JAPAN INTERNATIONAL COOPERATION AGENCY(JICA)

MINISTRY OF AGRICULTURE, FORESTRY AND FISHERIES(MAFF),
DEMOCRATIC REPUBLIC OF EAST TIMOR

THE STUDY
ON
INTEGRATED AGRICULTURAL DEVELOPMENT
OF
EAST TIMOR

DEVELOPMENT PLAN REPORT

ANNEX

JULY 2002

SANYU CONSULTANTS INC.

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ANNEX A. IMPLEMENTING ARRANGEMENTS

The Scope of Work
for
The Study on Integrated Agricultural Development of East Timor
agreed upon between
East Timor Transitional Administration/
United Nations Transitional Administration in East Timor
and
Japan International Cooperation Agency

Dili, November 28, 2000

Yukihiko Ejiri
Resident Representative
Japan International Cooperation Agency
(JICA)
East Timor Office

Jean-Christian Cady
Acting Transitional Administrator
East Timor Transitional Administration
(ETTA)
Deputy Special Representative of
Secretary General
United Nations Transitional
Administration in East Timor (UNTAET)

I. INTRODUCTION

In response to the request of the East Timor Transitional Administration (hereinafter referred to as "ETTA")/the United Nations Transitional Administration (herein after referred to as "UNTAET"), the Government of Japan decided to conduct The Study on Integrated Agricultural Development of East Timor (hereinafter referred to as "the Study") in accordance with the relevant laws and regulations in force in Japan.

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

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

II. OBJECTIVES OF THE STUDY

The objectives of the Study is:

1. To assist in the formulation of a Master Plan to be prepared by the Division of Agricultural Affairs, Department for Economic Affairs of ETTA/UNTAET (hereinafter referred to as "DAA") for the development of East Timor's agriculture, forestry and fisheries sectors.
2. To assist the human resource development of East Timor.

III. STUDY AREA

The Study shall cover whole area of East Timor.

IV. SCOPE OF THE STUDY

In order to achieve the objectives above, the Study shall consist of the following items.

[Phase 1]

1. Data collection and analysis
   1.1 Collect and review the existing information and conduct field surveys on the followings:
   (1) Natural condition and present condition of land for agriculture and forestry use
   (2) Present condition of agriculture production
   (3) Progress and results of on-going projects in the Study area
   (4) Others, as may be agreed between DAA and JICA
2. Proposal of the draft Integrated Agricultural Development Plan (hereinafter referred to as "Development Plan") on the basis of the results of the data collection and analysis mentioned above.
   2.1 Draw up the draft Development Plan in the respects of the short and medium term development.
   2.2 Identify and implement the pilot project(s) on the recommendation of the Steering Committee in accordance with the above Development Plan.

[Phase 2]

3. Implementation of the pilot project(s)
   Training(s), workshop(s), seminar(s), etc. will be conducted in the course of the pilot project (projects).
4. Finalization of the Development Plan
   4.1 Collect the supplementary data and information
   4.2 Finalize the Development Plan
5. Preparation of conclusion(s) and recommendation(s)

V. STUDY SCHEDULE

The Study shall be carried out in accordance with the Tentative Work Schedule attached as Annex 1.

VI. REPORTS

JICA shall prepare and submit the following reports, written in English, to ETTA/UNTAET;

Inception Report	: Twenty (20) copies at the commencement of the Study
Progress (1) Report	: Twenty (20) copies in Phase 1
Interim Report	: Twenty (20) copies in Phase 1
Progress (2) Report	: Twenty (20) copies in Phase 1
Draft Development Plan Report	: Twenty (20) copies at the end of Phase 1 ETTA/UNTAET shall submit written comments on the Draft Development Plan Report to JICA within one (1) month after the receipt of the report.
Development Plan Report	: Thirty (30) copies in one (1) month after the receipt of comments on the Draft Development Plan Report from ETTA/UNTAET.
Field Report(s)	: Twenty (20) copies in accordance with the pilot study (studies) in Phase 2
Completion Report	: Thirty (30) copies at the end of the Study

VII. UNDERTAKING OF THE ETTA/UNTAET

1. To facilitate the smooth conduct of the Study, ETTA/UNTAET will take the following necessary measures;
   (1) to secure the safety of the Japanese Study team (hereinafter referred to as "the Team").
   (2) to permit the members of the Team to enter, leave and sojourn in East Timor for the duration of their assignment therein, and exempt them from foreign registration requirements and consular fees.
   (3) to exempt the members of the Team from taxes, duties, fees and any other charges on equipment, vehicles, machinery and other materials brought into and out of East Timor for the conduct of the Study.
   (4) to exempt the members of the Team from income tax and charges of any kind imposed on or in connection with any emoluments or allowances paid to the members of the Team for their services in connection with the implementation of the Study.
   (5) to provide necessary facilities to the Team for the remittances as well as the utilization of the funds introduced into East Timor from Japan in connection with the implementation of the Study.
   (6) to secure permission for the Team to enter into private properties or restricted areas for the implementation of the Study.
   (7) to secure permission for the Team to take all data and documents including photographs and maps related to the Study out of East Timor to Japan.
   (8) to provide medical services as needed. Its expenses shall be chargeable to the members of the Team.

2. ETTA/UNTAET shall bear claims, if any arises, against the members of the Team resulting from, occurring in the course of, or otherwise connected with, the discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or willful misconduct on the part of the member of the Team.

3. ETTA/UNTAET shall act as a counterpart agency to the Japanese Study Team and also as a coordinating body in relation with other governmental and non-governmental organizations concerned for the smooth implementation of the Study. The Division of Agricultural Affairs (DAA) of ETTA/UNTAET will establish a Steering Committee.

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4. ETTA/UNTAET shall, at its own expense, provide the Team with the following, in cooperation with other organizations concerned:
   (1) Available data and information related to the Study,
   (2) Counterpart personnel
   (3) Credentials or identification cards to the member of the Team.

VIII. UNDERTAKING OF JICA

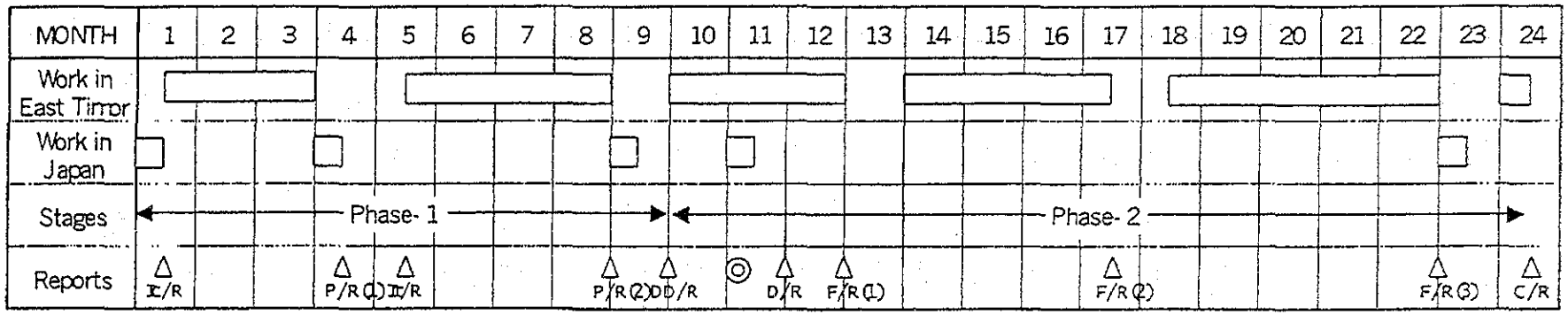
For the implementation of the Study, JICA shall take the following measures:

1. to dispatch, at its own expense, the Team to East Timor,
2. to pursue technology transfer to counterparts personnel in the course of the Study.

IX. CONSULTATION

JICA and ETTA/UNTAET will consult with each other in respect of any matter that may arise from or in connection with the Study.

TENTATIVE WORK SCHEDULE



Remarks:

Ic/R	: Inception Report	P/R(1)	: Progress Report (1)
It/R	: Interim Report	P/R(2)	: Progress Report (2)
DD/R	: Draft Development Plan Report	D/R	: Development Plan Report
◎	: Comments on D/R by ETTA/UNTAET		
F/R(1)	: Field Report (1)	F/R(2)	: Field Report (2)
F/R(3)	: Field Report (3)	C/R	: Completion Report

ANNEX B. UNTAET/ETPA ORGANIZATION

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UNITED NATION ADMINISTRATION IN EAST TIMOR
EAST TIMOR TRANSITIONAL ADMINISTRATION

