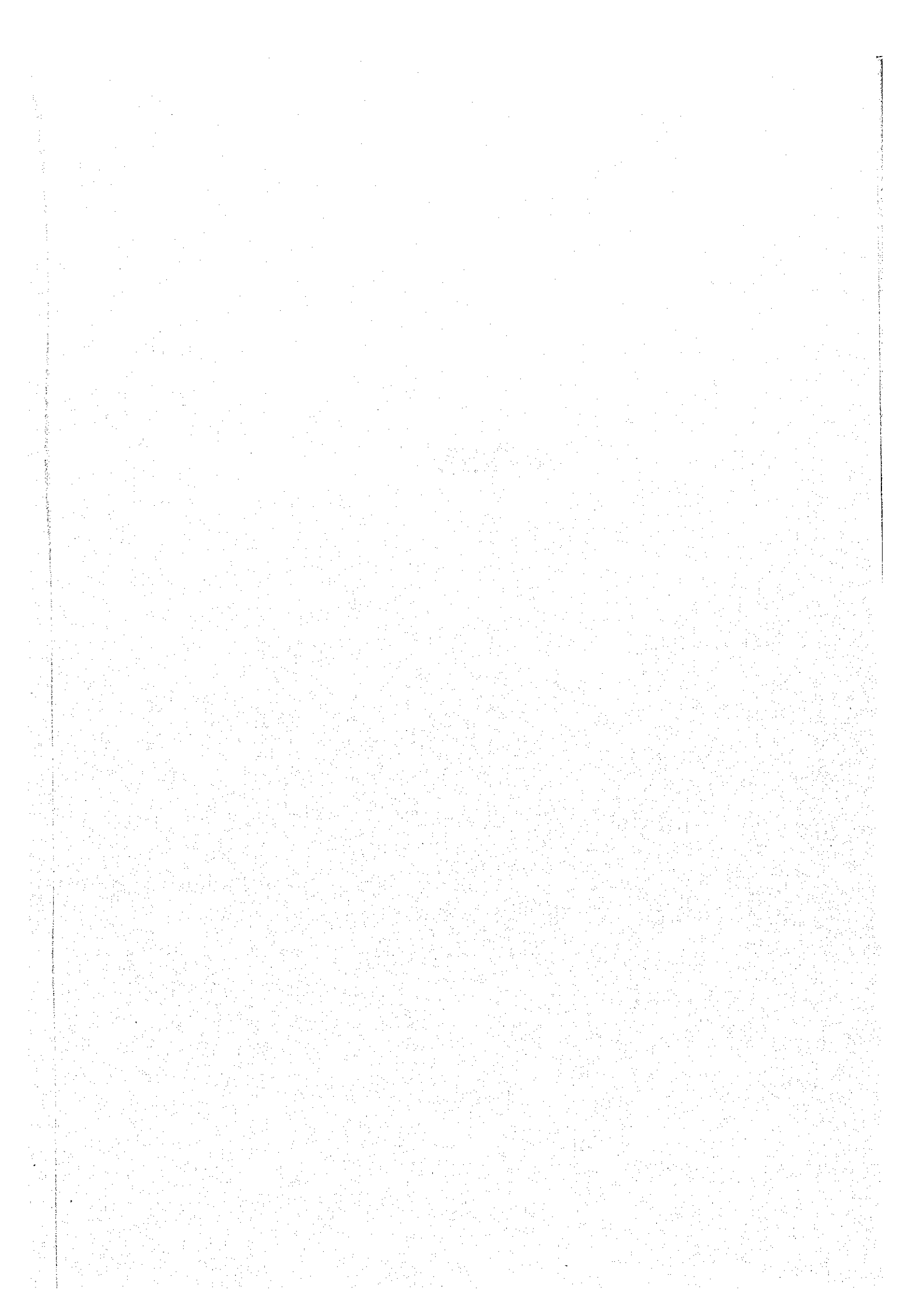


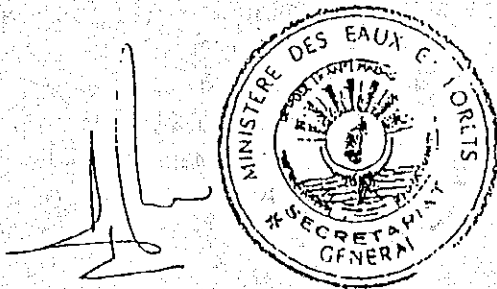
ANNEX



SCOPE OF WORK
FOR
THE FEASIBILITY STUDY
ON
WATERSHED MANAGEMENT IN MANTASOA AND TSIAZOMPANIRY
IN
MADAGASCAR

AGREED UPON BETWEEN
MINISTRY OF WATER AND FOREST
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

Antananarivo, 3 October 1997



Mr. RAZAFIMANDIMBY Vincent Hilarion
General Secretary
Ministry of Water and Forest
Madagascar

A handwritten signature in cursive script, likely belonging to Mr. Yoshimitsu Nishitani.

Mr. Yoshimitsu NISHITANI
Team Leader
Preparatory Study Team
Japan International Cooperation Agency
Japan

I. INTRODUCTION

In response to the request of the Government of the Republic of Madagascar (hereinafter referred to as "the Government of Madagascar"), the Government of Japan has decided to conduct the Feasibility Study on Watershed Management in Mantasoa and Tsiazompaniry in Madagascar (hereinafter referred to as "the Study"), in accordance with the relevant laws and regulations in force in Japan.

Accordingly, the Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of the technical cooperation programmes of the Government of Japan, will undertake the Study in close cooperation with the authorities concerned of the Government of Madagascar.

The present document sets forth the scope of work with regard to the Study.

II. OBJECTIVES OF THE STUDY

The objectives of the Study are:

1. To develop a watershed management plan in Mantasoa and Tsiazompaniry and assess its feasibility; and
2. To transfer relevant technologies to the counterpart personnel through the Study.

III. SCOPE OF THE STUDY

1. Target Area (See the location map attached as Annex I)

The watersheds of Lake Mantasoa and Lake Tsiazompaniry with a total area of approximately 50,000 ha

2. Study Area (See the location map attached as Annex I)

The watersheds of Lake Mantasoa and Lake Tsiazompaniry and their surrounding area, with a total area of approximately 90,000 ha

3. Outline of the Study

The Study will consist of two phases. Work plans in each phase are as follows:

Phase I

- (1) Aerial photographing in the Study Area (scale: 1/20,000)

- (2) Collection and analysis of relevant existing data and information, and field survey

- a) Natural conditions
- b) Socio-economic conditions, including land tenure
- c) Forest and forestry conditions
- d) Other information related to the Study

- (3) Preparation of topographic maps for the Target Area (scale: 1/20,000)
- (4) Preparation of land-use and vegetation maps for the Study Area (scale: 1/20,000)
- (5) Identification of factors (socio-economic, physical, technical, managerial, institutional, etc.), which constrain or promote watershed management
- (6) Identification of objectives and strategies for the watershed management
 - a) Development of criteria for zoning
 - b) Identification of management objectives and strategies/alternatives for each zone
- (7) Formulation of the pilot study on participatory watershed management
 - a) Selection of the alternatives to be studied and the study site(s)
 - b) Preparation of the terms of reference for the pilot study (objectives, expected outputs, activities, inputs, work schedule, institutional arrangement, monitoring and evaluation system, etc.)
- (8) Implementation of the first part of the pilot study: designing of the models for participatory watershed management in consultation with local communities

Phase II

- (1) Implementation of the second part of the pilot study: testing and evaluation of the models designed in the first part in Phase I
- (2) Additional data collection and analysis of natural conditions, and detailed field survey
- (3) Preparation of soil maps for the Target Area (scale: 1/20,000)
- (4) Detailed socio-economic survey on the relevant communities
- (5) Preparation of watershed management plan, considering local participation, land use, erosion control, reforestation, agroforestry, utilization of forest products, fire control, organization, etc.
 - a) Development of a management plan for each zone
 - b) Development of a comprehensive management plan for the target area
- (6) Assessments of the feasibility of the watershed management plan (technical, social, institutional, environmental, financial, and economic)
- (7) Preparation of watershed management plan maps for the Target Area (scale: 1/20,000)

IV. WORK SCHEDULE

The Study will be carried out in accordance with the attached tentative work schedule (Annex II).

