re/Afforestation		ha or more	ha or more	
d.	Natural regeneration		ha or more	ha or more	
e.	Nursery practice		ha or more (area of nursery)	ha or more (area of nursery)	
			number of seedlings production per year or more	number of seedlings production per year or more	
f.	Erosion control		ha or more	ha or more	
g.	Agroforestry		ha or more	ha or more	
h.	Timber processing		m^3 or more	m^3 or more	
i.	Distribution of wood products		m^3 or more	m^3 or more	
j.	Others				

Form 3-2

4. Checklist for Screening

Environmental Issues	Potential Impact	Evaluation	Remarks
I. Social Environment			
1. Socio-economic Issues The Project significantly affects socio-economic activities in and around the Project site, such as daily human life, economic activities, transportation, community, institution, and customary practices.	1. Planned resettlement 2. Involuntary resettlement 3. Substantial changes in way of life 4. Conflict between communities and people 5. Impact on indigenous people 6. Population increase 7. Drastic change in population composition 8. Changes in bases of economic activities 9. Occupational change and detriment of labor opportunity 10. *Increase in income disparities* 11. Adjustment and regulation of forest utilization rights 12. Changes in social and institutional structures 13. Changes in existing institutions and customs	Yes No Unknown	
2. Health and Sanitary Issues The Project significantly affects hygiene in and around the Project area or induces water-related diseases.	1. Increased use of agrochemicals 2. Outbreak of endemic diseases 3. Prevalence of infectious diseases (trypanosomiasis, malaria, onchocerciasis, elephantiasis) 4. Residual toxicity of agrochemicals 5. Increase in domestic and other human wastes	Yes No Unknown	
3. Cultural Asset Issues Some historically, culturally, aesthetically or scientifically important assets may be located in the Project site.	1. Impairment of historic remains and cultural assets 2. Damage to aesthetic sites 3. Impediment of mineral resources exploitation	Yes No Unknown	
II. Natural Environment			
4. Biological and Ecological Issues Some habitats for rare species or ecologically sensitive areas are located in the Project or surrounding areas.	1. Deterioration or degradation of vegetation 2. Impacts on important or indigenous fauna and flora (extinction of or decrease in species) 3. Degradation of biological diversity 4. Proliferation of hazardous species 5. Destruction of swamp and peatlands 6. Degradation of natural forests 7. Destruction of coral reefs	Yes No Unknown	
5. Soil and Land Resources The Project significantly induces land devastation, soil erosion, soil contamination, etc.	1. Soil erosion 2. Soil salinization 3. Soil acidification 4. Deterioration of soil fertility 5. Soil contamination 6. Devastation or desertification of land 7. Devastation due to landslide 8. Detriment of forest functions for public interest 9. Ground subsidence	Yes No Unknown	
6. Hydrology and Air and Water Quality The Project significantly affects hydrological regime of river, lake and swamp, groundwater hydrology, and air or water quality.	1. Changes in surface water hydrology 2. Changes in groundwater hydrology 3. Water shortage or flooding 4. Sedimentation 5. Riverbed depression 6. Impediment to inland navigation 7. Water contamination and deterioration of water quality 8. Water eutrophication 9. Sea water intrusion 10. Change in water temperature 11. Atmospheric pollution 12. Production of carbon dioxide 13. Change in microclimate 14. Noise pollution	Yes No Unknown	
7. Sustainable functions of forest resources The Project significantly affects forest resources or public functions.	1. Detriment of sustainable functions of forest resources as raw materials 2. Detriment of sustainable functions of forests as environmental conservation	Yes No Unknown	
Overall Evaluation:		Yes No Hold	

(2) Filling in the Screening Checklist

1) Study Title (Project Name)

Title of the project for the development study used in the request from the partner government (Name of the proposed project in the request for the development study)

2) Name of Country

Name of the country where the proposed development study is to be carried out

3) Criteria for IEE and EIA in Partner Country

In some partner countries, IEE and EIA procedures are requested, depending on project components, project type and project scale, e.g., project area, volume and extension, by the environmental laws, regulations and guidelines on IEE and EIA. Guideline users, hence, should fill in such criteria and requirements, on the basis of the information provided for the PD form.

4) Screening Items

I. Social environment

1. **Socio-economic issues**
2. **Health and sanitary issues**
3. **Cultural and property issues**

II. Natural environment

1. **Biological and ecological issues**
2. **Soil and land resources**
3. **Hydrology and air and water quality**
4. **Sustainable functions of forest resources**

Even where the ecological systems are foreseen to be affected by the project, there may be some cases where adverse impacts are judged as acceptable vis-à-vis the positive benefits to be obtained through the project implementation. In such a case, however, distribution of similar ecosystems must be carefully examined in order to justify the project.

(3) Evaluation of Each Screening Item

The seven items of the social and natural environments for screening indicated in the previous paragraph are evaluated as follows, on the basis of summarizing the potential SEIs discussed in the Matrix (attached Form 4 in section 3.4.3) and further information is described in remarks' column of the above mentioned table (Form 4).

a. Even if only one potential SEI is identified (marked with "A") in the Matrix for each issue, the corresponding column for "Evaluation" for the same issue in the Checklist for initial screening should then be marked "Yes".

b. If no potential SEI is identified (marked with "C") in the Matrix for each issue, then the "Evaluation" column is marked "No" in the Checklist for initial screening.

c. If a combination of SEIs marked "No" and SEIs marked "Unknown" ("C" and "B") are identified in the Matrix for each issue, then the "Evaluation" column is marked "Unknown" in the Checklist for initial screening.

d. If positive SEI is identified (marked with P) in the Matrix for each issue, the effect will be mentioned in the "remarks" column of Checklist.

(4) Overall Evaluation

The necessity of further environmental studies during the field work for the preparatory study is evaluated by summarizing the evaluation results of the above seven items as shown below:

The overall evaluation is made as follows:

a. Even if only one "Yes" is observed for an environmental item in the "Evaluation" column in the initial screening checklist, the item for overall evaluation is then marked "Yes". In such a case, further careful study and scrutiny are required during the field work for the preparatory study focusing on such potential SEIs.

b. If "No" is observed for all the items, the item for overall evaluation is marked as "No". Nevertheless, in this case, the conclusion of this overall evaluation derived from the initial screening checklist should be confirmed during the field work for the preparatory study.

c. If a combination of "No" and "Hold" are observed, "Hold" is marked for overall evaluation. In this case, further information collection is required during the field work for the preparatory study to conclusively identify the potential SEIs.

3.4.3 Matrix Checklist for Scoping

(1) Checklist Form for Scoping

The scoping is conducted according to the attached Scoping Checklist (Form 4), in order to preparatively identify the potential SEIs which may be induced by the project implementation.

(2) Filling in the Matrix Checklist for Scoping

1) Study Title (Project Name)

Title of the project used in the request from the partner government.

2) Evaluation of SEIs

The degree of possible environmental impact is assessed and classified into four categories (A, B, C or P), which will be filled in the column of the Checklist Form for Initial Scoping. Environmental impact items are assigned to one of the following four applicable categories (A, B, C or P) in the column for the relevant development activity:

A: Since negative SEI is identified or expected, on-side scrutiny is required.
B: Since SEI is not sufficiently clarified through the preparatory evaluation, further study is required.
C: Since SEI is recognized to be nil, no further study is required.
P: Since positive SEI is identified or expected, then on-side scrutiny is required.

Matrix Checklist for Scoping

Form 4-1

The Study Title(Project Name): _____

I. Social Environment

Category of Environmental Impact 1/	Initial Evaluation 2/ Main Project Components 3/										Remarks
	L.O.	F.R.	R/A	N.R.	N.P.	E.C.	A.F.	T.P.	D.W.	Others	
1. Socio-economic Issues											
(1) Social Issues											
1. Planned resettlement											
2. Involuntary resettlement											
3. Substantial changes in way of life											
4. Conflict between communities and people											
5. Impacts on indigenous people											
(2) Demographic Issues											
1. Population increase											
2. Drastic change in population composition											
(3) Economic Activities											
1. Changes in bases of economic activities											
2. Occupational change and detriment of labor opportunity											
3. Increase in income disparities											
(4) Institutional and Custom Related Issues											
1. Adjustment and regulation of forest utilization rights											
2. Changes in social and institutional structures											
3. Changes in existing institutions and customs											
2. Health and Sanitary Issues											
1. Increased use of agrochemicals											
2. Outbreak of endemic diseases											
3. Prevalence of infectious diseases											
4. Residual toxicity of agrochemicals											
5. Increase in domestic and other human wastes											
3. Cultural Asset Issues											
1. Impairment of historic remains and cultural assets											
2. Damage to aesthetic sites											
3. Impediment of mineral resources exploitation											

1/ Definition of each category of environmental impact is presented in Appendix, "Significant Environmental Impacts and Issues".

2/ Each corresponding item is marked according to the following classifications:
A: Since negative SEI is identified or expected, on-site scrutiny is required.
B: Since SEI is not sufficiently clarified through the preliminary evaluation, further study is required.
C: Since SEI is recognized to be nil, no further study is required.
P: Since positive SEI is identified or expected, then on-site security is required.