SECOND TRANSITIONAL GOVERNMENT OF EAST TIMOR

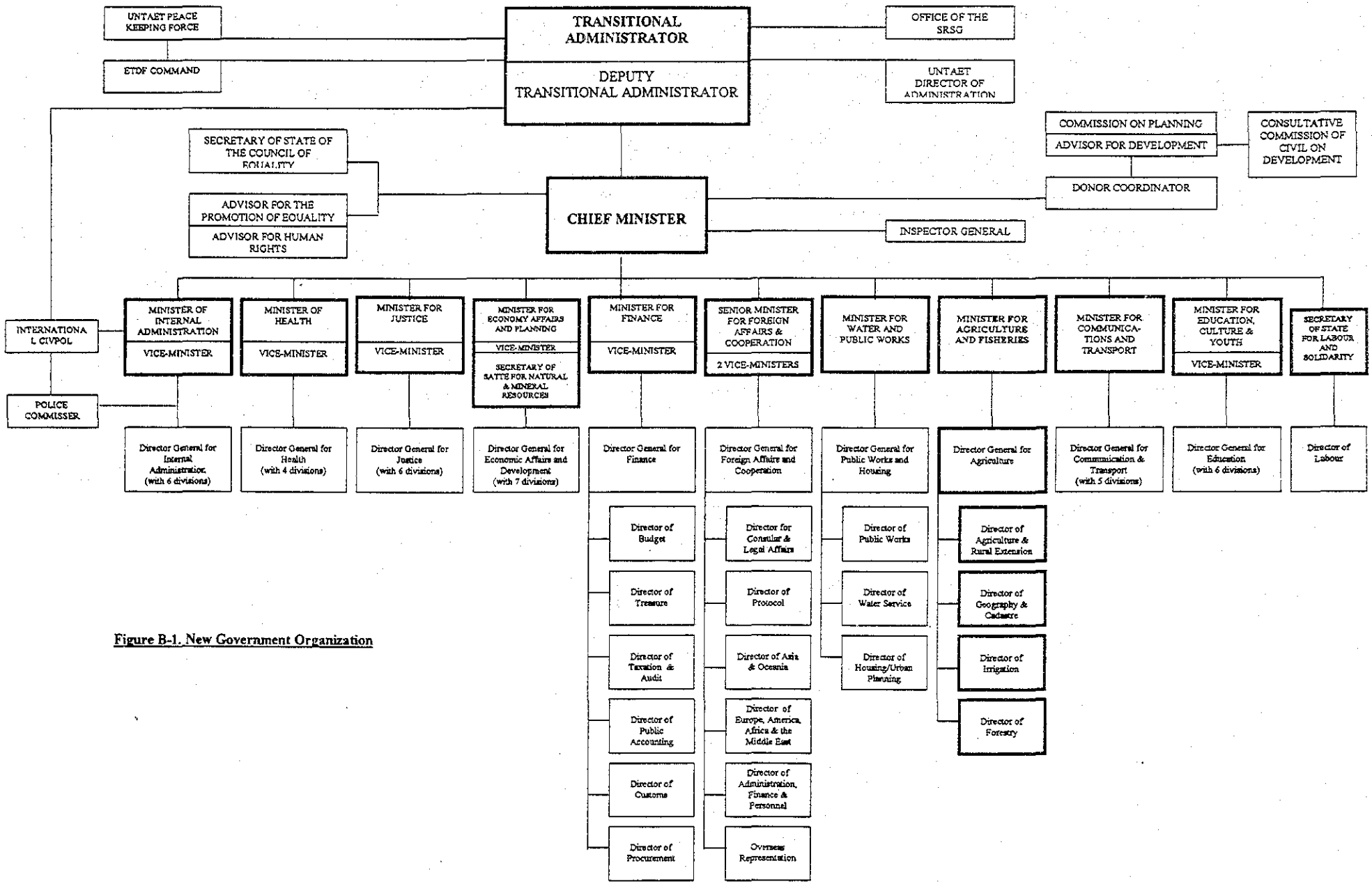

Figure B-1. New Government Organization

ANNEX C. INVENTORY SURVEY

INVENTORY SURVEYS

1.0 Background

Prior to arrival of the Sanyu Consultant Team (Team) of the Study on Integrated Agricultural Development of East Timor (Study), a consortium of the World Bank (WB), Asian Development Bank (ADB) and the United Nations Development Programme (UNDP) were already undertaking a comprehensive Joint Poverty Assessment (JPA). The JPA Assessment comprises the design, conduct and preliminary analysis of a:

- Village Survey,
- Household Survey, and
- Participatory Poverty Assessment.

To avoid duplication of effort, minimize disturbance to respondents and maximize cost and time efficiency, East Timor Transition Authority (ETTA) officials recommended that, where possible, the Study should coordinate its work with the JPA. The Team has been able to comply with this request and join with the other donors for both its Village (i.e., suco) and Household Surveys.

From 21 May to 30 June 2001, the Team conducted a village agriculture survey (Village Survey) in rural East Timor. The Village Survey was undertaken through a contract with the NGO ETAdep and executed jointly with the listing exercise of the JPA's Household Survey. Cooperation with JPA allowed the Team to use previously trained individuals and save on personnel, vehicle and data processing costs. The target villages were selected at random throughout the nation. The Team participated with the other donors in selection of the target villages. A complete description of the village and household selection process in provided in Appendix 1, Survey Design and Implementation.

The Village Survey questionnaire was designed by the Team members working in conjunction with their ETTA Department of Agriculture counterparts. It included questions from all of the disciplines represented on the Team. A copy of the questionnaire is included in Appendix 2, Sample Questionnaire. The NGO responsible for the Village Survey, ETAdep, worked closely with ETTA's Census and Statistics Unit for Village Survey implementation and data analysis. A total of eight teams comprised of three persons each were used to collect the village data. These teams were supervised by a Field Manager. The primary respondent to the questionnaires was the village chief. However, when he was not sufficiently knowledgeable, additional information was sought from former village chiefs and irrigation managers. An additional three persons were employed for data input and analysis.

There are 107 randomly selected sucos included in the JPA's Household Survey. The Village Survey used these sucos for its base. However, after discussion with ETTA and other donors, 21 sucos were removed from the Village Survey because they were too urban in character to be useful for an agricultural survey. Twelve rural sucos were then added based on a selection made by the ETTA's Census and Statistics Unit (CSU). CSU attempted to include a representative cross section of the country's major agriculture areas. These 98 sucos were then mapped. Discussion with DAA officials revealed that the selection process did not include major agriculture and fisheries zones in Viqueque and Cova Lima districts. Therefore, to enhance the Village Survey's use, 8 rural sucos covering these districts were added. As a result, the total JICA Agriculture Survey's sample size is 106 sucos. The sample size is felt to provide

a sound basis for basic profiles for the country as a whole. It can also provide selected information on a suco and/or district basis.

Both the fieldwork and data input has been completed for the Village Survey and the information is now available. Sucos surveyed are as shown in the table below:

JICA Villages Surveyed

No.	District	No. of Postos	Sucos	
			Total	Sampled
01	Aileu	4	43	4
02	Ainaro	4	21	4
03	Baucau	7	63	13
04	Bobonaro	6	50	9
05	Covalima	7	45	10
06	Dili	6	48	8
07	Ermera	5	53	13
08	Liquica	3	23	6
09	Lautem	5	34	9
10	Manufahi	4	29	5
11	Manatuto	6	29	4
12	Oecussi	5	25	4
13	Viqueque	5	35	17
	Total	67	498	106

Prior to the JICA team's arrival, the JPA was already preparing to undertake a Household Survey. The government's National Planning and Development Agency (NPDA) requested the JICA Team to join with the WB, ADB and UNDP in that effort. JPA's Household Survey is being implemented under the direction of the WB and covers a wide range of topic areas of which agriculture is only one. Therefore, the JICA Team formulated their agriculture, forestry and fisheries questions and passed them on to the WB. The WB then inserted the Team's questions into their Household Survey questionnaire. The WB directly employed CSU to undertake the Household Survey. As a consequence of these arrangements, the Team is not directly in control of the Household Survey schedule.

In total, CSU used 24 enumerators under the direction of 8 supervisors. About half of the enumerators were those trained under the JICA Village Survey and the ADB's Suco Survey. The Household Survey intends to cover 1,800 households randomly selected through out East Timor. The enumerators began the Household Survey on 13 August 2001 and expect to be in the field until mid December. To insure that materials are available on a timely basis, Household Survey results are reported to the JICA Team as they are received from the field. In this manner, results are made available to the JICA Team prior to final completion of the entire JPA process, which is only scheduled for December 2001.

The entire survey when finished is expected to cover approximately 1,800 households. At the time of report completion, 53% of the sampling had been completed. This report is based on those results and represents a survey size of 951 households selected at random across East Timor. It is believed that these results represent a statistically valid sample size. Final survey results are expected in late December 2001. A Household Survey report is presented below and a sample of the agriculture section of the survey form given in Appendix 3, Household Survey Questionnaire.

2.0 Village Survey Results

National Results

These results are based on a representative cross section of 106 villages (i.e., sucos) located throughout Timor Lorosa'e.

Part A - General Information

1. Households Per Village

1. Average Number of Households Per Village:	489
2. Largest Number of Households Per Village:	2,184
3. Least Number of Households Per Village:	44
4. 25% of Villages Had :	248 Households or Less
5. 25% of Villages Had:	623 Households or More

1.2 Type of Main Village Road By Percent:

1. No Road	2%
2. Asphalt	59%
3. Gravel	19%
4. Earth	20%

1.3 Condition of Main Village Road By Percent:

1. There is No Road	1%
2. Poor	20%
3. Moderately Broken	20%
4. Seasonally Poor	24%
5. Fair	17%
6. Good	18%

1.4 Length of Main Village Road Requiring Repairs

1. Average Length Requiring Repairs:	9.2 kms
2. Longest Length Requiring Repairs:	49.0 kms
3. 25% of Villages Required Repairs for:	3.3 kms or Less
4. 25% of Villages Required Repairs for:	12.0 kms or More

1.5 Percent of Households that Have Electricity: 18%

1.6 Percent of Households that Have Piped-in Drinking Water? 25%

1.7 Main Type of Water Sources By Percent:

1.	River	15%
2.	Spring	63%
3.	Pond/Lake	0%
4.	Well	16%
5.	Pump	5%
6.	Other	1%

1.8 What Financing Sources for People Are in the Village By Percent:

1.	None	38%
2.	Commercial Bank	0%
3.	Cooperative	0%
4.	Middleman/Trader	48%
5.	Other	14%

1.9 At Present, How Many Times Per Year Do Agriculture Extension Workers Visit This Village?

1.	Average Total Number of Times Per Year:	Once
2.	Maximum Number of Times Visited Per Year:	Six
3.	Percent Not Receiving Any Visits Per Year:	54%

1.10 Infrastucture Requiring Improvement in Order of Priority:

1. Irrigation Systems
2. Drinking Water
3. Schools
4. Farm to Market and Other Roads
5. Power
6. Health Clinic/Hospital
7. Marketing Facilities
8. Telephone System

There were recorded a significant number of other infrastructure requiring improvement. However, these items were not amongst the 7 categories listed above. If needed, these items can be referenced on the original data collection sheets.

1.11 Product Markets:

1. Average Distance from a Village Center to a General Market: 3.4 km
2. 25% of the Village Had to Travel More Than 5.0 km to a General Market
3. Maximum Travel to a General Market: 25 km

Data is available on the original data sheets listing the actual name of the General Market and also nearest Fish Markets.

1.12 Fuel Prices:

1.	Diesel:	
	Sold In:	20% of Villages
	Average Cost:	Rp 4,857/Liter
	Price Range:	
	Maximum	Rp 6,000/Liter
	Minimum	Rp 3,500/Liter
2.	Gasoline:	
	Sold In:	22% of Villages
	Average Cost:	Rp 5,587/Liter
	Price Range:	
	Maximum	Rp 7,000/Liter
	Minimum	Rp 4,500/Liter
3.	Kerosene:	
	Sold In:	53% of Villages
	Average Cost:	Rp 4,964/Liter
	Price Range:	
	Maximum	Rp 9,000/Liter
	Minimum	Rp 3,000/Liter
4.	Lubricant Oil:	
	Sold In:	17% of Villages
	Average Cost:	Rp 27,222/Liter
	Price Range:	
	Maximum	Rp 35,000/Liter
	Minimum	Rp 20,000/Liter

2. Land Use and Tenure

National Average Displayed as a Single Village (106 Villages)

Land Use	Public Land (ha)	Community Land (ha)	Clan Owner-ship (ha)	Individual Owner-ship (ha)	Corporate Owner-ship (ha)	Other (ha)
1. Irrigated Field						
1.1 Use 1 Season	52	2	2	218	0	1
1.2 Use 2/3 Seasons	38	2	2	63	0	0
2. Rain Fed Paddy	0	0	0	42	0	0
3. Garden	28	1	0	713	0	7
4. Plantation	3	0	0	384	65	1
5. Dry Field	130	0	0	139	0	72
6. Bush/Underbrush	239	7	0	9	0	5
7. Grass/Unused	501	0	0	14	0	11
8. Forest	557	13	0	5	3	11
9. Swamp	3	0	0	1	0	1
10. Housing/Urban	16	5	2	228	0	5
11. Other: (Mostly Steeply Sloped)	167	0	0	0	0	340
12. Total Village	1,734	30	6	1,816	68	454

3. *Irrigation Systems*

1. Percent of Villages Reporting Some Form of Irrigation: 76%
2. Percent of Villages Sharing System With Another Village: 49%
3. Average Maximum Irrigated Ha/Irrigation System: 148 Ha
4. Percent Where Irrigation System Does Not Function: 20%
5. Type of Irrigation System By Percent (Preliminary)
   - A. Technical 2%
   - B. Half Technical 9%
   - C. Simple 89%
6. Average Length of Primary Canal (km): 2.6 km
7. 25% of Systems Have Primary Canals Greater Than: 3.0 km
8. Average Number of Households Benefiting Per System: 83
9. Percent of Systems with a Water Users Association: 56%
10. Irrigation System Maintenance in the Last 12 Months By:
    - A. No Maintenance 38%
    - B. Government 1%
    - C. Water Users Association 10%
    - D. Individual Farmers 48%
    - E. Other (e.g., WB, CEP) 3%

Irrigation systems vary significantly in size from a maximum irrigated area of over 9,500 ha to a minimum size of 1 ha. Names and locations of the various irrigation systems are available in the data set.