V. REPORTS

JICA shall prepare and submit the following reports to the Government of Madagascar.

1. Inception Report
Twenty (20) copies in French at the beginning of phase I of the Study.
2. Progress Report
Twenty (20) copies in French at the beginning of phase II of the Study.
3. Interim Report
Twenty (20) copies in French in the course of phase II of the Study.
4. Draft Final Report
Ten (10) copies in English and twenty (20) copies in French at the later of phase II of the Study. The Government of Madagascar will provide JICA with its comments on the Draft Final Report within one (1) month after receipt of the Draft Final Report.
5. Final Report
Ten (10) copies in English and fifty (50) copies in French within two (2) months after receipt of the comments from the Government of Madagascar on the Draft Final Report.

In addition to the above reports, one set each of the following are to be submitted to the Government of Madagascar with relevant reports.

- (1) Monochrome aerial photographs of the Study Area (scale: 1/20,000).
 - a) Negative films
 - b) Contact prints
- (2) Maps
 - a) Study Area
 - Land-use and vegetation maps (scale: 1/20,000)
 - b) Target Area
 - Topographic maps (scale: 1/20,000)
 - Soil maps (scale: 1/20,000)
 - Watershed management plan maps (scale: 1/20,000)

VI. UNDERTAKING OF THE GOVERNMENT OF MADAGASCAR

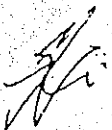
1. In order to facilitate the smooth conduct of the Study, the Government of Madagascar shall take necessary measures:
 - (1) to secure the safety of the Japanese study team,
 - (2) to permit the members of the Japanese study team to enter, leave and sojourn in Madagascar for the duration of their assignment therein, and exempt them from foreign registration requirements and consular fees,
 - (3) to exempt the members of the Japanese study team from taxes, duties and other charges on

equipment, machinery and other materials brought into Madagascar for the conduct of the Study,

- (4) to exempt the members of the Japanese study team from income tax and charges of any kind imposed on or in connection with any emoluments or allowances paid to the members of the Japanese study team for their services in connection with the implementation of the Study,
 - (5) to provide necessary facilities to the Japanese study team for remittance as well as utilization of the funds introduced into Madagascar from Japan in connection with the implementation of the Study,
 - (6) to secure permission for entry into private properties or restricted areas for the implementation of the Study within the laws and regulations in force in Madagascar,
 - (7) to secure permission for the Japanese study team to take all data and documents (including maps and photographs) related to the Study out of Madagascar to Japan; and
 - (8) to provide medical services as needed. Its expenses will be chargeable to members of the Japanese study team.
2. The Government of Madagascar shall bear claims, if any arise, against the members of the Japanese study team resulting from, occurring in the course of, or otherwise connected with the discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or willful misconduct on the part of the members of the Japanese study team.
 3. Ministry of Water and Forest shall act as counterpart agency to the Japanese study team and also as coordinating body in relation with other governmental and non-governmental organizations concerned for the smooth implementation of the Study.
 4. Ministry of Water and Forest shall, at its own expense, provide the Japanese study team with the following, in cooperation with other organizations concerned:
 - (1) available data and information related to the Study,
 - (2) counterpart personnel,
 - (3) suitable office spaces with necessary equipment in Antananarivo; and
 - (4) credentials or identification cards.

VII. UNDERTAKING OF JICA

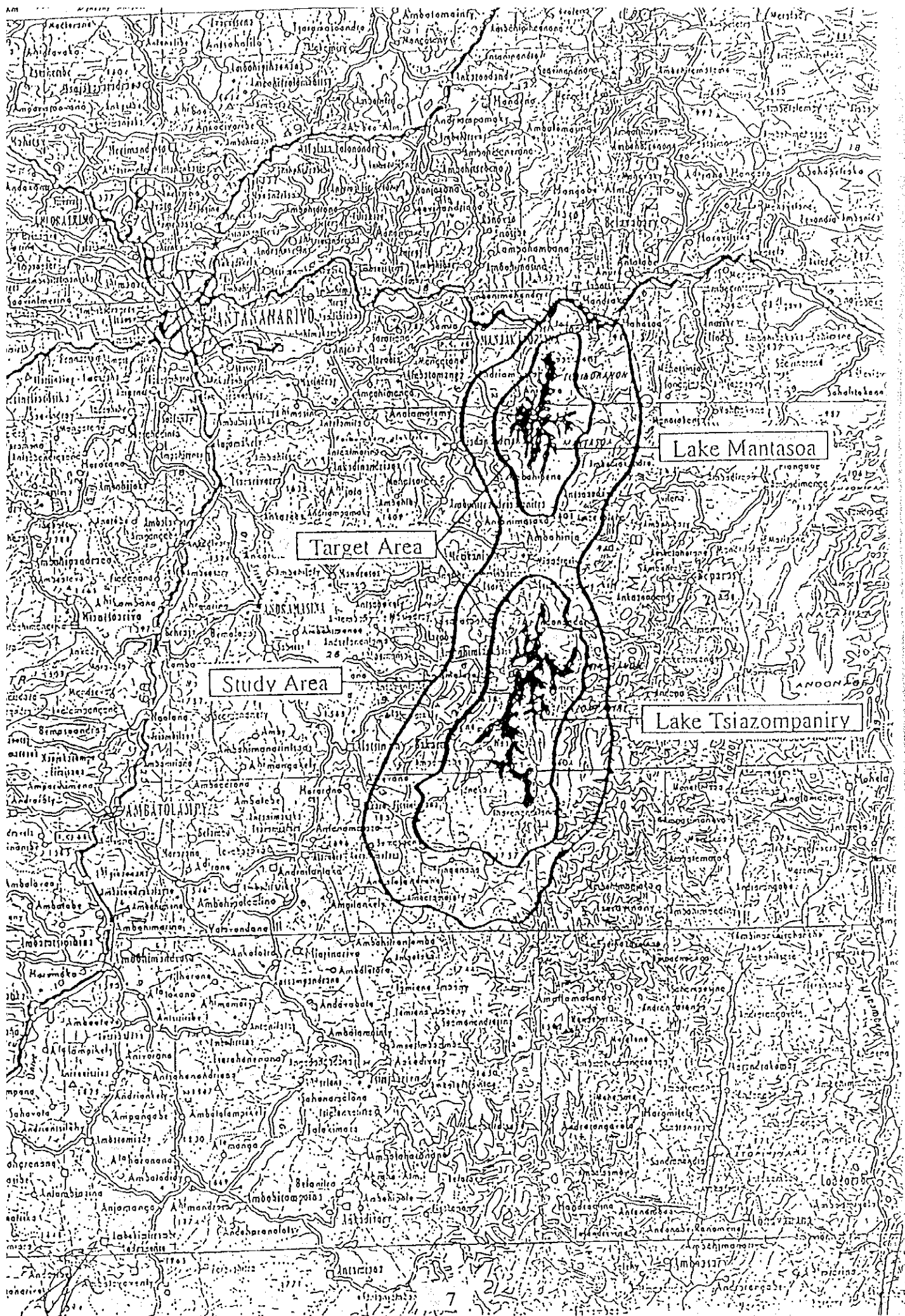
1. For the implementation of the study, JICA shall take the following measures:
 - (1) to dispatch, at its own expense, the Study Teams to Madagascar, and
 - (2) to pursue technology transfer to the Madagascar counterpart personnel in the course of the Study.
2. In conducting the Study, the Japanese study team shall act in accordance with all applicable laws and regulations in Madagascar.



(1) JICA and Ministry of Water and Forest shall consult with each other in respect of any matter that may arise from or in connection with the Study.

(2) The Scope of Work is made in English and French language. In case of any divergence of interpretation, the English text shall prevail.