3/ Main project components are abbreviated hereunder:

L.O. : Logging operations	N.R. :Natural regeneration	A.F. :Agroforestry
F.R. : Forest road construction	N.P. :Nursery practices	T.P. :Timber processing
R/A. : Re/Afforestation	E.C. :Erosion control	D.W. :Distribution of wood products

Form 4-2

II. Natural Environment

Category of Environmental Impact 1/	Initial Evaluation 2/ Main Project Components 3/										Remarks
	L.O.	F.R.	R/A.	N.R.	N.P.	E.C.	A.F.	T.P.	D.W.	Others	
4. Biological and Ecological Issues											
1. Deterioration or degradation of vegetation											
2. Impacts on important or indigenous fauna and flora											
3. Degradation of biological diversity											
4. Proliferation of hazardous species											
5. Destruction of swamp and peatlands											
6. Degradation of natural forests											
7. Destruction of coral reefs											
5. Soil and Land Resources											
(1) Soil resources											
1. Soil erosion											
2. Soil salinization											
3. Soil acidification											
4. Deterioration of soil fertility											
5. Soil contamination											
(2) Land Resources											
1. Devastation or desertification of land											
2. Devastation due to landslide											
3. Detriment of forest functions for public interest											
4. Ground subsidence											
6. Hydrology and Air and Water Quality											
(1) Hydrology											
1. Changes in surface water hydrology											
2. Changes in groundwater hydrology											
3. Water shortage or flooding											
4. Sedimentation											
5. Riverbed depression											
6. Impediment to inland navigation											
(2) Water Quality and Temperature											
1. Water contamination and deterioration of water quality											
2. Water eutrophication											
3. Sea water intrusion											
4. Change in water temperature											
(3) Atmosphere											
1. Atmospheric pollution											
2. Production of carbon dioxide											
3. Change in microclimate											
4. Noise pollution											
7. Sustainable functions of forest resources											
1. Detriment of sustainable functions of forest resources as raw materials											
2. Detriment of sustainable functions of forests as environmental conservation											

1/ Definition of each category of environmental impact is presented in Appendix, "Significant Environmental Impacts and Issues".

2/ Each corresponding item is marked according to the following classifications:
- A: Since negative SEI is identified or expected, on-site scrutiny is required.
- B: Since SEI is not sufficiently clarified through the preliminary evaluation, further study is required.
- C: Since SEI is recognized to be nil, no further study is required.
- P: Since positive SEI is identified or expected, then on-site security is required.

3/ Main project components are abbreviated hereunder:

L.O. : Logging operations	N.R. :Natural regeneration	A.F. :Agroforestry
F.R. : Forest road construction	N.P. :Nursery practices	T.P. :Timber processing
R/A. : Re/Afforestation	E.C. :Erosion control	D.W. :Distribution of wood products

(3) Reference Matrices for the Scoping

The reference matrices are presented in attached Forms 5-1 to 5-2 for social and natural environments. These matrices are prepared to assist the Guidelines users in initial screening and scoping. However, the matrices should be used with discretion, depending on the specific environmental situation in and around the proposed project site.

Referece Matrix Checklist for Scoping

Sample Form 5-1

1. Social Environment (Common Matrix)

Category of Environmental Impact 1/	Initial Evaluation 2/ Main Project Components 3/										Remarks
	L.O.	F.R.	R/A.	N.R.	N.P.	E.C.	A.F.	T.P.	D.W.	Others	
1. Socio-economic Issues											
(1) Social Issues											
1. Planned resettlement			+				+				
2. Involuntary resettlement			△	△							
3. Substantial changes in way of life	◎	○	+	+			+				
4. Conflict between communities and peoples			+				+				
5. Impacts on indigenous people	◎		△	△			+				
(2) Demographic Issues											
1. Population increase											
2. Drastic change in population composition											
(3) Economic Activities											
1. Changes in bases of economic activities	◎										
2. Occupational change and detriment of labor opportunity	△		+	+	+		+	+	+		
3. Increase in income disparities											
(4) Institutional and Custom Related Issues											
1. Adjustment and regulation of forest utilization rights	◎		△			△					
2. Changes in social and institutional structures				△			+				
3. Changes in existing institutions and customs	◎										
2. Health and Sanitary Issues											
1. Increased use of agrochemicals			△		△			△	△		
2. Outbreak of endemic diseases	+										
3. Prevalence of infectious diseases											
4. Residual toxicity of agrochemicals											
5. Increase in domestic and other human wastes	○	◎						◎	○		
3. Cultural Asset Issues											
1. Impairment of historic remains and cultural assets	◎	◎	△			△	△	◎			
2. Damage to aesthetic sites	◎	○		+		△	△	◎			
3. Impediment of mineral resources exploitation		○									

Relation between project component and potential environmental impact

◎ intense negative impact ○ negative impact △ slight negative impact + positive impact

1/ Main project components are abbreviated hereunder:

L.O. : Logging operations
F.R. : Forest road construction
R/A. : Re/Afforestation
N.R. :Natural regeneration
N.P. :Nursery practices
E.C. :Erosion control
A.F. :Agroforestry
T.P. :Timber processing
D.W. :Distribution of wood products

II. Natural Environment

Category of Environmental Impact 1/	Initial Evaluation 2/ Main Project Components 3/										Remarks
	L.O.	F.R.	R/A.	N.R.	N.P.	E.C.	A.F.	T.P.	D.W.	Others	
4. Biological and Ecological Issues											
1. Deterioration or degradation of vegetation	△	○	△				△				
2. Impacts on important or indigenous fauna and flora	◎	○	△			△	△				
3. Degradation of biological diversity	○	○	△			△	△				
4. *Proliferation of hazardous species*		○									
5. Destruction of swamp and peatlands		△									
6. Degradation of natural forests	△	△		+					△		
7. Destruction of coral reefs	△							△	△		
5. Soil and Land Resources											
(1) Soil resources											
1. Soil erosion	△	○	+	+		+	+				
2. Soil salinization							+				
3. Soil acidification							+				
4. Deterioration of soil fertility	△		+	+			+				
5. Soil contamination								△	△		
(2) Land Resources											
1. Devastation or desertification of land			+	+		+	+				
2. Devastation due to landslide	△	△		+		+	+				
3. Detriment of forest functions for public interest	○		+	+		+	+				
4. Ground subsidence								△	△		
6. Hydrology and Air and Water Quality											
(1) Hydrology											
1. Changes in surface water hydrology	△	△	+	+		+	+				
2. Changes in groundwater hydrology	△		+	+	△			△	△		
3. Water shortage or flooding			+	+		+	+				
4. Sedimentation	△	△	+	+		+	+				
5. Riverbed Depression						△					
6. Impediment to inland navigation									△		
(2) Water Quality and Temperature											
1. Water contamination and deterioration of water quality	△	△	+	+				△	△		
2. Water eutrophication								△	△		
3. Sea water intrusion	△								△		
4. Change in water temperature								△			
(3) Atmosphere											
1. *Atmospheric pollution*			+	+				△			
2. Production of carbon dioxide			+	+			+	△			
3. Change in microclimate	△		+	+		+	+				
4. Noise pollution	△	△	+	+				△	△		
7. Sustainable functions of forest resources											
1. Detriment of sustainable functions of forest resources as raw materials	△	△	+	+	+		+	○			
2. Detriment of sustainable functions of forests as environmental conservation	△	△	+	+	+	+	+	○			

Relation between project component and potential environmental impact

◎: intense negative impact ○: negative impact △: slight negative impact +: positive impact

1/ Main project components are abbreviated hereunder:

L.O. : Logging operations	N.R. :Natural regeneration	A.F. :Agroforestry
F.R. : Forest road construction	N.P. :Nursery practices	T.P. :Timber processing
R/A. : Re/Afforestation	E.C. :Erosion control	D.W. :Distribution of wood products

3.4.4 Sample Checlist for Initial Screening and Matrix Checklists for Scoping

Filled in samples of checklists for the initial screening and matrix checklists for scoping are attached hereunder for reference.

Sample Form of Checklist for Initial Screening

Sample Form 3-1

1. **Study Title (Project Name)**
   Afforestation Project in C hills area

2. **Name of Country**
   B State of A Country

3. **Criteria for initial Environmental Examination (IEE) and Environmental impact Assessment (EIA)**

	(1) Main Project Components (Development activity)	(2) Type of Operation (Type of Activity)	(3) Condition of IEE	(4) Condition of EIA	(5) Remarks
a.	Logging operations		ha or more (cuttiong areas)	ha or more (cuttiong areas)	
			m^3 per year or more (harvest volume)	m^3 per year or more (harvest volume)	
b.	Forest road construction		m or more	m or more	
c.	Re/Afforestation	Fuelwoods, fodder trees	none ha or more	none ha or more	
d.	Natural regeneration	Regeneration by coppice	none ha or more	none ha or more	
e.	Nursery practice	Nursery developments: establishment	none ha or more (ares of nursery)	none ha or more (ares of nursery)	
		of local nursery and seeding production	none number of seedlings production per	none number of seedlings production per	
f.	Erosion control	Check dam constructions	none ha or more year or more	none ha or more year or more	
g.	Agroforestry	Seedlings for farmers (inter-cropping)	none ha or more	none ha or more	
h.	Timber processing		m^3 or more	m^3 or more	
i.	Distribution of wood products		m^3 or more	m^3 or more	
j.	Others	Wild life (fauna and flora) sanctuaries	Regulations	Regulations	