4. Agricultural Production of a Typical Village

Agricultural Crop	1997			2000		
	Area Under Cultivation (ha)	Harvest Area (ha)	Production Amount (kg/ha) a)	Area Under Cultivation (ha)	Harvest Area (ha)	Production Amount (kg/ha) a)
1. Rice-Upland	14	14	1,715	16	15	1,669
2. Rice-Rain Fed	32	21	1,778	28	17	1,717
3.Rice-50% Irgtd	100	94	1,733	96	87	1,539
4.Rice-Fully Irgtd	137	126	2,850	116	96	2,618
5. Mung Bean	12	11	1,157	10	10	1,041
6. Maize	159	157	990	147	145	946
7. Cassava	22	22	3,614	19	18	3,509
8. Kidney Bean	28	27	1,282	26	26	1,208
9.Potato	11	11	4,375	10	10	4,446
10. Sweet Potato	11	10	2,898	9	9	3,020
11. Tuber (Yam)	3	3	1,500	3	3	1,500
12. Squash	1	1	2,083	1	1	2,083
13. Peanuts	29	22	1,124	25	19	1,103
14. Coffee	205	201	1,061	206	201	1,058
15. Tobacco	2	2	281	2	1	272
16. Coconuts	59	50	2,821	60	45	2,519
17. Other	18	17	NA	18	16	NA

a) Inconsistent data was removed by the Team when calculating production amount (kg/ha).

The source data includes detailed information on where local produce is sold.

5. Livestock Per Typical Village

Livestock	Number of Animals In 1997	Number of Animals In Dec. 2000	Percent Decline
1. Cattle	626	235	-62%
2. Buffalo	305	202	-34%
3. Horses	145	97	-33%
4. Goats	436	136	-69%
5. Sheep	284	285	+0%
6. Pigs	1,144	658	-43%
7. Chicken-Native	2,126	1,544	-27%
8. Chicken-Commercial	74	5	-94%
9. Ducks	57	36	-37%

6. Forestry

6.1 Percent of Villages Without Adequate Sources of Wood for Cooking: 6%

6.2 Of the Villages Where There is Inadequate Wood for Cooking:
78% Get Cooking Wood from Forest Areas in an Adjacent Village
11% Buy from a Store that Sells Wood
11% Buy from Traders that Sells Wood

6.3 In 14% of Villages There People Who Are Planting Trees, Which Can Be Used To Supply Wood for Cooking in the Future.

6.4 In the Villages Which Plant Trees for Cooking Wood The Average Area Planted in the Last 3 Years is 6.9 Hectares.

6.5 Condition of the Land in the Catchment Area of the Stream/River Which Flows Through The Village By Percent:

A. No Erosion Problems	25%
B. Minor Erosion Problems	39%
C. Major Erosion Problems	36%

6.6 Measures the People in the Village Are Taking to Reduce the Extent of Erosion or Rate of Soil Loss By Percent:

1. Not Taking Any Action	60%
2. Planting Trees	25%
3. Making Ponds to Control Run-off	9%
4. Reducing the Area of Cultivated or Bare Land	0%
5. Increasing the Area of Permanent Crops	0%
6. Growing Cover Trees to Protect Cultivated Land	6%

Sum is greater than 100% since some villages take more than 1 action.

6.7 Erosion Control Measures Are Undertaken By

1. No Erosion Control Measures are Being Carried Out	60%
2. Peoples Own Initiative	38%
3. Farmers Groups	1%
4. Encouraged and/or Assisted by NGO's (Including the Church)	1%
5. On Advice and Guidance from the DAO/PPL	0%

6.8 In 52% of Villages People Hunt for Animals in the Forest.

6.9 Animals Are Hunted Are:

A. Wild Pigs	39%
B. Deer	37%
C. Other Large Animals	4%
D. Birds	17%
E. Other	3%

6.10 Forest Production

Items	No of Villages Reporting Production (of 106 Total)	Production Per Reporting Village
1. Timber Wood	49	180 cu m/year
2. Fuel Wood	91	62,903 bunch/year *
3. Honey	19	468 liter/year
4. Rattan	14	12,585 piece/year **
5. Bamboo	82	10,415 piece/year
6. Candle Nut (Kemiri)	50	9,768 kg/year

* : Bunch (Fuel Wood) = approx. 0.04 cu m

** : Piece (Rattan) = 1.85 m

6.11 79% Of People Gather Plants from the Forest for Medicinal Purposes.

6.12 58% Of People Grow Plants for Medicinal Purposes.

7. Fisheries

7.1 General

7.1.1 Of 106 Villages, 31 Villages Reported Having Fishers, 22 Villages Had Both Full and Part Time Fishers, 7 Had Full Time Fishers Only and 2 Part Time Fishers Only.
42% are Full Time Fishers and 58% Part Time Fishers
The Average Number of Fishers in the Reporting Villages was

A. Full-Time Fishers/Village	30
B. Part-Time Fishers/Village	42

7.1.2 Average Number of Vessels Per Reporting Village:

A. Non-Powered Skiffs/Canoes	22
B. Powered Skiffs/Canoes	4
C. Non-Powered Larger Boats	0
D. Powered Larger Boats	0

7.1.3. Fishing Time and Season

7.1.3.1 Best Time for Fishing By Percent:

A. Morning 39%
B. Mid Day 6%
C. Afternoon 3%
D. Evening 52%

7.1.3.2 Worst Time for Fishing:

A. Morning 0%
B. Mid Day 81%
C. Afternoon 6%
D. Evening 13%

7.1.3.3 Best Months for Fishing By Percent

Jan 4%	Feb 5%	Mar 7%	Apr 7%	May 5%	June 8%
July 8%	Aug 10%	Sept 14%	Oct 15%	Nov 10%	Dec 6%

7.1.3.4 Worst Months for Fishing

Jan 12%	Feb 14%	Mar 11%	Apr 11%	May 8%	June 6%
July 10%	Aug 10%	Sept 2%	Oct 3%	Nov 4%	Dec 9%

7.1.4 Bad Weather

Month(s) Mostly Not Capable of Fishing Due to Bad Weather Conditions;

Jan 13%	Feb 14%	Mar 7%	Apr 7%	May 6%	June 8%
July 11%	Aug 11%	Sept 3%	Oct 6%	Nov 3%	Dec 11%

7.2 Village Fisheries Facilities

A. 4 Villages Reported Having Jetties In Good Condition. Lengths Were One of 5 m, Two of 50 m and One of 80 m.
B. No Villages Had Fuel Stations For Servicing Vessels.
C. 1 Village Reported A 72 sq m Building In Good Condition for Fish Handling.
D. 1 Village Reported A 45 sq m Building In Good Condition for Net Loft/Storage.
E. No Villages Had Fuel Stations For Vessels, Cold Storages or Ice Plants.
F. 4 Villages Had Brackishwater Ponds. One of 4,000 sq m in Poor Condition, One of 10,000 sq m In Fair Condition, and Two In Good Condition (One of 5,000 sq m; One of 250 sq m).
G. 7 Villages Had Freshwater Ponds, 6 of Which Were in Good Condition and 1 in Fair Condition. Pond Sizes Were 10,000 sq m in Fair Condition; and 6,000; 775; 250; 224; 36; and 10 sq m in Good Condition.

7.3 Outboard Motor Related:

A. 5 Villages Sold Fuel at the Landing Area At An Average Price of Rp 4,900/Liter.
B. 2 Villages Sold Lubricant Oil At An Average Price of Rp 32,500/Liter.
C. 1 Village Sold Outboard Gasoline Mixed with Lubricant Oil at the Landing Area At A Price of Rp 6,500/Liter.

7.4 Of 31 Villages, Eight Had Outboard Motor Repair Facilities. 2 Villages Went To Nearby Sucos For Repairs. All Other Villages Had To Go To Dili for Outboard Motor Repairs.

7.5 Traditional Fishing Rules

A. 52% of Villages Had a Local Leader Selected in Charge of Fisheries.

B. Traditional Rules Used by the Community to Control Fishing Are:

1.There are No Traditional Rules	46%
2.Arbitration of Troubles	0%
3.Control of Fishing Seasons	13%
4.Control of Fishing Grounds	6%
5.Control of Fishing Hours	6%
6.Control of Fishing Gear	29%

7.5 Fish Prices

A. Average Fish Price at the Landing Site:	Rp 9,452/kg
B. Average Fish Price at the Market:	Rp 16,534/kg

The source data includes detailed information on types of fish caught and the markets where fish are sold.

8. Village Agricultural Storage

All Farmers Store At Least Some of Their Harvest In Their Homes.

Of Farmers Storing Outside the Home, Storage Location Is:

A. In a Separate Building Next to The Home 15%
B. Public Facilities 0%
C. Other 3%

9. Village Processing Facilities

Infrastructure	Total Sucos/ Units	Condition	Description
1. Rice Mills	35/ 69	Good 83% Fair 14% Poor 3%	AverageTotal Capacity 449 kg/day
2. Drying Facilities 2.1. Net Mat Dryers	71/ 12,617	Good 77% Fair 21% Poor 2%	Average Total Area 18 sq m
2.2. Public Concrete Pavement Dryer	9/ 520	Good 78% Fair 22%	Average Total Area 47 sq m
2.3. Private Concrete Pavement Dryers	41/ 6,471	Good 71% Fair 29%	Average Total Area 19 sq m
2.4.Mechanical Dryers	0	Does Not Apply	Does Not Apply
2.5. Flue Curing Barns	1	Poor Condition	Total Area 1,000 sq m
2.6.Drying Platforms	25/ 3,972	Good 84% Fair 12% Poor 4%	Average Total Area 7 sq m
3.Vegetable Process -ing Facilities	0	Does Not Apply	Does Not Apply
4. Fruit Processing Facilities	0	Does Not Apply	Does Not Apply
5. Fish Processing Facilities	0	Does Not Apply	Does Not Apply
6. Coffee Milling Facilities	13/ 138	Good 54% Fair 46%	Average Capacity 743 kg/day
7. Maize Milling Facilities	7/ 8	Good 100%	Average Capacity 263 kg/day

10. Presence of Organizations

Kind of Organization	Number of Sucos/ Groups	Average Number of Members Per Group	Activity : 1. Loan/Credit 2. Input Purchases 3. Group Production Activities 4. Products Marketing 5. Other
1. Farmers' Association	51/ 540	12	2, 3, 4, 5
2. Water Users' Association (Irrigation)	13/ 106	14	2, 3, 4, 5
3. Drinking Water Association	2/ 16	8	5
4. Livestock Organization	12/ 70	5	3, 4, 5
5. Forestry Organization	0	0	Does Not Apply
6. Fishermen's Group	24/ 164	8	1, 2, 3, 4, 5
7. Traders' Organization	9/ 40	7	1, 2, 3, 4, 5

3.0 *Household Survey Results*

These results are based on a survey size of 951 households selected at random across East Timor. The entire survey when finished is expected to cover approximately 1,800 households. Thus, at the time of report completion 53% of the sampling had been completed. Of the households selected 71% were actively engaged in agriculture, forestry or fisheries. It is believed that these results represent a statistically valid sample size. Final survey results are expected in late December 2001. It is recommended that approximately 2 months of the economist's time be included in Phase II to allow for compilation of these valuable results and to allow for training of DAA staff in their use.

