Minutes of the Joint Committee Meeting (Progress of PS)

MINUTES OF THE JOINT COMMITTEE MEETING FOR THE PILOT STUDY

ON

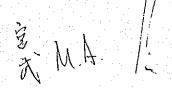
WATERSHED MANAGEMENT IN MANTASOA AND TSIAZOMPANIRY IN MADAGASCAR

The Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Leader of the Advisory Team, Dr. AMANO Masahiro, to Madagascar from 11 to 25 July, 1999 to conduct field survey of the Pilot Study on Feasibility Study on Watershed Management in Mantasoa and Tsiazonpaniry in Madagascar. The Pilot Study has started its implementation at the four villages located in the target area since May 1999. During his visit to the fields, several issues were recognized which were essential to the implementation of the Pilot Study. In this connection, the JICA Study Team and the Ministry of Water and Forest of Madagascar (hereinafter referred to as "the MEF") decided to organize the Joint Committee Meeting (hereinafter referred to as "the Meeting") to discuss the problems to facilitate the implementation of the Pilot Study effectively and productively to achieve the sound watershed management in the areas concerned by the rural population's initiatives.

The MEF invited the relevant authorities in Madagascar and the Embassy of Japan to the Meeting held on 23 July, 1999 morning at the Head-quarters of the MEF at Antananarivo. The Meeting was chaired by Mr. RABOTOVAVY Razafimandimby Vincent Hilarion, the Director General of the MEF. The programme and the list of participants of the Meeting are shown in the Appendix -1 and -2 respectively.

The major issues discussed and items confirmed during the Meeting between the Japanese side and the Madagascar side are summarized hereunder.

- 1. The implementation of the Pilot Study has been steadily and actively carried out in each of the four villages in Mantasoa and Tsiazonpaniry by their own human resources and initiatives under the newly developed rural structure.
- 2. The NGO-GOAIKA contracted by the JICA Study Team has been giving necessary inputs to each village, facilitating rural population to implement the activities in a proper manner.
- 3. Both the Japanese side and the Madagascar side recognize the importance of sustainability in implementing and developing the programme of the Pilot Study in each village in order to secure achievement of the final goal for the sound participatory watershed management.
- 4. In connection with the above context, the Japanese side will provide relevant information on any possible scheme of overseas assistance to support financial and technical inputs which will help the rural population continue the implementation of the programme for sound watershed management at the areas concerned after completion of the Pilot Study.
- 5. The Director General of the MEF expressed his willingness to assist the rural population to acquire land ownership on either the State land or the MEF's land for the purpose of tree planting. Accordingly, the MEF will authorize, under an agreement with the Watershed Management Committees in the Pilot Study area, rural population to plant seedlings produced in the Pilot Study on its land. In parallel, the MEF and relevant authorities will immediately initiate their action to apply the ZODAFARB, a scheme which combines tree plantation and transfer of land ownership, in the Study area.



Antananarivo, 23 July, 1998



Mr. RABOTOVAVY Razafimandimby

Vincent Hilarion
Director General
Ministry of Water and Forest
Madagascar

官武

Mr. MIYATAKE Susumu

Sub Leader

JICA Study Team

Japan

Witnessed by

Dr. AMANO Masahiro

Leader

ЛСА Advisory Team

Japan

Appendix -1

Programme of the Joint Committee Meeting

on

Watershed Management in Mantasoa and Tsiazonpaniry in Madagascar

Date : 23 July (Friday) 1999, 9:00 to 12:00 hours

Venue: Head Quarters of the Ministry of Water and Forests

Topics:

1. Opening Remarks

by the Representative of MEF

- 2. Report on Field Visit for Pilot Study by Dr. AMANO Masahiro
- 3. Proposal of ZODAFARB System to be Introduced in the Pilot Study Area

 by Mr. MORI Shinichi
- 4. Comments from the Ministry of Water and Forests
- 5. Forthcoming Programme of the JICA Study Team by Mr. MIYATAKE Susumu
- 6. Closing

3 M.A. (

FICHE DE PRESENCE REUNION BASSINS VERSANTS / JICA Le 23 Juillet 1999

NOM	INSTITUTION
I- RABOTOVAVY RAZAFIMANDIMBY Hilarion	- DIRECTEUR GENERAL DES EAUX ET FORETS
2- RARIVOMANANA Philibert	- SERVICE DU DEVELOPPEMENT FORESTIER
3- RAKOTOARISOA RODOLPHE	- SOUS PREFET DE MANJAKANDRIANA
4- RANDIMBIMAHENINA A.	- MINISTERE DE LA RECHERCHE SCIENTIFIQUE
5- RAMBELOSON FRANCOIS RICHARD	- DIRECTEUR INTERREGIONAL DES EAUX ET FORETS
6- RAZAFINDRIAKA BENIE VONJY	- CHARGEE DE LA PROGRAMMATION REGIONALE AU NIVEAU DE LA DIRECTION DE PROGRAMMA - TION DE L'ONE
7- RATSIMANDRES Y HENRI	- CHEF DE SERVICE DES EQUIPEMENTS URBAINS ET PUBLICS DU MINISTERE DE L'AMENAGEMENT DU TERRITOIRE ET DE LA VILLE
8- MIYATAKE SUSUMU	- SUB. LEADER, JICA TEAM
9- AMANO MASAHIRO	- ADVISOR, JICA TEAM
10- RATSIMBAZAFY VERONIRINA	- INTERPRETE, POUR JICA TEAM
11- SAITO AKIRA	- AMBASSADE DE JAPON
12- MORI SHINICHI	- ECONOMIST, JICA STUDY TEAM
13- NAKAMURA MASAHITO	- EXPERT, JICA
14- TOYODA TAKAKI	- MEMBER OF JICA STUDY TEAM

Minutes of the Joint Committee Meeting (Basic Concept of Watershed Management Plan)

MINUTES OF THE JOINT COMMITTEE MEETING FOR

PILOT STUDY AND CONCEPT OF WATERSHED MANAGEMENT ON

WATERSHED MANAGEMENT IN MANTASOA AND TSIAZOMPANIRY IN MADAGASCAR

The JICA Study team represented by Mr. MIYATAKE Susumu, Sub Team Leader, and the Ministry of Water and Forest, Madagascar (hereinafter referred to as "MEF") represented by Mr. RAMBERSON François Richard, Inter-regional Director for Antananarivo organized the Joint Steering Committee Meeting (hereinafter referred to as "the Meeting") at the meeting room in the Headquarters of MEF on 11 October, 1999.

The objective of the Meeting is to review the progress of the Pilot Study on Feasibility Study on Watershed Management in Mantasoa and Tsiazompaniry in Madagascar (herein after referred to as "the project"), and to discuss the basic concept on watershed management plan. The meeting was chaired by Mr. Ramberson F. Richard and it was proceeded in accordance with the agenda shown in the attached paper. The list of participants is also attached herewith.

The main issues presented and discussed during the Meeting are as follows.

- 1. The implementation of the Pilot Study has been continuously carried out in each village of Mantasoa and Tsiazonpaniry with some progress and substantial achievement. It is, however, reported that some operations have not been started yet or been behind of the original schedule due to commitment of daily agriculture activities in the villages.
- 2. It is needed to set up appropriate countermeasure in fodder production in order to manage fire control that often occurs in Antananarivo region. The JICA study team will pay a special attention on this matter for success of this programme.

