PROCES-VERBAL DU COMITE CONJOINT
(Conception de base du plan d'aménagement des bassins, etc.)

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 progrmme.

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

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

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	Chef 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 Tl : 409-08
8 - RAOLINJATOVO Génèvière	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, JICA
14- SAWANOBORI Yoshihide	Member of JICA Study Team
15- RAVELOARISOA Juliana	Interprete, Pour JICA Team

Amendement de l'accord concernant les projets d'étude pilote

Amendment Of Agreement
On
Implementation of Participatory Watershed management Program

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

1. 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.
2. ZODAFARB program shall be applied in some villages under the forestry activity in Attached paper No.1.
3. The amount of seventeen million five hundred thousand FMG for hydroelectric set shall be in Analamihoatra of Attached paper No.2.

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

JAPAN OVERESEAS FORESTRY
CONSULANTS ASSOCIATION

宮武進

MIYATAKE Susumu
Sub Team Leader
Sub Team Leader
Feasibility Study on Watershed Management
In Mantasoa and Tsiazompaniry

DIRECTION INTER-REGIONALE
DES EAUX ET FORETS
ANTANANARIVO

RAMBELOSON François Richard
Directeur

GASY ORY AZO IKAROHAN
KEVITRA AMPIVOARANA

RAHARIJAONA Williams Jacobs
Representative

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.

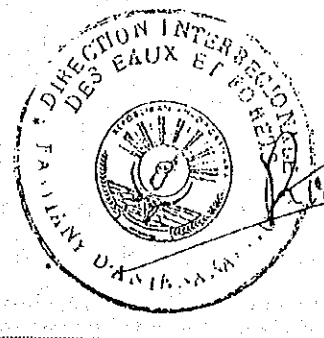
The list of attendants for the meeting is shown in Appendix 1.

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

1. 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.

Antananarivo, 28th April, 2000



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 1

LIST OF PARTICIPANTS

Name	Position	Institution
The Madagascar Side :		
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.RANDIMBIMAHENIA A.	Chef de Service d' Appui à la Recherche Environnemental	Ministère de la Recherche Scientifique
8.RABE Harimamana	Chef Service Planification Direction Générale des Plans	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:		
1. HANDA Tsutomu	Team Leader	Japan Overseas Forestry Consultants Association (JOFCA)
2. SAWANOBORI Yoshihide	Team Member	- do -
3. MIURA Kazuya	Coordinator	- do -
4. ARAI Tadao	Interpreter	- do -
Embassy of Japan:		
1. SAITO Akira	First Secretary	Embassy of Japan in Madagascar

Appendix 2

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.

Résultats de l'étude des forêts (forêts artificielles, forêts naturelles)

Results of Plot Survey at Eucalyptus robusta Plantation

Date	4 May, 1998	Plot size	20 x 20m
Plot No.	I	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 enumeration		Distance from village	2.2 km
Remarks : Young regeneration trees exist Affected by forest fire			

No.	DBH	Height	Volume	No.	DBH	Height	Volume	No.	DBH	Height	Volume
1	6	6		41	10	9		81			
2	14	7		42	12	9		82			
3	4	5		43	22	14		83			
4	6	6		44	20	12		84			
5	4	5		45	26	13		85			
6	14	8		46	4	8		86			
7	2	4		47	20	16		87			
8	12	9		48	14	12		88			
9	16	9		49	14	12		89			
10	4	5		50	4	7		90			
11	10	7		51	6	4		91			
12	4	5		52				92			
13	4	5		53				93			
14	8	7		54				94			
15	16	11		55				95			
16	16	9		56				96			
17	14	9		57				97			
18	10	8		58				98			
19	4	6		59				99			
20	16	10		60				100			
21	10	8		61				101			
22	8	9		62				102			
23	18	12		63				103			
24	16	11		64				104			
25	6	7		65				105			
26	12	11		66				106			
27	8	8		67				107			
28	14	10		68				108			
29	6	8		69				109			
30	20	11		70				110			
31	14	10		71				111			
32	4	4		72				112			
33	6	6		73				113			
34	14	9		74				114			
35	6	8		75				115			
36	12	9		76				116			
37	20	10		77				117			
38	8	8		78				118			
39	10	8		79				119			
40	20	14		80				120			

Results of Plot Survey at Eucalyptus robusta Plantation

Date	6 May, 1998	Plot size	20 x 20m
Plot No.	2	Tree species	Eucalyptus robusta
G.P.S.	S19° 04' 55" E47° 51' 34"	Tree age	8 years old
Location	Ampasimpotsy	Year after harvesting	8 years
Topo/Grade	Hill Slope-East 20°	Spacing	about 1.5~2.0 x 1.5~2.0m
Soil	Brown clay soli, gravel rich Low organic matter	Forest floor	Anjavidy, Rambiazina Astoro
Remarks	North-west of Mantasua lake West of dam	Distance from village	7 km from Ambatoraona

No.	DBH	Height	Volume	No	DBH	Height	Volume	No.	DBH	Height	Volume
1	10	8		27	10	11					
2	4	7			8	11					
3	8	7			8	10					
	10	8			6	8					
4	6	5			6	8					
	8	6		28	6	9					
5	10	7			6	7					
6	8	5			12	12					
	6	5		29	6	8					
	8	6		30	8	9					
	6	6			8	8					
	6	6		31	10	9					
7	8	8		32	6	7					
	8	8		33	6	8					
8	6	7		34	14	8					
9	6	7		35	6	10					
10	8	7		36	6	8					
11	6	6		37	10	7					
12	6	7		38	12	11					
	6	7			8	11					
13	10	8			6	7					
14	8	9		39	8	11					
15	6	7			10	11					
16	8	10			10	11					
17	6	7			8	10					
18	6	6		40	8	9					
19	6	7		41	6	7					
	6	7		42	6	8					
20	10	10		43	6	7					
21	6	8									
	6	8									
22	8	10									
	6	9									
	6	9									
23	8	9									
24	10	10									
25	6	9									
26	10	10									
	10	10									

Results of Plot Survey 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

No.	Species	DBH	Volume	No.	Species	DBH	Volume	No.	Species	DBH	Volume
1	PK	30		41	PK	32		81	PK	10	
2	"	32		42	"	24		82	"	6	
3	"	8		43	"	8		83	PP	6	
4	"	6		44	"	12		84	"	18	
5	"	8		45	"	8		85	"	24	
6	"	22		46	"	6		86	"	18	
7	"	30		47	"	14		87	"	30	
8	"	38		48	"	28		88	"	12	
9	"	14		49	"	16		89	"	14	
10	"	28		50	"	12		90	"	10	
11	"	8		51	"	16		91	"	14	
12	"	6		52	"	14		92	"	14	
13	"	6		53	"	22		93	"	16	
14	"	8		54	"	18		94	"	6	
15	"	12		55	"	12		95	"	12	
16	"	18		56	"	8		96	"	20	
17	"	8		57	"	12		97	"	18	
18	"	38		58	"	16		98	"	10	
19	"	8		59	"	16		99	"	16	
20	"	14		60	"	16		100	"	18	
21	"	26		61	"	42		101	"	16	
22	"	20		62	"	8		102	"	12	
23	"	12		63	"	10		103	"	14	
24	"	32		64	"	24		104	"	16	
25	"	8		65	"	8		105	PC	48	
26	"	12		66	"	22		106	"	10	
27	"	20		67	"	18		107	"	36	
28	"	8		68	"	18		108	"	32	
29	"	18		69	"	16		109	"	36	
30	"	8		70	"	32		110			
31	"	32		71	"	14		111			
32	"	34		72	"	24		112			
33	"	28		73	"	10		113			
34	"	6		74	"	18		114			
35	"	32		75	"	12		115			
36	"	6		76	"	14		116			
37	"	26		77	"	16		117			
38	"	6		78	"	16		118			
39	"	6		79	"	52		119			
40	"	18		80	"	32		120			

Results of Plot Survey at Eucalyptus robusta Plantation

Date	7 May, 1998	Plot size	20 x 50m
Plot No.	3	Tree species	Eucalyptus robusta
G.P.S.	S19° 03' 43" E47° 50' 04"	Planted year	1948
Location	Fandanjana	Year after harvesting	0
Topo/Grade	Hill slope /North 20°	Spacing	
Soil	Brown-gray clay soil	Forest floor	No grasses
		Distance from village	2 km from Ambohipeno
Remarks	Undergrowth: Few Acacia dealbata(~3m) exists		
	To be harvested for lumber, seeds are collected and sold out		

No.	DBH	Height	Volume	No.	DBH	Height	Volume	No.	DBH	Height	Volume
1	26	23		41	50	31		81	8	7	
2	24	22		42	8	7		82	8	7	
3	50	31		43	20	19		83	28	24	
4	10	10		44	6	4		84	16	16	
5	8	7		45	36	27		85	10	10	
6	32	25		46	24	22		86	16	16	
7	36	27		47	10	10		87	8	7	
8	12	13		48	22	20		88	10	10	
9	28	24		49	64	34		89	6	4	
10	8	7		50	18	18		90	10	10	
11	14	15		51	10	10		91	8	7	
12	26	23		52	54	32		92	10	10	
13	18	18		53	26	23		93	14	15	
14	6	4		54	24	22		94	8	7	
15	12	13		55	10	10		95	52	31	
16	38	27		56	42	29		96	12	13	
17	26	23		57	12	13		97	10	10	
18	26	23		58	30	24		98	10	10	
19	6	4		59	26	23		99	6	4	
20	34	26		60	18	18		100	8	7	
21	24	22		61	22	20		101	12	13	
22	6	4		62	20	19		102	12	13	
23	42	29		63	24	22		103	50	31	
24	18	18		64	20	19		104	40	28	
25	36	27		65	48	30		105	26	23	
26	8	7		66	40	28		106	12	13	
27	20	19		67	22	20		107	12	13	
28	12	13		68	18	18		108	10	10	
29	12	13		69	12	13		109	56	32	
30	52	31		70	30	24		110			
31	34	26		71	18	18		111			
32	42	29		72	40	28		112			
33	44	29		73	32	25		113			
34	24	22		74	52	31		114			
35	16	16		75	14	15		115			
36	8	7		76	6	4		116			
37	36	27		77	10	10		117			
38	34	26		78	8	7		118			
39	14	15		79	18	18		119			
40	24	22		80	6	4		120			