Food Crops

1. The average plot area was: 1.05 ha
2. Plots can be characterized as:
   - a. Annual crops 75%
   - b. Tree crops 1%
   - c. Gardens 22%
   - d. Not Utilized 1%
   - e. Other 1%
3. Cropped portion of the plot:
   - a. None 2%
   - b. 1-25% 1%
   - c. 26-50% 5%
   - d. 50-75% 7%
   - e. Entire 85%
4. Why the entire plot was not cropped:
   - a. Crop rotation 21%
   - b. Lack of inputs 2%
   - c. Lack of manpower 53%
   - d. Lack of equipment 5%
   - e. Lack of animal power 3%
   - f. No water source 5%
   - g. No road 0%
   - h. Soil problems 3%
   - i. Other 8%
5. What is the tenure status of the plot:
   - a. Owner 94%
   - b. Part owner 1%
   - c. Rented from someone 1%
   - d. Rented to someone 0%
   - e. Public land 3%
   - f. Private land 0%
   - g. Other 1%
6. How was this plot acquired:
   - a. Inherited 80%
   - b. Opened 9%
   - c. Purchased 2%
   - d. Use right given by local leader 2%
   - e. Occupied 6%
   - f. Other 1%

7. What title exists for this plot:
   a. Deed 4%
   b. Sales receipt 2%
   c. Customary right 85%
   d. No Documents 8%
   e. Other 1%
8. Average number of years this plot has been held: 13.0 years
9. About 3% of plots have titles in dispute.
10. Average plot value (Rp/ha): Rp 18.2 million
11. Slope of the plot:
   a. Flat 37%
   b. Slight Slope 40%
   c. Moderate slope 18%
   d. Steep slope 5%
12. Irrigation type:
   a. Simple Farmer 13%
   b. Moderate (Stengah teknis) 5%
   c. Modern (Teknis) 0%
   d. No irrigation 82%
13. Irrigation source:
   a. Tubewell 0%
   b. Ditch/Canal 8%
   c. Pond/Tank 1%
   d. River 71%
   e. Spring 17%
   f. Mixed 3%
14. Irrigation management:
   a. Self-managed 56%
   b. Farmer groups 28%
   c. Government 2%
   d. Community managed 14%
15. Average distance from a road: 1.4 km
16. The main crops grown were:
   (1) coffee; (2) maize; (3) kidney beans; (4) potatoes; and (5) rice
17. Land cultivation was done by:
   a. Hand 90%
   b. Rented Animal 6%
   c. Tractor 2%
   d. Other 2%

18. Average Values Per Farmer

Crop	Area (ha)	Yield (kg/ha)
Gogo Rice	0.8	1,353
Rice	1.0	1,671
Maize	0.6	1,204
Casssava	0.5	2,058
Coffee (Cherries)	1.0	1,040
Coffee (Dry Beans)	1.0	626
Kidney Bean	0.3	848
Sweet Potato	0.4	1,941
Potato	0.2	1,373
Taro (Talas/Kontas)	0.5	1,361
Squash	0.5	1,337
Mung Bean	0.5	694
Soy Bean	0.5	594
Coconut	0.7	1,879
Peanut	0.4	672
Vegetables	0.4	2,133
Banana	0.4	2,758
Other Fruit	0.4	1,910

19. Crop Disposition

Crop	Percent				
	Sold	Bartered	Lost	Payment	Consume
Gogo Rice	5	0	10	0	85
Rice	14	2	8	5	71
Maize	9	2	6	1	82
Cassava	9	2	5	0	84
Coffee (Cherries)	74	2	3	2	19
Coffee (Dry Beans)	78	2	1	1	18
Kidney Bean	39	3	3	0	55
Sweet Potato	8	2	3	0	87
Potato	48	1	4	0	47
Taro (Talas/Kontas)	6	2	2	0	90
Squash	9	2	5	0	84
Mung Bean	41	0	2	0	57
Soy Bean	14	1	3	1	81
Coconut	20	0	0	2	78
Peanut	35	1	4	0	60
Vegetables	35	1	4	1	59
Banana	34	2	1	0	63
Other Fruit	46	1	3	0	50

20. Crop Losses

Crop	Major Field Losses	Field Loss Cause	Major Storage Losses	Storage Loss Cause
Gogo Rice	24%	Bird, Insect	3%	Rat
Rice	17%	Rat, Insect, Bird	5%	Rat
Maize	12%	Rat	3%	Rat, Insect
Cassava	5%	Other Animal	1%	Insect, Rat, Fungus
Coffee (Cherries)	2%	Other Animal	None	Not Apply
Coffee (Dry Beans)	1%	Other Animal	None	Not Apply
Kidney Bean	2%	Insect	1%	Insect
Sweet Potato	4%	Other Animal	None	Not Apply
Potato	None	Not Apply	None	Not Apply
Taro (Talas/Kontas)	4%	Other Animal	None	Not Apply
Squash	9%	Rat, Animal	1%	Rat, Fungus
Mung Bean	6%	Disease, Insect	None	Not Apply
Soy Bean	None	Not Apply	4%	Insect
Coconut	None	Not Apply	None	Not Apply
Peanut	3%	Rat	None	Not Apply
Vegetables	1%	Insect	None	Not Apply
Banana	None	Not Apply	None	Not Apply
Other Fruit	3%	Bird	None	Not Apply

21. Purchased Inputs

Input	Percent Using
Fertilizer	5%
Pesticide	5%
Herbicide	1%
Rice Seed	23%
Maize Seed	90%
Bean Seed	45%

21. Reason for not using fertilizer:

a. Do not like to use 6%
b. Do not require 13%
c. Do not know how to use 10%
d. Not available 70%
e. Too expensive 0%
f. Too far to carry 1%
g. Other 0%

Forestry

1. Percent of households using wood for cooking: 94%
2. Source of wood for cooking
   a. Gather from forest 79%
   b. Buy from a store 9%
   c. Buy from wood salesman 12%
3. Percent of households planting trees to supply wood for cooking: Less than 1%
4. Percent of households hunting for:
   a. Pig 5%
   b. Deer 5%
   c. Other large animals 2%
   d. Small animals 3%
   e. Fish 3%
   f. Birds 2%
5. Percent of households gathering plants for medicinal purposes: 3%
6. Production

Items	Annual Production Per Household	Annual Rp Received Per Household
Timber wood	153 cu m	Rp 467,000
Fuel wood	225 Bunch (.04 cu m)	Rp 283,000
Sandal wood	kg	No Respondents
Honey	liters	Rp 50,000
Rattan	piece	No Respondents
Bamboo	180 pieces (1.85 m)	Rp 375,000
Candle Nut (Kemiri)	104 kg	Rp 216,000

Farm Implements

1. Average number of farm implements per household

Items	Number
Hoe	1.2
Axe	0.8
Shovel	1.1
Picks	1.7
Large knife	1.5
Sickle/Reaping Hook	0.6
Hand thresher	0
Rice miller	0
Crop drying area	0.3
Tarp/Canvas	0.9
Basket	2.7
Small cart pushed by person	0.2

2. Agricultural Equipment

Only 4% of households report owning or renting any mechanized farm equipment.

Results From Those Using Mechanized Equipment

Equipment	Percent Owning	Percent Renting	Days Rented Per Year	Rent Cost (Rp/day)
Tractor	21%	79%	5	Rp 322,000
Machine pulled plow	No Data	No Data	No Data	No Data
Animal pulled plow	28%	72%	6	Rp 293,000
Mech. water pump	No Data	No Data	No Data	No Data
Motorized thresher	25%	75%	1	Rp 81,000
Rice winnower	No Data	No Data	No Data	No Data
Rice/Corn mill (Owning)	No Data	No Data	No Data	No Data
Motorized insecticide pump	0%	100%	2	Rp 100,000
Hand insecticide pump	50%	50%	2	Rp 100,000
Manual coffee grinder	No Data	No Data	No Data	No Data
Motor coffee grinder	No Data	No Data	No Data	No Data
Ox cart	0%	100%	3	Rp 150,000

Livestock

1. Livestock

80% of households report owning some type of livestock.

Average Values Reported by Households

Animals	Value of Young Animal (Rp/each)	Value of Adult Animal (Rp/each)
Buffalo	Rp 1,018,000	Rp 2,652,000
Bali cow	Rp 750,000	Rp 3,125,000
Cow	Rp 838,000	Rp 1,999,000
Horse	Rp 780,000	Rp 1,452,000
Pig	Rp 238,000	Rp 966,000
Goat	Rp 209,000	Rp 633,000
Sheep	Rp 278,000	Rp 543,000
Chicken	Does Not Apply	Rp 73,000
Duck	Does Not Apply	Rp 72,000

2. Livestock Average Per Household For Those Who Own Livestock

Animals	Total Number	No. Sold Last Year	No. Died Last Year a)	No. Stolen Last Year	No. Eaten Last Year	No. Bought Last Year
Buffalo	3.3	0.5	2.4	0.7	0.2	0.2
Bali cow	1.0	0.5	1.0	0	2.5	0.5
Cow	2.5	0.6	0.6	0.2	0.1	0.5
Horse	1.4	0.1	0.4	0.2	0.1	0.4
Pig	2.3	0.5	1.2	0.3	0.4	0.6
Goat	2.8	0.4	4.1	0.8	0.5	0.9
Sheep	3.3	0	1.0	0	0	0
Chikn b)	8.8	NA	NA	NA	NA	NA

a) No. Died appears high for Buffalo, Bali cow, Pig and Goat. Perhaps respondents provided high estimates with the expectation that their purported losses would be replaced thorough donor contributions.

b) Losses Adult animals only

3. Livestock Vaccinations

Animals	Percent Vaccinated
Buffalo	3%
Bali cow	0%
Cow	5%
Horse	4%
Pig	10%
Goat	10%
Sheep	25%

Fisheries

The number of fisheries respondents was quite limited, amounting to 10 out of 951 households. This result conforms to observations that the numbers of full time fishers in East Timor are few in number.