- 3. Addendum to the programme of Pilot Study was explained by the JICA Study Team. Feasibility study for hydro-electric power supply at Analamihoatra will be involved in this Pilot Study. And, an application of ZODAFARB will be carried out in Tsiazompaniry area during the period of Pilot Study in order to motivate villagers to participate afforestation activity by their initiatives.
- 4. Midterm evaluation for Pilot Study will be conducted in early November '99 by the villagers with technical assistance of NGO (GOAIKA). Main objective of the midterm evaluation is to help villagers establish the self-sustenance mechanism for future watershed management by their initiatives.
- 5. Basic concept of "Watershed Management Plan" was presented by Mr. MIYATAKE Susumu and specific points were highlighted which are explicated in the document prepared by the JICA Team. JICA Study Team welcomes any question or comments from the participants or relevant authorities upon the basic concept any time to develop the ultimate watershed management plan of the project.

Antananarivo, 13 October, 1999

Antananariv DIRECTION DES ENCYPTER DES ENCYP

Mr. RAMBERSON François Richard Inter-regional Director for Antananarivo Ministry of Water and Forest Madagascar 多八些

Mr. MIYATAKE Susumu Sub Team Leader JICA Study Team Japan

Attachment

Agenda of the meeting

- 1. Pilot Study
- 1) Progress of Pilot Project in each village.
- 2) Addendum to the programme of Pilot Project.
 - * Feasibility study on hydro-electric power.
 - * Application of ZODAFARB.
- 3) Midterm Evaluation for Pilot Project.
 - * Purpose, method and schedule.
- 2. Basic concept of "Watershed Management Plan".
 - * Refer the paper.
- 3. Forthcoming Programme.

FICHE DE PRESENCE

du 11 Octobre 1999

NOMS	INSTITUTIONS
1 - RAMBELOSON François Richard	Directeur Interrégional des Eaux et Forêts Antananarivo
2 - RAZAFIMAHATRATRA Mahefason	Direction de la Gestion Durable des Ressources Forestières (DGDRF), Ministère des Eaux et Forêts, Division Bassins Versants
3 - RAHARISOA Henrison Roland	Chef de Division Reboisement à la Direction de la Gestion Durable des Ressources Forestières (DGDRF) Ministère des Eaux et Forêts
4 - RAZAFINTSALAMA Claudie	Clief Circonscription des Eaux et Forêts Antananarivo
5 - RAZAFINDRIAKA Benie V.	Office National pour l' Environnement (ONE)/Programmation Régional
6 - RABEMANANJARA Rivo	Ministère de l'Environnement, Chef de Division de la Contribution à la Gestion des Ressources Naturelles
7 - TATA Henri	Ministère de l'Environnement Collaborateur Technique à la Direction de la Protection et de la Politique Environnementale T1: 409-08
8 - RAOLINJATOVO Génèviève	Ministère de l'Agriculture Programme PPI Chef Cellule Environnement
9- RANDRIANARITIANA Pierrot	Ministère de l'Agriculture Direction du Génie Rural
10-RANIRINARISON A. Florence	Ministère de l'Elevage, Chef Service des Animaux à cycle court
11 - RANDRIANJOHARY Alain Pierre	Secrétariat Multi-Bailleurs, Programme Environnemental II
12- NAKAMURA Masahiko	JICA Expert
13- MIYATAKE Susumu	Sub. Leader, IICA
14- SAWANOBORI Yoshihide	Member of JICA Study Team
15- RAVELOARISOA Juliana	Interprete, Pour IICA Team

Amendment Of Agreement On Implementation of Participatory Watershed management Program

hree parties of the JICA Study Team, Ministry of Water and Forests of the Government of ladagascar and Gasy Ory Azo Ikaronhan Ampivoarana agreed to amend the AGREEMENT ade on the day of April 26,1999 as the following:

The operational program of hydroelectric (2~3KW) set shall be added as No.9 operation in the village of Analamihoatra of Attached paper No.1.

ZODAFARB program shall be applied in some villages under the forestry activity in Attached paper No.1.

The amount of seventeen million five hundred thousand FMG for hydroelectric set shall be in Analamihoatra of Attached paper No.2.

nis Amendment was made on the day of October 16,1999 by three parties through their uthorized representatives.

JAPAN OVERESEAS FORESTRY CONSULANTS ASSOCIATION

宫或進

MIYATAKE Susumu Sub Team Leader Sub Team Leader

Feasibility Study on Watershed Management

In Mantasoa and Tsiazompaniry

DESTAUX ÉT FORETS ANTANANARIVO

TION INTER-REGIONALE

RAMBELOSON François Richard

Directeur

VOLUMENT OF A CANADA OF A CANADA VICE OF A CANADA VICE OF A CANADA OF A CANADA

GASY ORY AZO IKAROHAN KEVITRA AMPIVOARANA

RAHARIJAONA Williams Jacobs

Representative

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

MINUTES OF THE MEETING ON THE INTERIM REPORT OF

WATERSHED MANAGEMENT IN MANTASOA AND TSIAZOMPANIRY IN MADAGASCAR

In pursuant to the objectives of the Scope of Work for the Feasibility Study on Watershed Management in Mantasoa and Tsiazompaniry 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 from 21 April to 9 June, 2000.

The Study Team had submitted twenty (20) copies of the Interim Report to the Madagascar side, and held the meeting of Joint Committee on 26 April, 2000 with the Madagascar authorities and counterparts headed by Mr. RAMBELOSON François Richard, Director of Direction Inter-region in ANTANANARIVO, Ministry of Water and Forests.

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

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

- The Madagascar side and the JICA Study Team discussed the Interim Report and both parties agreed upon the contents of the Report with some confirmation and suggestion as shown in Appendix 2.
- 2. Both sides fully agreed to cooperate each other to implement effectively the Participatory Watershed Management Program to achieve the objectives of the Study.



Mr. RAMBELOSON François Richard

Director

Direction Inter-region in ANTANANARIVO

Ministry of Water and Forests

Madagascar

Mr. HANDA Tsutomu

Team Leader

JICA Study Team

Japan

Appendix

LIST OF PARTICIPANTS

Name The Madagascar Side :	Position	Institution
1.RAMBELOSON François Richard	Directeur	Ministère des Eaux et Forêts Direction Inter-régionale des Eaux et Forêts Antananarivo
2.RAZAFIMATRATRA Mahefason	Chef de Service Développement Forestier	Ministère des Eaux et Forêts Direction de la Gestion Durable des Ressources Forestières
3.ANDRIAMANANORO Fidy	Chef Système d'Information Géographique Direction Générale Des Eaux et Forêts	Ministère des Eaux et Forêts
4.NDRIANANJA Tevehery	Chef Division Etudes	Ministère des Eaux et Forêts
5.RAOLINJATOVO Geneviéve Marie	Chef de cellule Environnment Coordination Nationale Petit Périmètre Irriguée	Ministère de l'Agriculture
6.RANDRIANARISOA Nhélson	Chef de Service Energie et Eau	Ministère de l'Energie et des Mines
7.RANDIMBIMAHENIAA	Chef de Service d' Appui à la	Ministère de la Recherche
8.RABE Harimamana	Recherche Environnemental Chef Service Planification Direction Générale des Plans	Scientifique Ministère de l'Aménagement du Territoire et de la Ville
9.SUGITA Eiji	Expert Japonais	Ministère des Eaux et Forêts