Results of Plot Survey at Natural Forest

Sheet No. 2

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°
Plot size	10 x 10m
Measured tree	DBH : 4~9

(Remarks)

	Species	D(cm)	H(m)	aveD	No		Species	D(cm)	H(m)	aveD
1	*Ampalis sp.*	4		4	1					
2	*Anthocleista sp.*	8		8	1					
3	*Aphloia theaeformis*	5		6.3	3					
4	*Aphloia theaeformis*	7								
5	*Aphloia theaeformis*	7								
6	*Brachylaena sp.*	7		7.3	3					
7	*Brachylaena sp.*	8								
8	*Brachylaena sp.*	7								
9	*Canthium sp.*	4		5.7	3					
10	*Canthium sp.*	8								
11	*Canthium sp.*	5								
12	*Elaeocarpus sp.*	7		6.7	3					
13	*Elaeocarpus sp.*	6								
14	*Elaeocarpus sp.*	7								
15	*Eugenia emirnensis*	6		6.5	2					
16	*Eugenia emirnensis*	7								
17	*Ilex mitis*	4		4	1					
18	*Memecylon sp.*	5		5	1					
19	*Ravensara sp.*	9			2					
20	*Ravensara sp.*	9		9						
21	*Tambourissa sp.*	9		7.4	7					
22	*Tambourissa sp.*	6								
23	*Tambourissa sp.*	7								
24	*Tambourissa sp.*	4								
25	*Tambourissa sp.*	8								
26	*Tambourissa sp.*	9								
27	*Tambourissa sp.*	9								
28	*Weinmannia sp.*	5		7	2					
29	*Weinmannia sp.*	9								
30										
31	Total Number				29					
32										
33										
34										
35										
36										
37										
38										
39										
40										

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

Results of Plot Survey at Natural Forest

Sheet No. 3

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

(Remarks)

	Species	D(cm)	H(m)				Species	D(cm)	H(m)	
1	*Apodocephala sp.*									
2	*Apodocephala sp.*									
3	*Apodocephala sp.*									
4	*Ceoton sp.*									
5	*Dombeya sp.*									
6	*Macaranga sp*									
7	*Macaranga sp*									
8	*Tambourissa sp.*									
9	*Tambourissa sp.*									
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
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33										
34										
35										
36										
37										
38										
39										
40										

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

Results of Plot Survey at Natural Forest

Sheet No. 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.

	Species	D(cm)	H(m)				Species	D(cm)	H(m)	
1	*Agauria sp.*	11	12			41	*Ocotea sp.*	11	10	
2	*Agauria sp.*	10	9			42	*Polyscias sp.*	11	7	
3	*Agauria sp.*	13	11			43	*Polyscias sp.*	12	8	
4	*Anthocleista sp.*	11	8			44	*Polyscias sp.*	10	9	
5	*Anthocleista sp.*	11	9			45	*Polyscias sp.*	12	8	
6	*Anthocleista sp.*	10	7			46	*Polyscias sp.*	13	9	
7	*Anthocleista sp.*	11	7			47	*Polyseias sp.*	16	11	
8	*Anthocleista sp.*	10	9			48	*Ravensara sp.*	11	11	
9	*Anthocleista sp.*	16	11			49	*Scheflera sp.*	13	7	
10	*Anthocleista sp.*	10	11			50	*Scheflera sp.*	21	14	
11	*Anthocleista sp.*	19	9			51	*Scheflera sp.*	11	7	
12	*Aphloia theaeformis*	11	7			52	*Scheflera sp.*	10	9	
13	*Aphloia theaeformis*	12	7			53	*Scheflera sp.*	15	13	
14	*Aphloia theaeformis*	11	7			54	*Scheflera sp.*	11	10	
15	*Brachylaena sp.*	14	10			55	*Scheflera sp.*	18	9	
16	*Brachylaena sp.*	15	13			56	*Sloanea sp.*	14	13	
17	*Brachylaena sp.*	10	7			57	*Sloanea sp.*	16	12	
18	*Brachylaena sp.*	11	10			58	*Symphonia sp.*	13	14	
19	*Canthium sp.*	10	8			59	*Tambourissa sp.*	11	8	
20	*Canthium sp.*	11	9			60	*Tambourissa sp.*	11	7	
21	*Canthium sp.*	14	11			61	*Tambourissa sp.*	10	11	
22	*Canthium sp.*	10	13			62	*Tambourissa sp.*	12	11	
23	*Canthium sp.*	10	12			63	*Tambourissa sp.*	14	11	
24	*Canthium sp.*	11	10			64	*Tambourissa sp.*	12	10	
25	*Canthium sp.*	14	9			65	*Tambourissa sp.*	10	12	
26	*Canthium sp.*	11	7			66	*Tambourissa sp.*	11	11	
27	*Canthium sp.*	10	7			67	*Tina chapelieriana*	11	15	
28	*Canthium sp.*	11	11			68	*Tina chapelieriana*	17	13	
29	*Canthium sp.*	10	8			69	*Tina chapelieriana*	11	12	
30	*Canthium sp.*	13	14			70	*Tina chapelieriana*	11	12	
31	*Canthium sp.*	14	8			71	*Tina chapelieriana*	11	8	
32	*Deuteromalotus sp.*	16	12			72	*Tina chapelieriana*	16	14	
33	*Garcinia sp.*	10	10			73	*Vitex coursii*	10	10	
34	*Garcinia sp.*	11	8			74	*Weinmannia sp.*	10	8	
35	*Homalium sp.*	13	12			75	*Weinmannia sp.*	18	14	
36	*Ilex mitis*	10	11			76	*Weinmannia sp.*	11	11	
37	*Ilex mitis*	14	12			77	*Weinmannia sp.*	13	10	
38	*Malleastrum sp.*	21	14			78	*Weinmannia sp.*	10	7	
39	*Ochrocarpos sp.*	14	10			79	*Weinmannia sp.*	18	12	
40	*Ocotea sp.*	11	8			80	*Weinmannia sp.*	10	13	
						81	*Weinmannia sp.*	10	9	
						82	*Weinmannia sp.*	13	12	
						83	*Weinmannia sp.*	15	13	
						84	*Xylopia sp.*	15	12	

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

Species	No	a D	a H
Agauria sp.	3	11	11
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.	1	21	14
Ochrocarpos sp.	1	14	10
Ocotea sp.	2	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
Tambourissa sp.	8	11	10
Tina chapelieriana	6	13	12
Vitex coursii	1	10	11
Weinmannia sp.	10	13	11
Xylopia sp.	1	15	12
Total	84		

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

Results 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

	Species	Utilization		Species	Utilization	
1	*Anthocleista madagascariensis*		many			
2	*Aphloia theaeformis*					
3	*Brachilaena ramiflora*		many			
4	*Canthium sp.*					
5	*Croton sp.*					
6	*Dichaetanthera sp.*		many			
7	*Dilobeia thouarsii*					
8	*Dombeya sp.*		many			
9	*Enterospermum sp.*					
10	*Eugenia emirnesis*	Commercial tree				
11	*Garcinia sp.*	Commercial tree				
12	*Grewia cuneifolia*					
13	*Harungana madagascariensis*					
14	*Homalium sp.*	Commercial tree				
15	*Ilex mitis*	Commercial tree				
16	*Ocotea sp.*	Commercial tree				
17	*Polyscias sp.*		many			
18	*Ravenea robustior (Palmier)*					
19	*Ravensara crassifolid*	Commercial tree	many			
20	*Rhotmannia talagnignia*					
21	*Scheflera vantsilana*		many			
22	*Sloanea rhodantha*		many			
23	*Symphonia sp*	Commercial tree				
24	*Tambourissa sp.*	Commercial tree				
25	*Trema orientalis*					
26	*Weinmannia rutenbergii*	Commercial tree	many			
27	*Wtaedcarpus alnifolius*					
28	*Zanthoxylum madagascariensis*					
29						
30						
31						
32						
33						
34						
35						
36						
37						
38						
39						
40						

Results of Plot Survey at Eucalyptus robsta Plantation Sheet 1

Date	27 May, 1998	Plot size	20 x 50m
Plot No.	4	Tree species	Eucalyptus robusta
GPS	S19° 15' 06" E47° 47' 09"	Planted year	1978
		Year after harvesting	1.5 year
Location	Mandritsara	Spacing	2 x 2m
Topography	Hill top, flat	Forest floor	No undergrowth
Slope,Grade	North-east, 4°	Distance from village	1km from Ambohimiadana
Soil	Redish brown, no surface soil	Mesuring method	DBH6cmup, each 2cm
Remarks	No undergrowth, Growth ring was not clear, No heart wood developed, Plenty coppices below DBH 6 cm grow		