1. Vessel Type: 75% of fishers used basic non-powered canoes. 25% had larger wooden boats.
2. Vessel Size: Most canoes were about 5 m in length and 1 m wide. Average hull age was 5 years.
3. Power: All reported vessels used only paddle or sail power.
4. Crew Size: All respondents reported a total working complement of 2 persons.
5. Ownership: All those questioned owed their own boats. Average ownership period for the boat was 3 years.
6. Boat Value: Average reported value of the craft was Rp 800,000.
7. Gear Type: 60% of fishers used throw nets and the remainder gill nets.
8. Traditional Rules: 40% of fishers reported that there are times and places where they cannot fish because traditional rules prohibit it.
9. Fishing Grounds: On average, it is about a 1-hour one-way journey to the fishing grounds.
10. Fishing Period: The average fisher spent 195 days last year fishing.
11. Sales: About 80% of all fish catch is sold. Over the last year, the average fishing vessel-generated revenue of about Rp 3.0 million of which the fishers was able to keep Rp 2.8 million.
12. Consumption: Fish not sold are consumed by the fishers' families.
13. Catch Size: Based on fisher's data, the Consultant estimates that 3% of fish are 2 kg or larger, 36% are between 2 to 0.5 kg and 61% less than 0.5 kg.
14. Fish Prices: Fish prices range from a high of Rp 50,000/kg to a low of Rp 15,000/kg.
15. Point of Sales: 50% of fish are sold to friends and 50% to wholesalers with sales made either at the landing point or within walking distance of it.
16. Aquaculture: About 80% of aquaculturists raised freshwater fish. The species reared were mujair and ikan mas. One household reported raising shrimp.

Appendix 1

Survey Design and Implementation

Timor Lorosa'e Living Standards Survey Sampling Design and Implementation

Juan Muñoz[1]

(Abridged and Edited by C. Greenwald for Inclusion in JICA Report)

Dili, Timor Lorosa'e, May 2001

Background

Prior to arrival of the Sanyu Consultant Team (Team) of the Study on Integrated Agricultural Development of East Timor (Study), a consortium of the World Bank, Asian Development Bank and the United Nations Development Programme were already undertaking a comprehensive Joint Poverty Assessment (JPA). The JPA comprises the design, conduct and preliminary analysis of a:

- Village Survey;
- Household Survey; and
- Participatory Poverty Assessment.

To avoid duplication of effort, minimize disturbance to respondents and maximize cost and time efficiency, East Timor Transition Authority (ETTA) officials recommended that, where possible, the Study should coordinate its work with the JPA. The Team has been able to comply with this request and join with the other donors for both its village (i.e., suco) and household surveys.

Unfortunately, at the time of the Team's arrival, the JPA's Village Survey had already been completed. Thus, it was not possible to incorporate the Team's questions into the JPA Village Survey. Therefore, from 21 May to 30 June 2001, the Team conducted its own suco level agriculture survey (JICA Agriculture Survey) in rural Timor Lorosa'e. This survey was undertaken through a contract with the NGO ETAdep and executed jointly with the listing exercise of the JPA's Household Survey. Cooperation with JPA allowed the Team to use previously trained individuals and save on personnel, vehicle and data processing costs. The Team's household level questions have been incorporated into the upcoming Household Survey.

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Sample size and analytic domains

The total sample size is 1,800 households located in 107 sucos. The experience of Living Standards Surveys in many countries -- many of them larger than Timor Lorosa'e -- over the past several years has shown that samples of that size are sufficient for the requirements of poverty (and agriculture) assessment and for many other policy-making endeavors. The household survey will permit establishing a poverty line, and will relate the conditions of poverty to other relevant dimensions of living standards, both for the country as a whole and for the most meaningful groups of the population.

The survey is not intended to provide detailed indicators for narrow geographic areas, such as postos or even districts.[2] That would require a much larger sample, which has to be ruled out by both budgetary and technical considerations. Review of the data by sample area can still, however, provide very useful information for research, project design and some types of regional profiling.

The project's financial plan has been established on the basis of 1,800 households located in 107 sucos, but even if larger funding were available, visiting a larger sample of households with the intention of increasing the geographic resolution of the survey would not be feasible. A larger sample requires either a longer data collection period or the mobilization of a larger staff of interviewers. But the first option is prohibited by the deadlines faced by both the JPA and JICA Agriculture Survey, and the second would stretch the managerial requirements from the survey core staff beyond its present capabilities, introducing biases that would offset any of the expected gains in precision.

However, within the boundaries imposed by the total sample size, the survey should provide independent estimates for certain policy-relevant subgroups of the population as well as for the whole country. The fundamental analytic domains identified in this regard are the ***Major Urban Centers*** (Dili and Baucau), the ***Other Centers*** and the ***Rural Areas***. The survey is also expected to represent certain important sub-divisions of the Rural Areas, namely two major agro-ecologic zones (***Lowlands*** and ***Highlands***) and three broad geographic regions (***West***, ***Center*** and ***East***).

A first necessary step was the operational definition of the concepts highlighted in the preceding paragraph. This was done as follows:

- ***Urban*** and ***Rural*** areas. The 71 sucos shown in Table 1 constitute the Urban Area. Of these, the 31 sucos in Dili and the 6 sucos in Baucau are the Major Urban Centers and the remaining 34 sucos are the Other Centers. The rest of the country (427 sucos in total) is Rural. It is of note that even in Other Centers the primary economic activity is agriculture.

[2] Timor Lorosa'e is divided into 13 major units called *distritos* (districtcts). These are further subdivided into 67 *postos* (sub-districts), 498 *sucos* (villages) and 2,336 *aldeias* (sub-villages). The administrative structure is uniform throughout the country, including rural and urban areas. Each unit is uniquely identified by means of a numeric, hierarchical geocode with 2 digits for the district, 2 digits for the posto within the district, 2 digits for the suco within the posto and 2 digits for the aldeia within the suco.

Table 1: Geocodes and names of the 71 urban sucos, by district and posto

Aileu District	
Posto Aileu	
010101	Asirimou
010110	Seloi
010111	Sarin
Ainaro District	
Posto Ainaro	
020101	Ainaro
020102	Manutasi
020103	Soro
Baucau District[a]	
Posto Baucau	
030201	Tiri Lolo
030202	Bahu
030203	Caibada Uaimua
030206	Caibada Macasae
030207	Bucoli
030209	Triloka
Bobonaro District	
Posto Maliana	
040601	Lahomea
040602	Raifun
040603	Ritabou
040604	Odomau
040605	*Holsa*
Cova Lima District	
Posto Suai Kota	
050501	Camanasa
050503	Suai Loro
050504	Labarai
050506	Sanfuk
050508	Debos
050509	Vila
Dili District[a]	
Posto Cristo Rei	
060201	Culuhum
060202	Centro Benemauk
060204	Becora
060208	Camea
060209	Meti Aut
060210	Bidau Santana
Posto Dom Aleixo	
060302	Beira Mar
060303	Nazare
060304	Suleur
060305	28 Novembro
060306	Malinamoc
060307	12 Novembro
060308	7 Decembro
060309	20 Maio
060310	Rai Naca Doco
Posto Nein Feto	
060501	Monumento
060502	Asucai Lorosae
060503	Solo
060504	Santa Cruz
060505	Meira
060507	Talera Hun
060508	Bemori
060509	Lahane Oriental
Posto Vera Cruz	
060601	Alto Hospital
060602	Hanso Hatora
060603	Bairo Alto
060604	Mascarinhas
060605	Rumbia
060606	Naroman
060607	Haksolok
060608	Isolado
Ermera District	
Posto Ermera Kota	
070205	Riheu
070206	Talimoro
Liquica District	
Posto Bazartete	
080105	Maumeta
Posto Liquica	
080201	Dato
Lautem District	
Posto Lospalos	
090301	Fuiliro
090304	Home
Manufahi District	
Posto Same	
100301	Letefoho
100302	Babulu
100305	Holarua
Manatuto District	
Posto Manatuto	
110501	Aiteas
110502	Ailili
110503	Sau
110504	*Maabat*
Oecussi District	
Posto Pante Makasar A	
120301	Costa
120307	Tibal Pah
Viqueque District	
Posto Viqueque	
130503	Carau Balu
130508	Uma Kiik

[a] The 31 sucos in Dili and 6 sucos in Baucau constitute the ***Major Urban Centers***. The rest of the sucos on this list constitute the ***Other Centers*** stratum.

- ***Highlands*** and ***Lowlands***. With the help of the Geographic Information System that is being developed at the Department of Agriculture, it was possible to link the suco boundaries with altitude level curves. The sucos were subsequently qualified as belonging to the Highlands or the Lowlands depending on the share of their surface above and below the 500 m level curve.

- ***West***, ***Center*** and ***East***. The three westernmost districts (Oecussi, Bobonaro and Cova Lima) constitute the Western Region and the three easternmost districts (Baucau, Lautem and Viqueque) the Eastern Region. The remaining seven districts

(Aileu, Ainaro, Dili, Ermera, Liquica, Manufahi and Manatuto) belong to the Central Region.

Table 2 gives the number of households in the major analytic domains, according to the preliminary population data collected by the Suco Survey.

Table 2: Number of households by analytic domain

Location	Agro-ecologic zone		Geographic region			Total
	Highlands	Lowlands	West	Center	East	
Major Urban Centers	2,236	2,1945		20,530	3.651	**24,181**
Other Centers	3,210	14,063	5,698	7,787	3,788	**17,273**
Rural Areas	57,123	81,706	32,749	61,024	45,056	**138,829**
Total	**62,569**	**117,714**	**38,447**	**89,341**	**52,495**	**180,283**

Sampling strata and sample allocation

Table 2 clearly shows the need to stratify the sample. A non-stratified 1,800-household sample would have a uniform sampling fraction of approximately 1/100 and it would only contain approximately 240 Major Urban households and 170 Other Center households – too few to sustain significant analyses. The sample needs to be stratified, to ensure that a sufficient number of households be visited by the survey in these important analytic domains.

The sample will be allocated to four explicit strata as follows: 450 households in the Major Urban Centers (378 in Dili and 72 in Baucau), 252 households in the Other Centers and 1,098 households in the Rural Areas. These numbers are all multiples of 18 for reasons that will be explained in the next section.

Increasing the representation of the Urban Centers entails of course decreasing that of the Rural Areas, but the number of rural households visited will still be sufficient to support analyses for the countryside as a whole, as well as for its internal analytic subdivisions (agro-ecologic zones and geographic regions). Indeed Table 2 shows that none of these subdivisions is small enough to justify the definition of additional explicit strata to guarantee its representation in the sample. An implicit stratification of the rural strata, to ensure that they are represented proportionally to their share of the population, will be sufficient.

All 107 sucos are included in the Household Survey. However, after discussion with ETTA and other donors, 21 sucos were removed from the JICA Agriculture Survey because they were too urban in character to be useful for an agricultural survey. Twelve rural sucos were then added based on a selection made by the ETTA's Census and Statisitics Unit (CSU). CSU attempted to include a representative cross section of the country's major agriculture areas. These 98 sucos were then mapped. The random selection process did not include major agriculture and fisheries zones in Viqueque and Cova Lima districts. Therefore, to enhance the JICA Agriculture Survey's use, 8 rural sucos covering these districts were added. As a result, the total JICA Agriculture

Survey's sample size is 106 sucos. The sample size is felt to provide a sound basis for basic profiles for the country as a whole. It can also provide selected information on a suco and/or district basis.

Sampling strategy

The JICA Agriculture Survey was conducted by trained supervisors in each of 106 selected sucos. The basic source of information was the suco chief. However, where it was felt that the suco chief's knowledge was lacking, interviews were conducted with former suco chiefs, irrigation managers and other informed village residents. Information was entered into the computers in the field and checked for accuracy on the site. Where questionable information was detected by the computer programs, respondents were re-interviewed. Naturally, the accuracy of data is limited by the extent of respondents' knowledge. Due to time and budget constraints, only limited spot checks could be made to field proof data. However, it is the intent to further investigate questionable data.