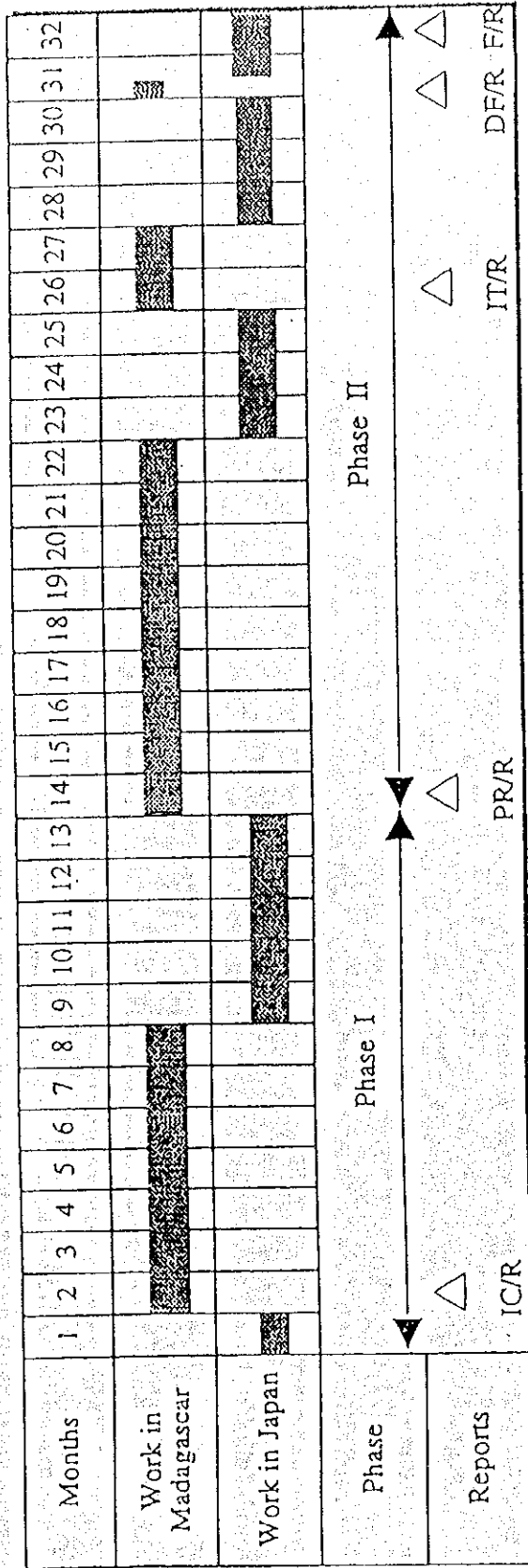
Target Area

Study Area

Lake Mantasoa

Lake Tsiazompaniry

TENTATIVE SCHEDULE



(Remarks)

- : IC/R
- : PR/R
- : IT/R
- : DF/R
- : F/R
- : Inception Report
- : Progress Report
- : Interim Report
- : Draft Final Report
- : Final Report

MINUTES OF MEETINGS
ON
SCOPE OF WORK
FOR
THE FEASIBILITY STUDY
ON
WATERSHED MANAGEMENT IN MANTASOA AND TSLAZOMPANIRY
IN
MADAGASCAR

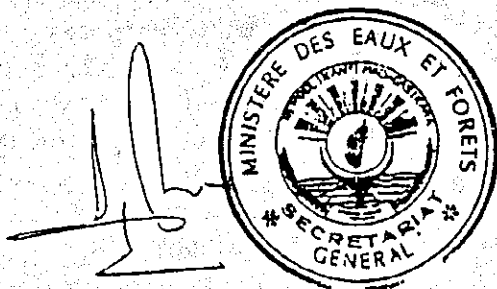
The preparatory study team (hereinafter referred to as "the Team") organized by the Japan International Cooperation Agency (hereinafter referred to as "JICA"), headed by Mr. Yoshimitsu NISHITANI, visited the Republic of Madagascar from 22 September to 3 October 1997 for the purpose of discussing and confirming the Scope of Work for the Feasibility Study on Watershed Management in Mantasoa and Tsiacompaniry in Madagascar (hereinafter referred to as "the Study").

The Team had a series of discussions with the authorities concerned of the Government of Madagascar represented by Mr. RAZAFIMANDIMBY Vincent Hilarion, General Secretary, Ministry of Water and Forest.

As a result of the discussions, the Madagascar side and the Team agreed upon the Scope of Work for the Study.

The main issues discussed by the both sides in relation to the Scope of Work are shown in the Annex as attached hereto.

Antananarivo, 3 October 1997



Mr. RAZAFIMANDIMBY Vincent Hilarion
General Secretary
Ministry of Water and Forest
Madagascar

Mr. Yoshimitsu NISHITANI
Team Leader
Preparatory Study Team
Japan International Cooperation Agency
Japan

Annex

1. Previous preparatory study

The Government of Japan dispatched the first preparatory study team to Madagascar from 7 to 18 April 1997. The draft Scope of Work was prepared based on the result of the study, which was described in the Minutes of Meetings dated 18 April 1997.

2. Meaning of the "Scope of Work"

"l'Etendue des Travaux" is used as the French term for the Scope of Work, according to JICA's formality. The "l'Etendue des Travaux" has the same meaning of "le Contenu des Travaux" in this context.

3. Title of the Study

The Team and the Madagascar side agreed that the title of the Study was "the Feasibility Study on Watershed Management in Mantasoa and Tsiazompaniry in Madagascar".

4. Target area and study area

The Target Area (50,000ha), for which the watershed management plan would be developed, would cover the watersheds of Lake Mantasoa and Lake Tsiazompaniry. The Study Area (90,000ha) would be set to cover not only the Target Area but also its surrounding area. This is from the view that natural and socio-economic conditions of adjacent communities should be taken into account, in order to work out the appropriate management plan.

5. Flow of the study

The Team explained the tentative flow of the Study and the Madagascar side accepted it.

6. Local participation

There exist communities inside and adjacent to the Target Area. These communities and their people use, occupy and/or own the lands in the Target Area for various purposes, whose activities could have positive or negative impacts on the watersheds. It was emphasized that they must be actively involved in initiating and implementing actions to improve watershed management. In this respect, the existing participatory approaches already developed and tested (including those by UNDP/FAO) should be taken into account.

7. Pilot study on participatory watershed management

Both sides agreed to include in the Study a pilot study to design and test models for participatory watershed management. The developed models would be used as inputs to the Watershed Management Plan.

8. Meetings on the study with local communities/people

It was found necessary for the Japanese study team to have meetings with local communities /people when the Phase I and the pilot study start. The communities/people must be sensitized

with the purpose of the Study so that there would be neither misunderstandings, fears, nor suspicions about it. The meetings should be also held in Phase II to explain and discuss the Progress Report, Interim Report and Draft Final Report.

9. Existing study on watershed management in Mantasoa and Tsiazompaniry

It was agreed that the Study should take into consideration the results of the study on the watershed management in Mantasoa and Tsiazompaniry conducted by the Ministry of Land and City Management and the Ministry of Water and Forests.

10. Joint steering committee

Both sides agreed that a joint steering committee would be established for smooth conduct of the Study. Functions and composition of the committee are as follows:

(1) Functions

- a) To hold discussion and give comments on the following reports submitted by the Japanese study team:
 - Inception Report
 - Progress Report
 - Interim Report
 - Draft Final Report
- b) To hold discussion and give comments on the pilot study programme submitted by the Japanese study team.
- c) To coordinate inter-related activities among the Ministry of Water and Forest and other relevant organizations.

(2) Composition

a) Members

- Japanese study team
- Embassy of Japan in Madagascar
- Ministry of Water and Forest
- Ministry of Agriculture
- Ministry of Livestock
- Ministry of Scientific Research
- Ministry of Land and City Management (Direction of Domains and Office of the Project of the Development of the Antananarivo Plain)
- Ministry of Environment (Office of National Environment)
- Fivondronanas (Departments) of Manjakandriana and Andramasina

b) Observers

- Multi Donor Secretariat, World Bank

11. Undertaking of the Madagascar side

The Team confirmed that the Madagascar side undertake the obligations which were mentioned in the Scope of Work. The Madagascar side promised to take necessary measures for them, particularly the provision of the followings:

(1) Counterpart personnel in the following fields:

- a) Watershed management planning

- b) Local involvement/pilot study
- c) Socio-economic analysis
- d) Erosion control
- e) Reforestation
- f) Fire control
- g) Coordination
- h) Other relevant fields, as necessary

(2) Suitable office(s) with electricity and furniture

12. Aerial photographing and surveying

The Team requested the Ministry of Water and Forest that it should go through the necessary formalities to undertake aerial photography, mapping and field survey for the Study. The Ministry agreed to this arrangement.