No.	DBH	Height	Volume	No.	DBH	Height	Volume	No.	DBH	Height	Volume
1	8	8		33	8	8		61	6	7	
2	8	8		34	6	7			6	7	
	8	7		35	8	7		62	6	8	
3	8	9			8	7		63	6	7	
4	8	7		36	6	6			6	7	
	6	7		37	6	6			6	7	
5	10	8		38	6	7		64	10	8	
6	8	8		39	6	6		65	6	7	
7	8	9		40	6	7		66	6	6	
8	8	8		41	6	6			8	7	
9	6	9			6	7			10	9	
10	8	8			10	9			10	9	
11	6	8			8	8		67	6	6	
12	8	9		42	8	8		68	6	6	
13	6	7		43	8	8			8	8	
14	6	7		44	8	7			8	8	
15	6	7		45	6	6		69	6	7	
16	10	9		46	6	7			8	8	
17	10	9			8	7		70	6	7	
18	6	8		47	8	7		71	8	8	
	8	8		48	8	9			10	9	
19	10	9		49	8	9		72	6	7	
20	6	7		50	8	7			6	6	
21	8	9		51	6	7		73	8	9	
22	6	9		52	6	5		74	6	8	
23	8	8		53	6	5		75	8	9	
24	10	9		54	10	8			6	7	
	8	8		55	8	8		76	8	8	
25	6	7		56	10	8		77	8	9	
26	10	9		57	6	7		78	6	6	
	8	8			8	7		79	6	7	
	6	6		58	6	6			6	7	
27	6	8			8	7		80	6	7	
28	6	7			10	8			6	6	
29	8	9			6	6		81	6	6	
	6	8			6	6		82	6	7	
30	10	8			8	8		83	6	6	
31	8	8		59	6	8		84	8	8	
	6	6			6	7		85	8	8	
32	6	7		60	6	6			8	7	

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					
	6	6			8	7					
89	8	7			6	7					
	8	7		115	8	7					
	6	6			8	8					
90	8	7									
91	6	6									
92	6	6									
93	8	7									
	8	8									
94	6	7									
95	6	7									
96	6	6									
97	6	7									
98	6	6									
99	6	6									
100	8	7									
101	6	6									
	8	7									
	10	8									
102	6	7									
	8	8									
103	6	6									
	6	7									
104	6	7									
105	6	7									
	6	7									
106	6	7									
107	6	6									
	6	6									
108	6	7									
109	6	7									
110	6	6									
111	6	7									
	6	6									
112	6	7									

Classification des arbres en relation avec la sylviculture (coupe, transformation, exportation)
Catégorie 1

(espèces spéciales/espèces à coupe interdite)

Nom scientifique	Famille	Nom local
Erythrophleum couminga	Leguminosae	Kimanga
Hernandia voyroni	Lauraceae	Hazomamanga
Santalina madagascariensis	"	Masinjana

Catégorie 2

(bois pour meubles, construction, bois de luxe)

Nom scientifique	Famille	Nom local
1. Rosewood		
Darbergia louvelii	Leguminosae	Volombodipona
2. Ebony		
Diospyros perrieri	Ebenacese	Hazomainty
3. Palissander wood		
Albizzia bellula	Leguminosae	Manarizoby
Dalbergia baroni	"	Voamboana
Dalbergia greveana	"	Manary
Dalbergia ikopensis	"	"
Dalbergia pterocarpifolia	"	Sovoka
Dalbergia retusa	"	Manarizoby
Dalbergia trichocarpa	"	Manikipa
Dalbergia tricolor	"	"
4. others		
Afzelia bijuga	Leguminosae	Hintsy
Brachylaena ramiflora.	Compositae	Merana
Brachylaena sp.	Compositae	Tendrokazo
Crapidosperum verticillatum	Apocynaceae	Vandrika
Khaya madagasucariens	Meliaceae	Hazomena
Maspilodaphne tapack	Lauraceae	Varongy mainty
Podocarpus madagasucariens	Podocarpaceae	Hetatra

Catégorie 3

(bois de construction, planches, petits objets, traverses)

1. Espèces originaires de Madagascar

Nom scientifique	Famille	Nom local
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	"	"
Brenonia piptocarphoides	Compositae	Nerana
Bridelia tulasneana	Euphorbiaceae	Arina
Calophyllum inophyllum	Guttiferae	Foraha
Canarium madagascariense	Burseraceae	Ramy
Carissa densiflora	Apocynaceae	Monty

Cassinopsis madagascariensis	Icacinaceae	Hazontoho
Cephalanthus spathelliferus	Rubiaceae	Sohiny
Cinnamosma madagascariensis	Canellaceae	Sakaihazo
Combretus madagascariensis	Combretaceae	Tamenaka
(Calopyxis coursiana)	"	"
Cryptocarya louvelii	Lauraceae	Longotra, Longtramen
Cryptocarya Perrieri	Lauraceae	Longotra fotsy
Cryptogyne gerrardiana	Sapotaceae	Nato
Dilobeia thourasii	Proteaceae	Vivaona
Elaeocarpus bakeri	Elaeocarpaceae	Molompangady
Elaeocarpus Commutatus	"	"
Elaeocarpus glaucoideus	"	"
Elaeocarpus hidebrandtii	"	"
Erythrixylon ampullaceum	Erythrixylaceae	Menahy
Erythroxylum corymbosum	"	"
Erythroxylum ferrugineum	"	"
Erythroxylum myrtoides	"	"
Eugenia sp.	Myrtaceae	Rotra, Robary
Faguelium falcata	Anacardiaceae	Hasy
Frotohus thouarsii	Anacardiaceae	Ditimana
Frotohus thouvenotti	"	
Gluta turtur	Anacardiaceae	Torotoro
Homalium axilare(nudiflorum)	Flacourtiaceae	Hazombato
Hymenaea verrucosa	Leguminosae	Mandrorofo
Imbricaria coriacea	Sapotaceae	Varanto
Leptolaena multiflora	Sarcolaenaceae	Anjananjana
Mespilodaphne faucherei(racemosa)	Lauraceae	Varony
Myristica voury	Myristicaceae	Vory
Nuxia brachyscypha	Icacinaceae	Hazontoho
Nuxia capitata	Logaiaceae	Valanirana
Ochrocarpus bongo	Guttiferae	Bongo
Oerminalia catappa	Combretaceae	Antafana
Oloz glabriflora	Olocaceae	Maitsoririna
Oncostemum leprosum	Myrsinaceae	Hazontoho
Phyllarthron bojerianum(madagascariensis	Bignoniaceae	Zahara
Piptadenia pervillea	Leguminosae	Sevalahy
Protorhus sericea	Anacardiaceae	Hazombarorana
Psorospermum androsaemifolium	Guttiferae	Harongadahy
Pyrostris cariensis	Rubiaceae	Pitsikahitra
Ravensara aromatica	Lauraceae	Sary, Madagascar clov
Ravensara helicina	Lauraceae	Tavolopina
Sarcolaena multiflora (grandiflora)	Sarcolaenaceae	Todinga
Sideroxylon gerrardianum	Sapotaceae	Nato
Siderozylon betsimisarakum	Sapotaceae	Hazotsiriana
Solomum erythracanthum	Solanea	Fahavalonkazo
Stereospermum enphorioides	Bignoniaceae	Mangarahara
Symphonia louvelii	Guttiferae	Kijy
Synchodendron ramiflorum		Hazotokana
Tambourissa thouvenetii	Fomniaceae	Tambonaika
Terminalia tetrandnis	Combreraceae	Mantadia
Terminalia tetrandra	"	"

Terminalopsis tetrandrus	"	"
Tina madagascariensis(chapelieriana)	Sapindaceae	Hazompoza
Trachylobium hornemannianum		Mandrorofo
Trachylobium verrucosum		"
Uapaca thouarsii	Euphorviaceae	Voapaka
Vernonia piptocarphoides		Hazotokana
Weinmannia minutiflora	Cononiaceae	Lalona mena, Llonafot
Weinmannia rutenbergii	Cunoniaceae	Hazomanga

2. Espèces importées, espèces rares

Acacia heterophylla	Leguminosae	
Eucalyptus citriodora	Myrtaceae	Eucalyptus
Eucalyptus corymbosa	"	"
Eucalyptus dongifollia	"	"
Eucalyptus maculata	"	"
Eucalyptus punctata	"	"
Eucalyptus punctata	"	"
Eucalyptus resinifera	"	"
Eucalyptus rostrata	"	"
Eucalyptus tereticornis	"	Colossea
Grevillea robusta	Proteaceae	Silver oak
Pinus excelsa	Pinaceae	
Pinus halepensis	"	
Pinus insignsis	"	
Pinus kesiya(khasya)	"	kesiya pine, Khasya pi
Pinus leucodermis	"	
Pinus patula	"	Patula pine
Pinus pinaster	"	
Pinus ponderosa	"	
Pinus pseudostrobus	"	
Pinus taeda	"	
Tectona grandis	Verbenaceae	Teck, Teak

Catégorie 4

(bois de qualité modérée)

Espèces originaires de Madagascar

Nom scientifique	Famille	Nom local
Artabotrys digosperma	Anonaceae	Ambavy
(Ambavia gerrardii)		"
(Popowia gerrardii)		"
(Popowia maritima)		"
(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		"
Cupressus lusitanica		"
Elaecarpus sp.	Tiliaceae	Voanana
(Sloanea rhodantha)	Elaeocarpaceae	"
Ficus tiliefolia	Moraceae	Voara
(Ficus trichosphaera, F. Pachyclada, F. Apodocephala)		"
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)		"
(Tina conjugata)		"
(Neotina isoneura)		"

Catégorie 5

(Espèces pour charbon de bois)

Espèces originaires de Madagascar ou importées n'entrant pas dans les catégories 1 à 4

Nom scientifique	Famille	Nom local
Albizzia lebbek	Leguminosae	
Azadirachta indica	Meliaceae	Neem
Acacia decurrens	Leguminosae	Mimoza
Acacia dealbata	"	"
Hybride of E. robusta	Myrtaceae	Eucalyptus
Melaleuca leucadendron	Myrtaceae	Niaouli