4. Checklist for Initial Screening

Environmental Issues	Potential Impacts	Evaluation	Remarks
I. Social Environment			
1. Socio-economic Issues The Project significantly affects socio-economic activities in and around the Project site, such as daily human life, economic activities, transportation, community, institution, and customary practices.	1. Planned resettlement 2. Involuntary resettlement 3. Substantial changes in way of life 4. Conflict between communities and peoples 5. Impact on indigenous people 6. Population increase 7. Drastic change in population composition 8. Changes in bases of economic activities 9. Occupational change and detriment of labour opportunity 10. Increase in income disparities 11. Adjustment and regulation of forest utilization rights 12. Changes in social and institutional structures 13. Changes in existing institutions and customs	(Yes) No Unknown	
2. Health and Sanitary Issues The Project significantly affects hygiene in and around the Project area or induces water-related diseases.	1. Increased use of agrochemicals 2. Outbreak of endemic diseases 3. Spreading of epidemic diseases (trypanosomiasis, malaria, onchocerciasis, elephantiasis) 4. Residual toxicity of agrochemicals 5. Increase in domestic and other human wastes	Yes (No) Unknown	
3. Cultural Asset Issues Some historically, culturally, aesthetically or scientifically important assets may be located in the Project site.	1. Impairment of historic remains and cultural assets 2. Damage to aesthetic sites 3. Impediment of mineral resources exploitation	Yes (No) Unknown	
II. Natural Environment			
4. Biological and Ecological Issues Some habitats for rare species or ecologically sensitive areas are located in the Project or surrounding areas.	1. Deterioration or degradation of vegetation 2. Negative impacts on important or indigenous fauna and flora (extinction of or decrease in species) 3. Degradation of ecosystems with biological diversity 4. Proliferation of exotic and/or hazardous species 5. Encroachment on wetlands and peatlands 6. Degradation of natural forests 7. Destruction or degradation of mangrove forests 8. Degradation of coral reefs	Yes (No) Unknown	
5. Soil and Land Resources The Project significantly induces land devastation, soil erosion, soil contamination, ect.	1. Soil erosion 2. Soil salinization 3. Soil acidification 4. Deterioration of soil fertility 5. Soil contamination by agrochemicals and others 6. Devastation or desertification of land 7. Devastation due to landslide 8. Detriment of forest functions for public interest 9. Ground subsidence	Yes (No) Unknown	
6. Hydrology and Air and Water Quality The Project significantly affects hydrological regime of river, lake and swamp, groundwater hydrology, and air or water quality.	1. Changes in surface water hydrology 2. Changes in groundwater hydrology 3. Water shortage or flooding 4. Sedimentation 5. Riverbed degradation 6. Impediment to inland navigation 7. Water contamination and deterioration of water quality 8. Water eutrophication 9. Sea water intrusion 10. Change in water temperature 11. Atmospheric pollution 12. Production of carbon dioxide 13. Change in microclimate 14. Noise pollution	Yes (No) Unknown	
7. Sustainable functions of forest resources The Project significantly affects forest resources or public functions.	1. Detriment of sustainable functions of forest resources as raw materials 2. Detriment of sustainable functions of forests as environmental conservation	Yes (No) Unknown	
Overall Evaluation:		(Yes) No Hold	

Sample of Matrix Checklist for Scoping

Sample Form 4-1

The study Title (Project Name): Feasibility Study on Development Project

I. Social Environment

Category of Environmental Impact 1/	Initial Evaluation 2/ Main Project Components 3/										Remarks
	L.O.	F.R.	R/A.	N.R.	N.P.	E.C.	A.F.	T.P.	D.W.	Others	
1. Socio-economic Issues											
(1) Social Issues											
1. Planned resettlement											
2. Involuntary resettlement										A	
3. Substantial changes in way of life			P	P			P				
4. Conflict between communities and peoples											
5. Impact on indigenous peoples			P	P			P			A	
(2) Demographic Issues											
1. Population increase											
2. Drastic change in population composition								C			
(3) Economic Activities											
1. Changes in bases of economic activities										A	
2. Occupational change and detriment of labor opportunity										B	
3. Increase in income disparities											
(4) Institutional and Custom Related Issues											
1. Adjustment and regulation of forest utilization rights			C	C			C			A	
2. Changes in social and institutional structures			P	P			P				
3. Changes in existing institutions and customs										B	
2. Health and Sanitary Issues											
1. Increased use of agrochemicals			B		C		P				
2. Outbreaks of endemic diseases											
3. Prevalence of infectious diseases											
4. Residual toxicity of agrochemicals			B		C		P				
5. Increase in domestic and other human wastes					C						
3. Cultural Asset Issues											
1. Impairment of historic remains and cultural assets			C			C	C				
2. Damage to aesthetic sites			C			C	C				
3. Impediment of mineral resources exploitation											

1/ Definition of each category of environmental impact is presented in Appendix , "Significant Environmental Impacts and Issues".

2/ Each corresponding item is marked according to the following classifications:

A: Since negative SEI is identified or expected, on-site scrutiny is required.
B: Since SEI is not sufficiently clarified through the preliminary evaluation, further study is required.
C: Since SEI is recognized to be nil, no further study is required.
P: Since positive SEI is identified or expected, then on-site security is required.

3/ Main project components are abbreviated hereunder:

L.O. : Logging operations
F.R. : Forest road construction
R/A. : Re/Afforestation
N.R. :Natural regeneration
N.P. :Nursery practices
E.C. :Erosion control
A.F. :Agroforestry
T.P. :Timber processing
D.W. :Distribution of wood products

Sample Form 4-2

II. Natural Environment

Category of Environmental Impact 1/	Initial Evaluation 2/ Main Project Components 3/										Remarks
	L.O.	F.R.	R/A.	N.R.	N.P.	E.C.	A.F.	T.P.	D.W.	Others	
4. Biological and Ecological Issues											
1. Deterioration or degradation of vegetation			C	P		C	C			P	
2. Impacts on important or indigenous fauna and flora			C	P		C	C			P	
3. Degradation of biological diversity			C	P		C	C			P	
4. Proliferation of hazardous species											
5. Destruction of swamp and peatlands											
6. Degradation of natural forests				P		P				P	
7. Destruction of coral reefs											
5. Soil and Land Resources											
(1) Soil resources											
1. Soil erosion			P	P		P	P			P	
2. Soil salinization			P	P		P	P			P	
3. Soil acidification			P	P		P				P	
4. Deterioration of soil fertility											
5. Soil contamination											
(2) Land Resources											
1. Devastation or desertification of land			P	P	C	P	P			P	
2. Devastation due to landslide			P	P	C	P	P			P	
3. Detriment of forest functions for public interest			P	P		P	P			P	
4. Ground subsidence			P	P		P	P			P	
6. Hydrology and Air and Water Quality											
(1) Hydrology											
1. Changes in surface water hydrology			C	P	C		C				
2. Changes in groundwater hydrology											
3. Water shortage or flooding											
4. Sedimentation											
5. Riverbed Depression											
6. Impediment to inland navigation											
(2) Water Quality and Temperature											
1. Water contamination and deterioration of water quality											
2. Water eutrophication											
3. Sea water intrusion											
4. Change in water temperature											
(3) Atmosphere											
1. Atmospheric pollution											
2. Production of carbon dioxide											
3. Change in microclimate			P	P			P			P	
4. Noise pollution											
7. Sustainable functions of forest resources											
1. Detriment of sustainable functions of forest resources as raw materials			P	P	P		P				
2. Detriment of sustainable functions of forests as environmental conservation			P	P	P	P	P			P	

1/ Definition of each category of environmental impact is presented in Appendix, "Significant Environmental Impacts and Issues".

2/ Each corresponding item is marked according to the following classifications:
A: Since negative SEI is identified or expected, on-site scrutiny is required.
B: Since SEI is not sufficiently clarified through the preliminary evaluation, further study is required.
C: Since SEI is recognized to be nil, no further study is required.
P: Since positive SEI is identified or expected, then on-site security is required.

3/ Main project components are abbreviated hereunder:

L.O. : Logging operations	N.R. :Natural regeneration	A.F. :Agroforestry
F.R. : Forest road construction	N.P. :Nursery practices	T.P. :Timber processing
R/A. : Re/Afforestation	E.C. :Erosion control	D.W. :Distribution of wood products

3.5 Joint Screening and Scoping

3.5.1 General

(1) Purpose of Joint Screening and Scoping

Joint screening and scoping are conducted by the preparatory study mission in cooperation with the responsible agencies of the partner country during the field work. The responsible environmental agencies should participate in the joint screening and scoping as necessary.

Prior to the joint screening and scoping, information about the environmental agencies and related institutions and data collected during the in-house work and used in initial screening are, first of all, confirmed for accuracy in the partner country. Supplementary information is then collected, which includes past and ongoing EIA and measures employed to avoid, mitigate or compensate for negative impact in the vicinity of the project area and at similar project sites.

The partner country's guidelines and screening and scoping formats are used, in principle, if such have been established, and the checklists in the Guidelines subsequently function as reference.

(2) Joint Screening and Scoping Procedures

Joint screening is undertaken based on the Checklist for joint screening (attached Form 6) to determine whether the development study under consideration requires environmental consideration procedures, i.e., IEE, Pre-EIA or EIA. If such is judged necessary, joint scoping is then carried out.

The Checklist for initial scoping prepared during the in-house work is, if necessary, modified or revised on the basis of the additional information collected in the field work, referring to the Reference Matrices aforementioned.

The Checklist for joint scoping (attached Form 6) is thus completed, and the identification of the proposed development project and the information on environmental site conditions obtained is then applied as criteria in evaluating and finally determining

the scope of the IEE, Pre-EIA or EIA to be undertaken jointly by the preparatory study mission together with the related agencies in the partner country.

3.5.2 Checklist for Joint Screening

(1) Checklist Form for Joint Screening

The form and the contents of the Checklist for Joint Screening (attached Form 6) are the same as the Checklist for Initial Screening and are filled in making the necessary modifications as required based upon the result of the field work.

(2) Filling in the Checklist for Joint Screening

Same as described previously for the Checklist for Initial Screening.

(3) Evaluation of Each Screening Item

The screening items, which consist of the seven issues discussed under the Initial Screening are evaluated as follows:

a. If "Yes" or "hold" is observed for the overall evaluation. In this case, IEE or IEE and EIA are further required, and scoping is required.

b. If "No" is marked for overall evaluation. In this case, IEE or IEE and EIA are not required. However, if some positive impacts are described on the overall evaluation, even in the case of "No", further scoping is required on the positive impacts on the scoping checklist.