13. Technology transfer seminar

Both sides agreed that the Study should include a technology transfer seminar at the stage of explanation of the Draft Final Report to disseminate the results of the Study. The seminar is to be jointly organized by the Madagascar side and the Japanese study team.

14. Commencement of the Study

The Study is expected to start around April 1998, as the aerial photographs are taken only in dry season.

15. Language

The Minutes of Meetings is made in English and French language. In case of any divergence of interpretation, the English text shall prevail.

Minutes of the Meeting (Explanation and Discussion of the Inception report)

Appendix 1

MINUTES OF THE MEETING
ON
THE INCEPTION REPORT
OF
WATERSHED MANAGEMENT IN MANTASOA AND TSLAZOMPANIRY
IN
MADAGASCAR

In pursuance to the objectives of the Scope of Work for the Feasibility Study on Watershed Management in Mantasoa and Tsiazonpaniry in Madagascar, (hereinafter referred to as "the Study") signed on October 3 1997, Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Study Team headed by Mr. Tsutomu HANDA and the Advisory Team headed by Dr. Masahiro AMANO from April 19 to June 7, 1998 and from April 19 to April 29, 1998 respectively.

The Study Team submitted 20 copies of the Inception Report to the Madagascar side on April 21, 1998 and held the meeting of the Joint Steering Committee with the Madagascar authorities and counterparts headed by Mr. RANDRIANANDIANINA Baptiste Noël, Director of Management and Sustainable Forest Resources, Ministry of Water and Forest. The list of attendants for the meeting is shown in Appendix 1.

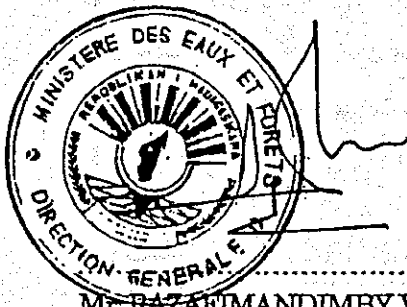
The results as well as comments from the meeting are as follows:

1. The Madagascar side and the Study Team of JICA discussed the Inception Report and both sides agreed upon the contents of the Report with some confirmation as shown in Appendix 2.
2. The Madagascar side will provide to the Study Team the nominated counterparts as shown in Appendix 3.

R
M.A. //

3. Both sides agreed to cooperate fully with each other to ensure the efficient implementation of the Study in order to achieve the objectives as described in the Inception Report.
4. This Minutes of the Meeting is documented in English and French languages. In case of any divergence of interpretation, the English text shall prevail.

Antananarivo, April 27, 1998



.....
Mr. RAZAFIMANDIMBY Vincent Hilarion
General Director
Ministry of Water and Forest
Madagascar

.....
Mr. Tsutomu HANDA
Team Leader
JICA Study Team,
Japan

Witnessed by

.....
Dr. Masahiro AMANO
Leader
JICA Advisory Team
Japan

LIST OF PARTICIPANTS

The Madagascar Side :

| <u>Name</u> | <u>Position</u> | <u>Institution</u> |
|----------------------------------|--|---|
| 1. RAKOTOARIVELO Michel | Ingénieur des Travaux Public | Ministère Aménagement Territoire |
| 2. RABEMANANJARA Rivomalala | Chef de Service | Ministère Environnement |
| 3. RANDRIANJAFISOLO Philippe | Directeur Surveillance | Ministère Environnement |
| 4. RANDRIANOELISOA Noël | Sous Prefet du Fivondronampokontany d' Andramasina | Ministère de l'Intérieur |
| 5. RAMBELOSON François Richard | Directeur | Direction Inter-régionale des Eaux et Forêts Antananarivo |
| 6. RANDRIANANDIANINA Baptiste N. | Directeur | Direction de la Gestion Durable des Ressources Forestières |
| 7. RAZANAMIADANA Nivo | Coordinateur | Unité de Coordination /PE.2 Ministère des Eaux et Forêts |
| 8. RAHOLISOARMANGA Voahangy | Collaborateur | Direction de Progranation-Suivi Evaluation |
| 9. RARIVOMANANA Philibert | Chef de Service | Ministère des Eaux et Forêts |
| 10. RAKOTOARIJAONA J. Roger | Directeur | Office National de l'Environnement |
| 11. RASOLOFOARINORO | Directeur | Ministère de la Recherche Scientifique |
| 12. RAZAFINTSALAMA Claudie | Chef CIREF | Circonscription des Eaux et Forêts Antananarivo |
| 13. KECK Andrew | Secrétariat de Multi Bailleurs | World Bank |
| 14. RAHARISON Achille | | Directeur Général de l'Agriculture |
| 15. NAKAMURA Masahiko | Expert japonais | Ministère des Eaux et Forêts |

M.A. //

The Japanese Side

Study Team :

| <u>Name</u> | <u>Position</u> | <u>Institution</u> |
|-------------------------|-----------------|--|
| 1. Tsutomu HANDA | Team Leader | Japan Overseas Forestry Consultants Association (JOFCA) |
| 2. Susumu MIYATAKE | Sub-leader | -do- |
| 3. Hirotsugu NISHIZAWA | Team Member | -do- |
| 4. Yoshihide SAWANOBORI | -do- | -do- |
| 5. Koumi UCHINO | -do- | -do- |
| 6. Akira FUKUHARA | Coordinator | -do- |
| 7. Tadao ARAI | Interpreter | -do- |

Advisory Team :

1. Masahiro AMANO Forestry and Forest Products Research Institute
2. Hirohito TAKATA Japan International Cooperation Agency (JICA)

Appendix 2

SPECIFIC ISSUES DISCUSSED DURING THE MEETING

- (1) The Study shall be conducted in line with Environmental Programme II(PE-II) and other related programme in Madagascar.
- (2) The Government of Madagascar including Ministry of Water and Forest and Ministry of Environment will provide necessary information/data related to the Study.
- (3) The Study Team shall be responsible to transfer the Techniques applied in the Study to the several levels of the Madagascar's parties related to the Study.

List of Counterparts Nominated to Each Study Team Member

| <u>Name</u> | <u>Counterparts</u> |
|----------------------|---|
| Tsutomu HANDA | RAMBELOSON Richard Direction Inter-Régional de la Province des Eaux Et Forêts |
| Susumu MIYATAKE | RAHARISOA Roland |
| Hirotsugu NISHIZAWA | ROHARIMANIRAKA Lydie |
| Yoshihide SAWANOBORI | ANDRIANANJA Tovohery |
| Shinichi MORI | RAHOLISOARIMANGA Vohangy |
| Koumi UCHINO | RAZAFITSALAMA Claudie |
| Takaki TOYODA | RAHANITRINAINA Volatiana |
| Kazuo FURUKATA | RANDRIAMANANORO Fidy |
| Shinsuke MATSUZAWA | PAKOTONDRABE François B. |
| Akira FUKUHARA | RARIVOMANANA Philibert |
| Kazuya MIURA | -do- |

Memorandum of the Meeting (Basic Concept of PS)

MEMORANDUM OF THE MEETING
ON
PILOT STUDY
OF
WATERSHED MANAGEMENT IN MANTASOA AND TSLAZOMPNIRY
IN
MADAGASCAR

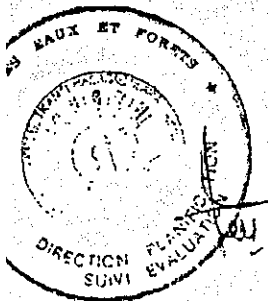
In accordance with the Inception Report which was finalized on April 27, 1998, the JICA Study Team headed by Mr. Tsutomu Handa submitted the discussion paper on basic conception of the pilot study to the Madagascar side on September 4, 1998, and held the Joint Steering Committee Meeting chaired by Mr. RAZAFIMANDI MBY Vincent Hilarion, Director General, Ministry of Water and Forest.

The list of attendants for the meeting is shown in Annex.