Aperçu des conditions de vie

Zone	commune rurale	Fokontany	Foyers interrogés		Pourcentage des foyers résidant au même endroit depuis plus de 5 ans	Nbre d'années moyen de résidence au même endroit	Pourcentage d'habitation par type de propriété (%)			Pourcentage des foyers par type de source utilisée (%)						Pourcentage des foyers par type de combustible principal (%)						Pourcentage des foyers par type d'éclairage principal (%)			
			Foyers	%			Propriétaire	Locataire	possession	Autres	Source	Rivière	Puits	Etang	Pompe manuelle	Autres	Bois de feu	Charbon	Charbon de bois	Mazout	Autres	Electricité	Bougie	Mazout	Autres
Mantasoa	Ambatolaona	Ambatolaona	30	100	93	18	53	17	30	0	33	67	0	0	0	0	83	0	7	0	10	3	10	57	30
		Mahitsiady	70	100	94	20	81	0	19	0	60	40	0	0	0	0	99	0	0	0	1	1	1	56	43
	Mantasoa	Andretanivorona	22	100	95	16	95	0	5	0	100	0	0	0	0	0	100	0	0	0	0	0	14	64	23
		Anjozoro	26	100	96	25	81	0	19	0	58	12	31	0	0	0	100	0	0	0	0	0	12	54	27
		Mantasoa	48	100	99	20	77	4	19	0	77	8	4	4	0	6	98	0	2	0	0	8	15	10	12
		Masombahiny	55	100	87	22	69	13	18	0	67	24	5	2	2	0	83	0	4	0	13	30	13	50	7
		Miadanantsoa	33	100	79	27	79	6	15	0	85	6	6	0	0	3	94	0	0	0	6	3	0	58	39
	Miadanandriana	Ambohimanjaka	86	100	88	18	89	1	10	0	73	0	14	12	0	1	99	0	0	0	1	0	13	56	31
		Ambohipeno	44	100	89	24	91	0	9	0	87	10	3	0	0	0	95	0	0	0	5	0	3	78	18
	Merikanjaka	Merikanjaka	39	100	95	19	78	5	17	0	37	0	3	0	50	0	92	0	8	0	0	0	18	48	34
		Tsiazompaniry-Kely	34	100	94	23	88	0	12	0	82	12	3	0	0	3	100	0	0	0	0	0	0	88	12
		Miarinarivo	22	100	95	22	91	0	9	0	82	18	0	0	0	0	100	0	0	0	0	0	0	87	13
	Sub-Total		509	100		21																			
Tsiazompaniry	Anosibe	Andriantsiajo	25	100	96	29	92	0	8	0	44	24	32	0	0	0	100	0	0	0	0	0	0	64	36
	Trimoloharano	Angodongodona	61	100	93	23	90	0	10	0	39	3	56	0	2	0	100	0	0	0	0	0	7	83	10
		Mahasinjo	24	100	92	21	100	0	0	0	67	0	33	0	0	0	100	0	0	0	0	0	0	92	8
		Ambohitsoa	23	100	84	22	84	0	16	0	48	0	52	0	0	0	100	0	0	0	0	0	5	80	16
	Ambohimiadana	Iharamalaza	68	100	93	27	60	0	8	0	51	3	46	0	0	0	94	0	0	0	6	0	10	75	15
		Manandriana	32	100	97	24	91	0	9	0	50	16	28	0	0	6	100	0	0	0	0	0	9	82	9
	Tankalatora	Morarano	99	100	94	24	94	0	6	0	70	1	29	0	0	0	100	0	0	0	0	0	0	96	3
		Analamihoatra	24	100	100	32	100	0	0	0	96	4	0	0	0	0	100	0	0	0	0	0	0	100	0
	Fitsinjovana	Ambohijanaka	109	100	93	21	85	0	15	0	67	3	30	0	0	0	100	0	0	0	0	0	0	91	7
	Bakaro	Kelimalana	27	100	96	28	89	0	11	0	92	4	4	0	0	0	96	0	0	0	4	0	0	100	0
	Sub-Total		492	100		25																			
Total			1001	100		23																			

Source: Etude socio-économique, JICA, 1998

Aperçu des activités de production (principales activités de production agricole)

Zone	commune rurale	Fokontany	Foyers interrogés		Pourcentage de foyers par source de revenu en liquide principale (%)								Surface de rizière cultivée (a)			Pourcentage de foyers par type de propriété des rizières (%)			Tanety				
					Vente de produits agricoles convertibles en argent etc.						Emploi salarié	Autres							Pourcentage de foyers	Pourcentage par culture principale (%)			
			Foyers	%	Pommes de terre	Riz	Charbon	Bétail	Fruits	Produits halieutiques			Surface moyenne	Surface min.	Surface max.	Propriétaire	Locataire	Propriétaire et locataire		Manioc	Patate douce	Colocase	Autres
Mantasoa	Ambatolaona	Ambatolaona	30	100	0	0	27	0	3	0	70	0	22	2	120	68	18	13	87	38	50	0	12
		Mahitsitady	70	100	0	0	0	0	11	0	77	12	17	0	100	70	10	20	99	72	23	0	5
	Mantasoa	Andrefanivorona	22	100	5	0	36	5	0	0	32	22	33	2	200	64	9	27	91	100	0	0	0
		Anjozoro	26	100	0	0	4	12	0	0	84	0	24	5	60	73	4	23	100	69	19	4	8
		Mantasoa	48	100	0	0	19	4	0	8	67	2	32	7	500	53	14	32	86	80	11	0	9
		Masombahiny	55	100	0	0	16	4	2	0	65	13	20	1	80	40	31	29	78	92	4	0	4
		Miadamanjaka	33	100	0	0	33	6	3	0	40	18	22	5	80	67	10	23	97	88	9	0	3
	Miadanandriana	Ambohimanjaka	86	100	9	1	36	14	1	0	20	19	30	3	160	68	2	30	93	86	12	0	2
		Ambohipeno	44	100	14	5	7	7	5	23	30	9	46	3	200	93	0	7	93	82	7	0	11
	Merikanjaka	Merikanjaka	39	100	42	0	10	3	0	0	34	11	33	1	90	79	13	8	87	58	14	3	25
		Tsiazompaniry-Kely	34	100	6	3	0	44	0	0	29	18	55	8	600	88	0	12	100	38	38	0	24
		Miarinarivo	22	100	14	4	0	0	0	0	59	23	35	4	100	90	0	10	86	50	32	5	13
	Sub-Total		509	100																			
Tsiazompaniry	Anosibe	Andriantsiajo	25	100	44	4	0	12	16	0	12	12	66	14	120	83	0	16	92	92	8	0	0
	Trimoloharano	Angodongodona	61	100	50	3	0	5	13	3	10	15	60	10	300	77	3	20	100	98	0	0	2
		Mahatsinjo	24	100	29	8	8	17	13	0	17	8	99	5	1500	68	0	32	92	100	0	0	0
		Ambohitsoa	23	100	20	0	4	24	16	0	12	20	26	1	60	52	4	44	92	100	0	0	0
	Ambohimiadana	Iharamalaza	68	100	43	6	1	6	12	0	16	16	39	1	110	73	0	27	84	6	65	3	26
		Manandriana	32	100	50	0	0	9	9	6	22	3	29	4	60	94	0	6	81	90	0	0	10
	Tankafatora	Morarano	99	100	42	1	0	3	10	13	9	22	44	4	160	80	1	19	91	93	6	0	1
		Analamihoatra	24	100	63	0	0	8	8	0	0	21	62	26	160	100	0	0	92	70	30	0	0
	Fitsinjovana	Ambohijanaka	109	100	54	0	0	1	7	1	16	21	44	4	230	76	2	22	94	81	14	1	4
	Bakaro	Kelimafana	27	100	33	0	0	0	7	0	19	41	43	6	100	78	0	22	89	83	13	0	4
	Sub-Total		492	100																			
Total			1001	100																			