3.5.3 Checklist for Joint Scoping

(1) Format for Joint Scoping Checklist

Joint scoping is conducted according to the attached Checklist for Joint Scoping (Form 6) in order to identify only those significant environmental impacts among the range of various negative impacts considered to be induced by implementation of the project.

(2) Filling in the Checklist for Joint Scoping

1) Applicable development activities (see PD):

Irrelevant development activities shown on the checklist should be deleted.

2) Applicable development type (see PD):

Irrelevant development types shown on the checklist should be deleted.

3) Applicable environmentally sensitive area (see SD):

Irrelevant environmentally sensitive areas shown on the checklist should be deleted.

4) Evaluation of the SEIs

On the basis of the results of the field work, the degree of a possible impact is assessed and classified into one of four categories (A, B, C, or D), which is entered in the column of the Checklist Form for Joint Scoping. Each environmental impact shown on the checklist is evaluated and then marked according to the following four categories:

A: Since negative SEI is identified or expected, on-side scrutiny is required.
B: Since SEI is not sufficiently clarified through the preparatory evaluation, further study is required.
C: Since SEI is recognized to be nil, no further study is required.
D: SEI is not fully known (it cannot be confirmed at this stage whether the subject SEI is likely or unlikely to occur)
P: Since positive SEI is identified or expected, then on-side scrutiny is required.

3.5.4 Sample Checklists for Joint Screening and Scoping

(1) Filled-in Samples of Checklists for Joint Screening

Same as the sample shown previously in 3.4.4 (1) Filled-in Samples of Checklists for Initial Screening.

(2) Filled-in Samples of Checklists for Scoping

Samples of Checklists for Scoping are attached hereinafter for reference.

Checklist for Joint Scoping

Form 6-1

1) Applicable development activities (component):
   Re/Afforestation, Natural regeneration, Nursery practice, Agroforestry, etc.
2) Applicable development type:
   See PD
3) Applicable environmentally sensitive area:
   Arid and semi-arid areas

I. Social Environment

Category of Environmental Impact	Evaluation of SEI 1/					Cause 2/
	A	B	C	D	P	
1. Socio-economic Issues						
(1) Social Issues						
1. Planned resettlement						
2. Involuntary resettlement						
3. Substantial changes in way of life						
4. Conflict between communities and people						
5. Impacts on indingenous people						
(2) Demographic Issues						
1. Population increase						
2. Drastic change in population composition						
(3) Economic Activities						
1. Changes in bases of economic activities						
2. Occupational change and detriment of labor opportunity						
3. Increase in income disparities						
(4) Institutional and Custom Related Issues						
1. Adjustment and regulation of forest utilization rights						
2. Changes in social and institutional structures						
3. Changes in existing institutions and customs						
2. Health and Sanitary Issues						
1. Increased use of agrochemicals						
2. Outbreak of endemic diseases						
3. Prevalence of infectious diseases						
4. Residual toxicity of agrochemicals						
5. Increase in domestic and other human wastes						
3. Cultural Asset Issues						
1. Impairment of historic remains and cultural assets						
2. Damage to aesthetic sites						
3. Impediment of mineral resources exploitation						

1/ The rating column is to be marked with the following letters.
A: Since negative SEI is identified or expected, on on-site scutiny is required.
B: Since SEI is not sufficiently clarified throught the preparatory elaluation, futher study is required.
C: Since SEI is no recognize to be il, no further study required.
D: SEI is not fully known (it cannot be confirmed at this stage whether the subject SEI is likely or unlikely to occur).
P: Since positive SEI is identified or expected, then on-side scutiny is required.

2/ Potential impact, etc., are described in reference to Appendix, "Significant Environmental Impacts and Issues".

II. Natural Environment

Category of Environmental Impact	Evaluation of SEI 1/					Cause 2/
	A	B	C	D	P	
4. Biological and Ecological Issues						
1. Deterioration or degradation of vegetation						
2. Impacts on important or indigenous fauna and flora						
3. Degradation of biological diversity						
4. Proliferation of hazardous species						
5. Destruction of swamp and peatlands						
6. Degradation of natural forests						
7. Degradation of coral reefs						
5. Soil and Land Resources						
(1) Soil resources						
1. Soil erosion						
2. Soil salinization						
3. Soil acidification						
4. Deterioration of soil fertility						
5. Soil contamination						
(2) Land Resources						
1. Devastation or desertification of land						
2. Devastation due to landslide						
3. Detriment of forest functions for public interest						
4. Ground subsidence						
6. Hydrology and Air and Water Quality						
(1) Hydrology						
1. Changes in surface water hydrology						
2. Changes in groundwater hydrology						
3. Water shortage or flooding						
4. Sedimentation						
5. Riverbed depression						
6. Impediment to inland navigation						
(2) Water Quality and Temperature						
1. Water contamination and deterioration of water quality						
2. Water eutrophication						
3. Sea water intrusion						
4. Change in water temperature						
(3) Atmosphere						
1. Atmospheric pollution						
2. Production of carbon dioxide						
3. Change in microclimate						
4. Noise pollution						
7. Sustainable functions of forest resources						
1. Detriment of sustainable functions of forest resources as raw materials						
2. Detriment of sustainable functions of forests as environmental conservation						

1/ The rating column is to be marked with the following letters.
A: Since negative SEI is identified or expected, on on-site secutiny is required.
B: Since SEI is not sufficiently clarified throught the preparatory elaluation, futher study is required.
C: Since SEI is no recognize to be il, no further study required.
D: SEI is not fully known (it cannot be confirmed at this stage whether the subject SEI is likely or unlikely to occur).
P: Since positive SEI is identified or expected, then on-side scutiny is required.

2/ Potential impact, etc., are described in reference to Appendix , "Significant Environmental Impacts and Issues".

Sample Checklist for Scoping

Sample Form 6-1

1) Applicable development activities (component):
   Re/Afforestation, Natural regeneration, Nursery practice, Agroforestry, etc.
2) Applicable development type:
   See PD
3) Applicable environmentally sensitive area:
   Arid and semi-arid area;

I. Social Environment

Category of Environmental Impact	Evaluation of SEI 1/					Cause 2/
	A	B	C	D	P	
1. Socio-economic Issues						
(1) Social Issues						
1. Planned resettlement			x			not applicable
2. Involuntary resettlement		x				resettlement of residents living inside wild life sanctuaries
3. Substantial changes in way of life			x			not applicable
4. Conflict between communities and people			x			not applicable
5. Impacts on indigenous people		x				not applicable
(2) Demographic Issues						
1. Population increase			x			not applicable
2. Drastic change in population composition			x			not applicable
(3) Economic Activities						
1. Changes in bases of economic activities			x			not applicable
2. Occupational change and detriment of labour opportunity			x			not applicable
3. Increase in income disparities			x			not applicable
(4) Institutional and Custom Related Issues						
1. Adjustment and regulation of forest utilization rights		x				resettlement of residents living inside wild life sanctuaries
2. Changes in social and institutional structures				x		
3. Changes in existing institutions and customs			x			not applicable
2. Health and Sanitary Issues						
1. Increased use of agrochemicals			x			applied for agrochemicals and fertilizations in nurseries
2. Outbreak of endemic diseases			x			not applicable
3. Prevalence of infectious diseases			x			not applicable
4. Residual toxicity of agrochemicals			x			not applicable
5. Increase in domestic and other human wastes			x			not applicable
3. Cultural Asset Issues						
1. Impairment of historic remains and cultural assets			x			not applicable
2. Damage to aesthetic sites			x			not applicable
3. Impediment of mineral resources exploitation			x			not applicable

1/ The rating column is to be marked with the following letters.
A: Since negative SEI is identified or expected, on on-site scrutiny is required.
B: Since SEI is not sufficiently clarified throught the preparatory elaluation, futher study is required.
C: Since SEI is no recognize to be il, no further study required.
D: SEI is not fully known (it cannot be confirmed at this stage whether the subject SEI is likely or unlikely to occur).
P: Since positive SEI is identified or expected, then on-side scrutiny is required.

2/ Potential impact, etc., are described in reference to Appendix, "Significant Environmental Impacts and Issues".