The Madagascar side and the JICA Study Team discussed the discussion paper and both sides agreed upon the contents of it with some confirmation as follows:

1. For getting the fruits of the study, it is important for local habitants to understand necessity of the study through the local governments.
2. Prior to conducting field study, the Study Team should inform its schedule to the local authorities.
3. The expression of objectives in zones in Annex 2 should be changed to specific objectives.
4. The Steering Committee should be held in necessity formally or informally more than mentioned in the Inception Report.
5. The NGO should be chosen through discussion of the Ministry of Water and Forest and the Study Team.
6. The *Sous-Prefets* of Manjakandriana and Andramasina should be joined in discussion of choosing the sites of the PS.

Antananarivo, September 7, 1998



Ms. RSIHARISOA Monique
Directeur
DPSE, Ministère des Eaux et Forêts


Mr. HANDA Tsutomu
Team Leader
JICA Study Team

LIST OF PARTICIPANTS

| <u>Name</u> | <u>Position</u> | <u>Institution</u> |
|---------------------------------|-------------------|--|
| The Madagascar Side : | | |
| RAZAFIMANDIMBY Vincent Hilarion | Directeur General | Ministere des Eaux et Forets |
| RADIHARISOA Monique | Directeur | DPSE, Ministere Eaux et Forets |
| RAMBELOSON Francois Richard | Directeur | Direction Inter-regionale des Eaux et Forets |
| RAKOTOARIJAONA J. Roger DAMA | Directeur | Office National de l' Environnement Ministere de l' Environnement |
| RAKOTOARISOA Rodolphe | Sous- Prefet | Majakandriana, Ministere de l' Interieur |
| RANDRIANARISOA Ahelison | | Ministere de l' Energie et Mines |
| RARIVOMANANA Philibert | Chef de Service | Ministere des Eaux et Forets |
| The Japanese Side : | | |
| HANDA Tsutomu | Team Leader | Japan Overseas Forestry Consul- tants Association (JOFCA) |
| SAWANOBORI Yoshihede | Team Member | - do - |
| UCHINO Koumi | - do - | - do - |
| MATSUZAWA Shinsuke | - do - | Kokusai Kogyo Co.,LTD. |
| ARAI Tadao | Interpreter | JOFCA |
| Embassy of Japan : | | |
| TSUKAHARA Shigeru | Secretary | Embassy of Japan in Madagascar |

Memorandum of the Joint Committee Meeting (Explanation and Discussion of the Results of 2nd Study in Madagascar)

MEMORANDUM OF THE JOINT COMMITTEE MEETING
ON
FEASIBILITY STUDY ON WATERSHED MANAGEMENT
IN MANTASOA AND TSLAZOMPANIRY
IN
MADAGASCAR

The JICA Study Team headed by Mr. MIYATAKE Susumu presented the progress of the 2nd Survey Mission in Madagascar and related issues on the Study were also discussed at the Joint Committee Meeting held on 3 December 1998, which was chaired by Mr. RAMBELOSON Jeau Francis Richard, Inter-regional Director of Water and Forests in Antananarivo. The list of attendance for the meeting is shown in the attached paper.

Primal outputs come out during the 2nd Survey Mission and the points of discussions at the meeting are as follows.

1. Action Plan of the Pilot Study for the two villages in Mantasoa and two villages in Tsiazonpaniry has been developed by NGO-GOAIKA under the supervision of the Study Team. The final report of the Action Plan is to be submitted to the Study Team by 21 December 1998.
2. Full set of the negative film as well as the positive film of air-photograph for the study area were prepared by FTM under the supervision of the Study Team and these were submitted to the Madagascar side on 27 November 1998.
3. Topographic map for the target area was also prepared by FTM under the supervision of the Study Team and it was completed during the 2nd Survey Mission. The map covers whole area of Andrefanivorona village and Angodongodona village where the Pilot Study will be implemented, that expands outside of the target area or the study area. This issue was agreed upon between Ministry of Water and Forests and the JICA Study Team.
4. Preparation of Land-use map for the study area is now in process in Japan and it will be completed soon. The map will also be submitted to the Madagascar side in 1999.
5. Seminar was conducted two times during the 2nd Survey Mission for the purpose of technical transfer from the Study Team to the Madagascar side.

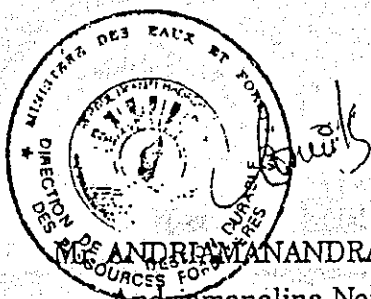
6. Ministry of Water and Forests is going to prepare the radio program to in order to provide the formal information on the Feasibility Study on Watershed Management in Mantasoa and Tsiazonpaniry in Madagascar to the public population.

7. Ministry of Water and Forests may call representatives of Sur-prefecture of Manjakandriana and Andramasia to have a meeting to discuss the issue of follow-up action for the four villages during the absence of JICA Study Team in Madagascar, where the Pilot Study will be carried out.

8. Forthcoming program of JICA Study Team was explained in accordance with the schedule shown in the Inception Report.

9. Action Plan will be implemented in the four villages, i.e. Andrefanivorona, Ambohimanjaka, Angodongodona and Analamihoatra, after the next JICA Study Team arrives in Madagascar. The provisional schedule would be in May 1999.

Antananarivo, 4th December, 1998



ANDRIAMANANDRATRA
Andriamanalina Nomenjanahary
Director of Sustainable Forest Resources
Management, Ministry of Water and Forests

宮武進

Mr. MIYATAKE Susumu
Sub-Leader
JICA Study Team

LIST DES PARTICIPANTS A LA REUNION DU COMITE DE GESTION

03/12/98

| NOM | PRENOM | ORGANISATION |
|-------------------|------------------|--|
| RABE | Harimanana | Ministère de l'Aménagement du Territoire et de la ville |
| ANDRIAMANANDRATRA | Andry | Ministère des Eaux et Forêts/ Direction de la Gestion Durable des Ressources Forestières |
| RAMBELOSON | François Richard | Ministère des Eaux et Forêts/ Direction Interrégionale des Eaux et Forêts d'Antananarivo |
| TSUKAHARA | Shigeru | Ambassade du Japon |
| RANJALAHY | Jocelyne | Ministère de l'Agriculture |
| RAHARJAONA | Williams Jacobs | GOAIKA |
| RAHARISOA | Henrison Roland | Ministère des Eaux et Forêts/ Service du Développement Forestier/ Reboisement |
| RAZAFIMAHATRATRA | Mahefason | Ministère des Eaux et Forêts/ Service du Développement Forestier/ Bassins Versants |
| RARIVOMANANA | Philibert | Ministère des Eaux et Forêts/ Service du Développement Forestier |
| RANAIVOMANANA | Lala | Office National de l'Environnement |
| RAKOTOARISOA | Rodolphe | Sous-Préfet du Fivondronampokontany Manjakandriana |
| RAHARIMANIRAKA | Lydie | Ministère des Eaux et Forêts/ Direction Générale des Eaux et Forêts/ Service de la Valorisation Economique |
| RAZAFINTSALAMA | Claudie | Direction Interrégionale des Eaux et Forêts d'Antananarivo/ Service de la Planification et Suivi-évaluation |
| MYATAKE | SUSUMU | JICA Study Team |
| KOUME | Uchino | JICA Study Team |

Memorandum regarding Changing of the Area for Topographic Mapping

**MEMORANDUM REGARDING CHANGING OF THE AREA
FOR TOPOGRAPHIC MAPPING
ON
FEASIBILITY STUDY ON WATERSHED MANAGEMENT
IN MANTASOA AND TSLAZOMPANIRY IN MADAGASCAR**

In accordance with "The Scope of Work for the Feasibility Study on Watershed Management in Mantasoa and Tsiacompaniry in Madagascar" which was signed on 3 October, 1997, topographic mapping is to be carried out for the target area which covers approximately 50,000 ha.

However, it was found during the mapping preparation process that the village area of Andrefanivorona and Angodongodona extends beyond the target area and study area respectively, where the pilot study will be carried out (see attached papers). Pilot study is the primal subject of this Study, and detailed information collection is considered as an important element.

Consequently, both Madagascar side and Study Team agree to prepare the topographic map including the areas shown hereunder as a part of the target area, and both parties conclude to sign this memorandum.