Source: Etude socio-économique, JICA, 1998

Nombre d'éleveurs et nombre de têtes de bétail

Zone	commune rurale	Fokontany	Foyers interrogés		Bovins				Canards				Oies				Poules				Porcs				Lapins			
					Nbre des éleveurs		Nbre de têtes				Nbre de têtes				Nbre de têtes				Nbre de têtes				Nbre de têtes			
			Foyers	%	Foyers	%	Moyenne	Min.	Max.	Foyers	%	Moyenne	Min.	Max.	Foyers	%	Moyenne	Min.	Max.	Foyers	%	Moyenne	Min.	Max.	Foyers	%	Moyenne	Min.	Max.
Manasoa	Ambatolaona	Ambatolaona	30	100	7	23	2	1	5	9	30	4	1	12	0	0	0	0	0	16	73	8	1	25	7	7	1	1	4	13	4	3	5
		Mahitsiady	70	100	48	69	2	1	5	25	36	2	1	25	4	6	2	1	5	62	89	12	1	40	23	33	1	1	4	18	26	2	1	12
	Manasoa	Andrefanivorona	22	100	6	27	3	2	4	4	18	7	2	15	0	0	0	0	0	20	91	11	2	40	10	45	2	1	3	4	18	6	4	10
		Asjezoro	26	100	15	58	3	1	7	4	15	13	2	30	1	4	2	2	2	19	73	11	1	27	13	50	2	1	5	3	12	6	2	10
		Manasoa	48	100	17	35	2	1	4	12	25	6	2	15	3	6	2	1	3	42	88	11	1	40	14	29	2	1	7	13	27	8	2	15
		Masombahiny	55	100	13	24	2	1	4	12	22	8	2	21	2	5	3	1	5	41	75	8	1	35	17	31	2	1	6	11	20	5	2	9
		Miadanapiaka	33	100	6	18	2	1	3	12	36	7	1	19	5	15	3	2	4	22	67	17	2	50	6	18	1	1	2	2	6	3	2	7
	Miadanandriana	Ambohimanjuta	86	100	29	34	2	1	6	34	40	6	1	21	6	7	3	1	5	70	81	10	1	31	50	58	2	1	7	25	30	11	1	40
		Ambohipeno	44	100	21	48	3	1	8	12	27	7	1	28	2	5	4	2	5	38	86	11	1	40	25	57	2	1	2	13	30	6	1	12
	Menkanjaka	Menkanjaka	39	100	13	33	3	1	6	8	21	7	3	23	4	10	3	1	5	35	85	11	1	45	10	26	1	1	2	7	18	7	4	12
		Tsiazompaniry-Kely	34	100	7	21	2	1	5	10	29	6	1	12	1	3	1	1	1	28	82	11	1	26	9	26	1	1	2	11	32	6	2	14
		Miarinarivo	22	100	8	36	2	1	3	1	5	30	30	30	0	0	0	0	0	20	68	20	1	40	8	36	1	1	2	4	18	11	2	25
	Sub-Total		509	100	190	37	2	1	7	143	28	7	2	20	3	12	3	2	4	411	81	187	37			116	23							
Tsiazompaniry	Anosibe	Andriamsiajo	25	100	22	88	4	1	10	7	28	7	2	20	3	12	3	2	4	23	92	16	2	40	18	72	1	1	4	2	8	7	7	7
	Tsimoloharano	Angodongodona	61	100	31	51	3	1	15	11	18	7	1	33	3	5	5	4	6	6	59	17	3	50	24	59	2	1	4	12	20	9	2	22
		Malaitsinjo	24	100	14	58	2	1	9	6	25	2	1	10	1	4	2	2	2	24	100	18	1	100	11	46	2	1	2	3	13	2	1	3
		Ambohitsoa	23	100	17	68	2	2	5	9	36	4	2	9	0	0	0	0	0	23	92	14	1	40	11	44	1	1	2	3	12	9	2	22
	Ambohumiadana	Iharmalaza	68	100	50	74	4	1	54	27	40	7	1	22	2	3	3	1	3	30	91	16	2	50	23	34	1	1	2	22	32	3	2	35
		Manandriana	32	100	17	53	3	1	7	6	19	2	1	4	1	3	2	1	2	30	94	9	1	32	14	47	2	1	3	1	3	1	1	2
	Tanalalaina	Morarano	99	100	56	57	5	1	35	14	14	4	1	14	3	3	4	2	8	87	88	11	1	40	4	0	1	1	2	34	34	13	2	35
		Analaminoara	24	100	17	71	3	1	10	14	58	3	1	13	0	0	0	0	0	24	100	13	1	30	12	50	2	1	2	9	38	11	2	27
	Fiisinjovana	Ambohijanaka	109	100	52	48	3	1	10	32	29	4	1	17	2	2	2	1	2	16	93	11	1	30	35	32	2	1	2	6	28	6	1	24
	Bakaro	Kelimalaza	27	100	15	56	4	1	14	14	52	8	1	30	0	0	0	0	0	25	93	14	1	32	15	56	1	1	2	8	30	12	2	33
	Sub-Total		392	100	291	59				140	28				15	3				450	91				341									
Total			1071	100	481	48				283	28				44	4				861	86				354	33				121	251			

Source: Etude socio-économique, JICA, 1998

Enregistrement des terrains agricoles et des zones boisées

Zone	commune rurale	Fokontany	Foyers interrogés		Terrains enregistrés															
					Rizières					Tanety					Forêts artificielle					
			Foyers	%	Nbre de foyers	%	Surface moyenne (a)	Min.	Max.	Nbre de foyers	%	Surface moyenne (a)	Min.	Max.	Nbre de foyers	%	Surface moyenne (a)	Min.	Max.
Mantasoa	Ambatolaona	Ambatolaona	30	100	16	53	27	2	120	18	60	18	0,5	100	5	17	3	1	5
		Mahitsitady	70	100	43	61	11	1	70	35	50	17	1	200	14	20	7	1	200
	Mantasoa	Andrefanivorona	22	100	13	59	17	1,2	52	10	59	17	1,2	100	3	14	6	3	100
		Anjozoro	26	100	18	69	25	2	60	12	46	30	0,5	100	7	27	17	1	100
		Mantasoa	48	100	24	50	90	1	1800	24	50	42	1	500	9	19	63	1	200
		Masombahiny	55	100	26	47	15	1	80	22	40	34	0,8	200	4	7	11	1	40
		Miadamanjaka	33	100	19	58	25	5	80	17	52	21	0,2	100	9	27	25	2	84
	Miadanandriana	Ambohimanjaka	86	100	54	63	40	4	200	48	56	87	0,4	2000	12	14	219	2	1800
		Ambohipeno	44	100	35	80	50	8	200	23	52	89	1	400	15	35	189	3	1000
	Merikanjaka	Merikanjaka	39	100	33	85	20	0,1	60	23	59	19	0,2	180	7	18	17	1	50
		Tsiazompaniry-Kely	34	100	30	88	75	8	120	15	44	70	5	200	4	12	53	5	150
		Miarinarivo	22	100	13	59	30	1	100	12	55	27	1	100	1	5	10	10	10
	Sub-Total		509	100	324	64				259	51				90	18			
Tsiazompaniry	Anosibe Trimoloharano	Andriantsiajo	25	100	8	32	27	0,5	50	5	20	47	5	100	4	16	14	1	50
		Angodongodona	61	100	20	33	92	28	600	17	28	53	1	250	9	15	70	1	400
		Mahatsinjo	24	100	12	50	18	1	100	15	63	13	1	200	10	42	9	1	150
		Ambohitsoa	23	100	11	44	24	10	50	7	28	10	0.5	50	7	28	10	0,5	50
	Ambohimiadana	Iharamalaza	68	100	30	44	34	3	80	32	47	46	0.5	1000	13	19	586	0,5	7500
		Manandriana	32	100	14	44	23	4	44	14	44	7	0.5	25	5	13	23	0,5	50
	Tankafatora	Morarano	99	100	33	33	39	0,3	140	1	0	3	3	3	13	13	10	1	30
		Analamihoatra	24	100	22	92	50	0.5	120	16	67	19	0.5	80	12	50	12	0,5	80
	Fitsinjovana Bakaro	Ambohijanaka	109	100	61	56	34	0.2	120	41	38	20	0.5	150	13	12	14	0,2	50
		Kelimafana	27	100	12	44	49	0.6	50	10	37	11	0.5	40	6	22	35	2	72
	Sub-Total		492	100	223	45				158	32				92	19			
Total			1001	100	547	55				417	42				182	18			

Source: Etude socio-économique, JICA, 1998

Demande d'enregistrement pour des terrains agricoles et des zones boisées

Zone	commune rurale	Fokontany	Foyers interrogés		Terrains pour lesquels une demande a été déposée															
					Rizières					Tanety					Forêts artificielle					
			Foyers	%	Nbre de foyers	%	Surface moyenne (a)	Min.	Max.	Nbre de foyers	%	Surface moyenne (a)	Min.	Max.	Nbre de foyers	%	Surface moyenne (a)	Min.	Max.
		Mahitsitady	70	100	2	3	1.5	1	2	11	16	38	1	2000	3	4	10	1	500
	Mantasoa	Andrefanivorona	22	100	2	9	55	10	100	4	18	68	3	200	22	100	3	0.5	40
		Anjozoro	26	100	2	8	115	30	200	6	23	16	2	50	5	19	147	1	600
		Mantasoa	48	100	3	6	66	28	100	9	19	184	1	1500	6	13	311	2	850
		Masombahiny	55	100	2	4	19	18	20	2	4	1525	50	3000	4	7	230	5	700
		Miadamanjaka	33	100	3	9	13	3	26	3	9	2	1	3	6	18	104	0.5	600
	Miadanandriana	Ambohimanjaka	86	100	9	10	71	1	500	11	13	79	1	600	11	13	137	2	600
		Ambohipeno	44	100	11	25	43	1	150	10	23	82	1	350	6	13	260	15	800
	Merikanjaka	Merikanjaka	39	100	5	15	8	0.5	20	8	21	63	0.1	400	6	15	51	0.1	200
		Tsiazompaniry-Kely	34	100	11	33	103	2.5	400	4	12	429	14	1500	2	6	125	50	200
		Miarinarivo	22	100	6	27	29	1	100	6	27	95	4	500	3	14	90	1	200
	Sub-Total		479	100	56	11				74	15				74	15			
Tsiazompaniry	Anosibe	Andriantsiajo	25	100	3	12	169	7	400	1	4	100	100	100	1	4	200	200	200
	Trimoloharano	Angodongodona	61	100	13	21	8	1	200	4	7	16	1	50	3	5	15	2	40
		Mahatsinjo	24	100	5	21	3	1	36	1	4	3	3	3	0	0	0	0	0
		Ambohitsoa	23	100	1	4	20	20	20	1	4	1	1	1	0	0	0	0	0
	Ambohimiadana	Iharamaiaza	68	100	2	3	4	3	5	1	1	2	2	2	0	0	0	0	0
		Manandriana	32	100	3	9	18	1	50	2	6	26	2	50	0	0	0	0	0
	Tankafatora	Morarano	99	100	13	13	34	3	100	9	9	14	1	30	1	1	1	1	1
		Analamihoatra	24	100	6	25	31	0.5	80	0	0	0	0	0	1	4	2	2	2
	Fitsinjovana	Ambohijanaka	109	100	6	6	17	1	80	4	4	24	0.5	60	0	0	0	0	0
	Bakaro	Kellimafana	27	100	1	4	2	2	2	1	4	2	2	2	0	0	0	0	0
	Sub-Total		492	100	53	11				24	5				6	1.2			
Total			971	100	109	11				100	10				80	8			