For the Household Survey eight field teams, each composed of three interviewers and one supervisor will conduct the household survey. Each interviewer will be asked to interview 6 households per week, using a questionnaire that will generally require visiting each household several times.

These operational constraints suggest selecting the sample of households that the survey will visit in each stratum according to the following 3-stage procedure: In the first stage, select a certain number of sucos. In the second stage, select 3 aldeias in each suco. In the third stage, select 6 households in each aldeia. Then ask the field teams to visit one suco per week, with one interviewer working with the 6 households in each aldeia.

The strategy provides a sample that is relatively well spread, while still reducing the travel time of the interviewers between households. It also keeps the three interviewers of each team close to each other and within reach of the supervisor at all times.

Furthermore, if in the first two sampling stages the sucos and aldeias are selected with *probability proportional to size* (PPS), and if in the last stage the 6 households in each aldeia are chosen with *equal probability* (EP), the sample will be approximately *self-weighted* within the stratum. In other words, all households in the stratum will have the same chance of being visited by the survey.

The 3-stage procedure could be applied in all strata. However, in Urban Dili a simpler and more efficient 2-stage process can be proposed: In the first stage, select 63 aldeias with PPS and in the second stage 6 households with EP in each aldeia (for a total sample of 378 households). This solution will reduce sampling errors since the sample will be spread more than with the standard 3-stage process, but it can only be applied to Urban Dili. In the rest of the country the 3-stage procedure is required in order to keep the teams together at the time of the household survey whereas in Urban Dili it will possible to sort the 63 selected aldeias into 21 groups of 3 aldeias that are more or less close to each other, to organize the field operation in the same way as in the rest of the country. One team will visit each of the so created "trios" in a week, with the three interviewers working near enough to be within the reach of the supervisor. However, the

three aldeias in each trio will not necessarily be in the same suco, as in the rest of the country.

In the three strata outside Dili, the number of sucos to select in the first stage is equal to the total sample size divided by 18 (3 aldeias/suco x 6 households/aldeia). The result is 4 sucos in Urban Baucau, 14 in Other Centers and 61 in the Rural Areas (The JICA Agriculture Survey adds 20 additional Rural Areas).

The household survey data collection period is expected to last thirteen weeks. However, it is possible that the Poverty Assessment and Project might decide to prolong that period for another four weeks, with the intention of expanding the sample size at a marginal cost. The best way to define the additional sample of another 576 households (8 teams x 4 weeks x 18 households) that would be required in this event is to select a larger sample of sucos or aldeias beforehand, and to extract from it the sample that will be visited for sure during the first 13 weeks. In practice this introduces an additional sampling stage that in what follows will be referred to as the zero-th stage. Table 3 summarizes the situation.

Table 3: Nominal number of sucos, aldeias and households in the sample

Stratum	17-week sample			13-week sample			Total No. of hhs[b]	Nominal sampling fraction[c]
	Sucos	Aldeias	House-holds	Sucos	Aldeias	House-holds		
Urban Dili	28[a]	84	504	21[a]	63	378	20,530	1/54.3
Urban Baucau	5	15	90	4	12	72	3,651	1/50.7
Other Centers	18	54	324	14	42	252	17,273	1/68.5
Rural Areas	81	243	1,458	61	183	1,098	138,829	1/126.4
Total	132	396	2,376	100	300	1.800	180,283	—

[a] The Urban Dili figures refer to "trios" of aldeias
[b] Preliminary figures from the Suco Survey
[c] Fraction of households to be visited in the 13-week sample

Sample frame development and implementation of the first sampling stages

The first sampling stages have already been completely implemented. The list of all aldeias to be visited by the household survey is now available as a result.

The process started by developing a sample frame from the Suco Survey. The sample frame physically consists of two spreadsheets: a Suco-level file and an Aldeia-level file. For each of the 498 sucos and 2,336 aldeias in the country, the sample frame contains a unique identifier (geocode and name), a measure of size (number of households), and a classification in terms of stratum (Urban Dili, Urban Baucau, Other Urban Center or Rural Area), agro-ecologic zone (Highlands or Lowlands) and geographic region (West, Center or East).

The sample of aldeias was selected independently in each stratum as follows:

- In ***Urban Dili***, the list of aldeias was sorted by geocode, to give it an implicit stratification by posto and suco within Dili (e.g., to ensure a sample that is approximately proportional to the urban population of each posto and suco). 84 aldeias were then selected with PPS from the list to obtain the sample to be visited if the period of data collection can be extended to 17 weeks. Finally, 63 of these aldeias were selected with EP, to obtain the sample to be visited for sure during the first 13 weeks.

- In ***Urban Baucau***, the list of sucos was sorted by geocode and then 5 sucos were selected with PPS from the list to get the 17-week sample. 4 of them were selected with EP to get the 13-week sample. Finally, 3 aldeias were chosen with PPS in each of the selected sucos.

- In the ***Other Centers*** the list of sucos was sorted by geocode, to give it an implicit stratification by district. Then 18 sucos were selected with PPS to get the 17-week sample and 14 of those were selected with EP to obtain the 13-week sample. Finally, 3 aldeias were chosen with PPS in each of the selected sucos.

- In the ***Rural Areas*** the list of sucos was sorted by agro-ecologic zone (Highlands and Lowlands) and by geographic region (West, Center and East) within each zone. Then 81 sucos were selected with PPS to get the 17-week sample and 61 of those were selected with EP to obtain the 13-week sample. Finally, 3 aldeias were chosen with PPS in each of the selected sucos (Note: For the JICA Agriculture Survey, 20 rural sucos were added).

In a few occasions, the selection of sucos with PPS resulted in some of the larger sucos being selected twice in the sample; in these cases, 6 rather than 3 aldeias were selected in the next stage. Analogously, the selection of aldeias with PPS occasionally resulted in some of them being selected more than once; in these aldeias 12 or 18 households will need to be selected in the final stage rather than 6.

Household listing operation

The final sampling stage requires choosing a certain number of households at random with equal probability in each of the aldeias selected by the previous sampling stages. This requires establishing the complete inventory of all households in these aldeias – a field task known as the *household listing operation*.

Besides its primary objective of developing the sample frame for the last sampling stage, the household listing operation acquired importance also as a benchmark for assessing the quality of the population data collected by the Suco Survey conducted in February-March 2001. At that time, the number of households *currently living* in each aldeia was asked from the suco and aldeia chiefs, but there are reasons to suspect that these figures are subject to biases of various kinds. Specifically, certain suco and aldeia chiefs may have answered about households *belonging* (rather than *currently living*) in the aldeias, whereas others may have faced perverse incentives to report figures different from the actual ones. These biases are believed to be more serious in Dili than in the rest of the country.

Two operational approaches were considered for the household listing. One is the classical door-to-door (DTD) method that is generally used in most countries for this kind of operations. The second approach – which is specific of Timor Lorosa'e – depends on the lists of families that are kept by most suco and aldeia chiefs in their offices. The prior-list-dependent (PLD) method is much faster, since it can be completed by a single enumerator in each aldeia, working most of the time in the premises of the suco or aldeia chief; however, it can be prone to some of the same biases that make the Suco Survey population figures unreliable. The DTD method is more trustworthy but also slower. It was estimated that with the available resources the household listing operation would take a little more than three weeks with the PLD and at least eight weeks with the DTD.

Extensive experiments were conducted to obtain empirical evidence on the weaknesses and strengths of the two alternatives in the Timorese context. The final decision was to use the DTD method in Dili and an improved version of the PLD method elsewhere. The improvements introduced to the PLD consisted in clarifying the concept of a household "currently living in the aldeia", both by intensive training and supervision of the enumerators and by making its meaning explicit in the forms wording (it means that the household members are regularly eating and sleeping in the aldeia at the time of the operation). In addition, the enumerators are asked to select a random sample of 10 households from the list, and visit them physically to verify their presence and ask them a few questions.

The listing forms that were developed and tested are being used in the field at the time this is being written. They are reproduced in Annex I.

Selection probabilities and raising factors

In ***Urban Baucau***, the ***Other Centers*** and the ***Rural Areas***, the probability of selecting suco ij in stratum i is

$$p_{ij} = \frac{m_i n_{ij}}{n_i} \tag{1.1}$$

where n_{ij} is the number of households in the suco (as reported by the Suco Survey), n_i is the total number of households in the stratum (also as per the Suco Survey) and m_i is the number of sucos selected in the stratum. Both n_i and m_i are given by Table 3; for instance, for the 13-week sample in the Rural Areas, n_i = 138,829 and m_i = 61.

The probability of selecting aldeia ijk in suco ij of stratum i is

$$p_{ijk} = p_{ij} \frac{3 \cdot n_{ijk}}{n_{ij}} = \frac{3 \cdot m_i n_{ijk}}{n_i} \tag{1.2}$$

where n_{ijk} is the number of households in the aldeia, as per the Suco Survey.

The probability of selecting household $ijkl$ in aldeia ijk in suco ij of stratum i is

$$p_{ijkl} = p_{ijk}\frac{6}{n'_{ijk}} = \frac{18 \cdot m_i n_{ijk}}{n_i n'_{ijk}} \tag{1.3}$$

where n'_{ijk} is the number of households in the aldeia, as per the household listing operation currently underway.

The raising factor w_{ijkl} for household $ijkl$ is the inverse of the selection probability p_{ijkl}. If the number n'_{ijk} of households found at the time of the listing operation were equal to the number n_{ijk} recorded by the Suco Survey in all aldeias, the sample would be self-weighted in each stratum, with a constant raising factor equal to $n_i/18 \cdot m_i$ (e.g. 50.7 in Urban Baucau, 58.5 in the Other Centers and 126.4 in the Rural Areas, for the 13-week sample) for all household in the stratum. In practice the numbers n_{ijk} and n'_{ijk} will seldom be equal but often close to each other, meaning that the samples will not be exactly self-weighted, but quite approximately so.

In ***Urban Dili***, the probability of selecting aldeia k is

$$p_k = \frac{m \cdot n_k}{20{,}530} \tag{2.1}$$

where n_k is the number of households in the aldeia, as per the Suco Survey, and m is the number of aldeias selected in Urban Dili (81 aldeias for the 17-week sample and 63 aldeias for the 13-week sample).

The probability of selecting household kl in aldeia k of Urban Dili is

$$p_{kl} = p_k\frac{6}{n'_k} = \frac{6 \cdot m \cdot n_k}{20{,}530 \cdot n'_k} \tag{2.2}$$

where n'_k is the number of households in the aldeia, as per the listing operation.

The raising factor w_{kl} for household kl is the inverse of the selection probability p_{kl}. As in the case of the other strata, the sample would be self-weighted if n'_k were equal to n_k for all aldeias. The raising factor for the 13-week sample would then be 54.3 for all households in Urban Dili. However, the n'_k and the n_k are expected to differ significantly in Dili, making the use of formula (2.2) essential at the analytical stage. In fact, the household listing operation will furnish as a by-product revised figures for the total population and the number of households in Urban Dili: the revised number of households will be $\Sigma_k w_k n'_k$ and the revised population will be $\Sigma_k w_k P'_k$, P'_k being the population of aldeia k.