II. Natural Environment

Category of Environmental Impact	Evaluation of SEI 1/					Cause 2/
	A	B	C	D	P	
4. Biological and Ecological Issues						
1. Deterioration or degradation of vegetation					x	positive impact resulting from establishment of forestry
2. Impacts on important or indigenous fauna and flora					x	positive impact resulting from establishment of forestry
3. Degradation of ecosystems with biological diversity					x	positive impact resulting from establishment of forestry
4. Proliferation of exotic and/or hazardous species			x			not applicable
5. Destructin on wetlands and peatlands			x			not applicable
6. Degradation of natural forests					x	regrowth of natural forests by natural regeneration
7. Degradation of coral reefs			x			not applicable
5. Soil and Land Resources						
(1) Soil resources						
1. Soil erosion					x	positive impact resulting from check dams and establishment of forestry
2. Soil salinization			x			not applicable
3. Soil acidification						not applicable
4. Deterioration of soil fertility			x		x	positive impact resulting from establishment of forestry
5. Soil contamination by agrochemicals and others			x			not applicable
(2) Land Resources						
1. Devastation or desertification of land					x	positive impact resulting from establishment of forestry
2. Devastation due to landslide					x	positive impact resulting from check dams and establishment of forestry
3. Detriment of forest functions for public interest					x	positive impact resulting from establishment of forestry
4. Ground subsidence			x			not applicable
6. Hydrology and Air and Water Quality						
(1) Hydrology						
1. Changes in surface water hydrology					x	positive impact resulting from check dams and establishment of forestry
2. Changes in groundwater hydrology					x	positive impact resulting from check dams and establishment of forestry
3. Water shortage or flooding					x	positive impact resulting from check dams and establishment of forestry
4. Sedimentation					x	positive impact resulting from check dams and establishment of forestry
5. Riverbed depression			x			not applicable
6. Impediment to inland navigation			x			not applicable
(2) Water Quality and Temperature						
1. Water contamination and deterioration of water quality					x	positive impact resulting from establishment of forestry
2. Water eutrophication			x			not applicable
3. Sea water intrusion			x			not applicable
4. Change in water temperature			x			not applicable
(3) Atmosphere						
1. Atmospheric pollution			x			not applicable
2. Production of carbon dioxide					x	positive impact resulting from establishment of forestry
3. Change in microclimate					x	positive impact resulting from establishment of forestry
4. Noise pollution			x			not applicable
7. Sustainable functions of forest resources						
1. Detriment of sustainable functions of forest resources as raw materials					x	not applicable
2. Detriment of sustainable functions of forests as environmental conservation					x	not applicable

1/ The rating columns is to be made with the following letters.
A: Since negative SEI is identified or expected, on on-site scrutiny is required.
B: Since SEI is not sufficiently clarified throught the preparatory elaluation, futher study is required.
C: Since SEI is no recognize to be il, no further study required.
D: SEI is not fully known (it cannot be confirmed at this stage whether the subject SEI is likely or unlikely to occur).
P: Since positive SEI is identified or expected, then on-side scrutiny is required.

2/ Potential impact, etc., are described in reference to Appendix, "Significant Environmental Impacts and Issues".

3.6 Overall Evaluation

3.6.1 General

Any subject that does not get a "C (no large scale harmful effects)" on the scoping checklist, will be listed along with the reason for the mark on the Overall Evaluation Chart (Fig. 6).

The IEE (Initial Environmental Examination) and EIA's (Environmental Impact Assessment) necessity and scale decision are based on this overall evaluation and the type of development project, and after careful cooperation with partner nations based on the cross yield perspective of scoping as written in the JICA's "Report of Study Group on Sectoral Aid Programme (Environment)".

In considering proposals including the master plans, unless environmental concerns are deemed unnecessary, the IEE will be in effect automatically.

To ensure there is full understanding and no disagreement by the environmental survey groups, this screening decision is confirmed by the Cross-Field Perspective counter-part's office.

3.6.2 Judgment Conditions

(1) The Project Type and Site

1) Full development survey with the EIA

Consider a full survey through the EIA if the situation is as follows:

a. The forest development project area is a swamp, peat swamp, or mangrove, or some extent of virgin forest.

b. The forest development project includes large scale logging operation, wood processing work, or wood transport work.

c. The project is required to have a full EIA under the partner country's guidelines.

2) EIA development survey on limited fields

Development surveys not covered in 1). However, if development is to occur directly in the environmentally sensitive area (Form 2) which Requires Special Care", a full EIA should be used as in 1).

3) IEE in development surveys

If, upon scoping, a large environmental impact is determined "unable to determine" then the IEE will be conducted by consultants in the early parts of the main study of the development project to determine whether to use the EIA.

4) Pre-EIA

If the Pre-EIA (a general survey to determine whether the effects will be positive or negative) is deemed necessary by the guidelines of the partner country, depending on the outcome, the IEE or the EIA may or may not be conducted.

(2) Cross-field Perspective

- whether there are foreseeable negative effects to the sustainability of a production process based on the natural resources used
- whether a project could be harmful to a person's health
- whether degradation or destruction of a living resources and their habitat is foreseeable
- whether negative impact would diminish any local people's lifestyles or living standards.

Form of Overall Evaluation (Forest Development)

Form 7

Environmental Items	Rating	Future Study	Notes

The rating column is to be marked with the following letters.

A: Since negative SEI is identified or expected, on on-site secutiny is required.
B: Since SEI is not sufficiently clarified throught the preparatory elaluation, futher study is required.
C: Since SEI is no recognize to be il, no further study required.
D: SEI is not fully known (it cannot be confirmed at this stage whether the subject SEI is likely or unlikely to occur).
P: Since positive SEI is identified or expected, then on-side scutiny is required.

Rating should be conducted in reference to Appendix, "Significant Environmental Impacts and Issues".

Sample Form of Overall Evaluation (Forest Development)

Sample Form 7

Environmental Items	Rating	Future Study	Notes
Involuntary resettlement	B	Necessity, possibility or alternatives to the resettlement of people in wild life preservation areas should be studied and coordinated	
Indigenous people	B	Investigate the lifestyle and attitudes of the above peoples, given that they are tribal groups	
Adjustment and regulation of forest utilization rights	B	Consider possible limitations on the above group's use of the forest given the wild life preservation area projects	
Impacts on biological and ecosystems	C or P	Afforestation and natural regeneration would be better for the expansion of the biomass, however, the investigation is needed to examine the effect of species difference	
Impacts on soil and land resources	C or P	Soil erosion and landslides are well avoided through check dams, however consider the best construction methods	
Impacts on hydrology and water quality	C or P	Although for erosion control and afforestation, when they are positive, consider the real effects of water storage and use of chemicals in nursery projects	
Sustainable functions of forest resources	P	At present the sustainability is reduced in the project area, however, all components of this project will ensure the sustainable functions of forest resources	

The rating column is to be marked with the following letters.

A: Since negative SEI is identified or expected, on on-site secutiny is required.
B: Since SEI is not sufficiently clarified throught the preparatory elaluation, futher study is required.
C: Since SEI is no recognize to be il, no further study required.
D: SEI is not fully known (it cannot be confirmed at this stage whether the subject SEI is likely or unlikely to occur).
P: Since positive SEI is identified or expected, then on-side scutiny is required.

Rating should be conducted in reference to Appendix, "Significant Environmental Impacts and Issues".

3.7 Preparation of Scope of Work (S/W) and Minutes of Meeting (M/M)

3.7.1 The Roles of the IEE and EIA in a Main Study

After joint scoping with the partner country, and it is determined that the IEE or EIA should be done, the work must be divided between the study team and the counter-part (C/P). Basically IEE and EIA will be conducted by C/P but depending on the abilities of C/P , budgetary limitations, and the scheduling on environmental study and development study, the work must be divided if necessary, then recorded in S/W and M/M. Some examples of the division of work would be:

a. C/P will conduct IEE and/or EIA, and the JICA study team will provide technical advice.

b. Both the JICA study team and C/P will share IEE and/or EIA, and conduct it separately.

c. The JICA study team will conduct all IEE and/or EIA.

3.7.2 Implementation

The results of a joint screening, scoping, and work division, are to be described in S/W and M/M. Generally, the following description are exemplified, depending on the type of study.

(1) Items to be mentioned in S/W

As a result of negotiations with C/P, use the following examples for writing under the heading of "Scope of Study" .

1) M/P study

a. if the IEE is to be conducted, and the JICA study team is to conduct it, or is to share the work with C/P, write, "IEE will be conducted".

b. if the IEE is to be conducted, but C/P is conducting it, there is no need to mention it in S/W.

c. if there is no environmental concern, there is no need to mention.

2) M/P and F/S

- if IEE and/or EIA are to be conducted, and the JICA study team is to conduct it, or is to share the work with C/P , write "IEE will be conducted during M/P study, and EIA conducted during F/S ".
- if IEE is necessary, but scoping for EIA will prove difficult in the preparatory study, and the JICA study team or C/P is to conduct on environmental study, write, "IEE will be conducted during the M/P study and if deemed necessary as a result of IEE, EIA will be conducted during F/S ".
- if IEE and EIA are to be conducted (including the case where EIA is decided upon after IEE), but C/P will conduct it, there is no need to mention it in S/W.
- if there is no environmental concern, there is no need to mention.

3) F/S

- if EIA is to be conducted, and the JICA study team itself is to do it, or is to share the work with C/P, write, "EIA will be conducted".
- if it is difficult to determine the necessity of the EIA in the preparatory study, IEE should be conducted at the initial stage of F/S. Again, if the JICA study team itself is to do it or share the work with C/P, write, "In the initial stage of F/S, IEE will be conducted. If, after IEE, EIA is deemed necessary, the EIA will be conducted".
- if IEE and EIA are to be conducted (including the case where EIA is decided upon after IEE), but C/P will conduct it, there is no need to mention it in S/W.
- if there is no environmental concern, there is no need to mention.

(2) Items to be mentioned in M/M

If there are points not mentioned in S/W and agreed upon with C/P, these points should be described in M/M.

The following items could be described on environmental consideration.

a. the results of a joint screening
b. the results of a joint scoping
c. information on implementation and review procedure of IEE/EIA/Pre-EIA
d. the division of work with C/P on IEE/EIA/Pre-EIA
e. what should the done if regulations for EIA are not provided for by the partner country.

3.8 Preparation of Preparatory Study Report

(1) Summary of the results of a Preparatory study.

After completing the on-site survey, a preparatory study team must take the following steps.

a. Record their results that concern environmental consideration, and make clear directions and recommendations for a main study.
b. Report the findings, not only for a main study to be followed, but also for other JICA's activities on environmental consideration .
c . Compile information which is required to prepare terms of reference for a main study.

(2) Description of a preparatory study report

The study team must, aside from reporting common items, describe the following items, concentrating on those of environmental consideration.