Source: Etude socio-économique, JICA, 1998

Utilisation des sols sur la rive Est des deux lacs

Zone	commune rurale	Fokontany	Foyers interrogés		Rive Est des deux lacs															
					Rizières					Tanety					Forêts artificielle				
			Foyers	%	Nbre de foyers	%	Surface moyenne (a)	Min.	Max.	Nbre de foyers	%	Surface moyenne (a)	Min.	Max.	Nbre de foyers	%	Surface moyenne (a)	Min.	Max.
		Mahitsitady	70	100	0	0	0	0	0	2	3	0	0	10	0	0	0	0	0
	Mantasoa	Andrefanivorona	22	100	0	0	0	0	0	0	0	0	0	0	1	5	10	10	10
		Anjozoro	26	100	0	0	0	0	0	3	12	6	3	10	0	0	0	0	0
		Mantasoa	48	100	1	2	70	70	70	3	6	520	30	1500	2	4	500	500	500
		Masombahiny	55	100	0	0	0	0	0	0	0	0	0	0	2	4	102	3	200
		Miadamanjaka	33	100	0	0	0	0	0	0	0	0	0	0	1	3	5	5	5
	Miadanandriana	Ambohimanjaka	86	100	2	2	11	2	19	1	1	9	9	9	1	1	1	1	1
		Ambohipeno	44	100	4	9	79	3	300	4	9	83	5	300	4	9	108	1.5	400
	Merikanjaka	Merikanjaka	39	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Tsiazompaniry-Kely	34	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Miarinarivo	22	100	0	0	0	0	0	1	5	80	80	80	0	0	0	0	0
	Sub-Total		479	100	7	1				14	3				11	2			
Tsiazompaniry	Anosibe	Andriantsiajo	25	100	10	40	76	0.5	400	6	24	34	0.2	100	4	16	50	0.4	200
	Trimoloharano	Angodongodona	61	100	17	28	48	1	200	7	11	10	1	50	3	5	18	1	50
		Mahatsinjo	24	100	3	13	3	1	60	2	8	0	0	3	0	0	0	0	0
		Ambohitsoa	23	100	1	4	20	20	20	1	4	1	1	1	0	0	0	0	0
	Ambohimiadana	Iharamalaza	68	100	2	3	4	3	5	1	1	2	2	2	0	0	0	0	0
		Manandriana	32	100	3	9	18	1	50	3	9	18	0.5	50	0	0	0	0	0
	Tankafatora	Morarano	99	100	12	12	34	3	100	8	8	15	1.2	40	0	0	0	0	0
		Analamihoatra	24	100	2	8	33	25	40	0	0	0	0	0	0	0	0	0	0
	Fitsinjovana	Ambohijanaka	109	100	1	1	3	3	3	1	1	2	2	2	0	0	0	0	0
	Bakaro	Kelimafana	27	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Sub-Total		492	100	51	10				29	6				7	1			
Total			971	100	58	6				100	10				18	2			

Source: Etude socio-économique, JICA, 1998

Raisons de l'utilisation des sols sur la rive Est des deux lacs

Zone	commune rurale	Fokontany	Foyers interrogés		Foyers ayant répondu		Pour augmenter le revenu		Pour augmenter la production agricole		Par manque de terrains agricole		Parce que la productivité est faible		Pour obtenir des terrains		Autres	
			Foyers	%	Foyers	%	Foyers	%	Foyers	%	Foyers	%	Foyers	%	Foyers	%	Foyers	%
Mantasoa	Ambatolaona	Ambatolaona	30	100	0	0												
		Mahitsitady	70	100	2	100	1	50	1	50								
	Mantasoa	Andrefanivorona	22	100	2	100			1	50	1	50						
		Anjozoro	26	100	3	100			1	33	1	33					1	33
		Mantasoa	48	100	8	100			4	50	2	25			1	12.5	1	12.5
		Masombahiny	55	100	3	100											3	100
		Miadamanjaka	33	100	3	100					1	33			1	33	1	33
	Miadanandriana	Ambohimanjaka	86	100	3	100	1	33	1	33	1	33						
		Ambohipeno	44	100	4	100	2	50			2	50						
	Merikanjaka	Merikanjaka	39	100	0	0												
		Tsiazompaniry-Kely	34	100		0												
		Miarinarivo	22	100	1	100											1	100
	Sub-Total		509	100	29	100	4	14	8	28	8	28			2	6	7	24
Tsiazompaniry	Anosibe	Andriantsiajo	25	100	11	100			4	36	4	36	2	18			1	9
	Trimoloharano	Angodongodona	61	100	30	100			14	47	8	27					8	26
		Mahatsinjo	24	100	4	100			2	50							2	50
		Ambohitsoa	23	100	1	100	1	100										
	Ambohimiadana	Iharamalaza	68	100	4	100			3	75			1	25				
		Manandriana	32	100	12	100	2	17	4	33	5	42					1	8
	Tankafatora	Morarano	99	100	22	100	7	32	10	45					1	5	4	18
		Analamihoatra	24	100	5	100			2	40	2	40					1	20
	Fitsinjovana	Ambohijanaka	109	100	8	100			2	25	4	50					2	26
	Bakaro	Kelimafana	27	100	0	0												
	Sub-Total		492	100	97	100	10	10	41	42	23	24	3	3	1	1	19	20
Total			1001	100	126	100	14	11	49	39	31	25	3	2	3	2	26	21

Source: Etude socio-économique, JICA, 1998

Production et vente de charbon de bois

Zone	commune rurale	Fokontany	Foyers interrogés		Foyers fabriquant du charbon de bois		Objectifs de la production		Nbre de fabrications par mois	Obtention des matériaux				Espèces d'arbre			Production moyenne par fabrication(Kg)	Ventes annuelles moyennes		Prix de vente moyen	Pourcentage par destination					Pourcentage par zone de vente
										Forêt personnelle		Achat payant		Achat gratuit		Autres	Eucalyptus	Autres		1997	1998		Intermédiaire	Coopérative lamcole	Consommateurs	Détaillant	Autres	Antananarivo	Autres
			Foyers	%	Foyers	%	Vente	Usage familial			%		%		%		%	%		(sac)	(sac)	FMG/sac							
Mantasoa	Ampasolaoa	Ampasolaoa	30	100	14	47	100	0	2		23		54		0	23	100	0	17	336	144	7550	82		0	9	9	0	77	23
		Mahitsady	70	100	16	23	94	6	2		7		80		0	13	100	0	7	85	19	6500	75		0	6	19	100	0	0
	Mantasoa	Andrianavonona	22	100	10	45	100	0	1		30		50		0	20	100	0	86	1542	161	8250	40		0	20	40	90	10	0
		Anjotoro	26	100	4	15	100	0	2		25		75		0	0	100	0	12	2051	217	7500	75		0	25	0	100	0	0
		Mantasoa	48	100	12	25	83	17	1		18		64		0	18	100	0	44	3501	79	6409	70		10	0	20	100	0	0
		Masomotahiny	55	100	14	25	100	0	2		15		46		8	31	86	14	40	2441	74	6375	69		0	0	31	100	0	0
		Miadanantsoa	33	100	16	48	88	12	2		0		71		7	22	100	0	59	782	380	8833	57		7	29	7	100	0	0
	Miadanandriana	Ambohimanjaka	86	100	41	48	100	0	3		20		49		0	31	100	0	47	534	204	7831	68		0	7	15	10	98	2
		Ambohipeno	44	100	10	22	90	10	2		78		0		11	11	100	0	35	232	253	6723	89		0	0	11	89	11	0
	Menkanjaka	Menkanjaka	35	100	14	36	100	0	2		84		0		8	8	93	7	24	83	104	6750	54		0	8	15	23	79	21
		Tsiazompaisky-Kely	34	100	0	0	0	0	0		0		0		0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
		Mitantanivo	22	100	0	0	0	0	0		0		0		0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
	Sub-Total		509	100	151	30																								
Tsiazompaisky	Ambatsara	Andriantsayo	25	100	0	0	0	0	0		0		0		0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
		Trimolohanano	61	100	3	5	100	0	2		100		0		0	0	100	0	85	125	150	8167	33		0	33	0	66	34	0
		Angodongodona	24	100	4	17	100	0	1		50		50		0	0	100	0	5	45	26	4750	75		0	25	0	100	0	0
		Makaitsipo	23	100	6	26	100	0	3		40		40		0	20	100	0	45	168	60	4000	80		0	0	20	100	0	0
		Ambohitsoa	68	100	3	4	100	0	19		66		34		0	0	100	0	140	115	200	4667	66		0	0	34	100	0	0
	Ambohimiadana	Ibaramaliza	32	100	0	0	0	0	9		0		0		0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
		Manadriana	99	100	1	1	100	0	8		100		0		0	0	100	0	48	0	124	0	51		0	0	100	100	0	0
	Tsiazotafara	Morarano	24	100	1	4	100	0	2		50		50		0	0	100	0	20	100	600	3500	60		0	40	0	0	0	0
		Amalamboarra																												
	Fisinjovana	Ambohijanaka	109	100	0	0	0	0	0		0		0		0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
	Bakaro	Kelimarana	27	100	0	0	0	0	0		0		0		0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
	Sub-Total		492	100	18	4																								
Total			1001	100	169	17																								

Source: Etude socio-économique, JICA, 1998

Annexe 23

Collecte de bois de feu et de miel

Zone	commune rurale	Fokontany	Foyers interrogés		Bois de feu									Miel	
					Collecte à usage familial		Collecte pour la vente		Nbre moyen de collectes	Rayon de collecte				Collecte de miel pour la vente	
										Moins	Plus	5 - 10 km	Plus		
			Foyers	%	Foyers	%	Foyers	%	par semaine	d'1 km	de 10 km		de 10 km	Foyers	%
Mantasoa	Ambatolaona	Ambatolaona	30	100	28	93	1	3	3	39	54	7	0	0	0
		Mahitsitady	70	100	70	100	0	0	3	43	51	4	1	1	1
	Mantasoa	Andrefanivorona	22	100	22	100	0	0	4	82	18	0	0	0	0
		Anjozoro	26	100	26	100	1	4	2	54	46	0	0	0	0
		Mantasoa	48	100	46	96	1	2	4	57	37	7	0	0	0
		Masombahiny	55	100	48	87	2	4	3	41	59	0	0	0	0
		Miadamanjaka	33	100	33	100	0	0	4	55	45	0	0	0	0
	Miadanandriana	Ambohimanjaka	86	100	81	94	1	1	4	55	44	1	0	2	2
		Ambohipeno	44	100	44	100	0	0	4	43	57	0	0	6	14
	Merikanjaka	Merikanjaka	39	100	35	90	0	0	1	70	30	0	0	2	5
		Tsiazompaniry-Kely	34	100	33	97	0	0	4	59	41	0	0	9	26
		Miarinarivo	22	100	20	91	1	5	2	50	50	0	0	0	0
	Sub-Total		509	100	486	95	7	1						20	4
Tsiazompaniry	Anosibe	Andriantsiajo	25	100	25	100	0	0	5	71	29	0	0	0	0
	Trimoloharano	Angodongodona	61	100	60	98	0	0	4	56	39	5	0	2	3
		Mahatsinjo	24	100	21	88	2	8	4	65	35	0	0	0	0
		Ambohitsoa	23	100	23	100	0	0	4	74	26	0	0	0	0
	Ambohimiadana	Iharamalaza	68	100	66	97	0	0	4	88	12	0	0	3	4
		Manandriana	32	100	28	88	1	3	4	88	12	0	0	3	9
	Tankafatora	Morarano	99	100	97	98	0	0	4	66	34	0	0	2	2
		Analamihoatra	24	100	24	100	0	0	5	75	25	0	0	1	4
	Fitsinjovana	Ambohijanaka	109	100	107	98	2	2	5	66	34	0	0	3	3
	Bakaro	Kelimafana	27	100	27	100	0	0	5	85	11	4	0	0	0
	Sub-Total		492	100	478	97	5	1						14	3
Total			1001	100	964	96	12	1						34	3

Source: Etude socio-économique, JICA, 1998

Forêts artificielles

Zone	commune rurale	Fokontany	Foyers interrogés		Nbre de possesseurs		Surface des forêts artificielles possédées			Espèces d'arbre				Dernière année de plantation								Planteur							
										Eucalyptus		Autres		Avant 1970		1970~1980		1980~1990		Après 1990		Chef de famille		Famille		Gouvernement		Autres	
			Foyers	%	Foyers	%	Moyenne	Min.	Max.	Foyers	%	Foyers	%	Foyers	%	Foyers	%	Foyers	%	Foyers	%	Foyers	%	Foyers	%	Foyers	%	Foyers	%
Mantasoa	Ambatolaona	Ambatolaona	30	100	6	20	2	1	5	6	100	0	0	3	10	0	0	0	0	1	3	0	0	4	13	0	0	0	0
		Mahisitady	70	100	18	26	43	1	400	18	100	0	0	5	45	1	9	1	9	4	36	0	0	0	0	0	0	0	0
	Mantasoa	Andrefanivorona	22	100	11	50	20	0,5	70	11	100	0	0	6	55	0	0	0	0	0	0	0	0	7	32	0	0	0	0
		Anjozoro	26	100	14	54	8	1	50	14	100	0	0	13	100	0	0	0	0	0	0	0	0	11	42	0	0	0	0
		Mantasoa	48	100	17	35	25	0,05	250	17	100	0	0	1	9	3	27	2	18	4	36	0	0	9	19	0	0	0	0
		Masombahiny	55	100	13	24	24	1	200	13	100	0	0	2	25	1	13	1	13	4	50	0	0	4	50	0	0	4	50
		Miadamanjaka	33	100	16	48	9	0,1	84	16	100	0	0	16	100	0	0	0	0	0	0	3	30	3	30	0	0	6	60
	Miadanandriana	Ambohimanjaka	86	100	38	44	37	1	500	38	100	0	0	2	8	2	8	7	27	15	58	4	14	14	50	0	0	10	36
		Ambohipeno	44	100	32	73	57	1	500	32	100	0	0	0	35	0	0	0	0	0	0	0	0	27	61	0	0	0	0
	Merikanjaka	Merikanjaka	39	100	23	59	15	0,04	200	23	100	0	0	2	10	0	0	4	20	14	70	18	46	0	0	0	0	0	0
		Tsiazompaniry-Keky	34	100	11	32	48	0,3	200	11	100	0	0	11	100	0	0	0	0	0	0	5	15	0	0	0	0	0	0
		Miarinarivo	22	100	14	64	63	1	600	14	100	0	0	0	0	1	7	4	29	9	64	0	0	13	59	0	0	0	0
	Sub-Total		509	100	213	43				213	100	0	0	96	55	8	5	19	11	51	29	30	21	92	65	0	0	20	14
Tsiazompaniry	Anosibe	Andrianisiajo	25	100	14	56	12	0,5	50	14	100	0	0	0	1	8	18	11	84	5	36	14	64	0	0	0	0	0	0
	Trimoloharano	Angodongodona	61	100	28	46	5	1	50	39	100	0	0	4	31	0	0	2	15	7	54	0	0	26	73	0	0	10	27
		Mahatsinjo	24	100	15	63	5	0,5	50	19	100	0	0	4	25	1	6	1	6	10	63	5	27	13	73	0	0	0	0
		Ambohitsoa	23	100	11	44	2	0,5	8	12	100	0	0	1	14	1	14	0	0	5	71	0	0	6	75	0	0	2	25
	Ambohimiadana	Inaramaiaza	68	100	23	34	7	0,5	75	36	100	0	0	3	12	2	8	2	8	18	72	0	0	14	56	0	0	11	44
		Manandriana	32	100	13	41	8	0,5	50	19	100	0	0	4	25	1	6	1	13	9	56	0	0	7	44	0	0	9	56
	Tankafatora	Morarano	99	100	38	38	1	0,1	14	57	100	0	0	3	6	4	9	5	11	33	74	0	0	8	16	0	0	41	84
		Amalamihoatra	24	100	15	63	1	0,5	5	21	100	0	0	1	5	3	15	1	5	15	75	0	0	11	58	0	0	8	42
	Fitsinjovana	Ambohijanaka	109	100	59	54	1	0,01	16	58	100	0	0	6	11	4	8	6	11	37	70	0	0	30	58	0	0	22	42
	Bakaro	Kelimafana	27	100	14	52	6	0,5	72	18	100	0	0	1	6	0	0	6	33	11	61	0	0	8	44	0	0	10	56
	Sub-Total		492	100	230	47				293	100	0	0	27	11	24	10	35	15	150	64	19	7	123	48	0	0	113	44
Total			1001	100	443	43				518	100	0	0	123	30	32	8	54	13	201	49	49	12	215	54	0	0	133	34

Source: Etude socio-économique, JICA, 1998

Production de produits agricoles et prix (riz)

Zone	commune rurale	Fokontany	Foyers interrogés		Riz							
					Nbre de foyers producteurs		Surface moyenne cultivée	Rendement Kg/10a	Pourcentage moyen de la consommation	Pourcentage de vente moyen (%)	Foyers vendeurs ayant répondu	Prix moyen FMG/Kg
			Foyers	%	Foyers	%						
Mantasoa	Ambatolaona	Ambatolaona	30	100	17	57	21	230	100	0	0	0
		Mahitsitady	70	100	59	84	26	242	67	33	1	1500
	Mantasoa	Andrefanivorona	22	100	20	91	28	320	57	43	1	1500
		Anjozoro	26	100	24	92	21	464	51	49	0	-
		Mantasoa	48	100	38	79	28	232	46	54	1	1700
		Masombahiny	55	100	38	69	18	313	97	3	1	1700
		Miadamanjaka	33	100	28	85	21	210	51	49	0	-
	Miadanandriana	Ambohimanjaka	86	100	78	91	27	239	99	1	4	1513
		Ambohipeno	44	100	41	93	46	191	100	0	2	1500
	Merikanjaka	Merikanjaka	39	100	33	85	36	259	94	6	3	1433
		Tsiazompaniry-Kely	34	100	24	71	30	346	77	23	6	1667
		Miarinarivo	22	100	20	91	36	221	99	1	5	1500
	Sub-Total		509	100	420	83					24	
Tsiazompaniry	Anosibe	Andriantsiajo	25	100	25	100	70	257	75	25	2	1050
	Trimoloharano	Angodongodona	61	100	56	92	66	273	74	26	8	1153
		Mahatsinjo	24	100	22	92	46	238	75	25	3	1310
		Ambohitsoa	23	100	21	84	28	263	92	18	1	1400
	Ambohimiadana	Iharamalaza	68	100	68	100	41	293	98	2	16	697
		Manandriana	32	100	29	91	30	378	100	0	0	0
	Tankafatora	Morarano	99	100	95	96	46	286	100	0	13	859
		Analamihoatra	24	100	23	96	64	234	73	27	6	767
	Fitsinjovana	Ambohijanaka	109	100	92	84	42	273	71	29	26	815
	Bakaro	Kelimafana	27	100	27	100	44	245	100	0	1	1850
	Sub-Total		492	100	458	93					76	
Total			1001	100	878	87					100	

Notes:

1 Pourcentage moyen de la consommation familiale (%) = consommation familiale/production totale *100

2 Pourcentage de vente moyen (%) = (Production totale - Consommation familiale)/ production totale *100

3 — dans le tableau indique des éléments inconnus.

Source: Etude socio-économique, JICA, 1998

Production de produits agricoles et prix (manioc)

Zone	commune rurale	Fokontany	Foyers interrogés		Manioc							
					Nbre de foyers producteurs		Surface moyenne cultivée	Rendement Kg/10a	Pourcentage moyen de la consommation	Pourcentage de vente moyen (%)	Foyers vendeurs ayant répondu	Prix moyen FMG/Kg
			Foyers	%	Foyers	%						
Mantasoa	Ambatolaona	Ambatolaona	30	100	10	34	4	100	0	0	0	0
		Mahitsitady	70	100	36	51	11	231	87	23	3	4840
	Mantasoa	Andrefanivorona	22	100	9	41	15	183	100	0	0	0
		Anjozoro	26	100	12	46	7	547	-	-	1	500
		Mantasoa	48	100	24	50	13	362	9	91	4	8600
		Masombahiny	55	100	16	29	16	646	87	13	3	350
		Miadamanjaka	33	100	15	45	11	573	86	14	1	1150
	Miadanandriana	Ambohimanjaka	86	100	40	47	18	345	97	3	11	467
		Ambohipeno	44	100	17	39	41	197	53	47	2	300
	Merikanjaka	Merikanjaka	39	100	4	10	24	946	38	63	2	213
		Tsiazompaniry-Kely	34	100	9	26	20	110	90	10	0	-
		Miarinarivo	22	100	11	50	13	154	63	37	1	500
	Sub-Total		509	100	203	40					28	
Tsiazompaniry	Anosibe	Andriantsiajo	25	100	13	52	16	429	100	0	0	0
	Trimoloharano	Angodongodona	61	100	32	52	30	214	86	14	4	403
		Mahatsinjo	24	100	14	58	31	220	67	33	2	275
		Ambohitsoa	23	100	14	56	20	353	79	21	3	800
	Ambohimiadana	Iharamalaza	68	100	35	51	28	596	77	23	7	907
		Manandriana	32	100	18	56	14	601	94	6	4	2500
	Tankafatora	Morarano	99	100	51	52	32	275	100	0	9	841
		Analamihoatra	24	100	12	50	59	321	84	16	1	650
	Fitsinjovana	Ambohijanaka	109	100	48	44	12	393	66	34	6	500
	Bakaro	Kelimafana	27	100	14	52	19	712	94	6	2	350
	Sub-Total		492	100	251	49					38	
Total			1001	100	454	45					66	

Notes:

1 Pourcentage moyen de la consommation familiale (%) = consommation familiale/production totale *100

2 Pourcentage de vente moyen (%) = (Production totale - Consommation familiale)/ production totale *100

3 — dans le tableau indique des éléments inconnus.

Source: Etude socio-économique, JICA, 1998

Production de produits agricoles et prix (pomme de terre)

Zone	commune rurale	Fokontany	Foyers interrogés		Pomme de terre							
					Nbre de foyers producteurs		Surface moyenne cultivée	Rendement Kg/10a	Pourcentage moyen de la consommation	Pourcentage de vente moyen (%)	Foyers vendeurs ayant répondu	Prix moyen FMG/Kg
			Foyers	%	Foyers	%						
Mantasoa	Ambatolaona	Ambatolaona	30	100	5	17	6	503	-	-	-	-
		Mahitsitady	70	100	20	29	9	164	56	44	3	567
	Mantasoa	Andrefanivorona	22	100	7	32	7	480	30	70	4	313
		Anjozoro	26	100	9	35	7	74	-	-	0	-
		Mantasoa	48	100	15	31	4	338	74	26	3	433
		Masombahiny	55	100	9	16	5	380	100	0	4	363
		Miadamanjaka	33	100	8	24	4	413	97	3	0	-
	Miadanandriana	Ambohimanjaka	86	100	42	49	18	464	55	45	32	370
		Ambohipeno	44	100	16	36	27	424	63	37	7	317
	Merikanjaka	Merikanjaka	39	100	29	74	17	884	47	53	26	343
		Tsiazompaniry-Kely	34	100	16	47	22	440	59	41	13	264
		Miarinarivo	22	100	18	82	17	1004	54	46	13	304
	Sub-Total		509	100	194	38					105	
Tsiazompaniry	Anosibe	Andriantsiajo	25	100	23	92	43	758	22	78	19	343
	Trimoloharano	Angodongodona	61	100	53	87	37	960	16	84	46	390
		Mahatsinjo	24	100	20	83	30	1111	16	84	17	353
		Ambohitsoa	23	100	16	64	19	492	32	68	8	297
	Ambohimiadana	Iharamalaza	68	100	48	71	32	718	26	74	44	344
		Manandriana	32	100	23	72	23	881	39	61	21	336
	Tankafatora	Morarano	99	100	91	92	36	705	27	73	82	348
		Analamihoatra	24	100	24	100	58	731	20	80	23	375
	Fitsinjovana	Ambohijanaka	109	100	101	93	32	870	19	81	96	346
	Bakaro	Kelimafana	27	100	23	85	21	871	27	73	15	356
	Sub-Total		492	100	422	83					371	
Total			1001	100	616	62					479	

Notes:

1 Pourcentage moyen de la consommation familiale (%) = consommation familiale/production totale *100

2 Pourcentage de vente moyen (%) = (Production totale - Consommation familiale)/ production totale *100

3 — dans le tableau indique des éléments inconnus.

Source: Etude socio-économique, JICA, 1998

Production de produits agricoles et prix (patates douce)

Zone	commune rurale	Fokontany	Foyers interrogés		Patates douce							
					Nbre de foyers producteurs		Surface moyenne cultivée	Rendement Kg/10a	Pourcentage moyen de la consommation	Pourcentage de vente moyen (%)	Foyers vendeurs ayant répondu	Prix moyen FMG/Kg
			Foyers	%	Foyers	%						
Mantasoa	Ambatolaona	Ambatolaona	30	100	13	43	4	-	0	0	0	0
		Mahitsitady	70	100	32	46	8	310	100	0	2	450
	Mantasoa	Andrefanivorona	22	100	7	32	2	625	100	0	0	0
		Anjozoro	26	100	9	35	5	460	-	-	1	500
		Mantasoa	48	100	19	40	15	635	100	0	1	300
		Masombahiny	55	100	11	20	96	77	99	1	1	150
		Miadamanjaka	33	100	11	33	8	275	99	1	0	0
	Miadanandriana	Ambohimanjaka	86	100	27	31	17	298	84	16	2	400
		Ambohipeno	44	100	7	16	10	367	100	0	0	0
	Merikanjaka	Merikanjaka	39	100	5	13	15	-	-	-	-	-
		Tsiazompaniry-Kely	34	100	4	12	26	138	100	0	1	750
		Miarinarivo	22	100	8	36	16	362	100	0	0	0
	Sub-Total		509	100	153	30					8	
Tsiazompaniry	Anosibe	Andriantsiajo	25	100	7	28	8	154	78	22	0	0
	Trimoloharano	Angodongodona	61	100	22	36	8	503	29	71	1	500
		Mahatsinjo	24	100	9	38	21	208	100	0	0	0
		Ambohitsoa	23	100	7	28	10	160	-	-	1	200
	Ambohimiadana	Iharamalaza	68	100	22	32	9	755	47	53	1	350
		Manandriana	32	100	8	25	9	862	46	54	3	350
	Tankafatora	Morarano	99	100	31	31	7	857	100	0	0	0
		Analamihoatra	24	100	9	38	31	174	100	0	0	0
	Fitsinjovana	Ambohijanaka	109	100	41	38	5	1200	86	14	1	500
	Bakaro	Kelimafana	27	100	11	41	11	0	0	0	0	0
	Sub-Total		492	100	167	34					7	
Total			1001	100	320	32					15	

Notes:

1 Pourcentage moyen de la consommation familiale (%) = consommation familiale/production totale *100

2 Pourcentage de vente moyen (%) = (Production totale - Consommation familiale)/ production totale *100

3 — dans le tableau indique des éléments inconnus.

Source: Etude socio-économique, JICA, 1998

Production de produits agricoles et prix (maïs)

Zone	commune rurale	Fokontany	Foyers interrogés		Maïs							
					Nbre de foyers producteurs		Surface moyenne cultivée	Rendement Kg/10a	Pourcentage moyen de la consommation	Pourcentage de vente moyen (%)	Foyers vendeurs ayant répondu	Prix moyen FMG/Kg
			Foyers	%	Foyers	%						
Mantasoa	Ambatolaona	Ambatolaona	30	100	0	0	0	0	0	0	0	0
		Mahitsitady	70	100	0	0	0	0	0	0	0	0
	Mantasoa	Andrefanivorona	22	100	0	0	0	0	0	0	0	0
		Anjozoro	26	100	0	0	0	0	0	0	0	0
		Mantasoa	48	100	0	0	0	0	0	0	0	0
		Masombahiny	55	100	0	0	0	0	0	0	0	0
		Miadamanjaka	33	100	0	0	0	0	0	0	0	0
	Miadanandriana	Ambohimanjaka	86	100	0	0	0	0	0	0	0	0
		Ambohipeno	44	100	0	0	0	0	0	0	0	0
	Merikanjaka	Merikanjaka	39	100	0	0	0	0	0	0	0	0
		Tsiazompaniry-Kely	34	100	0	0	0	0	0	0	0	0
		Miarinarivo	22	100	0	0	0	0	0	0	0	0
	Sub-Total		509	100	0						0	
Tsiazompaniry	Anosibe	Andriantsiajo	25	100	0	0	0	0	0	0	0	0
	Trimoloharano	Angodongodona	61	100	2	3	6	133	50	50	1	1250
		Mahatsinjo	24	100	0	0	0	0	0	0	0	0
		Ambohitsoa	23	100	0	0	0	0	0	0	0	0
	Ambohimiadana	Iharamalaza	68	100	3	4	11	0	0	0	0	0
		Manandriana	32	100	1	3	4	25	100	0	0	0
	Tankafatora	Morarano	99	100	0	0	0	0	0	0	0	0
		Analamihoatra	24	100	1	4	2	0	0	0	0	0
	Fitsinjovana	Ambohijanaka	109	100	0	0	0	0	0	0	0	0
	Bakaro	Kelimafana	27	100	0	0	0	0	0	0	0	0
	Sub-Total		492	100	7	1					1	
Total			1001	100	7	1					1	

Notes:

1 Pourcentage moyen de la consommation familiale (%) = consommation familiale/production totale *100

2 Pourcentage de vente moyen (%) = (Production totale - Consommation familiale)/ production totale *100

3 — dans le tableau indique des éléments inconnus.

Source: Etude socio-économique, JICA, 1998