Name Position Institution The Japanese Side: Study Team: Japan Overseas Forestry Consultants Association Team Leader 1. HANDA Tsutomu (JOFCA) 2. SAWANOBORI Yoshibide Team Member - do -3. MIURA Kazuya Coordinator - do -Interpreter 4. ARAI Tadao - do -Embassy of Japan:

First Secretary

1. SAITO Akira

Embassy of Japan in Madagascar

SPECIFIC ISSUES DISCUSSED DURING THE MEETING

- 1. Regarding the fish farming activity in the Pilot Study area, some village had success on hatching fry but the other had not. Cause of the failure has not been identified yet whether it happened due to the management system of the villagers or the technical issue. The Pilot Study needs to continue to assess the reasons.
- 2. Fish farming activity on the fallow land has an important role for an effective land use system. Therefore, it is advisable to apply the fish farming program in each zone of the areas concerned taking into account of the results of the Pilot Study. It should be introduced to the farmers by their own initiatives.
- 3. The matter of water resource does not affect only the people lives in the periphery but also the surroundings. Therefore, it would be advisable if the committee of watershed management is registered as an authorized public sector. Thus, it will facilitate the committee to extend its role to other areas concerned.
- 4. Since the family plan is related to the property inheritance of the land in the Pilot Study area, this issue has to be taken into account for the component of future program for dissemination.
- 5. The Pilot Study will conclude to formulate the participatory watershed management plan on the basis of results of the pilot projects carried out in the previous year, and the plan should be feasible and manageable for the local population.
- 6. The proposed watershed management plan has a period of ten years which consists of first phase (five years) and second phase (five years). Details of the second phase plan will be formulated on the basis of assessment and evaluation of the overall activities during the first phase.

Results of Study at Forests (Tree plantation, natural forest)

Results of Plot Survey at Eucalyptus robusta Plantation

Date	4 May, 1998	Plot size	20 x 20m
Plot No.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Tree species	Eucalyptus robusta
G.P.S.	S19° 04' 55' E47° 51' 34"	Tree age	15 years old
Location	Ambohipeno	Year after harvesting	0
Topo/Grade	Hill slope/East 20	Spacing	about 2 x 3m
Soil	Yellow-brown soil, gravel rich	Forest floor	Bush, grass, fern
Complete en	I	Distance from village	2.2 km
Remarks:	Young regeneration trees exist		
	Affected by forest fire		

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Results of Plot Survey at Eucalyptus robusta Plantation

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	Results of Plot Sur	vey at Pine Plantation	
Date	7 May, 1999	Plot size	20 x 50m
Plot No.	5	Tree species	P. kesiya, P.patula, P. chinensis
G.P.S.	S19° 0' 1"	Planted year	1952
	E47° 51' 44"	Year after harvesting	0
Location	Antsahondra	Spacing	about 2 x 2m
Topography	Lake side(west), Mantasoa	Forest floor	Natural regeneration rich,
Grade	South-west, 5°		Shrub exists
Soil	Yellow-brown, gravel rich	Land category	Land for cottage
	A layer:14cm (humus layer)		
Remarks	Natural regeneration exists Affected by forest fire		

Abbreviation: PK=P. kesiya, PP=P. patula, PC=P. chinensis

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40		5,50,30	8	80)	32	2	120	Property (ASE)	1.5	1

Results of Plot Survey at Eucalyptus robusta Plantation

Date	7 May, 1998	Plot size	20 x 50m
Plot No.	3	Tree species	Eucalyptus robusta
	S19° 03' 43" E47° 50' 04"	Planted year	1948
Location	Fandanjana	Year after harvesting	0
	Hill slope /North 20°	Spacing	
	Brown-gray clay soil	1. 0	No grasses
		Distance from village	2 km from Ambohipeno
Remarks	Undergrowth: Few Acacia dealb To be harvested for lumber, seed		lout

47 -	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	firms and	100000000000000000000000000000000000000		3 7 mg - 12 cm	3.35		2000	to an affective		
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5	8	. 304. 7	200	45	36	27	photos s	85	10	. 10	1.15
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7	36	27		47	10	10	1,678	87	8	7	1115-15
8	12	13	4.7	48	22	≕.: 20	25	88	10	10	The H
9	28	24		49	64	34	42.5	89	6	4	
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Results of Plot Survey at Natural Forest

Sheet No. 2

Plot Number	6
Date	21 May, 1998
G.P.S.	\$18° 57' 35" E47° 54' 05"
Location	Antananaribokely
Topography	Hill stope
Soil	Yellow brown clay soil
Direction of slope	South-east-south
Gradience	30°
Plot size	10 x 10m
Measured tree	DBH: 4~9

CSI .	
(Remarks)	
900	
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	Diamy	H(m)	aveD	No	$\overline{}$	Species	D(cm)	H(m)	aveD
Species	D(cm)	r(iii)	aveD 4	110	-t	OJACICS	D(citi)	71(1.7)	-
1 Ampalis sp.						Pi.			
2 Anthocleista sp.	8		8	- 1			. 4		
3 Aphloia theaeformis	5	537.54	6.3	4 : 5 3		Description of the entry April			
4 Aphloia theaeformis	7	1 34	F 1 1 1 1			The Charles of the State of the			<u> </u>
5 Aphloia theaeformis	7		1,1567						
6 Brachylaena sp.	7	<u> </u>	7.3	3		in the translation of the			12
7 Brachylaena sp.	8		. 125-14.				1 1 1 1	4 45	
8 Brachylaena sp.	7	25 27	"	in to		The state of the s	1 1 1	n n	11.0
9 Canthium sp.	4	1 4 54	5.7	3		ak an velotilike of his	-	- 4	
10 Canthium sp.	8		<u> </u>		_	National Control of the Control of t			7
11 Canthium sp.	5			19.00					
12 Elaeocarpus sp.	7	- 1 	6.7	3	-	the first standard for the standard sta	\$ 4s	- 80	4.154 4.154
13 Elaeocarpus sp.	6						. A.A.	11.5	
14 Elaeocarpus sp.	7		2.5	w ²⁰⁰	니		-		
15 Eugenia emirnensis	6		6.5	2			ļ		
16 Eugenia emirnensis	7	1 2 2	5 .25		-			0.00	
17 Ilex mitis	4	1.12	4	1		<u> </u>	-		
18 Memecylon sp.	5	1 87011	5	1			1111	- e.	11,44
19 Ravensara sp.	9	1.141	All Sales	2	_		A 1.		7.17
20 Ravensara sp.	9		-117 9	1	ļ		1000	(2.2	1
21 Tambourissa sp.	9	↓	7.4	7	L.		1.25	1	<u> </u>
22 Tambourissa sp.	6		12.4		L		1 . 7 .		1
23 Tambourissa sp.	7		25.4	11.47	_		1 1 1	#11/2 144 1	2 1 20
24 Tambourissa sp.	. 4	Miles	1	1.00				1 72-31	
25 Tambourissa sp.	1		21 - 41 - 41 - 41 - 41 - 41 - 41 - 41 -	Tight		el maj dituwa eu <u>z</u>			
26 Tambourissa sp.	9.1.5)		3000	L			1.30	
27 Tambourissa sp.	1 7 9) :::	1961	5.675	<u> </u>	and there are follows		-	7. V
28 Weinmannia sp.		5	1	2	-		1,3,4		
29 Weinmannia sp.	1 9		1575			Party party 1981 1		1,14	150
30	975 A.A.	1.45	1 m 1	7.5			2.5	<u> </u>	1
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32	Self.	301.5	1,115	/AV	L	AND COLUMN OF SAME		2.5	
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36	100		1.77	1 2 2 1 1 1	L		0.90	100	
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38			1.7%				1 11 11 15		_ ·
39	1 17.5	100			Γ		100	4 11 11	
40		1980		Jan.	Τ	erho skie tokelo i			

D: Diameter breast height(cm), H: Height(m), aveD: average of diameter, No: Number of trees

n 1.	r m	C	at Natural	Gorge

Plot number	6
Date	21 May, 1998
G.P.S.	S18° 57' 35" E47° 54' 05"
Location	Antananaribokely
Topography	Hill slope
Soil	Yellow brown clay soil
Direction of slope	South-east-south
Gradience	35°
Plot size	2 x2m
Measured tree:	Undergrowth above 1m high

	Sheet No. 3
(Remarks)	
	1.

				—-г	<u></u> -		[D/]	LI(m)	
Species	D(cm)	H(m)			_	Species	D(cm)	H(m)	
1 Apodocephala sp.	14.1	1 1 1 1			_	e e prestediren		- 17.2 	
2 Apodocephala sp.									
3 Apodocephala sp.		4.1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		_				
4 Ceoton sp.					_			an sata	
5 Dombeya sp.	1.74	200			_				
6 Macaranga sp	1.74	1.5		1, 11	_		i di Inst	4 3	
7 Macaranga sp			4, 2				1000		2 47 4
8 Tambourissa sp.	97,	16.64	\$F.1	1.0	_				
9 Tambourissa sp.	17,542	4.5	13.5	4.75				55,00	
10 3 7 5 7 5 10 7 6 7	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	#1,1	10 A	1160		ng pagamatan ng kabupatèn kabupatèn kabupatèn kabupatèn kabupatèn kabupatèn kabupatèn kabupatèn kabupatèn kabu Tanggarapatèn kabupatèn kabupatèn kabupatèn kabupatèn kabupatèn kabupatèn kabupatèn kabupatèn kabupatèn kabupa	100	100	
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D: Diameter breast height(cm), H: Tree height(m)

Results of Plot Survey at Natural Forest

G.	heet	N ₁

Plot Number	6			
Date	21 May, 1998			
G.P.S.	S18° 57′ 35" E47° 54′ 05"			
Location	Antananaribokely			
Topography	Hill slope			
Soil	Yellow brown clay soil			
Direction of slope	South-east-south			
Gradience	30-35°			
Plot size	20 x 50m			
Measured tree	Over 10m height			

(Remarks) *12 stumps found in a plot

*Palm tree(Ravenea robustior) exists

*Forest was disturved by local people before Nov. '98.

		1000	9431	er fra je			AND BLUETT RECEIVE			
	Species	D(cm)	H(m)			_	Species	D(cm)	H(m)	
1	Agauria sp.	11	12	1000	20.0	41	Ocotea sp	11	10	
2 ,	Agauria sp	01	9			42	Polyscias sp.	- 11	7	
3 .	Agauria sp.	13	11	3,4	3.50	43	Polyscias sp.	12	8	1.5%
4	Anthocleista sp.	- H	8			44	Polyscias sp.	10	9	
5	Anthocleista sp.	11	9	4.5	: 1	45	Polyscias sp.	12	8	
6	Anthocleista sp.	10	7			46	Polyscias sp.	- 13	.5n 9	+.i
7	Anthocleista sp.	-3.11	7	140		47	Polyseias sp.	16	- 11	1. 1
8	Anthocleista sp.	- 10	9	2018	11.7	48	Ravensara sp.	-: H	11	100
9	Anthocleista sp.	- 16	Sec. 11	1 1 40	11.37	49	Scheflera sp.	> 13	7	14
10	Anthocleista sp.	10	11	-43		50	Scheflera sp.	21	14	
П	Anthocleista sp.	19	9	1. 17	2.7	.51	Scheflera sp.	- 11	7	
12	Aphloia theaeformis	11	7	2.44	1, 85	52	Scheflera sp.	10	9	15.111
13	Aphloia theaeformis	12	7	N :	-11	53	Scheflera sp.	15	13	6.5
14	Aphloia theaeformis	11	.55 7	4.5%		54	Scheflera sp.	11	10	1 1
15	Brachylaena sp.	14	10	61.00	1,000	55	Scheflera sp.	. 18	9	e ^{nt} ve
16	Brachylaena sp.	- 15	∴⊴ 13	31.40	1. 54	56	Sloanea sp.	: 14	.: 13	2017
17	Brachylaena sp.	10	7	7 4	e e la	57	Sloanea sp.	16	12	131
18	Brachylaena sp.	-, 11	- 10	14.0	+ 150	58	Symphonia sp.	. 13	14	116
19	Canthium sp.	10	8	2 65	1.45	59	Tambourissa sp.	11	8	9 (0)
20	Canthium sp.	WE 11	9	\$1.5	74,55	60	Tambourissa sp.	11	7	4.44
21	Canthium sp.	14	11	11.0	11/2	61	Tambourissa sp.		11	1 212
22	Canthium sp. 18 20 12	1/ 10	13	Take 1	355.5	62	Tambourissa sp.	12	11	97.5
23		10	12	+ 5.0	644	63	Tambourissa sp.	101.14	11	1.%
24	Canthium sp.	at 11	10	1 1555	24.3	64	Tambourissa sp.	12	10	44.2
25		14	9	1,374	a, et set	6:	Tambourissa sp.	10	12	12
26		-3 11	7	25.5	8.4.83	60	Tambourissa sp.	g - 11	11	1.00
27	Canthium sp.	- 10	7	44.4	24.7	6	7 Tina chapelieriana	11	15	
28		.3. 11		j. t.,		6	Tina chapelieriana 🧢	17	13	1 1
29		10	8 8	14.30	10	6	9 Tina chapelieriana 🐇	1.300	1 2	- 3
30	<u> </u>	13	14	S. Jan	45.5	7	Tina chapelieriana	w/s 1	1 / 12	1773
31	 	14	- 8	5 465	1 1	7	1 Tina chapelieriana	7-1	8	946
32	ļ	16	12	145.3	3.5	7	2 Tina chapelieriana	/ 10	5 14	N Har
33	 	-01) : 10	i de c	74579	7	3 Vitex coursii	. [1	0 : 10	2016
34	 		8	100		7	4 Weinmannia sp.	A 19	8 0	<
35	 	13			1 2 2 2	7	5 Weinmannia sp.	5.1	8 14	1.5
-	llex mitis	10		+	74.35	7	6 Weinmannia sp.	- 1	1 11	.91
-	llex mitis	14	 		100	7	7 Weinmannia sp.]	3 10	and i
	Malleastrum sp.	2	+		1000		8 Weinmannia sp.	 		32.5
<u> </u>	Ochrocarpos sp.	25 14		+		7	9 Weinmannia sp.	i	8 712	
-	Ocotea sp.	1	+	T		-	0 Weinmannia sp.	1	0 : 13	4 .
	noconcu sp.			1			1 Weinmannia sp.	i	0 . 9	N.
100 m							2 Weinmannia sp.	1 1:1	3 . 12	
					1.57		3 Weinmannia sp.		5 13	
1400		100	4.4			-1		 		1

D: Diameter breast height(cm), H: Tree height(m)

84 Xylopia sp.

Sheet No. 4

,		·····		
Species	No	a D	a H	
Agauria sp.	3	- 11	Ш	
Anthocleista sp.	8	12	9	
Aphloia theaeformis	3	11	7	
Brachylaena sp. 🗀	4	13	: 10	
Canthium sp.	13	11	: 10	
Deuteromalotus sp.	1	16	17	
Garcinia sp.	2	11	9	
Homalium sp.	1	13	14	
Ilex mitis	2	12	12	
Malleastrum sp.	_	21	14	
Ochrocarpos sp.	1	14	- 10	
Ocatea sp.	2	4 11	9	
Polyscias sp.,	6	12	9	
Ravensara sp.	1	11	- 11	
Scheflera sp.	7	14	10)
Sloanea sp.	2	15	13	
Symphonia sp.	- 1	13	14 14	•
Tambourissa sp.	8	11	10	2
Tina chapelieriana	6	13	12	2
Vitex coursii	1	10	1	1
Weinmannia sp.	10	13	3 1	<u> </u>
Xylopia sp.	1	of 15	1:	2
Total	84			

No: Nnumber of trees, a D: average of DBH, a H: average of tree height

Results of Plot Survey at Natural Forest

Resul	ts of Plot Survey at Natural Forest			
Plot Number	. 7			
Date	21 May, 1998			
G.P.S.	S18° 57' 49" E47° 54' 21"			
Location	Manampisoa			
Topography	Valley			
Soil	Yellow brown clay soil			
Direction of slope	South east			
Gradience	about 20°			
Plot size				
Measured tree	over 15m heigh			

(Remarks)	
*Species were identified by binocular	
*Natural forest remains on bottom of valley	

*Commercial big trees were felled

	A tradition of the second	·	The second secon		-
Species	Utilization		Species	Utilization ·	
I Anthocleista madagascariensis		many			
2 Aphloia theaeformis	The same of the state	142	The control of the control of		
3 Brachilaena ramiflora		many		<u> </u>	
4 Canthium sp.		12.75			
5 Croton sp.	Alan St. Dall St. Al			100000	
6 Dichaetanthera sp.		many	Albert Start History	200 200	133
7 Dilobeia thouarsii	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				
8 Dombeya sp.	41. 50.044	many			• •
9 Enterospermum sp.		7.71			· .
10 Eugenia emirnesis	Commercial tree	1,000		a Maragar Africa	<u> </u>
11 Garcinia sp.	Commercial tree				
12 Grewia cuneifolia	1777	112			
13 Harungana madagascariensis		1.51		## 1 g11 (15)	* * .
14 Homalium sp.	Commercial tree	541		grandajan ng	2. A.
15 Ilex mitis	Commercial tree	15.72	er group of the period begins	<u> 1981 (1985)</u>	- 11
16 Ocotea sp.	Commercial tree	180	And processing	voja je ostali	<u>. 111.</u>
17 Polyscias sp.	a hala sa sa sa sa sa	many		topy yp. Ned e	
18 Ravenea robustior (Palmier)	alternation and a second		y gdefall i graji i tribek	Malakas	- :
19 Ravensara crassifolid	Commercial tree	many	tal oxidesidə bir bir bir	A Professional	
20 Rhotmannia talagnignia		757			2.7
21 Scheflera vantsilana		талу			
22 Sloanea rhodantha	Same and the second sections	inany	"我们是我们的人,我们就是我们的人	19 (19 mg)	-
23 Symphonia sp	Commercial tree	184		\$ 1.150	1
24 Tambourissa sp.	Commercial tree	634	· 可以是 1000年4月19日	11.4.5	200
	to grade state to	4.50	The same of the same of	1000000000	
26 Weinmannia rutenbergii	Commercial tree	тапу	States of Week Steel Little	and the second of the second	. :
27 Wlaedcurpus alnifolius	Total State			119 4841	
28 Zanthoxylum madagascariensis		100			1 1
29 (1) 48 (4) 10 10 10 10 10 10 10 10 10 10 10 10 10	e en un entre al entre	2.67		instruction.	1.314
30			Action of the contract of the	1965-1971 (43-90)	
31 98 45 65 7 66 50 70 10 10 10 10		1474	Talebration see a cital	May to the second	
32 Sentembrie de de la Sentembrie de	s tuli, no ose escapitas magni	- N.7	g grand to a super-state of	Especial States	
33	# - 4800 Ne 048 Pepe	A se		人名特兰伊尔 电	100
34				Part Marian Comment	4
35 Chail Chia (Chail Line) (1944)		65.6	And a complete the group of	No. of the second	1.
36 (17) (14) (14) (14) (14) (14) (14) (14)		1,354		2 7 L L 7 7 F 1130	30
		- 139		24. 3 (10%).	
38		- Wing	- 美国中央人员 计自由对多数基	141-111	16
39		1 2011	The hole wallest in the	48,71371.13	
	t la verrenda	9.7			
401 1819 348 211441 3461 521				a supra	

Results of Plot Survey at Eucalyptus robsta Plantation

_		1
S	heet	-

Da	ate		27	1718) 1 177 "				Plot size 20 x 50m Tree species Eucalyptus robusta					
Pl	ot No.		T	4		5.1		Tree spec				rodusta	
	PS		SI	9° 15' ()6" E47°	47' 09	L.	Planted ye			1978		
		11.						Year aftei	harvestin		.5 year	<u> </u>	
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ᆫ	emarks				growth, (was not c	lear, No l	ieart w	ood deve	loped.	4 2 4
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Ţ	. 6	<u> 1 v 81</u>	8	. Sec. 8		39	- 6	 	1 1 1 1			6	Service Survey
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ŀ	12	45.003.	8	9	$\mu(s) \leq s$	42		3 5 4 8	1.54	68	55.6	<u> </u>	
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ŀ	16		10	9	1.5	46	· 克利克 ·	6	7 (3.7%)	1.27	8	- 30 ± 8	इंडिइस
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No.	DBH	Height	Volume	No.	DBH	Height	Volume	No.	DBH	Height	Volume
1	8	. 8	1.14	33	8	8		61	6	<u> </u>	
2	8	8		34	6	7		9-2	6	7	1. 1. 1. 1. 1. 1. 1. 1.
	8	7		- 35	45 mg 8	7		62	6	8	and an entitle
3	8	9			8	7	1	63	6	7	grafia kari te di
4	. 8	7	2 2 4	36	- 6	6		15/4	6	7	a dan Sir iki
	6	7 7	1, 1, 1	37	6	6	41.4		. 6	7	SERVICE SERVICE
5	10	8	1 1	38	6	7	A File	64	10	8	BONESON (B. 19
6	8	8	1,450	39	6	6	- 1,到 3	65	6		
7	8	9	The second	40	100 6	13-18 7	15.4	66	6	1.31	
8	. 8	.∵.é. 8	4,6-4	41	A. A. 6	-1,11,7 6	130.2	+17	8	18 hij <u>3</u>	
9	6			35	6	, 4.7	Karana Maria		10	y = 10,6 S	
10	8	8 - 8		44	441 10	Na 13 9	19.54	133	5.00	માંગુરાઇક 9	
<u>.</u> 200 H	- 6 A	25 6	5,575,18		344.8 8	· · · · · 8	Barrie -	67	; 6		
12	225.8	변수성 9) PS (S	42	8	13.4 8	3	68	6		
13	3.5 6	7.74	1 3 4 5	43	8	8	attati	87	8		3 (Amala.an.a 7 - 4
14	16/11/ 6	15 10 7	7 (N. 675)	44	, s j 8	5.5	7 (1704)	2.4 27.5	8		8 14 14 14 14 14 14
15		5 A 5	7	45	1 6	menig (5	69	6		7 - x 3 3 4 4 7
16	10	9 2 9	9	46	6	Pile -	7	, žÝ	8		8
17	5.6.10	9	9	134	E 20 8	45.85	7	70			7
18		5	8	47	200 8		7 11900	71	8		8
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2	- 117	6	9 60	52		5 S	5	74			8
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7.71.7		6	6	58	3 2550	6	6 5 5	3.0		6	
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3 2 3	1000					6				8 7 7	
	32			6	0	6	6			8	7

Sheet 2

No.	DBH	Height	Volume	No.	DBH	Height	Volume	No.	DBH	Height	Volume
- 86	10	8		113	10	9		-			
	6	6			10	9					
-, . , . ,	- 6	6			8	8					
87	6	6			6	6					
88	8	9		114	8	8	2.274	ij			
1.2	6	6	1.25		8	7					
89	. 8	7	1.0		6	7					i di
The sign	8	7		115	8	7					11.
	6	6			8	8					
90	8	7	1-17								
91	6	6						10.7		i i kas	
92	6	6	3.4 3. 45.4	11	tak ja	1.1.		1	* a < 7		
93	8	1 1	1.33	- 1	A 1,412					A HES	
	8	8	37 A E		2.42	155.5				134 (2)	
94	6	7				14 11 11 11				- 30 M (40)	10 Sec. 3
95		-			e de la composition				7.7		
96	6	<i>- 6</i>			11.11	1.534		1		44 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	
97	6	7		39							
98	6	6	160		102	100				10.11	
99	C	5 6		53 27	<u>a sab</u>		45.00	128		3/4/10/2	
100) :: 6	3 25% 7								same tak	ganarah dinagri
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	5% s Agg (4	3	7 3			11/2 1/3			TO THE		
	10) (3		368					44.634	
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	J. S. 1	8	3				W 1				
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1743				15.	-+		14 1 3		77.5		
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10			7	1				_	16.2.14		
11			6		3 12 2			_			Marine Salah
11			7			45 5					
1111111			6					<u> </u>		77,177	
11	100	6	7		18.5						

Classification of trees in relation to forestry (cutting, transformation, export)

Category 1

(special species/species prohibited for cutting)

Scientific name	Family	Local name
Erythrophleum couminga	Leguminosae	Kimanga
Hernandia voyroni	Lauraceae	Hazomamanga
Santalina madagascariensis	n e	Masinjana

Category 2

(wood for furniture, construction, luxury use)

(·
	Scientific name	Family	Local name
t. Rosewood			
	Darbergia louvelii	Leguminosae	Volombodipona
2. Ebony		<u> </u>	
	Diospyros perrieri	Ebenacese	Hazomainty
3. Palissan	der wood	14 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
	Albizzia bellula	Leguminosae	Manarizoby
	Dalbergia baroni	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Voamboana
	Dalbergia greveana		Manary
	Dalbergia ikopensis	1 3 3 3 3	and the second
	Dalbergia pterocarpifolia	70.00 1 " I Fig. 1	Sovoka
	Dalbergia retusa	409 - 1 300 - 10	Manarizoby
	Dalbergia trichocarpa		Manikipa
	Dalbergia tricolor		The state of the s

4. others

	<u> </u>	
		Harris A. H. Charles Contact Co.
Afzelia bijuga	Leguminosae	Hintsy
Brachylaena ramiflora.	Compositae	Merana
Brachylaena sp.	Compositae	Tendrokazo
	Apocynaceae	Vandrika
Khaya madagasucariens	Meliaceae	Hazomena
Maspilodaphne tapack	Lauraceae	Varongy mainty
Podocarpus madagasucariens	Podocarpaceae	Hetatra

Category 3

(wood for furniture, boards, small objects, sleepers)

Species originating from Madagascar

ics originating from Madagason	Tari da ke dera kekiptaria	
Scientific name	Family Family	Local name
Acacia morondavensis	Leguminaceae	Roibokida
Albizzia boinensis(greveana)	Leguminosae	Fandrianakanga
Antidesma madagascariensis	Euphorbiaceae	Varonala
Asteropeia amblyocarpa	Samydaceae	Andrevola
Astrotrichilia micraster	Meliaceae(Samyd	Manoka mena
Astrotrichilia rhopaloides	Meliaceae(Samyd	Manoka mevo
Brachylaena ramiflora	Compositae	Hazotokana
Breonia madagascariensis	Rubiaveae	Molompangady, Valotr
Brenonia perrieri	A STATE OF THE STA	ANTERS TOO NAME
Brenonia piptocarphoides	Compositae	Nerana
Bridelia tulasneana	Euphorbiaceae	Arina
Calophyllum inophyllum	Guttiferae	Foraha
Canarium madagascariense	Burseraceae 👵	Ramy
Carissa densiflora	Apocynaceae	Monty

Classification of trees in relation to forestry (cutting, transformation, export)

Category 1

(special species/species prohibited for cutting)

Scientific name	Family	Local name
	Leguminosae	Kimanga
Hernandia voyroni	Lauraceae	Hazomamanga
Santalina madagascariensis	n .	Masinjana

Category 2

(wood for furniture, construction, luxury use)

	Scientific name	Family	Local name
t. Rosewood			<u>g e hadevad a chao a'</u>
	Darbergia louvelii	Leguminosae	Volombodipona
2. Ebony			
	Diospyros perrieri	Ebenacese	Hazomainty
3. Palissar	nder wood		
	Albizzia bellula	Leguminosae	Manarizoby
	Dalbergia baroni	The state of the s	Voamboana
	Dalbergia greveana		Manary
	Dalbergia ikopensis	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	and the second of the second o
	Dalbergia pterocarpifolia	700 m 1 1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Sovoka
	Dalbergia retusa		Manarizoby
	Dalbergia trichocarpa	type (1) of the property	Manikipa
	Dalbergia tricolor		CONTRACTOR OF THE PROPERTY OF
4. others		grade by Alder Adams of A	用各种。如于自己的专门的专题的是

Afzelia bijuga	Leguminosae	Hintsy
Brachylaena ramiflora.		
Brachylaena sp.	Compositae	Tendrokazo
Crapidosperum verticillatum	Apocynaceae	Vandrika
	Meliaceae	
Maspilodaphne tapack	Lauraceae	Varongy mainty
		Hetatra
	The state of the s	

Category 3

(wood for furniture, boards, small objects, sleepers)

1. Species originating from Madagascar

Scientific name	Family	Local name
Acacia morondavensis	Leguminaceae	Roibokida
Albizzia boinensis(greveana)	Leguminosae	Fandrianakanga
Antidesma madagascariensis	Euphorbiaceae	Varonala
Asteropeia amblyocarpa	Samydaceae	Andrevola
Astrotrichilia micraster	Meliaceae(Samyd	Manoka mena
Astrotrichilia rhopaloides	Meliaceae(Samyd	Manoka mevo
Brachylaena ramiflora	Compositae	Hazotokana
Breonia madagascariensis	Rubiaveae	Molompangady, Valotra
Brenonia perrieri	The second secon	CONTRACTOR OF THE CONTRACTOR
Brenonia piptocarphoides	Compositae	Nerana
Bridelia tulasneana	Euphorbiaceae	Arina
Calophyllum inophyllum	Guttiferae	Foraha
Canarium madagascariense	Burseraceae	Ramy
Carissa densiflora	Apocynaceae	Monty

Terminulopsis tetrandrus	H	n
Tina madagascariensis(chapelieriana)	Sapindaceae	Hazompoza
Trachylobium hornemannianum		Mandrorofo
Trachylobium verrucosum		11
	Euphorviaceae	Voapaka
Vernonia piptocarphoides		Hazotokana
Weinmannia minutiflora	Cononiaceae	Lalona mena, Llonafot
Weinmannia rutenbergii	Cunoniaceae	Hazomanga

Imported species, rare species

Acacia heterophylla	Leguminosae	
Eucalyptus citriodora	Myrtaceae	Eucalyptus
Eucalyptus corymbosa	H .	11
Eucalyptus dongifollia	11 1 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	The state of the s
Eucalyptus maculata	11	and the state of t
Eucalyptus punctata	H	11
Eucalyptus punctata	U .	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Eucalyptus resinifera	4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	a Maria servat III. da sa servata p Maria ng Mariaga na kala sersa a sa sa sa Maria ng Mariaga na kala sersa na sa sa sa
Eucalyptus rostrata	,	and the state of t
Eucalyptus tereticornis	18 18 18 18 18 18 18 18 18 18 18 18 18 1	Colossea
Grevillea robusta	Proteaceae	Silver oak
Pinus excelsa	Pinaceae	
Pinus halepensis	The state of the s	
Pinus insignsis	Mark Section Control	
Pinus kesiya(khasya)	State of the second of the sec	kesiya pine, Khasya p
Pinus leucodermis	The grade of the constitution	· 克克克克曼斯(100年)克克克克克克
Pinus patula	Participation of the participa	Patula pine
Pinus pinaster		
Pinus ponderosa		
Pinus pseudostrobus	Traffic Albert 19 and the Charles of	
Pinus taeda	graden i dan t	7441 1333 W 08 27 F
Tectona grandis	Verbenaceae	Teck, Teak

Category 4

(wood of moderate quality)
Species originating from Madagascar

Scientific name	Family	Local name
Artabotrys digosperma	Anonaceae	Ambavy
(Ambavia gerrardii)		
(Popowia gerrardii)	· · · · · · · · · · · · · · · · · · ·	With the first the second
(Popowia maritima)	\$550 PEX. H. 178	
(Unona gerrardii)		
Agauria salicifolia	Ericaceae	Angavodiana
Alluaudia procera	Didieraceae	Fantsilosy
Canarium madagascariense	Burseraceae	Ramy, Aramy
Casearia nigrescens	Flacourtiaceae	Hazomalany
Casuarina divers	Casuarinaceae	Filaos
Cedrela odonata	Meliaceae	
Cedrelopsis grevei	Ptaeroxylaceae	Katrafay
Clerodendron pyrifolium		Vatonna
Cupressus lambertina	Cupressinae	Cypress

Cupressus lawsoniana	.	n
Cupressus lusitanica		n
Elaecarpus sp.	Tiliaceae	Voanana
(Sloanea rhodantha)	Elaeocarpaceae	П
Ficus tiliefolia	Moraceae	Voara
(Ficus trichosphaera, F. Pachyclada, F. Apc	odocephala)	n
Gambeya madagascariensis(boivinianum)	Sapotaceae	Famelona
Hibiscus lasiococcus	Malvaceae	Alampona
Homalium humblotii	Samydaceae	Madaditra
Ilex monticola(mitis)	Aquifoliaceae	Hazondrano
Macronychia madagascariensis	Anacardiaceae	Tsiramiramy
Neobaronia phyllantoides	Leguminosae	
Phylloxylon ensiflorum	Leguminosae	Arahara
Ravensara sp.	Lauraceae	Tavolo
Tamarndus grevei	Leguminosae 🧈	Kily
Trichilia peltostylis	Meliaceae	Ramaindafy
(Tina chapelieriana)		II.
(Tina conjugata)		11
(Neotina isoneura)		1 1 1 1

Category 5

(Species for charcoal)

Species originating from Madagascar or imported which are not included in categories 1 to 4

Scientific name	Family 5	Local name
Albizzia lebbek	Leguminosae	
Azadirachta indica	Meliaceae	Neem
Acacia decurrens	Leguminosae	Mimoza
Acacia dealbata	10 11 127 1 256 No. 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Hybride of E. robusta	Myrtaceae	Eucalyptus
Melaleuca leucadendron	Myrtaceae	Niaouli

					V E			Sul	Summary of living conditions	nving c	onanor	2								-			
					-	-				ı	L		1	200	(g) (contract		٠.			_	Percentage of households per type of	(household:	per type
, our	Rural commune	Fokontany	. Households	+ 2,	Percentage of		Percentage of he	sases per type	of houses per type of ownership (9)		Percent	age of hous	cholds per	Percentage of households per type of source used (27)	(x) north	Percentage	of househo	ds bet 13 pe	Percentage of households per type of principal fuel (%)		ptino	principal lighting (%)	(%)
~			interviewed	٦	households								-	_							_		
			.3 .7 .14	J.	residing in the Ave	Average years of residence in	100	\$\frac{1}{2}		Ì	Spring	Biver	Wells Pond	Manual	S S	Firewood	Stubble	Charcoal	Fuel oil	Others	Electricity C.		Fuel oil Others
		1	Asserbolds	% more than	more than 5 years the same place	same place	Owner	Tettani	Ownersh		33	19	1.	Ļ	o		υ E8	6	0	01	~.	<u> </u>	5.7
Maniasoa	Ambatolaona	Ambatolaona	30	20 2	66.0	<u>s</u> 0	£ 25	20	9 G	. 6	90	ş	c	0	0		.		e la	-10	= 6	= 17	R Z
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	Mantasoa	Aniozoro	1%	8	96	53	æ (34		.		2 %	<u>,</u> न	5 4). 1.			CI	0	Ö	S	2 9	60
		Mantasoa	4 .	<u> </u>	े ८ ६	3.5) S	13	. ••		3		vi	۲۲			3	4	0 0	: E	<u> </u>	<u> </u>	7 SA
		Masombahiny	୍ଦ ନ ଞ୍ଚ	38	76	12	75	e State		3	85		<u>ه -</u>	95			28			1	0	-	18
	Miadanandriana	Ambohimanjaka	200	200	88	× 7	\$	1 :	2 "	50	2 5		i m	• =	0	6		a		~	0	e 3	78
		Ambohipeno	4	100	68	47	16			-	315		5	5	50					0 0	5 č	<u> </u>	ç (4 7 0
	Merikanjaka	V-Kish	& % & %	<u>88</u>	<u>८ ४</u>	<u> </u>	88		. :: ी		82	Ī.	<u>.</u>	8	0 0	<u>w</u> -	00		- -	5 6	00	0	83
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	Linmolonarano	Mahatsinio	27	8	8	21	<u>3</u>	•		ų,	2 4	3 3	<u>.</u> ૧૯					0 0		Ċ	0	77	œ.
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	vana	Ambohijanaka	3 E	<u> </u>	3 8	28	8 8	9		_	92	4	7	0	0	0	9		= -	+	-	7	
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Zonc	Rural commune	Fokontany	Households		Percentage of households per source of principal cash revenue 1 x,	Dicession	s per sour	SOLD OF	T CASH L	Z CAROCA X						:	(%) bedwee field eath of	25 pound		Γ	Percentage per principal erop (%)	principal eron	(k)	_
	-		interviewed		Sale of agricultural cash crops, etc.	oral cash	crops, etc.		1		Employment		_		_ L	4	100	3	Ţ			1000		Γ
			Households	8	Potatoes	Rice	Charcoal	ivestock	Fraits	Fishing	with wage	Others	Average	Minimum	maximu mara	nu Owner	Tenant	tenant			Cassava	potato Cush-cush	oush Others	hens
		1		1	Š	ľ	46	•	1	c	-	L			2	0		8	13	87	38	20	5	12
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		Ambohitsoa	23	8	ន	0	4	24	91	0		.]		2	-		222	7	44	77 2	3	5 6	2 "	2 18
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	Fitsinjovana	Ambohijanaka	<u>8</u> 8	8 8	X 2	5 C	5 C	- c	, , , , , ,	- 0				<u> </u>	:	. 8	78	0	22	68	83	13	o	4
	Bakaro	Kelimajana	77	3 2			1	1										_						1
		Sup-10tar		1		1						L			_	_	-				$\frac{1}{2}$	_		1
	Total		1001	3					1	1														