- he background and need for environmental consideration.
- the partner country's laws and regulations on environment and review procedures of IEE/EIA/Pre-EIA.
- the findings of the on-site survey.
- PD and SD.
- results of joint screening and scoping.
- the implementation arrangements and schedule for the IEE/EIA/Pre-EIA in a main study.
- results of discussion and agreement concerning to the IEE/EIA/Pre-EIA in S/W and M/M.
- Information to prepare work instructions for a main study team.
- environmental data information and information relating to the project.
- problematic points on the implementation of environmental consideration.
- opinions and recommendations for a main study team.

(3) The necessary data for the terms of reference for the main study team.

The responsible division prepares the terms of reference based on the results of preparatory study.

(4) Report on environmental information concerning the project

The information and experiences gained during the preparatory and implementation stages of a preparatory study are very important and useful for environmental consideration in a development study. Therefore, a preparatory study team should report on the following information on the partner country.

- "environmental profile" of a partner country.
- environmental administration and institutional structure of a partner country.
- environmental standards and guidelines, etc. of a partner country.
- partner country's policy and regulations on IEE/EIA/Pre-EIA.
- general information on environment-related organizations of a partner country.
- main points of IEE/EIA/Pre-EIA conducted on similar projects in the past in a partner country.
- any other environmental information.

Appendix Significant Environmental Impacts and Issues

Section 1. Significant Environmental Impacts for Assessment

This section outlines the possible significant environmental impacts to be assessed in the screening and scoping procedures under the Guidelines. The information and guidance presented include: 1) definition, 2) major potential impacts, 3) development activities generating impacts, 4) special considerations for environmental assessment, 5) mitigation measures, and 6) related studies required.

1.1 Socio-economic Issues

(1) Social Issues

1) Planned Resettlement

Definition

A first type of planned resettlement is a settlement component of development projects.

A second type of planned resettlement is exemplified by the estate project approach with settlement schemes for nomadic, landless farmers or shifting cultivators.

Major Potential Impacts

Major potential impacts due to planned re-settlement include:

Significant socio-economic adverse impacts both on new settlers and host population;

Conflict between new settlers and host population;

Adverse impacts on the natural environment in and around the resettlement areas.

(Refer to Appendix A, Section 2)

Development Activities Generating Impacts

Development activities generating adverse impacts include:

Land acquisition;

Planned and Voluntary resettlement.

Special Considerations for Environmental Assessment

Special considerations for environmental assessment include:

Consideration for the socially vulnerable people such as ethnic minorities and the aged who adapt less easily to the new environment and changes in way of life; appropriate mitigation measures are prerequisites to areas where ethnic or tribal frictions are anticipated.

Mitigation Measures

Mitigation measures include:

Selection of resettlement areas based on the desires and aspirations of the affected people; adequate provision of housing, social and economic infrastructure and other services; economic compensation for re-settlement, and other kinds livelihood support such as creation of employment opportunities.

Related Studies Required

Related studies required include:

Baseline data on present socio-economic conditions, daily livelihood and aspiration of settlers and host population; studies on migration policy and other related government policies; activities and capabilities of related government agencies; and opinions and activities of NGOs.

2) Involuntary Resettlement

Definition

Involuntary resettlement is defined as forced resettlement to move inhabitants away from their original dwelling places that will be inundated, planted for forestry, logged or set aside as wildlife sanctuaries or as part of development projects.

Major Potential Impacts

Major potential impacts due to involuntary resettlement include:

Significant socio-economic adverse impacts both on new settlers and host population;

Conflict between new settlers and host population; and

Adverse impacts on the natural environment in and around the settlement area.

(Refer to Appendix A, Section 2)

Development Activities Generating Impacts

Development activities generating adverse impacts include:

Involuntary displacement of inhabitants by land expropriation, etc.

Special Considerations for Environmental Assessment

Special considerations for environmental assessment include:

Consideration for the socially vulnerable such as ethnic minorities and the aged who are less able to adapt to a new environment and changes in life. Appropriate mitigation measures are prerequisites to area where outbreaks of ethnic or tribal frictions are anticipated. Forced resettlement can cause great disruption to the lives of settlers who depend on the specific environment of their present dwelling place for their livelihood, and when the resettlement area is far from their present place of dwelling and when the environmental conditions differ substantially.

Mitigation Measures

Mitigation measures include:

Selection of a resettlement areas based on desires and aspirations of the affected people; adequate provision of housing, social and economic infrastructures and other services; adequate compensation for re-settlement, and other kind livelihood support such as creation of employment opportunities.

Related Studies Required

Related studies required:

Baseline data on present socio-economic conditions, daily livelihood and aspiration of settlers and host population; studies on migration policy and other related government policies; activities and capabilities of related government agencies; and opinions and activities of NGOs.

3) Substantial Changes in Way of Life

Definition

Substantial change in way of life is defined as change in the way of life of the affected people, and influences on they livelihood and the role of women in a family and society brought about by forestry development.

Major Potential Impacts

Major potential impacts include:

Alteration and disruption of traditional ways of life and social dynamics; and

Substantial adverse impact on women and the aged.

Development Activities Generating Impacts

Development activities generating impacts include:

Resettlement;

Changes in economic activities and occupations; and

Expansion or encroachment of adverse impacts of development onto the surrounding areas.

Special Considerations for Environmental Assessment

Special considerations for environmental assessment include:

Rapid changes in way of life that significantly affect the socially vulnerable, such as ethnic minorities and the aged. Evaluation should be made within the context of the traditional custom and values which has evolved within the natural and socio-economic environment of project areas. The impact of development projects on women should also be studied with the aim of assessing: a) women's role in development, b) impact on women's welfare and productivity, and c) policy framework and legal social, and custom-related practices regarding women's role.

Mitigation Measures

Mitigation measures include:

Development projects should be formulated after duly considering the way of life of affected people in order to avoid rapid changes in the traditional systems.

Implementation of extension and training programs for improvement of life;

Provision of equipment, materials and other necessities for altered life.

Monitoring of environmental impact.

Related Studies Required

Related studies require include:

Baseline data on socio-economic conditions in project areas, including factors in the formation and values of traditional systems; interview surveys of affected people, and of the socially vulnerable in particular, to grasp their desires and aspirations; activities and capabilities of related government agencies; opinions of related private organizations including NGOs.

4) Conflict between Communities and People

Definition

Conflict between communities and people refer to friction due to conflicting interests between beneficiaries and non-beneficiaries, people in favor of and those against development, new settlers and host population, people involved in development and outsiders, people in project areas and those affected in the surrounding areas.

Major Potential Impacts

Major potential impacts include:

Conflicts or disputes among people; and

Significant adverse impact on socially or politically vulnerable people such as indigenous people and ethnic minorities.

Development Activities Generating Impacts

Development activities generating adverse impacts include:

Inter-settlement or close proximity of beneficiaries and non-beneficiaries;

Close proximity of those in support of and those against development;

Income disparity; and

Migration or settlement of outsiders in project areas.

Special Considerations for Environmental Assessment

Special factors for environmental assessment include:

Presence of those who may consent with and oppose to development projects ; and

Identification of desires aspirations and concerns of related people, agencies and rural organizations.

Mitigation Measures

Mitigation measures include:

Project formulation based on sufficient consideration of the social environment of project areas; aspirations of related peoples; harmony with the surrounding environment.

Monitoring of concerns or opinions of related people such as equitable distribution of benefit among people.

Monitoring of environmental impacts; studies on execution of mitigation

measures.

Consolidation of autonomy for communities and people in line with people's opinions.

Related Studies Required

Related studies required include:

Baseline data on socio-economy; interview surveys of affected people to grasp their desires and aspirations; public hearings on development projects; activities and capabilities of related government agencies; opinions of related private organizations including NGOs.

5) Impact on Indigenous People

Definition

Impact on indigenous people refers to adverse effects of development on local communities composed partly or entirely of indigenous people including tribal groups, low-caste groups, shifting cultivators, ethnic minorities, or nomads.

Major Potential Impacts

Major potential impacts include:

Serious threats to the existence of indigenous people (ethnic minorities, nomads, shifting cultivators etc.) such as impoverishment and disruption of lives of indigenous communities and environmental degradation,

(Refer to Appendix A, Section 2)

Development Activities Generating Impacts

Development activities generating adverse impacts include:

Insufficient considerations of interests and welfare of indigenous people, ethnic minorities, nomads etc.;

Settlement or resettlement of affected groups;

Stationing of construction labour and personnel in new settlement and logging operation areas, forest road construction; and

Increased access to dwelling areas of indigenous people.

Special Considerations for Environmental Assessment

Special factors to be considered in environmental assessment include:

Indigenous people, including ethnic minorities, tribes and nomads, are in many cases in a socially and politically vulnerable position, and their desires and aspirations tend to be neglected in the course of development; and

In general indigenous people heavily depend on the natural environment of their dwelling areas for their livelihood.

Mitigation Measures

Mitigation measured include:

Socio-economic measure adequately reflecting indigenous peoples' desires and needs.

Monitoring of concerns or opinions of affected people.

Monitoring of environmental impacts; studies on execution of mitigation measures.

Related Studies Required

Related studies required include:

Baseline data on population distribution, socio-economic conditions and living status of indigenous people; interview surveys to grasp their aspirations and needs; study on government policies affecting indigenous people including tribes, low-caste groups, ethnic minorities, nomads, etc.; activities and capabilities of related government agencies; and opinions of related private organizations including NGOs.

(2) Demographic Issues

1) Population Increase

Definition

Population increase is defined as significant population increase in project areas and/or the surrounding areas due to development.

Major Potential Impacts

Major potential impacts include:

Conflict between local communities and people affected by development;

Adverse effects on social institutions and customs of affected people;

Deterioration of the living environment of affected people; and

Environmental degradation of areas surrounding development projects.