Expanded Area

| | Andrefanivorona | Angodongodona | Total |
|--------------------|----------------------|------------------------|------------------------|
| beyond Target area | Approximately 500 ha | approximately 1,200 ha | Approximately 1,700 ha |
| beyond Study area | | 300 ha | 300 ha |
| Total | 500 ha | 1,500 ha | 2,000 ha |



Mr. RABOTOVAVY RAZAFIMANDIMBY

Vincent Hilarion

General Director

Ministry of Water and Forest

Madagascar

Antananarivo, 1st December, 1998

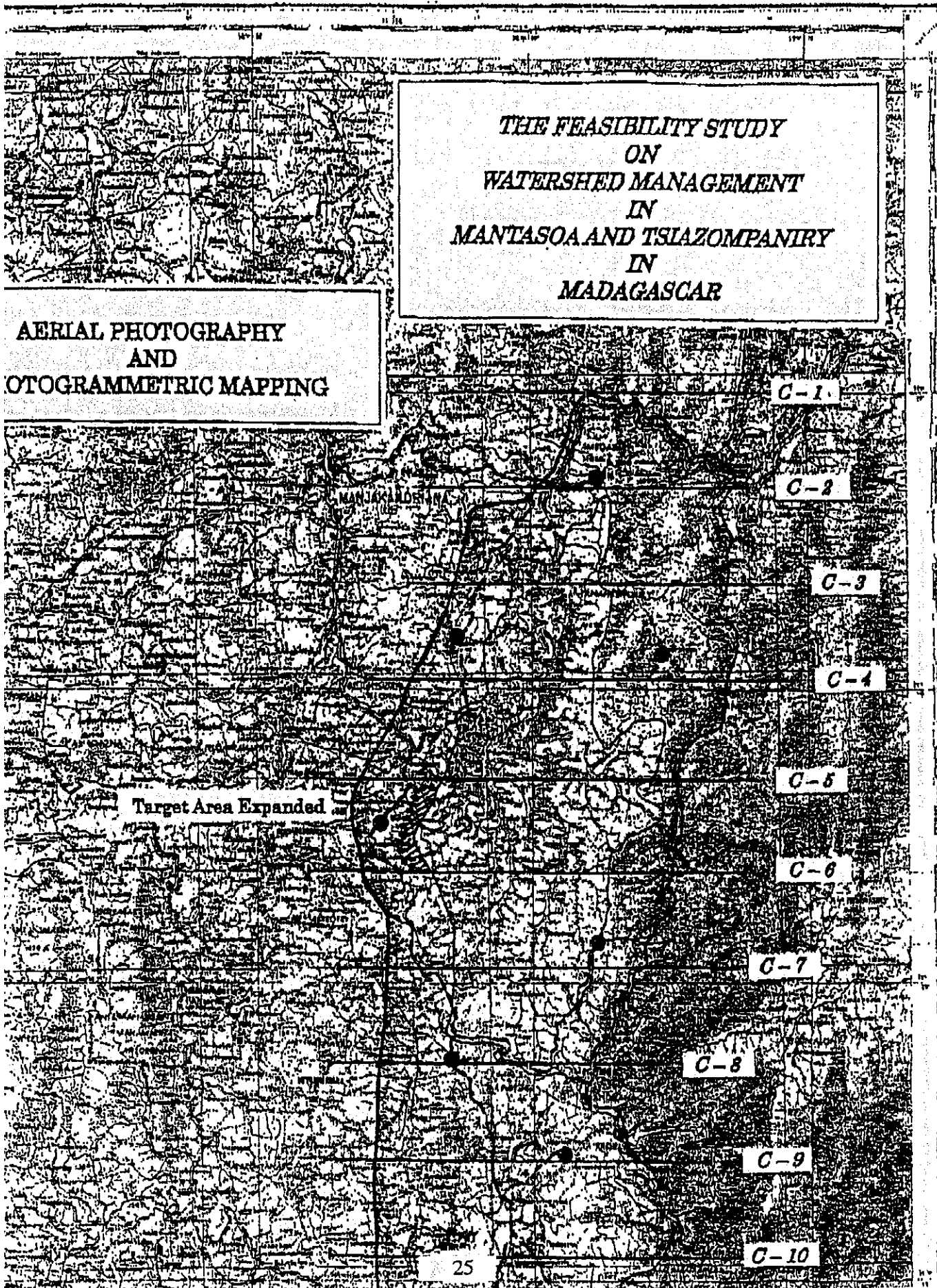
宮武進

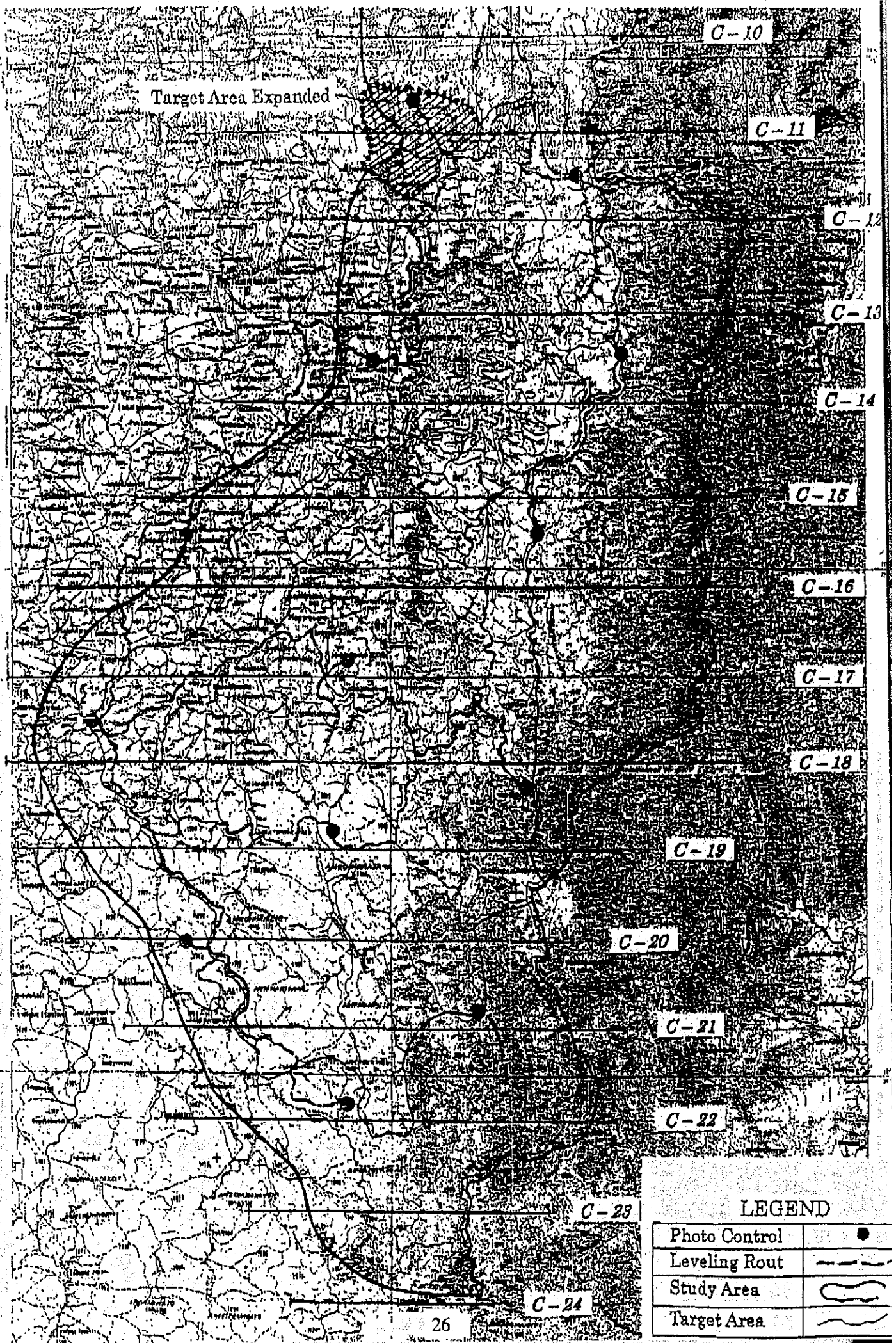
Mr. MIYATAKE Susumu

Sub-Leader

JICA Study Team

Japan





Target Area Expanded

C-10

C-11

C-12

C-13

C-14

C-15

C-16

C-17

C-18

C-19

C-20

C-21

C-22

C-23

C-24

LEGEND

| | |
|---------------|-----|
| Photo Control | ● |
| Leveling Rout | --- |
| Study Area | ~ |
| Target Area | ■ |

Minutes of the Meeting (Explanation and Discussion of the Progress report)

MINUTES OF THE MEETING
ON
THE PROGRESS REPORT
OF
WATERSHED MANAGEMENT IN MANTASOA AND TSIAZOMPANIRY
IN
MADAGASCAR

In pursuance to the objectives of the Scope of Work for the Feasibility Study on Watershed Management in Mantasoa and Tsiazonpaniry in Madagascar, (hereinafter referred to as "the Study") signed on 3 October 1997, Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Study Team headed by Mr. HANDA Tsutomu and Representative of JICA HQ, Mr. FUJISHIRO Kazuo from 20 April to 26 May, 1999 and from 20 April to 1 May, 1999 respectively.