Jumber of livestock breeders and total number of cattle

700%	Rival commune	Fokonlany	Households Cartle	Cartle				Ducks	S			<u></u>	Goese				Chickens	Ì			Pass			1		Kadonis				Τ
- -			Decision to	N. Carlotte	of beardanne	about to reduced Neural Section	Chante Chante	N	Milhor of breaders Nim	Vers Nimb	hr of beads		Number of Dreader Number of heads	exten Nun	nber of he	spe	Number	Number of breeders Number of head	Numbero	Cheads	Z	Number of breaders Number of heads	social Number	ber of hear	ds	Number	Number of preeders Number of heads	Number of	SE SE	٦
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			N SPROMES NO.	2 IOUSCHOUSE	١	Victage	+		1		_	٠.	L	t	.a.	L		L	ľ	ľ	ķ	-	_	-			13	7	3	S
Mantasoa	Ambatolaona	_	30.00	- 9	7.23	N 6	-1 -	्र हर्	<u> </u>	 ? %		<u>.</u> 2	.	5 - 2	, ,	i.	1	6	2		9	23	8		-	**	26	Ci	~	<u>.</u>
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		AMBONITOCINO	` E		1		+	1		-	-	ç	1	92	"	<u> </u>	3		=	_	157	01	56	-	1] 3	7	18	7	7	7.
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		Tsiazompaniry-Kely	<u>3</u>	- -	7	7); 		3	3	- 3	1 6	-	: : :	-			а,			2	•		-	·			=	C	X
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	Total		1001	483	48		-	H	. 283	28		F	44	4	H	Н	198	98				38	æ	4	4	238			-	٦
Courses 110 A co	Source: IICA excito-contouring study 1908	3001																					. •							

Registration of farm lands and forested zones

Zone	Rural commune	Fokontany	Households		Registered lands	ads														T
			interviewed		Rice fields				_	Tanety				₹.	Afforestation	c				Ī
			Honseholds	198	Number of	8	Average area	Min.	Max.	Number of	8%	Average arca (a	.W.	Max.	Number of	88	Average area	Min.	n. Max.	<u></u>
	The state of the s	and the second of the second o		_	households	- -	(2)			households				1	households		(8)			
Mantacoa	Ambatolagus	Ambarolaona	30	8	191	53	2	7	120	18	3	81	0.5	8	۷ ٦	17		m		'n
		Mahitsitady	2	8	43	19	=	ř	5	35	ိ	17		200	14	20		7	1 2	8
	Mantagoa	Households interviewe	22	8	13	85	-	1.2	52	10	ľ	71	1.2	100	3	14		9	m	8
	The state of the s	Aninzom	26	8	- <u>8</u>	8	7	1	8	12	÷	30	0.5	001	,	27		1		8
		Mantasoa	***	8	24	8	8		0081	24	8	4	-	500	6			63	7	8
		Masombahiny	55	8	26	47	15		8	27		<i>ਲ</i>	0.8	500	4			Ξ		Ş
18 18 18 18 18 18		Miadamaniaka	33	8	16	28		5 . 5	8	71	52	21	0.2	001	6			25		¥
	Miadanandriana	Ambohimaniaka	98	8	54	63	4		200	48	98	28	0.4	2000	12			61	2	8
		Ambohipeno	4	8	33	8	20	8	200	23	52		-	100	15			89		ह्र
	Merikaniaka	Merikaniaka	39	8	33	85	7	0	9	23			0.2	180	7			17		Š
	avec and a second	Tejazomogniry-Kely	34	8	20	88	7.	- 6	8	51		0/	S	8	4	- 1		53	11	Š
		Miarinanvo	12	8	2	59	3	:	8	12	55		-	8	1	5		2	ı	의
	Sub-Total	Total	588	8	324	8				259	ĺ				8			-	-	٦
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	Trimoloharano	Anecdonondona	159	8	20	33	ò	2 28	8	13	7.		-	250	6				<u>=</u>	8
	Oliver and Oliver	Mahatsinio	24	8	7	8	=		8	15	1			200	01	1		٠	٠	9
		Ambohitsoa	ន	8	: .	4	34	01.5	S	7		10	0.5	20	_	প্ল		2	0.5	S
	Ambohimiadana	Iharamalaza	89	8	90	4	٣	1	8	32	47		0.5	000]	13				ř	8
		Manandriana	32	<u>.</u>	7	44	23	4	÷ 44	14	4		0.5	25	ς.		.	.		S
	Tankafatora	Morarano	86	8	33	33	E	0.3	140	-	0	٣	m	m	13					ğ
		Analamihoatra	. 54	201	13	8	50		120	16	. 62		0.5	80	12	_1				8
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		Kelimafana	27	001	12	4	49	9.0	S	10	33	11	0.5	40	9	23		35	77	ध
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Request for registration of farmlands and forested zones

		T-threshold	Lloucaholde	I ande ace	ande applied for registration	vietration												
Zone	Kural commune	Loxontany	interment	Dica fields				Tanety	AT.				Afforestation	tation				
			Households &	Number of	8	Average area	Min.	Max.	Number of	₹	area	Min. Max.		er of %		Average area	Min.	Мах.
				households		(g)		Q.	households	1	(a)	1	BOUSCING	2002		ı	í	Ĭ
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		Ambohipeno	-	318				2 2	~	2	59	0	8	9	15	51	0.1	200
	Merikanjaka	Menkanjaka	5	3	2 :	0.000	3 6	3 5	-	: :	ę		Ş		¥	125	90	200
		Tsiazompaniry-Kely	₹	8	ار ا		2.5	3 :	4	7 <u>1</u>	674	-	3 8	.,1		<u> </u>	-	38
		Miarinarivo		8	6 27	29	-	8	9	7.7	S	0	300		ž !	1	†	3
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	-ann	O CO	I		L	169	7	603	=	4	100	1000	8	_	7	ဒ္ဓ	ğ	8
Tsiazompaniry		Andriantsiajo		3 8	3 6			<u>ر</u> چ	4	1	10	4.	8	0	'n	15	CI	9
	Trimoloharano	Angodongodona		3 9				े		· •		· ·	· ~	C	- 0	Ö	0	Ö
		Mahatsinjo	31	8 8	7	(1) (년 (보)	- <u>-</u> - <u>-</u>	<u>ا</u>			₹ = (() ()	् <u></u> ि	· ·	्	, 6		0	0
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