Development Activities Generating Impacts

Development activities generating adverse impacts include:

Settlement or resettlement of affected groups; and

Stationing of construction labour and personnel in and around new settlement, logging operation and road construction areas.

Special Considerations for Environmental Assessment

Special considerations for environmental assessment include:

Rapid increase and decrease of population caused by migration of construction labour can have significant impacts on the natural and socio-economic environment of project areas; and

Specific considerations are thus required on impacts induced by population increases.

Mitigation Measures

Mitigation measures include:

Formulation of settlement plan with due consideration to aspirations of host populations; improvement or establishment of socio-economic infrastructures corresponding to an expected population increase.

Careful monitoring of possible deterioration of social fabric or value upheaval as a result of rapid population increase.

Monitoring of environmental impacts; studies on execution of mitigation measures.

Related Studies Required

Related studies required include:

Baseline data on the socio-economy in affected areas and natural environments in projects and surrounding areas; identification of degree of reliance of affected people on the existing natural environments.

2) Drastic Change in Population Composition

Definition

This term is defined as drastic changes in population composition in projects or surrounding areas due to development.

Major Potential Impacts

Major potential impacts include:

Conflict between local communities and people affected by development;

Adverse effects on social institutions and customs of affected people;

Deterioration of living environment for affected groups; and

Decline in service levels of social infrastructure for affected people.

Development Activities Generating Impacts

Development activities generating adverse impacts include:

Settlement or resettlement of affected people; and

Stationing of logging operation, forest road construction labours, and personnel in projects or surrounding areas.

Special Considerations for Environmental Assessment

Special considerations for environmental assessment include:

Rapid changes in population composition of a society may potentially result in insufficiency of social infrastructures or alteration of social institutions.

Mitigation Measures

Mitigation measures includes:

Formulation of resettlement plans with due consideration for aspirations of host populations; improvement or establishment of socio-economic infrastructure corresponding to an expected population increase.

Careful monitoring of possible deterioration of social fabric or value upheaval as a result of rapid population increase.

Monitoring of environmental impacts; studies on execution of mitigation measures.

Related Studies Required

Related studies require include:

Baseline data on socio-economy, population composition, movements, and social infrastructures of surrounding areas in project areas.

(3) Economic Activities

1) Changes in Bases of Economic Activities

Definition

Change in bases of economic activities refer to forced or involuntary relocation of economic bases such as farmland, gathering and hunting grounds, etc., under projects due to land acquisition, changes in land use regulations, and deterioration or depletion of bases for economic activities.

Major Potential Impacts

Major potential impacts include:

Disappearance of traditional production systems;

Emergence of those victimized by development; and

Degradation of the natural environment in surrounding areas of development projects.

Development Activities Generating Impacts

Development activities generating adverse impacts include:

Land acquisition for development projects;

Destruction or disappearance of bases or grounds for agriculture, gathering, and hunting; and

Increased competition for resources due to population increase.

Special Considerations for Environmental Assessment

Special considerations for environmental assessment include:

Provisions formulated on the basis of due consideration on aspirations and abilities of affected people are essential; and

The possibility of emergence of refugees or those otherwise victimized by development must be considered.

Mitigation Measures

Mitigation measures includes:

Formulation of development plans based on due considerations of present economic environment in affected areas; introduction of sufficient compensation and support measures for the affected population.

Monitoring of concerns or aspirations of affected people in areas where projects

have already started.

Monitoring of environmental impacts; studies on execution of mitigation measures.

Related Studies Required

Related studies required include:

Baseline data on land use, productivity, living conditions in project areas and surrounding affected areas; studies on aspirations and capabilities of affected people.

2) Occupational Change and Detriment of Labour Opportunity

Definition

This term is defined as forced or involuntary occupational change due to land acquisition and loss or deterioration of means or bases of productive activities; includes detriment of labour opportunities due to the mechanization of forestry activities.

Major Potential Impacts

Major potential impacts include:

Disappearance of traditional production systems;

Emergence of those victimized by development;

Change in lifestyle environment in surrounding areas; and

Decrease in labour opportunities in rural areas and drift of populations to urban areas.

Development Activities Generating Impacts

Development activities generating adverse impacts include:

Land acquisition;

Destruction or disappearance of bases or grounds for agriculture, gathering, and hunting;

Increased competition for resources due to population increase; and

Decrease in labour opportunities due to alteration of farming systems or farm mechanization.

Special Considerations for Environmental Assessment

Special considerations for environmental assessment include:

Provisions formulated on the basis of due considerations of aspirations and abilities of affected people are essential; and

The possibility of emergence of refugees or those otherwise victimized by development must be considered.

Mitigation Measures

Mitigation measures include:

Formulation of development plans based on due consideration of present economic environment in affected areas; provision of sufficient compensation and support measures for affected population.

Monitoring of concerns or aspirations of related people.

Monitoring of environmental impacts; studies on execution of mitigation measures.

Related Studies Required

Related studies required include:

Baseline data on land use, productivity, living conditions in project-affected areas; studies on aspirations and capabilities of affected people.

3) Increase in Income Disparities

Definition

This term is defined as an increase in income disparities among groups brought about by development; it implies relative impoverishment of the economically vulnerable.

Major Potential Impacts

Major potential impacts include:

Emergence of economically vulnerable people; and

Increase in the number of landless farmers.

Development Activities Generating Impacts

Development activities generating adverse impacts include:

Unequal distribution of development benefits; and

Lack of due considerations for those of vulnerable economic status such as landless farmers.

Special Considerations for Environmental Assessment

Special considerations for environmental assessment include:

Adequate distribution of development benefits to landless farmers, tenant farmers, and small-scale farmers.

Mitigation Measures

Mitigation measures include:

Formulation of projects with due attention to impartial distribution of benefits and provisions for those of vulnerable economic status.

Monitoring of population changes after commencement of a project.

Monitoring of environmental impacts; studies on execution of mitigation measures.

Related Studies Required

Related studies require:

Baseline data on land tenure systems, farm economy and size, farming systems, labour force, etc.

(4) Institutional and Custom Related Issues

1) Adjustment and Regulation of Forest Utilization Rights

Definition

This term is defined as adverse development effects on forest utilization rights (e.g. habitual gathering of forest products, hunting and gathering) and necessary adjustments or regulations to rectify the same.

Major Potential Impacts

Major potential impacts include:
Disturbance of forest utilization rights and movement;
Occurrence of water shortages; and
Conflict or disputes among local communities or affected people.

Development Activities Generating Impacts

Development activities generating adverse impacts include:
Logging operation development;
Plantation development; and
Development of wildlife (flora and fauna) sanctuaries areas.

Special Considerations for Environmental Assessment

Special considerations for environmental assessment include:
Special considerations are required because adverse impacts of projects in many cases occur outside of project areas, and victims are not necessarily within the benefited areas of a project.

Mitigation Measures

Mitigation measures include:
Adjustments or provisions based on due consideration to the aspirations of the affected population; modification of development plans.
Formulating and implementing appropriate countermeasures.
Monitoring of environmental impacts; studies on execution of mitigation measures.

Related Studies Required

Relation studies required include:

Investigation of existing vested rights such as forest utilization rights and water use in and around project areas; studies on the socio-economic value of such vested rights; interview surveys of people in order to grasp their desires and aspirations in areas likely to be adversely affected by a project; studies on reconciliation capabilities of related government agencies.

2) Changes in Social and Institutional Structures

Definition

This term is defined as changes in social and institutional structures as a result of establishment of new, or modification of existing, rural organizations caused by development.

Major Potential Impacts

Major potential impacts include:

Disintegration of traditional rural organizations;

Conflict among local communities or affected people;

Alienation of socially disadvantaged groups;

Creation of poorly functioning organizations; and

Favourable impacts of social forestry for the betterment of local peoples communities and antinomies.

Development Activities Generating Impacts

Development activities generating adverse impacts include:

Insufficient consideration of traditional rural organizations, social institutions;

Creation of organizations without due attention to aspirations of affected people.

Special Considerations for Environmental Assessment

Special considerations for environmental assessment include:

Existing formal and informal rural organizations are assumed to have evolved naturally as a result of socio-economic conditions in project areas; and

Factors of formation, function, and value structure of existing organizations should be carefully reviewed in the establishment or modification of private organizations.

Mitigation Measures

Mitigation measures include:

Planning based on due consideration of the aspirations of affected people, existing institutions, and customs; establishment of adequate support measures; introduction of staged development.

Monitoring of outbreaks of conflict among people caused by induced reorganization of societies.

Monitoring of environmental impacts; studies on execution of mitigation measures.

Related Studies Required

Related studies required include:

Studies of existing organizations in project areas; baseline data on socio-economy; interview survey to elicit the aspirations of affected people; studies on functions and capabilities of related government agencies.

3) Changes in Existing Institutions and Customs

Definition

This term is defined as changes in existing institutions and customs involved in or induced by development activities.

Major Potential Impacts

Major potential impacts include:

Undesirable alteration of existing institutions, systems and customs;

Disappearance of traditional practices;

Undesirable establishment of new institutions or restructuring of existing institutions and customs; and

In some cases, due to re/afforestation projects, there is move away from shifting cultivation to forest conservation.

Development Activities Generating Impacts

Development activities generating adverse impacts include:

Introduction of new institutions and systems or restructuring of the same;

Alteration of ways of life on local communities or affected people; and

Introduction of new systems or institutions which neglect traditional practices and aspirations of affected people.

Special Considerations for Environmental Assessment

Special considerations for environmental assessment include:

Understanding of the value of existing institutions, systems and customs within the context of the socio-economy of project areas; and

Rapid alteration of the same without paying due attention to traditional practices and aspirations of the population will result in socio-economic upheaval in project areas.

Mitigation Measures

Mitigation measures include:

Planning based on due considerations on aspirations of affected peoples, existing institutions, and customs; establishment of adequate support measures; introduction of staged development.

Monitoring of environmental impacts; studies on execution of mitigation measures.

Related Studies Required

Relation studies required include:

Studies on existing organizations in project areas; baseline data on socio-economy; interview surveys to explicit the aspirations of affected peoples; studies on functions and capabilities of related government agencies.

1.2 Health and Sanitary Issues

1) Increased Use of Agrochemicals

Definition

Increased use of agrochemicals refers to the increased use of chemical pesticides and insecticides in re/afforestation projects and nurseries or logging and wood treatment operations due to an intensification of forestry and the introduction of associated development projects.

Major Potential Impacts

Major potential impacts include:

Decrease in the number of species and population of insects and small animals;

Increased vulnerability of the ecosystem;

Vicious cycle consisting of outbreaks of agrochemical-resistant pests and increased application of agrochemicals; and

Physical harm to both humans and livestock.

Development Activities Generating Impacts

Development activities generating adverse impacts include:

Alteration of technological patterns; and

Intensification of forestry.

Planting introduced species.

Special Considerations for Environmental Assessment

Special considerations for environmental assessment include:

Use of agrochemicals in forestry establishment may reduce the sustainable productivity of the forest.

Mitigation Measures

Mitigation measures include:

Establishment and extension of pest, disease control measures and use of bio and human power.

Monitoring of changes in fauna and flora due to alteration of forest environments.

Monitoring of environmental impacts; studies on execution of mitigation measures.

Taking advantage of applied technologies and studies on suitable species for different sites to protect forest areas from the adverse effects of agrochemicals.

Related Studies Required

Related studies required include:

General technical surveys; pest and disease surveys; studies on pest and disease forecasting and control systems; studies on systems technology, and capability of extension service on application methods of agrochemicals; surveys of technical level of farmers.

2) Outbreak of Endemic Diseases

Definition

This term is defined as the spreading of outbreaking diseases as a result of the adverse effects of development.

Major Potential Impacts

Major potential impacts include:

Outbreaking of endemic diseases.

Decrease in endemic diseases resulting from improvements in primitive environmental lifestyle due to forestry projects.

Development Activities Generating Impacts

Development activities generating adverse impacts include:

Creation of an environment conducive to the propagation of pathogenic agents (insects, bacteria, fungus, etc.);

Reduction in the number and population of natural enemies species of pests; and

Infestation coming from outside of project areas.

Special Considerations for Environmental Assessment

Special considerations for environmental assessment include:

Specific considerations are required regarding the increase in traffic of human beings and animals into project areas and the inadvertent creation of habitats of pathogenic insects.

Mitigation Measures

Mitigation measures include:

Studies on the possibility of outbreak of endemic diseases and measures to control the same.

Monitoring of changes in fauna and flora due to alteration of the natural environment.

Monitoring of environmental impacts; studies on execution of mitigation measures.

Related Studies Required

Related studies required include:

Studies on pathogenic insects infestation and other agents in surrounding or related areas; case studies on similar projects.

3) Prevalence of Infectious Diseases

Definition

Prevalence of infectious diseases is defined as spreading of infectious diseases attributable to the adverse effects of development.

Major Potential Impacts

Major potential impacts include:

Prevalence of infectious diseases;

Decrease in the spread of endemic diseases resulting from improvements in primitive environmental lifestyle due to forestry projects.

Development Activities Generating Impacts

Development activities generating adverse impacts include:

Creation of an environment conducive to the propagation of pathogenic agents (insects, bacteria, fungus, etc.);

Introduction of pathogenic agents coming from outside of project areas; and

Increase in traffic of human beings and animals.

Special Considerations for Environmental Assessment

Special considerations for environmental assessment include:

Considerations regarding the increase in traffic of human beings and animals into project areas and the inadvertent creation of habitats for pathogenic insects due to over-growth.

Mitigation Measures

Mitigation measures include:

Studies on the possibility of outbreaks of epidemic diseases and control measures for the same; dissemination of information on health and sanitation.

Implementation of necessary provisions when an outbreak of epidemic disease is observed.

Monitoring of environmental impacts; studies on execution of mitigation measures.

Related Studies Required

Related studies required include:

Studies on prevalence of infectious agents in surrounding or related areas; and case studies on similar projects.

4) Residual Toxicity of Agrochemicals

Definition

Residual toxicity of agrochemicals is defined as an accumulation with high residual toxicity such as organo-chloric insecticides, etc. in the natural environment (soil, water, etc.) of agrochemicals or chemical substances.

Major Potential Impacts

Major potential impacts include:

Harmful effects on human beings and animals through biological concentration;

Adverse impacts on the natural environment.

Development Activities Generating Impacts

Development activities generating adverse impacts include:

Use of agrochemicals with high residual toxicity;

Limited application or total lack of regulations to control of toxic agrochemical use;

Misuse of agrochemicals.

Special Considerations for Environmental Assessment

Special considerations for environmental assessment include:

Elimination of factors attributable to the adverse impacts; and

Employment of necessary measures under the technological system.

Mitigation Measures

Mitigation measures include:

Defining the criteria for agrochemicals with high residual toxicity and strict regulations on the use and marketing of the ones defined.

Monitoring of application of the said regulations on agrochemical use and marketing.

Strict application of relevant regulations.

Related Studies Required

Related studies required include:

Surveys of agrochemicals on the market and regulations on agrochemical handling; surveys of cultivation methods and extension technologies; studies on marketing channels for agrochemicals.

5) Increase in Domestic and Other Human Wastes

Definition

This term is defined as the increase in domestic and other human wastes due to the consequences of population increase, logging and wood processing.

Major Potential Impacts

Major potential impacts include:

Spreading of infectious diseases; and

Deterioration of sanitary conditions.

Development Activities Generating Impacts

Development activities generating adverse impacts include:

Population increase resulting from settlement plans;

Excrement increase in livestock population; and

Increases in human waste due to employment opportunities generated under project construction works.

Special Considerations for Environmental Assessment

Special considerations for environmental assessment include:

Increases in domestic and other human wastes due to population increases resulting from development activities.

Mitigation Measures

Mitigation measures include:

Studies on waste disposal facilities.

Provision of waste disposal facilities.

Monitoring of environmental impacts; studies on execution of mitigation measures.

Related Studies Required

Relation studies required include:

Studies on existing measures and capacities for waste disposal and environmental conditions in affected areas.

1.3 Cultural Asset Issues

1) Impairment of Historic Remains and Cultural Assets

Definition

Impairment of historic remains and cultural assets is defined as direct or indirect impairment or destruction of sites, structures, and remains of archaeological, historical, religious, cultural, or aesthetic value as a result of development.

Major Potential Impacts

Major potential impacts include:
Impairment or destruction of historic remains etc., and
Loss of tourist resources.
(Refer to Appendix A, Section 2)

Development Activities Generating Impacts

Development activities generating adverse impacts include:
Direct impairment or destruction caused by development activities;
Inundation due to reservoir construction, etc.; and
Impairment due to increase in traffic of vehicles and humans.

Special Considerations for Environmental Assessment

Special considerations for environmental assessment include:
Comprehensive countermeasures based on identification of distribution, value, preservation policies, and existing conservation measures for historic remains and cultural assets.

Mitigation Measures

Mitigation measures include:
Protection or relocation of affected remains, etc.; strengthening of preservation measures and management of the same.
Monitoring of environmental impacts; studies on execution of mitigation measures.

Related Studies Required

Related studies required:

Surveys of distribution, conditions, value, and distinctive features of remains, etc.; studies on government conservation policies, and function and capabilities of related government agencies for management and conservation.

2) Damage to Aesthetic Sites

Definition

Damage to aesthetic sites is defined as direct or indirect negative effects on aesthetic features of the environment as a result of development.

Major Potential Impacts

Major potential impacts include:

Degradation of aesthetic features;

Creation of inharmonious views;

Loss of tourist resources; and

Disappearance of sites with nostalgic value.

Development Activities Generating Impacts

Development activities generating adverse impacts include:

Development activities involving disturbance or modification of earth surfaces;

Construction of structures inharmonious to the scenery of a site.

Special Considerations for Environmental Assessment

Special considerations for environmental assessment include:

Comprehensive countermeasures based on identification of distribution, value, preservation policies, and existing conservation measures for aesthetic sites.

Mitigation Measures

Mitigation measures include:

Selection of scenery or sites to be preserved; formulation of plan with due considering for the conservation of scenery.

Monitoring of environmental impacts; restoration of affected scenery and studies on execution of mitigation measures.

Related Studies Required

Related studies required include:

Surveys of distribution, value, and distinctive features of the subject scenery or site; studies on government conservation policies and the functions and capabilities of related government agencies for management and conservation.

3) Impediment of Mineral Resources Exploitation

Definition

This term is defined as impediment of exploitation of mineral resources due to development activities.

Major Potential Impacts

Major potential impacts include:

Impediment of mineral resources development.

Development Activities Generating Impacts

Development activities generating adverse impacts include:

Construction of large-scale structures blocking access to deposits.

Special Consideration for Environmental Assessments

Special considerations for environmental assessments include:

Preliminary investigation on distribution of deposits and consultations with related government agencies when deposits of mineral resources are predicted to be existent.

Mitigation Measures

Mitigation measures include:

Adequate investigations; alteration of project areas.

Implementation of necessary provisions when unanticipated finds are made.

Studies on socio-economic impacts.

Related Studies Required

Related studies required:

Investigation of mineral resources distribution; consultation with related government agencies.