The Study Team submitted 20 copies of the Progress Report to the Madagascar side on 23 April, 1999 and held the meeting of Joint Steering Committee with the Madagascar authorities and counterparts headed by Mr. RABOTOVAVY RAZAFIMANDIMBY Vincent Hilarion, Director General, Ministry of Water and Forest.

The list of attendants for the meeting is shown in Appendix 1.

The results as well as comments from the meeting are as follows;

1. The Madagascar side and the Study Team of JICA discussed the Progress Report and both sides agreed upon the contents of the Report with some confirmation as shown in Appendix 2.
2. Both sides agreed to cooperate fully with each other to ensure the efficient implementation of Participatory Watershed Management Programme to achieve the objectives of the Study.

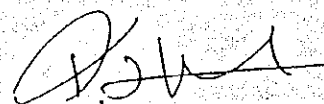
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3. One set of the first original as well as the second original of land-use and vegetation map for the study area were submitted to the Madagascar side.

Antananarivo, 23rd April, 1999

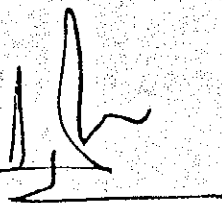
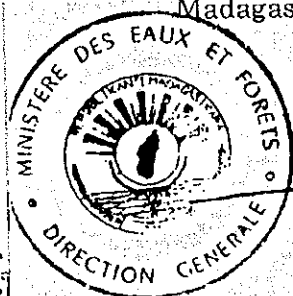
.....
Mr. RABOTOVAVY RAZAFIMANDIMBY

Vincent Hilarion
Director General
Ministry of Water and Forest
Madagascar

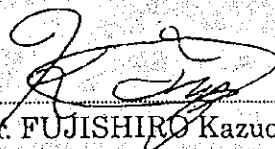


.....
Mr. HANDA Tsutomu

Team Leader
JICA Study Team,
Japan



Witnessed by



.....
Mr. FUJISHIRO Kazuo
Agriculture, Forestry and Fisheries
Development Study Department,
JICA
Japan

LIST OF PARTICIPANTS

| <u>Name</u> | <u>Position</u> | <u>Institution</u> |
|---|---|--|
| The Madagascar Side : | | |
| 1. RABOTOVAVY RAZAFIMANDIMBY Vincent Hilarion | Directeur Général | Ministère des Eaux et Forêts |
| 2. RAMBELOSON François Richard | Directeur | Ministère des Eaux et Forêts Direction Inter-régionale des Eaux et Forêts Antananarivo |
| 3. RAKOTOARISOA Rodolphe | Sous-Préfet | Fivondronampokontany Manjakandriana |
| 4. RAZAFINDRIAKA Benie Vonjy | Cadre ONE | Office National de l' Environnement (ONE) |
| 5. ANDRIAMANANORO Fidy | Chef de service Suivi Evaluation | Ministère des Eaux et Forêts |
| 6. RAOLINJATOVO Genevieve Nane | Chef de cellule Environnement | Ministère de l' Agriculture |
| 7. RABENITANY Yvannie | Collaborateur Bassin Versant | Ministère des Eaux et Forêts |
| 8. RARIVOMANANA Philibert | Chef de Service | Ministère des Eaux et Forêts |
| 9. RAHARIMANIRAKA Lydie | Chef de Service de la Valorisation Economique | Ministère des Eaux et Forêts |
| 10. RANDRIAMANA MIHANTASOA | Représentant | Ministère de la Recherche Scientifique |
| 11. RAHANITRINIAINA Volatiana | Chef de Service Gestion des Ressources Forestières | Ministère des Eaux et Forêts Direction Inter-régionale des Eaux et Forêts Antananarivo |
| 12. RAZAFINTSALAMA Claudie | Chef de Service Planification Suivi Evaluation | Ministère des Eaux et Forêts Direction Inter-régionale des Eaux et Forêts Antananarivo |
| 13. RABEMANANJARA Rivomalala | Chef de Service | Ministère Environnement |
| 14. RABE Harimanana | Service Planification Direction Générale du Plan | Ministère de l' Aménagement du Territoire et de la Ville |
| 15. RAHOLISOARIMANGA Voahangy | Chef de division Etude Impact Evaluation Suivi | Ministère des Eaux et Forêts |
| 16. NAKAMURA Masahiko | Expert Japonais | Ministère des Eaux et Forêts |

Name Position Institution

The Japanese Side :

Study Team:

| | | |
|-------------------------|-------------|--|
| 1. HANDA Tsutomu | Team Leader | Japan Overseas Forestry Consultants Association (JOFCA) |
| 2. SAWANOBORI Yoshihide | Team Member | - do - |
| 3. UCHINO Koumi | - do - | - do - |
| 4. MIURA Kazuya | Coordinator | - do - |
| 5. ARAI Tadao | Interpreter | - do - |

Embassy of Japan:

| | | |
|----------------------|------------------|--------------------------------|
| 1. TSUKAHARA Shigeru | Second Secretary | Embassy of Japan in Madagascar |
| 2. SAITO Akira | - do - | - do - |

JICA Representative:

| | | |
|--------------------|-------|---|
| 1. FUJISHIRO Kazuo | Staff | Agriculture, Forestry and Fisheries Development Study Department Japan International Cooperation Agency (JICA) |
|--------------------|-------|---|

SPECIFIC ISSUES DISCUSSED DURING THE MEETING

1. It was suggested that poverty of the local people brought about problems against the watershed management. Accordingly, it would need a long span of the time to rehabilitate the degraded watersheds.
2. It was reconfirmed that the Study should be conducted in line with Environmental Programme- II (PE- II). The maps and aerial photographs submitted to the Ministry of Water and Forest by the Study Team would provide an useful information in implementation of PE- II , and the Study will show good example for watershed management in Madagascar.
3. It was emphasized that cooperation of the local authorities is necessary to implement the participatory watershed management programme effectively.
4. The participatory watershed management programme will be implemented under the agreement of the Ministry of Water and Forest, the JICA Study Team and local NGO.
5. Low fertility of soil is considered as one of the reasons for transmigration to the east sides of the lakes. In this context, the supplemental survey of socio-economic condition will be carried out this year.
6. Dissemination of the land-use system, which will be applied in the participatory watershed management programme, would be useful for conservation of the lakes.

Agreement
On
Implementation of Participatory Watershed Management Program

This Agreement, made on the day of April 26, 1999 amongst the JICA Study Team, Ministry of Water and Forests of the Government of Madagascar and Gasy Ory Azo Ikarohan Kevitra Ampivoarana (hereinafter referred to as "GOAIKA") in order to secure implementing the Pilot Project on Participatory Watershed Management Program by appropriate and sustainable management. The three parties agreed upon the following provisions.

Article 1 Objective of the Program

The Watershed Management Program (Pilot Project) formulated in the first stage of Pilot Study will be implemented and evaluated in four villages by participatory approach of local inhabitants. The local inhabitants will carry out the program by them and will be trained so as to continue various activities of the program by their own capacity after completion of the study.

Article 2 Contents of the Program

Contents of the program comprise the followings.

- 2.01 Implementation Plan at each village is shown in the Attachment 1.
- 2.02 Implementation Cost of each village is shown in the Attachment 2.

Article 3 Obligation of Each Party

Each Party shall owe following obligation in order to facilitate appropriate implementation of the program and to secure sustainable management by the participating local inhabitants.

3.01 JICA Study Team

JICA Study Team shall make an arrangement of project cost, which is shown in the Attachment 1, in order to secure implementation of the program timely and appropriately.

3.02 Ministry of Water and Forests

- (1) Ministry of Water and Forests shall be responsible for GOAIKA to give technical and management guidance as occasion arises in order to secure appropriate implementation of the program.

- (2) Ministry of Water and Forests shall be responsible to undertake an appropriate management continuously after completion of the Pilot Study in order to secure implementation of the program sustainably by the local inhabitants

3.03 GOAIKA

GOAIKA shall observe the Contract Agreement to be made separately from this Agreement between JICA Study Team and GOAIKA, and conduct the program appropriately.

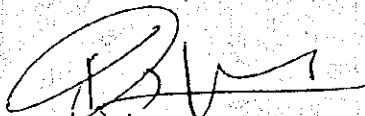
Article 4 Procedure on Expenditure of the Project Cost

As for the project cost required to implement the project of this program, it shall be paid by JICA Study Team to GOAIKA timely and appropriately in due course of execution of the program upon submission of the evidence of payment and the official receipt.

Supplementary Provision

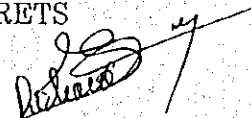
The clause stipulated under the Article 2 of this Agreement refers to the fiscal year of 1999.

JAPAN OVERSEAS FORESTRY
CONSULTANTS ASSOCIATION



HANDA Tsutomu
Team leader
The Feasibility Study on
Watershed Management in Mantasoa
and Tsiazompaniry in Madagascar

DIRECTION INTER-REGIONAL
DES EAUX ET FORETS

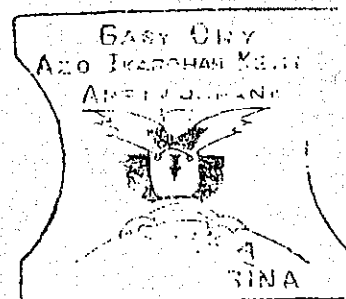


RAMBELOSON Francois Richard
Diresteur

GASY ORY AZO IKAROHAN
KEVITRA AMPIVOARANA



RAHARIJAONA Williams Jacobs
Representative



Attachment 1 Operations to be Carried out in Each Hamlet

| Area | Village | Hamlet | Operation | | | | | | | | Number of Operation | |
|---|------------------|-----------------|-----------|-----|-----|-----|-----|-----|-----|-----|---------------------|---|
| | | | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | | |
| M A N T A S U A | Andre-fanivorona | Ambazimba | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | 5 | |
| | | Antanifotsy | ⊙ | | | | | | | | | 1 |
| | | Andrefanivorona | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | 6 | |
| | | Ambohijafy | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | 6 | |
| | | *Household | 20 | 20 | 10 | 10 | 5 | 10 | 20 | | 18 | |
| | | Ankatsaka | ⊙ | ⊙ | | ⊙ | | | ⊙ | | | 4 |
| | | Aminanosy | ⊙ | ⊙ | ⊙ | ⊙ | | | ⊙ | | | 5 |
| | | Antatatra | ⊙ | ⊙ | | ⊙ | | | ⊙ | | | 4 |
| | | Andranokely | ⊙ | ⊙ | | ⊙ | | | ⊙ | | | 4 |
| | | Ambohimanjaka | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | 8 |
| *Household | 70 | 57 | 57 | 70 | 5 | 5 | 57 | 43 | | 25 | | |
| T S I A Z O N P A N I R Y | Angodon-godona | Ambondrona | ⊙ | | | ⊙ | | | | | 2 | |
| | | Angodongodona | ⊙ | | | ⊙ | | | ⊙ | | 5 | |
| | | Ankadilalidina | ⊙ | ⊙ | | | | | | | 2 | |
| | | Tsaratolotra | ⊙ | | ⊙ | ⊙ | | | | | 4 | |
| | | Ambatotsara | ⊙ | | | ⊙ | | | | | 2 | |
| | | Antokotoko | ⊙ | | | ⊙ | | | | ⊙ | 3 | |
| | | Tombonoro | ⊙ | | | ⊙ | | | | | 4 | |
| | | *Household | 64 | 64 | 25 | 52 | 10 | 10 | 10 | 10 | 22 | |
| | | Anovondoriana | ⊙ | ⊙ | ⊙ | ⊙ | | | ⊙ | | | 5 |
| | | Analamihoaatra | ⊙ | ⊙ | ⊙ | ⊙ | | | ⊙ | | | 5 |
| Keklalina | ⊙ | ⊙ | ⊙ | ⊙ | | | ⊙ | | | 5 | | |
| *Household | 41 | 64 | 5 | 158 | | | 64 | | | 15 | | |
| Total Number of Household | | | 195 | 205 | 97 | 290 | 20 | 25 | 141 | 53 | 80 | |

(1) Fruit production (2) Soil conservation (3) Fodder production (4) Tree planting (5) Coppice management (6) Charcoal oven improvement
 (7) Live hedge management (8) Fish farming
 *Household : Number of household to participate the pilot project

| Component | Andrefanivorona | | Ambohimanjaka | | Angodongodona | | Analaminoatra | | |
|----------------------|-----------------|-----------|---------------|--------|---------------|--------|---------------|-----------|---------|
| | amount | unit cost | total | amount | unit cost | total | amount | unit cost | total |
| Forestry | | | 000FMG | | | 000FMG | | | 000FMG |
| Planting seed | 1kg | 150,000 | 150 | 2kg | | 350 | 4kg | | 600 |
| Pot | 10000 | 80 | 800 | 40000 | | 3,200 | 25000 | | 180000 |
| watering can | 6 pc. | 15,000 | 90 | 15 | | 225 | 15 | | 225 |
| Coppice saw | 5 pc. | 60,000 | 300 | 10 | | 600 | 10 | | 600 |
| Shear | 3 pc. | 200,000 | 600 | 6 | | 1,200 | 3 | | 300 |
| Charcoal kiln | 4 pc. | 50,000 | 200 | 8 | | 400 | 4 | | 200 |
| Agroforestry | | | | | | | | | |
| Tree seed | 30kg | 65,000 | 1,950 | 260 | | 16,900 | 140 | | 9,100 |
| Seedling(Vetyver) | 2500 | 500 | 1,250 | | | | | | |
| Insecticide spp. | 2 spp. | | 1,500 | | | 1,500 | | | 1,000 |
| Fodder | 2 lots | 400,000 | 800 | 5 | | 2,000 | 6 | | 2,400 |
| Spray | 2 pc. | 150,000 | 300 | 4 | | 600 | 6 | | 900 |
| Fork | 4 pc. | 20,000 | 80 | 10 | | 200 | 12 | | 240 |
| Pineapple | | | | | | | 1,000 | | 2,000 |
| Agriculture | | | | | | | | | |
| Seed | 6kg | 8,000 | 48 | 20kg | | 160 | 20kg | | 160 |
| fruit tree | 200 | 8,000 | 1,600 | 200 | | 1,600 | 400 | | 3,200 |
| Fish Farming | | | | | | | | | 1,200 |
| Sub-Total | | | 9,668 | | | 30,135 | | | 23,875 |
| Technical Assistance | | | 6,964 | | | 16,436 | | | 14,278 |
| Indirect Cost | | | 7,544 | | | 10,688 | | | 12,088 |
| Total | | | 24,176 | | | 57,259 | | | 50,241 |
| Grand Total | | | | | | | | | 195,518 |

Note: 1) Technical assistance includes 1)visit to villages and 2)seminar on agroforestry, coppice regeneration technique and charcoal production.
2) Indirect cost includes 1)workshops, 2)transportation of facility, 3)village meetings and 4)stationary.
3) Project component and amount of activities may be changeable in process of implementation.

[Handwritten signatures and marks]