Strictly speaking, formula (1.1) is valid only when the size of the suco is such that it can be selected at most once by the PPS procedure. However, the artifact of selecting two aldeias in the next stage whenever a suco is selected twice has the effect of making it applicable even for the large sucos where that may not be the case. Analogously,

formulae (1.2) and (2.1) are valid only when the size of the aldeia is such that it can be selected at most once, but selecting 12 or 18 households rather than only 6 in these aldeias corrects the problem. Formula (1.3) may be inadequate if the actual size n'_{ijk} of aldeia k happens to be less than 6. In that (quite unlikely) case, all households in the aldeia will need to be visited, and p_{ijkl} simplifies to p_{ijk}. The same can be said of formula (2.2) if n'_k happens to be less than 6; in that case p_{kl} simplifies to p_k.

Annex I
Household Listing Operation Forms

The forms that were developed for the household listing operation are reproduced in this annex.

The first two pages are the door-to-door (DTD) form. Its format is inspired on the form that was used by the SUSENAS survey before independence. It will be used for all aldeias selected in Dili and, exceptionally, in some aldeias outside Dili as well – for instance, when the aldeia chief lists are not available or are judged to be unreliable.

The last four pages are the prior-list-dependent (PLD) form used in most areas outside Dili.

Cover page of the door-to-door (DTD) listing form.

Timor Lorosa'e Census and Statistics Agency
Door-to-door household listing

Section A: Identification of the Aldeia

Name (1)	Code (2)	Comments (3)
Distrito:		
Posto:		
Suco:		
Aldeia:		

Section B: Particulars of the operation

Name and signature (1)	Code (2)	Day Month Year (3)
Conducted by Interviewer		
Supervised by Supervisor		
Aldeia chief		

Section C: Summary

	Number of households (1)	Population (2)
Households living in the aldeia now		

Contents page of the door-to-door (DTD) listing form. Several copies of this page are included for each aldeia.

Pendaftaran bangunan dan rumahtangga Halaman ___ dari ___ halaman

No. urut bangunan fisik	Alamath	Janis bangunan fisik (kode)	tempat tinggal berpenghuni (✔)	No. urut rumahtangga	Nama kepala rumahtangga	Banyaknya anggota rumahtangga
(1)	(2)	(3)	(4)	(5)	(6)	(7)

Tundal tidak beringkat 1
Tungal bertingkat 2
Gandeng dua tidak bertingkat 3
Gandeng dua bertingkat 4
Gandeng banyak tidak bertingkat 5
Gandeng banyak bertingkat 6

A. Jumlah halaman ini	
Jumlah kumulatif hal sebelumnya	
mlah kumulatif halaman ini (A+B)	

Cover page of the prior-list-dependent (PLD) form.

Timor Lorosa'e Census and Statistics Agency
Office Household Listing

Section A: Identification of the Aldeia

Name (1)	Code (2)	Comments (3)
Distrito:		
Posto:		
Suco:		
Aldeia:		

Section B: Particulars of the operation

Name and signature (1)		Code (2)	Day	Month	Year (3)
Conducted by	Interviewer				
Supervised by	Supervisor				
	Aldeia chief				

Section C: Summary

		Number of households (1)	Population (in the aldeia list) (2)	Population (living in the aldeia now) (3)
Households in the aldeia list that are living in the aldeia now	(from Section D, Columns 5 - 7)			
Households not in the aldeia list that are living in the aldeia now	(from Section E)			
	Total ▶			
Households in the aldeia list that are not living in the aldeia now	(from Section D, Columns 8 - 12)			

Section D of the prior-list-dependent (PLD) form. It is used to transfer all the households listed on the aldeia chief list and to record the current presence of each of them in the aldeia. Each form contains several copies of this page.

Section D: Transcription of households in the aldeia list

Number of the household in the chief's list	Name of the household head	Did this household live here before 1999?	Is this household living in the aldeia now **(sleeping and eating regularly)**	If the household is living in the aldeia now			If the household is not living in the aldeia now				
				Household Serial Number	Number of household members		When did this household arrive in the aldeia?		Why did they leave?	Where did they go?	Number of household members
					In the aldeia list	Living in the aldeia now **(sleeping and eating regularly)**	Month	Years			
		(✓)	(✓)								
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)

(6)	(7)		(12)
		◄A. Page Totals►	
		◄B. From Previous Page►	
		◄C. New Totals (A+B)►	

Page ___ of ___ pages

Section E of the prior-list-dependent (PLD) form. It is used to record all households that are currently living in the aldeia but have not yet been recorded in the aldeia chief's list. Each form contains several copies of this page, printed in yellow paper to distinguish them from section D.

Section E: Other households living in the aldeia now

Distrito	Posto	Suco	Aldeia

Name of the Household Head	Household Serial Number	When did this family come to the aldeia?		Why did they come?	Where did they come from?	No.of Household members
		Month	Year			
(1)	(2)	(3)	(4)	(5)	(6)	(7)

A. Page Totals▶	
B. From Previous Page▶	
C. New Totals (A+B)▶	

Page ___ of ___ Pages

Section F of the prior-list-dependent (PLD) form. It is used to select a random sample of 10 households in each aldeia, in order to physically verify their presence by the expedient of asking them a few questions. Box (2) is actually a sticker with a random permutation of Household Serial numbers that is different for all aldeias.

Section F: Random sample of 10 households in the aldeia

(1)

Number of households in the aldeia:

Use the numbers on sticker (2) to select ten households at random from the aldeia. Read each row from left to right, starting with the upper row, to get the Serial Numbers of the selected households. Ignore any numbers that are larger than the total number of households in the aldeia (1). Transfer the selected Serial Numbers to Column (3) below

(2)

084	002	092	034	079	078	086	011	007	027
059	040	163	019	151	053	198	001	009	069
119	161	048	098	135	148	023	110	153	089
013	170	082	025	144	192	162	006	029	038
149	160	030	143	132	123	112	003	106	062
032	133	066	136	109	193	177	191	142	182
067	037	026	156	055	166	137	096	052	087
108	105	012	114	068	044	080	188	155	045

Household Serial Number	Name of the Household Head	How many members are now living in this household?	Do you own land?	How much land do you own?	Do you regularly listen to the radio in this house?	Has somebody from this family left the Aldeia after 1999?	Where did s/he go?
			Yes 1 No 2▶8	(ha)	Yes 1 No 2	Yes 1 No 2▶Next	
(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)

Appendix 2

Village Survey Questionnaire

Study on Integrated Agricultural Development for East Timor
Village Database Questionnaire

Name of Respondent _____

District _____(code)_____ **Name of Interviewer** _____

Sub-District _____(code)_____ **Date of Survey** _____

Suco _____(code)_____ **Date of Data Entry** _____

GPS Machine Number:_____GPS Way Point Number:_____

Name of Suco Head: _____

Signature of Suco Head: _____

1. General Information

1.1 Number of Households in the Suco: _____

1.2 Type of Main Suco Road: 1. There is No Road ( ) 2. Asphalt ( ) 3. Gravel ( ) 4.Earth ( )

1.3 Condition of Main Suco Road: 1. There is No Road ( ) 2. Poor ( ) 3. Moderately Broken ( )
4. Seasonally Poor ( ) 5. Fair ( ) 6.Good ( )

1.4 If There is a Suco Road, What is the Length of Main Suco Road Requiring Repair:
_____kms

1.5 Percent of Households that Now Have Electricity? _____%

1.6 Percent of Households that Now Have Piped-in Drinking Water? _____%

1.7 Main Type of Water Sources:
1. River ( ) 2. Spring ( ) 3. Pond/Lake ( ) 4. Well ( ) 5. Pump ( )
6. Other (Specify)_____

1.8 What Financing Sources for People Are in the Suco?

1. None ( ) 2. Commercial Bank ( ) 3. Cooperative ( )

4. Middleman/Trader ( ) 5. Other (Specify)_____

1.9 At Present, How Many Times Per Year Do Agriculture Extension Workers Visit This Suco?

Enter the Total Number of Times Per Year _____

1.10 Please Tell Me the Top Three (3) Infrastucture Requiring Improvement. (Write 1 for first priority, 2 for second priority, three for third priority):

a.Power ( )
b.Farm to Market Roads ( )
c.Other Roads ( )
d.Drinking Water ( )
e.Irrigation System ( )
f.Telephone System ( )
g.Schools ( )
h.Health Clinic/Hospital ( )
i. Marketing Facilities ( )
j.Other (Specify)_____( )
k.Other (Specify)_____( )
l.Other (Specify)_____( )

1.11 Product Markets: Distance to Market from Suco Center

1. General Market Name: _____ _____km
2. Fisheries Market Name: _____ _____km

1.12 Fuel Prices:

1. Diesel Price : Not Sold In the Suco ( )
Sold in the Suco ( ) How Much:
_____Rp/Liter
2. Gasoline Price : Not Sold In the Suco ( )
Sold in the Suco ( ) How Much:
_____Rp/Liter
3. Kerosene Price : Not Sold In the Suco ( )
Sold in the Suco ( ) How Much:
_____Rp/Liter
4. Lubricant Oil Price : Not Sold In the Suco ( )
Sold in the Suco ( ) How Much:
_____Rp/Liter

2. Land Use and Tenure

Land Use	Public Land (ha)	Community Land (ha)	Clan Ownership (ha)	Individual Ownership (ha)	Corporate Ownership (ha)	Other (Specify) (ha)
1. Irrigated Field						
1.1 Use 1 Season						
1.2 Use 2/3 Seasons						
2. Rain Fed Paddy						
3. Garden						
4. Plantation						
5. Dry Field						
6. Bush/Underbrush						
7. Grass/Unused						
8. Forest						
9. Swamp						
10. Housing/Urban						
11. Other:(Specify)						
12. Total Suco						

3. Irrigation System

Name of Irrigation Scheme & Place	Is this System shared with other Sucos	Max. Irrigated Area (ha)	Is the System Function -ing	Type of Irrigation 1.Technicl 2.Half Technical 3.Simple	Primary Canal Length (km)	No.of House holds Bene-fiting	Presence of a WUA	Maintained the Past 12 Months?
1. Name: _____ Place: _____	1.Yes ( ) 2.No ( )	.	1.Yes ( ) 2.No ( )		.		1.Yes ( ) 2.No ( )	Yes ( ) By Govt ( ) WUA ( ) Farmer ( ) Other ( ) (Specify) _____ No ( )
2. Name: _____ Place: _____	1.Yes ( ) 2.No ( )	.	1.Yes ( ) 2.No ( )		.		1.Yes ( ) 2.No ( )	Yes ( ) By Govt ( ) WUA ( ) Farmer ( ) Other ( ) (Specify) _____ No ( )
3. Name: _____ Place: _____	1.Yes ( ) 2.No ( )	.	1.Yes ( ) 2.No ( )		.		1.Yes ( ) 2.No ( )	Yes ( ) By Govt ( ) WUA ( ) Farmer ( ) Other ( ) (Specify) _____ No ( )
4. Name: _____ Place: _____	1.Yes ( ) 2.No ( )	.	1.Yes ( ) 2.No ( )		.		1.Yes ( ) 2.No ( )	Yes ( ) By Govt ( ) WUA ( ) Farmer ( ) Other ( ) (Specify) _____ No ( )
5. Name: _____ Place: _____	1.Yes ( ) 2.No ( )	.	1.Yes ( ) 2.No ( )				1.Yes ( ) 2.No ( )	Yes ( ) By Govt ( ) WUA ( ) Farmer ( ) Other ( ) (Specify) _____ No ( )

4. Agricultural Production

Agricultural Crop	1997			2000		
	Area Under Cultivation (ha)	Harvest Area (ha)	Production Amount (kg)	Area Under Cultivation (ha)	Harvest Area (ha)	Production Amount (kg)
1. Rice-Upland						
2. Rice-Rain Fed						
3.Rice-50% Irrigated						
4.Rice-Fully Irrigated						
5. Mung Bean						
6. Maize Only						
7. Corn With						
7.1. Squash						
7.2. Cassava						
7.3.Sweet Potato						
7.4. Tuber						
7.5.Other (Specify)						
8. Cassava Only						
9. Kidney Bean Only						
10.Potato Only						
11. Sweet Potato Only						
12. Tuber (Yam) Only						
13. Squash Only						
14. Peanuts Only						
15. Coffee						
16. Tobacco						
17. Coconuts						
18. Other:						
19. Other:						
20. Total						

5. Livestock

Livestock	Number of Animals In 1997	Number of Animals In Dec. 2000
1. Cattle		
2. Buffalo		
3. Horses		
4. Goats		
5. Sheep		
6. Pigs		
7. Chicken-Native		
8. Chicken-Commercial		
9. Ducks		

6. Forestry

6.1 Are There Adequate Sources of Wood for Cooking Available Within the Suco?
1.Yes( ) 2.No ( )

6.2 If No, Where Do People in the Suco Usually Get the Wood for Cooking?
1. They Don't Use Firewood For Cooking ( )
2. Get from Forest Areas in an Adjacent Suco ( )
3. Buy from a Store that Sells Wood ( )
4. Buy from a Trader that Sell Wood ( )

6.3 Are There People in the Suco Who Are Planting Trees, Which Can Be Used To Supply Wood for Cooking in the Future? 1.Yes ( ) 2.No ( )

6.4 If Yes, About How Many Hectares Have Been Planted in the Last 3 Years? ha

6.5 Describe the Condition of the Land in the Catchment Area of the Stream/River which Flows through the Suco (Choose only one)
1.No Erosion Problems ( )
2.Minor Erosion Problems ( )
3.Major Erosion Problems ( )

6.6 What Measures Are the People in the Suco Taking to Reduce the Extent of Erosion or Rate of Soil Loss? (You may indicate more than one)

1. Not Taking Any Action ( )
2. Planting Trees ( )
3. Making Ponds to Control Run-off ( )
4. Reducing the Area of Cultivated or Bare Land ( )
5. Increasing the Area of Permanent Crops ( )
6. Growing Cover Trees to Protect Cultivated Land ( )
7. Other (Specify) _____

6.7 Who Undertakes the Erosion Control Measures? (You may indicate more than one)

1. No Erosion Control Measures are Being Carried Out ( )
2. Peoples Own Initiative ( )
3. Farmers Groups ( )
4. Encouraged and/or Assisted by NGO's (Including the Church) ( )
5. On Advice and Guidance from the DAO/PPL ( )

6.8 Do Members of the Suco Hunt for Animals in the Forest?

1.Yes ( ) 2.No ( )

6.9 If Yes, Indicate What Animals Are Hunted (You may indicate more than one)

1.Wild Pigs ( ) 2.Deers ( ) 3.Other Large Animals ( ) 4.Birds ( )
5. Other (Specify)_____

6.10 Forest Production

Items	Production
1. Timber Wood	_____cu m/year
2. Fuel Wood	_____bunch/year *
3. Honey	_____liter/year
4. Rattan	_____piece/year **
5. Bamboo	_____piece/year
6. Candle Nut (Kemiri)	_____kg/year
7. Other: (Specify)	_____/year
8. Other: (Specify)	_____/year

* : Bunch (Fuel Wood) = approx. 0.04 cu m

** : Piece (Rattan) = 1.85 m

6.11 Do People Gather Plants from the Forest for Medicinal Purposes? 1.Yes ( ) 2.No ( )

6.12 Do People Grow Plants for Medicinal Purposes? 1.Yes ( ) 2.No ( )

7. Fisheries

7.1 General

7.1.1 Number of : 1. Full-Time Fishermen _____ 2. Part-Time Fishermen _____

IF THERE ARE NO FISHERMAN SKIP TO SECTION 8.

7.1.2 Number of: 1. Non-Powered Skiffs/Canoes _____ 2. Powered Skiffs/Canoes _____
3. Non-Powered Boats _____ 4. Powered Boats _____

7.1.3. Fishing Time and Season

7.1.3.1 Best Time for Fishing:

1. Morning ( ) 2. Mid Day ( ) 3. Afternoon ( ) 4. Evening ( )

7.1.3.2 Worst Time for Fishing:

1. Morning ( ) 2. Mid Day ( ) 3. Afternoon ( ) 4. Evening ( )

7.1.3.3 Best Months for Fishing

Jan ( ) Feb ( ) Mar ( ) Apr ( ) May ( ) June ( ) July ( ) Aug ( ) Sept ( ) Oct ( ) Nov ( ) Dec ( )

7.1.3.4 Worst Months for Fishing

Jan ( ) Feb ( ) Mar ( ) Apr ( ) May ( ) June ( ) July ( ) Aug ( ) Sept ( ) Oct ( ) Nov ( ) Dec ( )

7.1.4 Bad Weather

Month(s) Mostly Not Capable of Fishing Due to Bad Weather Conditions;

Jan ( ) Feb ( ) Mar ( ) Apr ( ) May ( ) June ( ) July ( ) Aug ( ) Sept ( ) Oct ( ) Nov ( ) Dec ( )

7.2 *Suco Fisheries Facilities*

Infrastructure	Condition	Description
1. Jetty/Wharf	1.Does Not Exist( ) 2.Good( ) 3.Fair( ) 4.Poor ( )	Length _____m
2. Fuel Station	1.Does Not Exist( ) 2.Good( ) 3.Fair( ) 4.Poor ( )	Fuel Tank Capacity _____cu m
3. Buildings for Fish Handling	1.Does Not Exist( ) 2.Good( ) 3.Fair( ) 4.Poor ( )	Area _____sq m
4. Buildings for Net Loft/Storage	1.Does Not Exist( ) 2.Good( ) 3.Fair( ) 4.Poor ( )	Area _____sq m
5. Cold Storage	1.Does Not Exist( ) 2.Good( ) 3.Fair( ) 4.Poor ( )	Capacity _____cu m
6. Ice Plant	1.Does Not Exist( ) 2.Good( ) 3.Fair( ) 4.Poor ( )	Capacity _____ton/day
7. Fish Ponds (Brackishwater)	1.Does Not Exist( ) 2.Good( ) 3.Fair( ) 4.Poor ( )	Area _____sq m
8. Fish Ponds (Freshwater)	1.Does Not Exist( ) 2.Good( ) 3.Fair( ) 4.Poor ( )	Area _____sq m

7.3 Outboard Motor Related:

7.3.1 Outboard Fuel Price at the Landing Area:

Not Sold in the Suco ( )

Sold in the Suco ( ) How Much: _____Rp/Liter

7.3.2 Outboard Lubricant Price aqt the Landing Area:

Not Sold in the Suco ( )

Sold in the Suco ( ) How Much: _____Rp/Liter

7.3.3 Outboard Gasoline Mixed with Lubricant Oil at the Landing Area:

Not Sold in the Suco ( )

Sold in the Suco ( ) How Much: _____Rp/Liter

7.4 Where Do Fishermen from this Suco Repair their Outboard Motors?

7.4.1. There is a Repair Facility in this Suco ( )

7.4.2 In Dili ( )

7.4.3 In Another City (Specify) ( )_____

7.4 Traditional Fishing Rules

7.4.1. Is a Local Leader Selected to Be in Charge of Fisheries? 1.Yes ( ) 2.No ( )

7.4.2 What Traditional Rules Are Used by the Community to Control Fishing?

1.There are No Traditional Rules ( ) 2.Arbitration of Troubles ( )

3.Control of Fishing Seasons ( ) 4.Control of Fishing Grounds ( )

5.Control of Fishing Hours ( ) 6.Control of Fishing Gear ( )

7.Other (Specify) ( ) _____

7.5 Fish Prices

Major Species	Selling Price at Landing Site (Rp/kg)	Selling Price at Markets in the Nearest City/Town (Rp/kg)
1.		
2.		
3.		

8. Suco Agricultural Storage

How Do Farmers in this Suco Store their Harvest?

1. Inside Their Homes ( ) 2. In a Separate Building Next to Their Home ( )
3. In a Community Facility ( ) 4. Other (Specify) ( )_____

9. Suco Processing Facilities

Infrastructure	Total Units	Condition	Description
1. Rice Mills		1.Do Not Exist( ) 2.Good( ) 3.Fair( ) 4.Poor ( )	Total Capacity _____kg/day
2. Drying Facilities 2.1. Net Mat Dryers		1.Do Not Exist( ) 2.Good( ) 3.Fair( ) 4.Poor ( )	Total Area _____sq m
2.2. Public Concrete Pavement Dryer		1.Do Not Exist( ) 2.Good( ) 3.Fair( ) 4.Poor ( )	Total Area _____sq m
2.3. Private Concrete Pavement Dryers		1.Do Not Exist( ) 2.Good( ) 3.Fair( ) 4.Poor ( )	Total Area _____sq m
2.4.Mechanical Dryers		1.Do Not Exist( ) 2.Good( ) 3.Fair( ) 4.Poor ( )	Total_____cu m/day
2.5. Flue Curing Barns		1.Do Not Exist( ) 2.Good( ) 3.Fair( ) 4.Poor ( )	Total Area _____sq m
2.6.Drying Platforms		1.Do Not Exist( ) 2.Good( ) 3.Fair( ) 4.Poor ( )	Total Area _____sq m
3.Vegetable Process -ing Facilities		1.Do Not Exist( ) 2.Good( ) 3.Fair( ) 4.Poor ( )	Capacity _____kg/day
4. Fruit Processing Facilities		1.Do Not Exist( ) 2.Good( ) 3.Fair( ) 4.Poor ( )	Capacity _____kg/day
5. Fish Processing Facilities		1.Do Not Exist( ) 2.Good( ) 3.Fair( ) 4.Poor ( )	Capacity _____kg/day
6. Other Processing Facilities(Specify)		1.Do Not Exist( ) 2.Good( ) 3.Fair( ) 4.Poor ( )	Capacity _____kg/day

10. Presence of Organizations

Kind of Organization	Number of Groups	Total Number of Members In All Groups	Activity : 1. Loan/Credit 2. Input Purchases 3. Group Production Activities 4. Products Marketing 5. Others (Specify)_____ (Fill in the Number Below)
1. Farmers' Association			, , , ,
2. Water Users' Association (Irrigation)			, , , ,
3. Drinking Water Association			, , , ,
4. Livestock Organization			, , , ,
5. Forestry Organization			, , , ,
6. Fishermen's Group			, , , ,
7. Traders' Organization			, , , ,

Observations:

Travel Directions: **Please provide any useful directions to this Suco.**

Other Observations from Respondent or the Interviewer: