Social and Economic Conditions in East Timor

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International Conflict Resolution Program

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Contents

Preface

This report on *Social and Economic Conditions in East Timor* is the product of a year-long collaboration between Columbia University's International Conflict Resolution Program (New York, USA) and Fafo, the Institute for Applied Social Science (Oslo, Norway). Under the overall direction of David L. Phillips, Executive Director of the International Conflict Resolution Program at Columbia University, the project sought to establish a reliable base-line data set of socio-economic conditions in East Timor at the time of the UN-sponsored referendum on autonomy within Indonesia.

Jon Pedersen and Marie Arneberg of Fafo's Centre for International Studies oversaw the technical aspects of the study with help from Rick Hooper, Senior Advisor to the Programme for International Cooperation and Conflict Resolution at Fafo. Shepard Forman, Director of the Center on International Cooperation at New York University and Terje Røed-Larsen, Honourary Chair of Fafo's Programme for International Cooperation and Conflict Resolution, served as senior advisors to the project.

The project's full report provides detailed coverage of the demography, environment, agriculture, health, economy, education, and governance sectors in East Timor, and includes an assessment of development assistance. The report considers available data, identifies information gaps, and makes preliminary recommendations for program and policy development. Sectoral analyses were written by a team of international experts and included contributions from professionals from the World Bank. The overview of development assistance was prepared by the Center on International Cooperation at NYU. Part I presents project findings and recommendations. Part II contains more detailed statistics and an extensive bibliography. An executive summary is also available.

Source materials were gathered from Indonesian central government agencies, Statistics Indonesia, East Timor provincial government agencies, international aid agency assessments, research and NGO reports and the former Portuguese Colonial Administration. Materials were identified by researchers in New York, Oslo, Lisbon, Sidney, Canberra, Jakarta and East Timor. A comprehensive bibliography of reference sources is provided. Although there is ample information, serious questions exist about its overall reliability. Since the existing data is so widely contested, authors were asked to assess the data in each field according to its internal consistency and credibility by comparing it to other situations. Analysis of trends in the data was used to help evaluate the quality of information which varies between sectors.

The report was undertaken at the urging of José Ramos-Horta, co-recipient of the 1996 Nobel Prize for Peace. Activities were discussed with Bishop Carlos Ximenes Belo and Alexandre (Xanana) Gusmao. Regular contact with East Timorese was maintained at workshops in New York, through participation at international meetings in Melbourne (Australia) and the Algarve (Portugal), and via liaison with the National Council of Timorese Resistance (CNRT). In addition, there have been regular meetings with United Nations and World Bank officials and participants in the UN tripartite negotiation process. Routine status reports have been provided to UN agencies, officials from potential donor countries, and international non-governmental organizations (NGOs).

The report on *Social and Economic Conditions in East Timor* was intended to contribute to the development of strategies for post-conflict recovery and peace building by providing baseline data on current socio-economic conditions in the territory. It was hoped that the baseline data and analysis would be helpful to the East Timorese as well as to bilateral and multilateral aid agencies. As the authors were in final stages of preparing the report, violence has devastated much of East Timor. Thousands of people have been killed and up to 300,000 rendered homeless. This wholesale devastation of East Timor affects some of the current relevance of the baseline

data. Some of the findings/recommendations in this report have also been overtaken by events. Nevertheless, many of the findings and recommendations describe structural features of conditions in East Timor which recent events have not changed. Nor does the acute crisis obviate the need for longer term planning and investments in East Timor's social and economic development, for which we hope this report will be informative. In the short term, humanitarian assistance and support for rehabilitation and reconstruction are urgently needed.

Columbia University's International Conflict Resolution Program is grateful to the Governments of Norway and Portugal and to the World Bank for their financial support. Special appreciation is also extended to Fafo, the Institute for Applied Social Sciences for their expert technical coordination of the project; to the technical experts, Douglas Baker, Hans Decker (Bandita Sijapati), Susan Marsh, Anne Hatløy, Juan Rial, Aleida Ferreyra and Narve Rio for their analysis and presentation of the data; to Michael Nest for his excellent work on development assistance; to Rebecca Engel for project coordination and her assistance in the editing of the final report with the help of Tanya Walter. Mohammed Ag Bendech of HKI-Mali is to be thanked for his helpful suggestions to the analysis of the health chapter, and Prof. Arild Tjeldvoll at the University of Oslo for comments on the education analysis. We would also like to thank Riwanto Tirtosudarmo at LIPI and Iwan Hermanto at BPS for their cooperation in providing data from Indonesian sources. We are especially grateful to the East Timorese who entrusted us with this important task and helped to facilitate our work including Rui Gomes, Agio Pereira, Helder da Costa and João Mariana Saldanha for providing additional data. The participation and guidance of Constancio Pinto and Agio Pereira have also been greatly appreciated.

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Summary

East Timor has a natural resource based economy. Though agriculture is the primary activity and source of support for the East Timorese, the agriculture sector is depressed due to neglect during both Portuguese and Indonesian rule. While the Portuguese depleted sandalwood resources, other products such as coffee, rubber and copra emerged as priority exports. The majority of the population still relied on subsistence farming at the time of the Portuguese departure in 1975. Today the agriculture sector in East Timor is still characterized by inefficiency rather than by development.

Between 1976-98, East Timorese realized few benefits from the substantial resources expended by the Government of Indonesia (GOI). Most resources were used to support the government bureaucracy and state-sponsored construction activities. At least 50 percent of GDP originated from GOI subsidies to the public sector and infrastructure development. Industrial and other non-agricultural production is minimal. Trade and services are dominated by non-Timorese (Indonesians and Chinese). In terms of local production capacity, East Timor ranks among the poorest countries in the world.

East Timor's poverty rate, which is more than double that of Indonesia, worsened as a result of the Indonesian financial crisis in 1998 and the drought of the same year. Recent violence has further disrupted agricultural cycles and affected household wealth either directly through property destruction or indirectly as households were forced to sell assets or draw down savings to finance consumption.

Production with potential for generating revenue include the recent success of high-quality coffee production, meat production for export and currently underutilised fishery resources. More uncertain areas are extraction of marble and re-cultivation of sandalwood. Potential sectors for attracting foreign investment to East Timor are tourism, oil and natural gas.

Increasing agricultural productivity will nevertheless remain the basis for improved living conditions for the majority of the population. At least 75 percent of the work force is employed in agriculture. Agricultural output will depend on improved resource management and a solution of the land rights issue. An integrated environment and natural resource policy is needed to control environmental degradation.

East Timor is a dry land with a drought-monsoons cycle. There are few rivers, springs and freshwater wetlands. At least 70,000 hectares of forest have been burned over the last 10 years to accommodate population growth and to irrigate rice and maize. The resultant deforestation has led to soil erosion and flash floods.

The population is approximately 900,000. Growth is about 2.5 percent each year, an annual increase of 23,000 persons. Persons up to the age of 14 represent 42 percent of the population. Infant mortality is about 60 deaths per 1,000 persons and child mortality is around 80 per 1,000. Infant and child mortality have been on the decline since 1990.

Poor food security, malnutrition, poverty and sanitation conditions influence health in East Timor. Infectious diseases are a major contributor to morbidity and mortality. The most prevalent infectious diseases are tuberculosis and malaria. Pneumonia and diarrhea are also major causes of fatality. There is a shortage of health care professionals.

Though poverty is a major impediment to education, there are other problems including a shortage of trained teachers, system inefficiency and inadequate facilities. Human capital is low due to neglect of the education sector before the 1960s. The GOI education system in East Timor was large but ineffective with a high level of repetition, dropouts and an educational curriculum

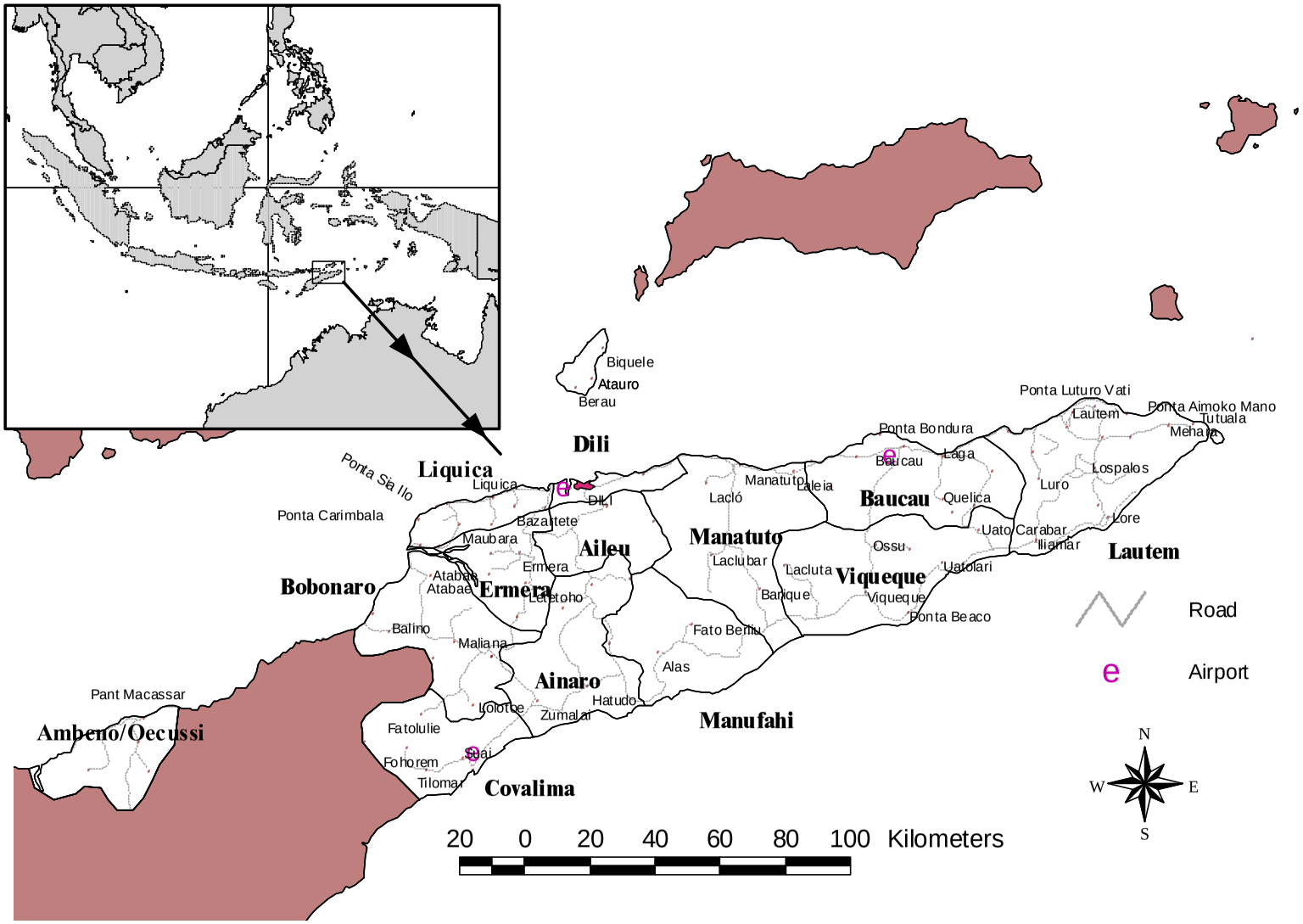
which does not consider cultural or market requirements. 85 percent of students attended government schools; 15 percent were enrolled in schools operated by the Catholic Church.

Infrastructure, already limited, has been badly damaged by recent violence. Electricity is either intermittent or not available in many areas. There is no evidence of solid waste disposal, wastewater treatment or adequate sanitation. Transport services are limited and commercial phone service was controlled by Indonesian companies.

Regarding governance, traditional processes of decision making were not integrated into the multi-tiered bureaucracy adopted by the Portuguese colonial administration and then broadened vertically under Indonesian rule. The Catholic Church is strong, but the local civil society is underdeveloped. East Timorese should be involved in all aspects of the transition to self-rule in order to encourage self-reliance and build local capacity.

Development assistance has been directed to projects in the areas of education/training, health, water supply/sanitation, agricultural/rural development, humanitarian relief, governance/law, capacity building, gender, and income generation. Over the past decade, $82 million has been provided. Since 1991, funding has increased approximately 10 percent each year.

Map of East Timor



Abbreviations and Acronyms

Acronym	Meaning
ABRI	Indonesian military
ACFOA	Australian Council for Overseas Aid
AEU	Australian Education Union
AFAP	Australian Foundation for Peoples of Asia and the South Pacific
AFL-CIO	American Federation of Labor Congress of Industrial Organizations
APEC	Asia Pacific Economic Cooperation
APHEDA	Australian People for Health Education and Development Abroad
APODETI	Asociaçao Popular Democratica Timorense
ARI	Acute Respiratory Infection
ASEAN	Association of South East Asia Nations
ASDT	Asociacion Social Democrata de Timor Leste
AusAID	Australian Agency for International Development
AVI	Australian Volunteers Abroad
BAPPEDA	Regional Planning and Development Board
BI	Bank Indonesia
BPD	Regional Development Bank
BPS	Bappedan dan Statistik (Statistical Bureau)
BRI	Bank Rakyat Indonesia
CAA	Community Aid Abroad
CAFOD	Catholic Fund for Overseas Development
CCF	Christian Children's Fund
CEC	Commission of the European Communities
CFLI	Canada Fund for Local Initiatives
CIDA	Canadian International Development Agency
CNRM	Conselho Nacional de Resistencia Maubere.
CNRT	Conselho Nacional de Resistencia Timorense
CRS	Catholic Relief Services
DFID	Department For International Development (United Kingdom)
DHF	Dengue Hemorrhagic Fever
EIA	Environmental Impact Assessment
ENR	Environment and Natural Resources

Acronym	Meaning
ET	East Timor
ETADEP	Yayasan Ema Mata Dalan Ba Progresso (Road to Progress Foundation)
ETRA	East Timor Relief Association
EU	European Union
FALINTIL	Forcas Armadas de Libertacao Nacional de Timor-Leste
FRETILIN	Frente Revolucionara do Timor Leste Independente
GB	Great Britain
GDP	Gross Domestic Product
Gertak	Gerakan Wanita Anti Kekerasaan
GOI	Government of Indoensi
GOLKAR	*Gologan Karya*, Indonesian political party
GRDP	Gross Regional Domestic Product
HAK	Hukum Hak Asasi dan Keadilan, Yayasan
HALARAE	Hadia lale Ita Rain
HR	Human Rights
HRD	Human Resource Development
ICRC	International Committee of the Red Cross/Red Crescent
IDP	Internally Displaced Person
IMF	International Monetary Fund
IOM	International Organization for Migration
IRC	International Rescue Committee
KOMNAS HAM	National Commission of Human Rights (of Indonesia)
LIPI	Inodnesian academy of science
MMIETS	Mary MacKillop Institute of East Timorese Studies
MOH	Ministry of Health
na	Not available
NCA	Norwegian Church Aid
NCBA	National Cooperative Business Association
NGO	Non- Government Organization
NORAD	Norwegian Agency for Development Cooperation
NTFP	Non-Timber Forest Products
NTT	Nusa Tengara Timur
NZODA	New Zealand Overseas Development Agency
ODA	Official Development Assistance

Acronym	Meaning
OPK	Operasi Pasar Khusus (special market operations)
OPMurni	Operasi Pasal Murni (pure market operations)
ORS	Oral Ryhydration Solution/Salt
RICB	Regional Investment Coordinating Board
RePPProt	Regional Physical Planning Project for Transmigration
SARET	Special Autonomous Region of East Timor
SDR	Swiss Agency for Development and Co-operation
SIDA	Swedish International Development Agency
SIDS	Small Island Developing States
SPSI	Serikat Pekerja Seluruh Indonesia (Indonesian Workers Union)
SPREP	South Pacific Regional Environment Programme
STIE	Dili School of Economics
SUPAS	Population and Health Survey
SUSENAS	Survei Social Ekononi Nasional (National Social and Economic Survey)
TAF	The Asia Foundation
TFR	Total Fertility Rate
TNI	Tentara Nacional Indonesi (Indonesian National Defense force)
UDT	Uniao Democratica Timorense
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Programme
UNFPA	United Nations Fund for Population Activities
UNHCR	United Nations High Commission for Refugees
UNICEF	United Nations Children's Fund
UNPD	United Nations Population Division
UNTIM	University of East Timor
URTI	Upper respiratory Track Infection
USAID	United States Agency for International Development
VSO	Voluntary Service Overseas
WFP	World Food Programme
WHC	Water Holding Capacity
WHO	World Health Organization
WV	World Vision

Part I: Narrative

Section I:
A Natural Resource Based Economy

1. Natural Resources and Resource Management

Summary

Environment and natural resources are particularly important for the development of East Timor – an economy which is largely agricultural and a society which is largely agrarian.

The environmental and natural resource (ENR) endowment in East Timor is not as favorable as that of many other small island states. Its soils are not as productive; it gets a low amount of rainfall which, when it does fall, is so concentrated it produces erosion. There are few high-value resources which can be exploited for economic purposes, with the possible exception of offshore petroleum. Even this, however, is of long-term, not short-term consequence.

Centuries of "mining" resources such as sandalwood - a particularly slow-growing tree - and of shifting agriculture have left large areas of forest as scrub or grassland. Exacerbating this situation, the last quarter century has seen greater resource destruction as a result of the continuing conflict. Further, the movement of small farmers from their traditional lands has had destructive consequences.

Yet this bleak assessment does not imply there are no possibilities. With wise policy-making, effective resource management as well as sound economic activities, the environment and natural resource base can support sustainable development. Programs and policies should consider strategies for managing mineral resources, agricultural land and products, livestock and rangelands, fishing and fisheries, as well as land ownership, use rights and ecotourism.

1.1 Natural Resources

1.1.1. Location of island

East Timor is approximately the eastern half of the island of Timor, and part of the Lesser Sunda Island chain, distant from Australia by only 500 km. It is between longitudes 127 22 and 132 25 and latitude -8 17 and -10 22 with a general orientation of southwest to northeast. The area of East Timor as a whole is only about 14,600 km^2 and includes the enclave of Ocussi-Ambeno (about 2,500 km^2) inserted in the northern coast of West Timor, the Island of Ataúro (144 km^2) to the north of Dili, and the very small island of Jaco (8 km^2) off the eastern end of Timor.

1.1.2. Geology, land forms, and soil

Timor is a continental fragment, not a volcanic island. The foundation is largely made up of limestone and other sedimentary deposits. This differentiates it from its neighbors to the north and west in the Sunda chain which are volcanic. It is theorized that Timor, in fact, is a piece of the Australian geological plate which, separated from the mainland, has been pushed into the Indonesian plate. (Monk et al. 1997:23) That it has been repeatedly uplifted and submerged over the millennia accounts for the presence of coral layers in the soil at heights of up to 2,000 meters above sea level. The erosion of these rocks is considerable.

The topography of East Timor is dominated by a massive central backbone of up to 3,000 meters, the Ramelau mountain range, which is dissected by deep valleys prone to flash floods. Toward the northern side, the mountains extend almost to the coast without extensive plains. To the south, on the other hand, mountains taper off some distance from the sea leaving a wide littoral plain, more propitious for agriculture. The plain is 20 and even 30 km wide running almost the length of East Timor and widens at the eastern end. There are more perennial streams flowing to the southern coast which allow for more agriculture and irrigation.

The enclave of Ocussi-Ambeno is very mountainous and irregular. Its northeast corner reaches 1,561 meters at the border (Nipane peak). The mountainous volcanic island of Ataúro emerges very steeply from the sea, up to 999 meters above sea level.

The Fuiloro plateau, in the far east, descends in altitude southwards, from 700 meters to 500 meters. The slope is almost unnoticeable due to the large area, which may have been the primitive lagoon of a big fossil atoll. Three other main planaltic formations surround it: Nári in the north, Lospalos to the center-west, and Rere to the south.

Nestled in the mountain range near the border with West Timor lies the low plateau of Maliana in what was once a gulf. This area is better suited to irrigated agriculture than the rest of East Timor.

As much as 44 percent of East Timor may have a slope of land of more than 40 percent. (Monk et al. 1997:52; Dick 1991) A slope of 40 percent is difficult to descend and may need a zigzag path.

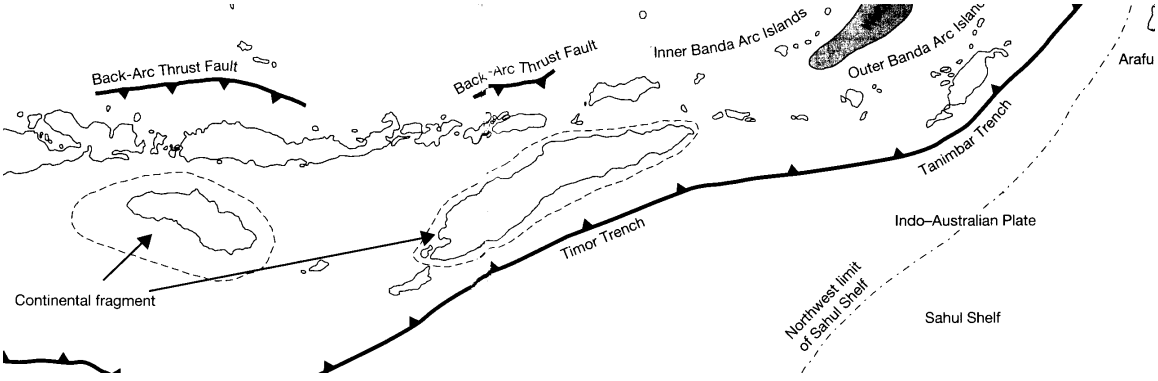
Bierenbroodspot (1986 in Monk et al. 1997:107) suggested the following erodibilty classification and appropriate uses for sloping land on Timor:

- Land with less than 17 percent slope tends to be suitable for cultivation provided that any incipient soil erosion is controlled;
- Land between 17 percent and 30 percent is best used for grazing as soil erosion cannot be controlled on such steep slopes under permanent or shifting cultivation;
- Land over 30 percent suffering from soil erosion is unsuitable for sustainable agriculture and can require reforestation or conversion to suitable tree or perennial cover crops.

Soils are ultimately the combination of base rock, topography, climate, vegetation and, to some extent, the fauna which is present in any one place.

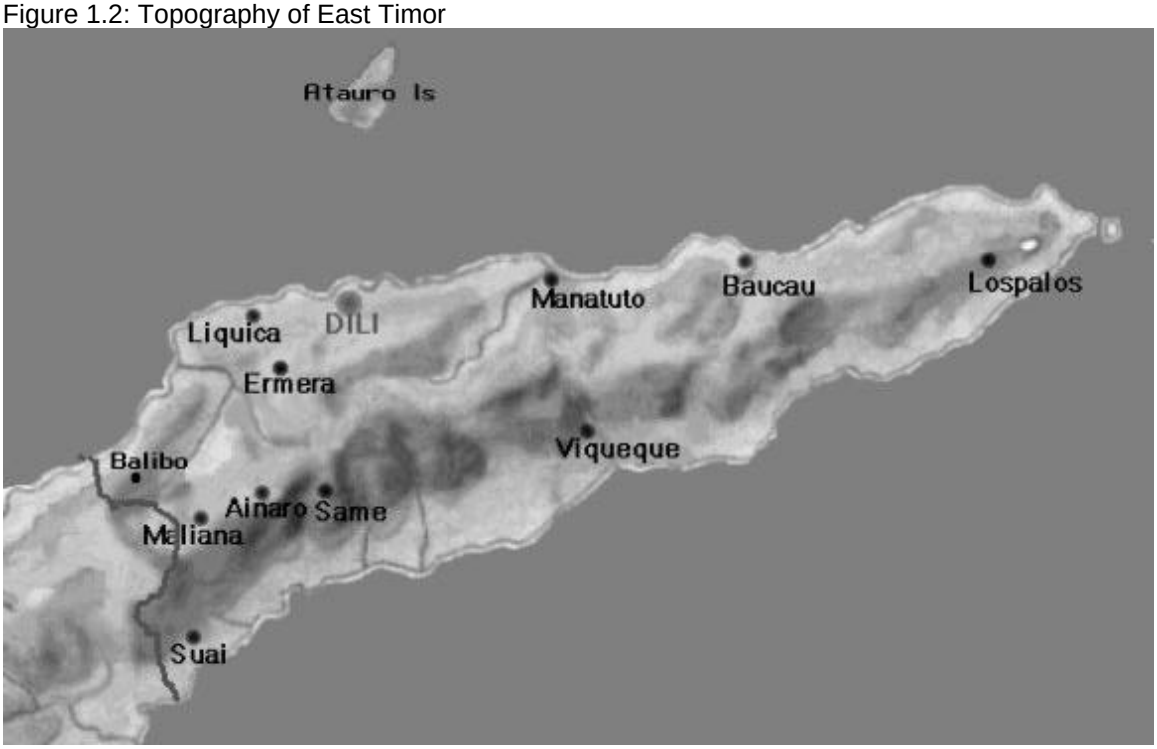
Topography influences the weathering, depth, erodibility, infiltration, and leaching of a soil. The major limitations to plant production, and therefore to agriculture, are steep slopes and shallow soils. The outer-arc islands, dominated by limestone, generally have lower, rounded hills with relatively infertile, alkaline soils. Often the better soils are only on the alluvial deposits along the coasts and in depressions such as lake or lacustrine basins surrounded by steeper, eroded land. Such a lacustrine basin occurs in north central Timor (Maliana).

Figure 1.1: Timor as a fragment of the Australian geological plate



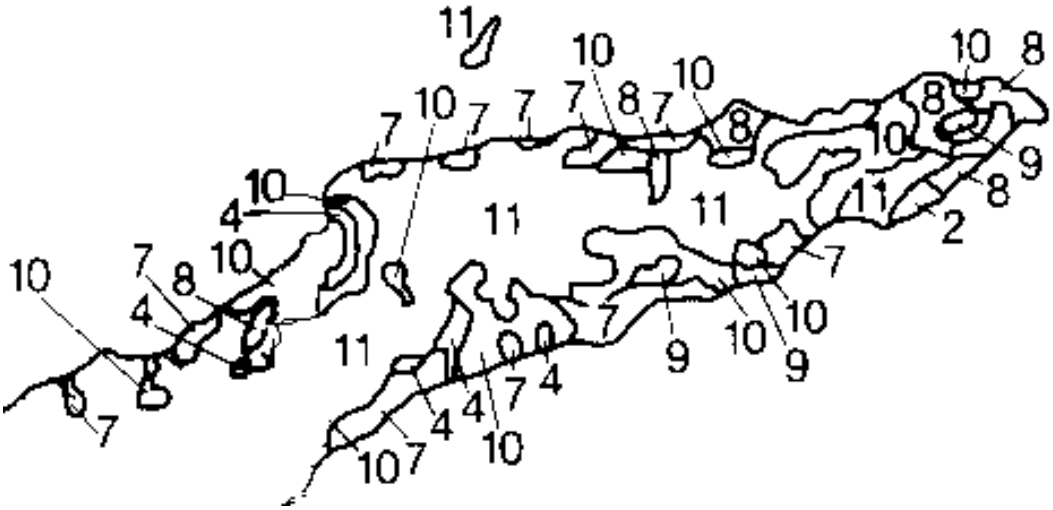
Source: Monk et al. 1997: Figure 2.1, originally from RePPProT 1990b

Figure 1.2: Topography of East Timor



Source: Internet

Figure 1.3: Physical types of East Timor



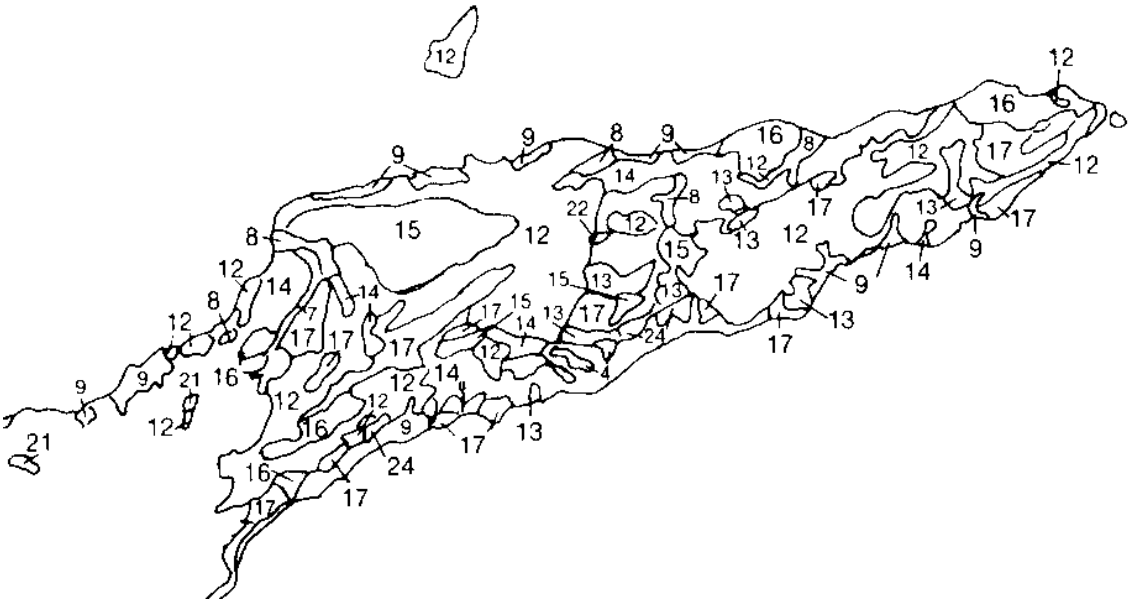
Source: Monk et al. 1997: Figure 2.10, originally from RePPProT 1989b

The physical types present in East Timor are 2 - tidal swamps; 4 - meander belts; 7 - Fan and lahars; 8 - terraces; 9 - undulating rolling and hillocky plains; 10 - hills; and 11 - mountains. (Monk, et al. 1997:50; original RePPProT). A revised draft map is in preparation for East Timor by the Geological Research and Development Centre, Bandung - GRDC. The geology of East Timor was mapped previously by Audley-Charles (1968).

Figure 1.4: Areas prone to landslides and to flooding

Source: Monk et al. 1997: Figure 2.13, originally from RePPProT 1989a

Figure 1.5: Soil types of East Timor



Source: Monk et al. 1997: Figure 2.24, originally from RePPProT 1990b based on USDA classifications

Table for Figure 1.5: Soil types classification

Soil Order	Suborder	Soil Type		Problem Soil	Present in East Timor
Histosols	Hemists	Tropohemists		X	
Entisols	Aquents	Fluvaquents		**X**	
		Haplaquents			
		Hydraquents	1	X	
		Sulfaquents		X	
		Tropaquents	2	X	
	Orthents	Troporthents	3		
		Ustorthents	4		X
	Psamments	Tropopsamments	5		
		Quartzipsamments			
		Ustipsarnments	6		
	Fluvents	Tropofluvents	7		
		Ustifluvents	8		**X**
Inceptisols	Aquepts	Tropaquepts	9		X
		Halaquepts		X	
		Humaquepts			
	Andepts	Dystrandepts			
		Eutrtrandepts	10		
		Vitrandepts	11		
		Hydrandepts			
	Tropepts	Dysropepts	12	X	X
		Eutropepts	13	X	X
		Ustropepts	14		X
		Humitropepts	15		X
Mollisols	Ustolls	Calciustolls	16		X
	Rendolls		17		X
Vertisols	Usterts	Pellusterts	18		
		Chromusterts			
Aridisols	Orthids	Calciorthids	19		
Alfisols	Udalfs	Tropudalfs	20	X	
		Paleudalfs		X	
		Hapludalfs			
	Ustalfs	Rhodustalfs	21		
		Haplustalfs	22		
Ultisols	Udults	Paleudults	23	X	
		Tropudults	24	X	X
		Hapludults			
	Ustults	Paleustults			
		Haplustults	25		
	Humutts	Tropohumults			
Spodosols	Aquods	Tropaquods			
		Placaquods			
Oxisols	Orthox	Haplorthox	26	X	

Climate is perhaps the most important factor affecting the development of tropical soils (Mohr et al. 1972). The most important climatic factor affecting tropical soil fertility and structure is temperature. Up to 20°C, humus forms faster than it is broken down, enriching the soils with nutrients and improving its structure (Chambers 1983). Above 20°C, and particularly in hot, arid conditions, bacteria decompose dead vegetation faster than it accumulates, with the result that humus and fertility levels diminish. Thus, many tropical soils have a low organic content and inherent low fertility. Tropical soils can maintain natural fertility where climatic conditions favor the accumulation of humus. This occurs in continuously moist soils found in wetter regions or higher altitudes; or when nutrients are resupplied from outside the system, such as when a volcanic eruption spreads mineral-rich ash deposits over the land.

A second important climatic factor affecting fertility and structure is the soil moisture regime, that is, the relationship between the length of the dry season and total rainfall. Most of the area experiences a seasonal climate. Prolonged droughts are followed by total annual precipitation which falls within a few months or even days. This strongly affects the movement of salts and minerals through the soil. Soils may bake hard and crack during a prolonged dry season.

These conditions are intensified in savannas, because the annual fires remove the supply of new organic matter and, at the end of the rainy season with ground cover at a minimum, heavy rainfall may result in surface runoff with potential for rill and gully erosion.

The soils of the outer-arc islands tend to have less clay and, as a result, lower water holding capacity (WHC) than the inner volcanic arc islands (Carson 1989). Shallow, calcareous soils on raised coral reefs on islands such as Timor have a limited WHC; Timor's soils are 20-30 cm deep over the island (Mahadeva and Laksono 1976), except where there are lake deposits.

The area with steep slopes and thin soils is naturally biased toward high rates of erosion. Some local farmers have an understanding for the fragility of the soil and have developed a sophisticated indigenous method of soil conservation. In other areas, however, soil is being lost at high rates through inappropriate land management. In particular, high losses of organic matter occur during and shortly after clearing, and before establishment of suitable cover crops. Under such conditions, intense bombardment of the soil surface by rain can quickly break down soil-organo aggregates, thus permitting high erosion losses. In addition, surface temperatures increase on cleared land, thus increasing oxidation and loss of organic matter. As it is difficult to restore organic matter, conservation measures such as early planting of cover crops, incorporation of plant residues and erosion control should be strictly followed (FENCO 1981).

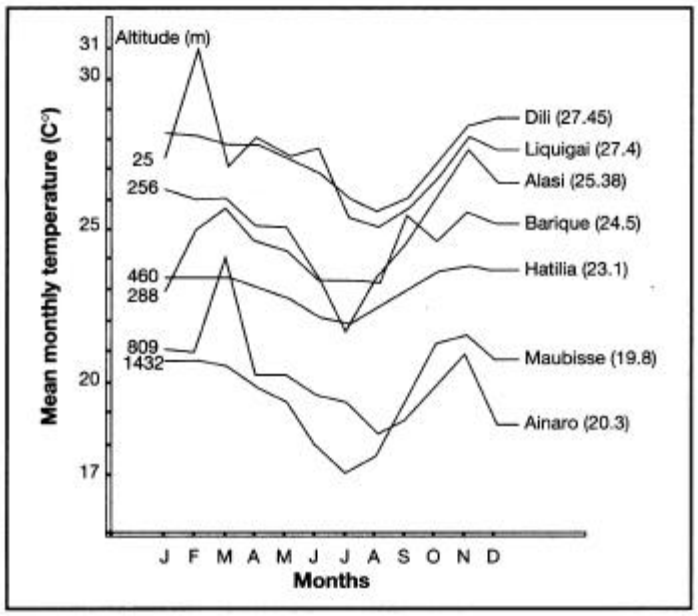
1.1.3 Climate

Knowledge of climatic conditions is of great importance for environmental management and more efficient use of agricultural resources. Climatic maps showing the amount of rainfall, including dry or drought periods, indicate what crops that will grow on an island or in a particular valley, or what pests may migrate into the area if particular crops are cultivated.

Much historical data exists for both temperature and rainfall from the Portuguese colonial period. East Timor continues to have more stations for measuring these and other factors than do the neighboring areas in Indonesia.

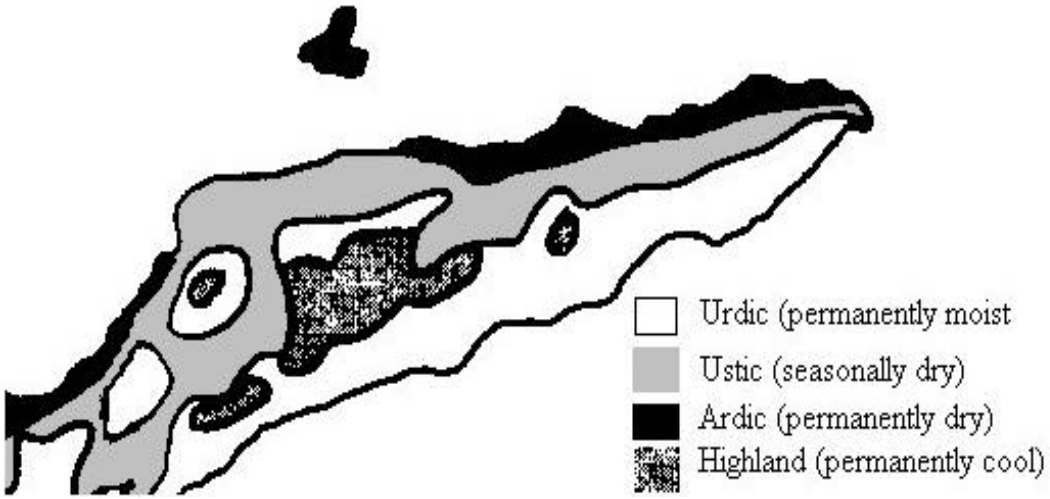
Climate is a function of the latitude, wind patterns bringing rain, rainfall volume, seasonality, and intensity, soils, and the altitude above sea level. There is a clear correlation for East Timor between altitude and average temperature and seasonal

Figure 1.6: Altitude and mean temperature correlation



Source: Monk et al. 1997: Figure 2.19, originally from Felgas 1956

Figure 1.7: Climate



Source: Monk et al. 1997: Figure 2.17, originally from RePPProT 1989a

variations as shown by Felgas (reproduced in Monk 1997).

While the general climate in East Timor can be classified as hot (average temperature 21° C) and humid (70-80 percent), the geographic position and the topography is such that climatic conditions differ substantially between mountainous regions and lower altitudes. Even regions of the same altitude have very different climates when separated by high mountains which act like a wall. Therefore, since topography is not equal to climate, a system that separates lowlands, mountains, and plains is a useful first step to classifying climactic conditions.

On the southern coast rainfall is high, with volumes of 2,000 mm or more per year spread over a longer period of months. On the northern coast, at the same altitudes, rainfall could be as little as 500-1,000 mm per year and concentrated in a shorter period of months. The Indonesian government, (RePPProT) used the Schmidt and Ferguson method of counting and comparing months with more than or less than 100 mm rainfall each and the Fontanel and Chantefort method of combining this with temperature data. The result is that the northern coast is basically seasonally dry except on the coast which is permanently dry. The southern coast is permanently moist (Monk et al. 1997:75-77).

A permanently moist climate might allow for the growing of two annual harvests of crops, such as rice. However, for the

Box 1.1: "Economic Future of Troubled Indonesian Province May Lie in the Sea

Despite covering only oil and not natural gas*, which is increasingly being found in the region, the Timor Gap treaty was welcomed by resource companies and exploration has boomed. Current production is small, but Australian officials say the region is one of the richest new hydrocarbon areas outside the Middle East. An estimated $2.1 billion has been spent to explore and tap the oil pools so far. Industry insiders estimate the region holds the potential for producing $11 billion in revenues.

The boundaries under the treaty form a coffin-shaped zone that divides administration and ownership among two national and two state governments. The northern part is administered by Indonesia, with Australia holding rights to 10 percent of royalties on any oil found. The southern part is administered by two Australian state governments, with Indonesia having 10 percent royalty rights. In between is a 23,552-square-mile "zone of cooperation" administered jointly by Australia and Indonesia, where royalties on any oil found are split 50-50.

Phillips Petroleum Co., based in Bartlesville, Okla., currently pumps 33,000 barrels of oil a day from its Elang, Kakatua and Kakatua North oil fields and has rights to exploit other fields in the Australian zone and the zone of cooperation, including the Bayu-Undan gas field, which is due to be in production by early 2003.

The Australian company Woodside Petroleum Ltd. expects its $890 million Laminaria-Corallina oil project to be producing by the end of this year, its corporate affairs manager, Geoff Wedgwood, said.

At least seven other finds have been made. Analysts say it might be years before royalties are enough to contribute significantly to the economy of an independent East Timor.

"The Timor Gap treaty will have no impact for probably a decade," said Scott Burchill, senior lecturer in international relations at Deakin University. "But it will play a major role in East Timor's economic development when it comes on stream."

** Editor's note: The treaty <u>does</u>, in fact, appear to cover natural gas. It says: "petroleum" means*
(a) any naturally occurring hydrocarbon, whether in a gaseous, liquid or solid state;
(b) any naturally occurring mixture of hydrocarbons, whether in a gaseous, liquid or solid state;
Source: ***Australian Treaty Series 1991 No 9 Department Of Foreign Affairs And Trade, Canberra"***

Associated Press 21 July 1999

purpose of land use planning, a more detailed discrimination of climate is necessary. (See sections on rainfall, vegetative cover, and agriculture, below.)

1.1.4 Minerals and non-mineral deposits

Among the minerals known to be present in East Timor are gold, iron sands, copper, and chromium. Among the non-minerals are marble, clay (red and white), bentonite, and crystalline limestone, ochre, travertine,

Box 1.2: The Timor Gap Treaty

by Graeme Dobell of the Australian Broadcasting Corporation

"When Australia and Indonesia reached a Seabed Agreement in 1972, East Timor was not part of Indonesia. Thus, the area between East Timor and Australia was a gap in the agreed boundary. It became known as the Timor Gap. On December 15, 1978, Australia announced full legal (*de jure*) recognition to Indonesia's incorporation of East Timor, so negotiations could be conducted on the Timor Gap boundary. The beginning of the boundary talks in February, 1979, marked the start of that *de jure* recognition. Australia said it recognised the fact that East Timor was part of Indonesia, "but not the means by which this was brought about". The negotiations lasted for a decade. The Timor Gap Treaty between Australia and Indonesia was signed on December 11, 1989. Indonesia's Foreign Minister, Ali Alatas, and Australia's Foreign Minister, Gareth Evans, signed the agreement on an aircraft flying over the Timor Sea.

Purpose: The Treaty came into force on February 9, 1991. It allows for the exploration and exploitation of the petroleum resources of the Gap. The Treaty uses the framework provided by the 1982 United Nations Convention on the Law of the Sea (UNCLOS). Both Australia and Indonesia claimed the 200 nautical mile exclusive economic zones permitted by UNCLOS. These claims overlapped. So, rather than reaching agreement on a single boundary line, Australia and Indonesia established Zones of Cooperation to share the resources. The Treaty was a provisional agreement (not prejudicing a final boundary settlement) entered into for an initial term of 40 years. The Timor Gap Treaty covers about 65,000 square kilometres. It has three areas:

The central Zone, Area A, is jointly controlled by Indonesia and Australia. The southern zone, closer to Australia, is Area B, and is controlled by Australia. The northern zone, Area C, is closer to East Timor and is controlled by Indonesia. There has been no exploration in Zone C and limited unsuccessful exploration in Zone B.

Output: Since 1991, 42 wells have been drilled in Zone A. The Zone A reserves are estimated at 400 million barrels of oil or light petroleum liquids; the zone has proven natural gas reserves of 4 trillion cubic feet, and the prospect of another 4 trillion cubic feet in areas still to be explored. These figures mean the Timor Gap is much less important than the oil and gas resources found in Bass Strait or the North West Shelf.

One field in Zone A (Elang Kakatua) has been developed. At the start of 1999, the field was producing 30-40 thousand barrels of oil per day. But by August, the flow was down to 18 thousand barrels a day. The Foreign Affairs Department in Canberra says: "Royalty returns to the governments of Indonesia and Australia amount to some $A5-6 million per year. East Timor does not receive any of Indonesia's royalties directly".

East Timor: Portugal, as the former colonial power, took a case to the International Court of Justice (ICJ), in the Hague, contesting the Timor Gap Treaty. Portugal argued that in creating the Zone of Cooperation, Australia violated the rights of the people of East Timor to self-determination, and violated Portugal's rights as the administering power.

In June, 1995, the Court decided in Australia's favour by a majority of 14 to 2. The ICJ ruled that it could not make a ruling on Indonesia's rights because Indonesia did not consent to be a party in the case. Australia said the case confirmed that the Timor Gap Treaty was a proper framework and oil companies could continue to prospect with confidence and certainty.

Box 1.2 : The Timor Gap Treaty (cont.)

The future: With East Timor voting on independence, questions arise about the Treaty. Australia's Attorney General's Department says an independent East Timor would be able to determine whether or not it accepted the treaty obligations entered into by Indonesia.

East Timor independence leader, Jose Ramos Horta, says a transitional government will honour the treaty and it would give positive signals about exploiting the seabed resources of the gap so resource companies could have confidence."

dolomite, naphtha, gypsum, phosphate, graphite, and asbestos. Oil has been prospected for in East Timor since 1902. On the island itself there are up to 29 locations where crude oil oozes out of the land surface (Brahama and Emmanuel 1996:54), particularly in Viqueque and the southern coast (Webb 1995:81).

Deposits have been found of both crude oil and of natural gas in the Timor Gap which is in the sea between Timor and Australia. This "gap" refers to an area off the coast of East Timor, then a colony of Portugal, where there was a "gap" in the coverage of Indonesia-Australian treaties.

The oil/gas beds are estimated to be at a depth of 3 km below the sediments and to cover an area of 51,136 km². Saldanha (1994) estimates that there could be as much as 5 billion barrels which would make this

one of the largest deposits in the world (Brahama and Emmanuel 1996:54). However, more realistic estimates, based on actual drilling experience, suggest a somewhat lower amount (see below).

Drilling of seven wells for the major joint Indonesian-Australian venture for oil exploration off Timor in the Timor Gap was started in 1993 by USX-Marathon Oil Co. *(Jakarta Post* 29 June 1993 and l7 July 1993). The Timor Gap is thought to be one of the world's twenty richest oil deposits (five million *[sic]* barrels of oil and 50,000 billion cubic feet [1416m] of natural gas according to the Far Eastern Economic Review 19 April 1984) (Rowland 1992). The Australian-Indonesian Timor Gap Treaty, which had been signed by Australian Foreign Minister Gareth Evans and Indonesian counterpart Ali Alatas in an aircraft above the area in 1989, provides a formula for dividing benefits from oil discoveries. Eleven exploration contracts have been awarded, requiring the companies to cover 52,000 km of seismic surveys from 1993-99. PT Kupang Dinamika Supply Base was established in Kupang, West Timor, to support exploration, drilling, and processing operations of mining companies in eastern Indonesia, but particularly for Timor Gap oil explorations *(Jakarta Post* 30 June 1993). The base occupies a 50 hectars area with a waterfront of 700 m and a jetty 300 m long, with a water depth of over 70 m. However, the primary base camp for oil exploration within the Timor Gap is presently based in Darwin, Australia.

1.1.5 Freshwater resources

As East Timor is situated at the southern edge of Indonesia and outside of the arc of the Sunda Islands, the island is in a Rain Shadow and is exceptionally dry. Manatuto, on the northern coast, gets an average of only 45 mm of rainfall in five months (June to end of October), low annual rainfall, small number of rainy days, and strong seasonality. This represents a true monsoon drought cycle. Even West Timor receives more rainfall than East Timor.

The average rainfall for East Timor is between 1,200 and 1,500 mm per year with the northern coast receiving less (500-1,000 mm) and the southern coast more (1,500-2,000 mm). In the mountain areas of Ainaro, Same, Lolotoi, and Soibada the average is 2,500 to 3,000mm (Brahama and Emmanuel 1996:20) .

In the north around Baucau, February-March is the middle of the wet season, usually accompanied by monsoon winds. May and November are the transition months and August-September is the middle of the dry season. The eastern and southern areas have their rainy season peaking around May. Good rains are generally experienced in December and June.

There is a watershed ridge running down the middle of East Timor such that rain falling on the northern half flows in streams northward and the southern half southward. One of the implications of this fact on such a narrow island, along with the steepness of the terrain and the infrequent rain, is that there are very few rivers which flow regularly and usefully throughout the year.

There are as many as 100 or more rivers in East Timor but most of these have short courses, are dry most of the year, and are not useful for navigation. Some rivers which carry water perennially are used to fulfill domestic needs such as drinking water. These include the Tono in Ambeno; Maribo in Ermera and Bobonaro; Laclo in Ermera, Aileu, Dili, and Manatuto; Belulik in Manuhafi and Ainaro; and Boronuho in Ainaro.

Lakes include Lake Bemelai in Bobonaro; Maubara in Liquiçá; Lihumo in Ermera; Seloi in Aileu; Uelenas and Modo Mahut in Manuhafi; Tasitolu in Dili; and Ira Lalaro in Lautém. Of these, only Lake Ira Lalaro is of significant size, approximately 2200 ha (large enough to appear on the map below).

Although there are more perennial streams to the south, the north has the rivers Lacló, and the Lóis. The latter constitutes the largest hydrographic basin of East Timor and the former is the longest stream, at 80 km, and discharges at Manatuto. To the

south, Tafara, Bé-lulic, Carau-úlun, Sui, South Lacló and Cler also have water all year round. In the enclave of Ocússi-Ambeno the principal stream is Nuno-eno, which runs into the sea west of Pante Macassar (University Coimbra 1999 Internet).

Although there are relatively few springs or sources of groundwater they are of importance as only a few households have piped water supply. Comparing the availability of water in Timor with neighboring islands shows that nearly all areas of Timor were rated as moderate to very low.

Because of the reduced availability and irregular flow of water in East Timor there are comparatively few freshwater wetlands. Coastal, saltwater wetlands are discussed below.

1.1.6 Coastal zones

Mangroves are found in the mud flats along the shores of relatively calm bays and lagoons which provide shelter from strong currents. There are five major factors which influence the zonation of mangroves in any particular coastal area: 1) tides which determine the frequency of inundation; 2) salinity which relates to the osmotic relation of mangroves; 3) substrate; 4) terrestrial influences, such as freshwater runoff and seepage; 5) wave exposure, which determines the amount of reworking of substrate (Sukardjo 1993 in Monk 1997:158). Mangroves are important for the productivity of offshore fisheries and protect beaches and coastlines.

Very little information exists on the exact extent of mangroves in East Nusa Tenggara or in East Timor. Mangroves are found mostly on the northern coast at Metinaro, Tibar, and Maubara. As much of this coastline is made of limestone, the mangroves grow poorly. Away from the shore where mangroves grow are grass and oak trees. Tamarinds and palm trees have been introduced as well. The southern shore is generally rougher. Mangroves do not grow as well, appearing only at the mouths of streams or marshy terrains. They are not complex and the species mix strictly obeys the levels of the tides (University Coimbra 1999 Internet). Some mangroves have been replaced by coconut groves (Boyce 1995:12).

Coral reefs are very important for harboring young fish and some larger animals. They are, however, very sensitive to environmental changes including direct damage from fishing or harvesting activities, changes in the salinity of the water, or a reduction in the amount of sunlight due to siltation from streams.

The coral reefs of East Timor are of the fringing variety and are more likely to be prevalent on the northern coast. Fringing reefs closely follow shorelines and are composed of coral that grow near the beach. There are narrow gaps between the reefs and shorelines where shallow lagoons usually form. Other basic types are atolls and barrier reefs (Monk et al. 1997:142). There are few of the highest quality coral reefs except on the eastern and southeastern shores around Ataúro Island north of Dili (Boyce 1995:7).

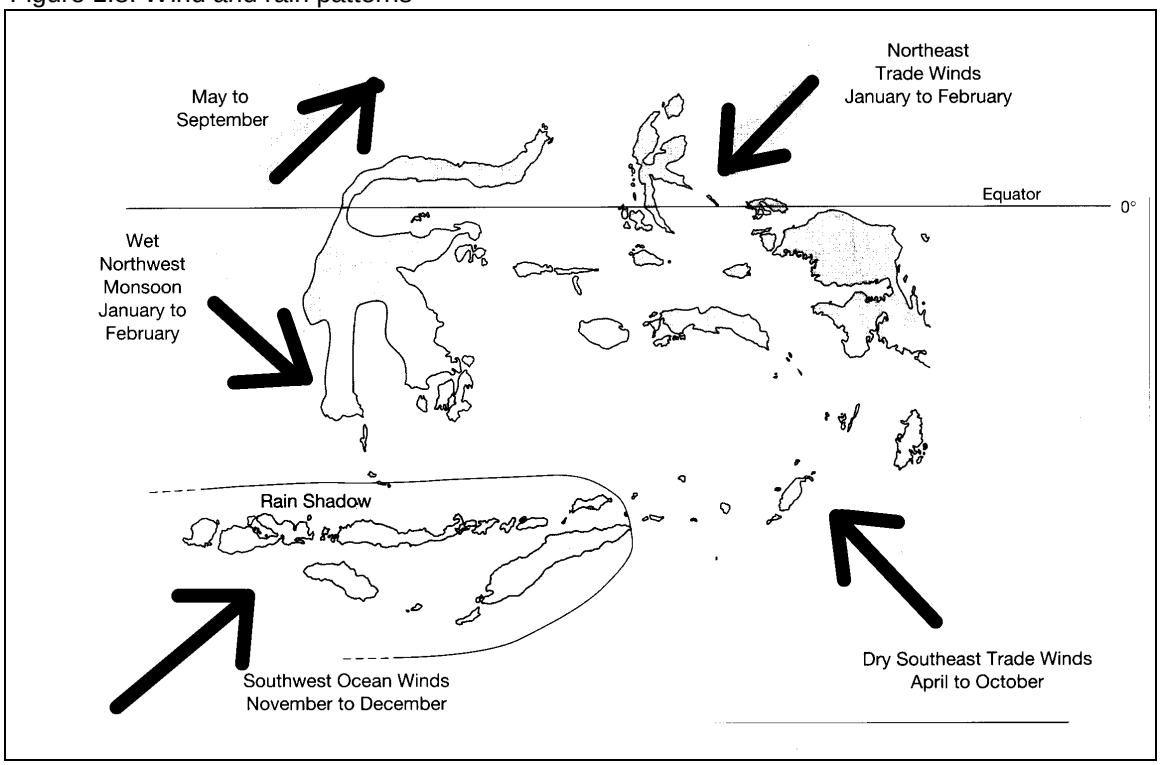
One of the few studies of coral reefs and other sea banks in or near East Timor was done by Broken Hill Properties, an Australian mining company, as part of its environmental impact assessment before drilling in the Timor Sea.

Many different kinds of fish are present in the waters around East Timor including tuna, skipjack, milkfish, bawal, snapper, belanak, spanish mackerel, kembung, teri (whitebait), sunny, squid, prawns, and various kinds of sea-cucumbers (Brahama and Emmanuel 1996:134). Development of fisheries resources depend on the resolution of territorial and fishing rights.

1.1.7. Vegetation cover

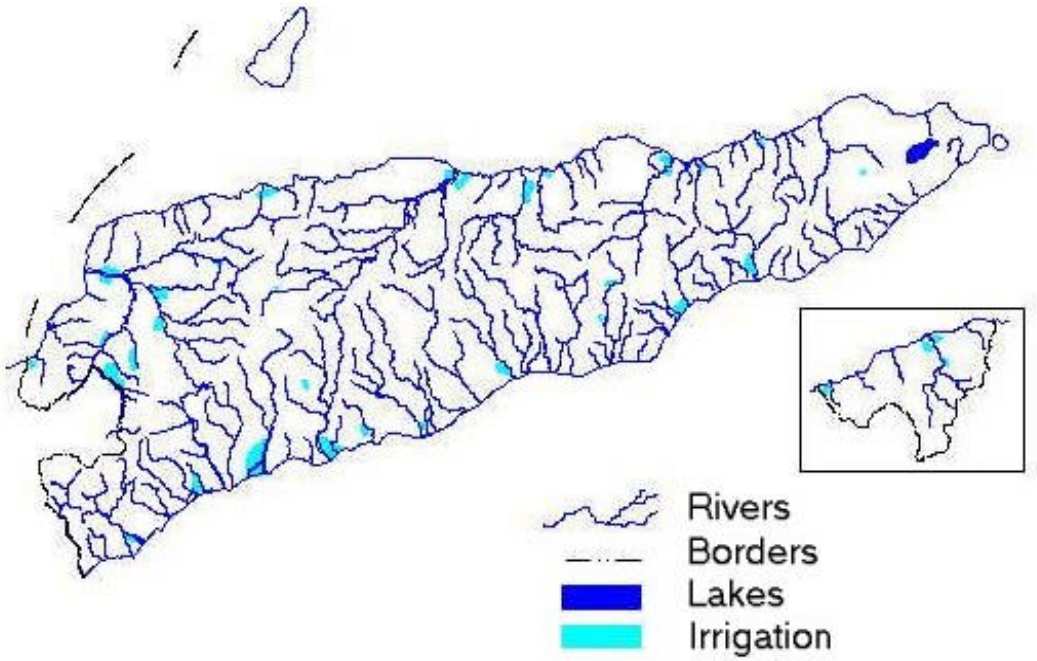
The present vegetation cover is a combination of what could be there given the climate and the particularities of each area, and anthropic actions of settlements, clearings, agriculture, grazing, plantations,

Figure 1.8: Wind and rain patterns



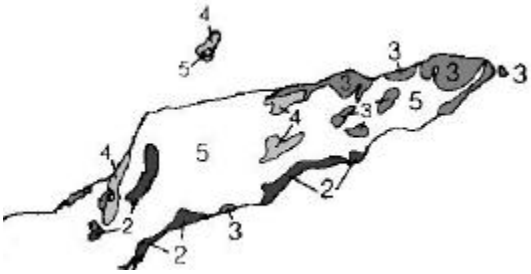
Source: Monk et al. 1997: Figure 2.14

Figure 1.9: Drainage patterns



Source: Indonesian Ministry of Public Works
Internet,(translated)

Figure 1.10: Presence of ground water in East Timor



2 = high; 3 = moderate; 4 = low; 5 = very low. (Source: Monk et al. 1997: Figure 2.23; original from the Hydrology Map of Indonesia 1:250,000, Directorate of Environmental Geology, Bandung.)

etc. This section speculates what the natural distribution of forests and grasslands in East Timor would have been. It also assesses what is known of the historical distribution of vegetation cover.

It was noted previously that East Timor suffers from an exceptionally dry climate, especially in the northern half. This condition directly affects the likely historical distribution of forest. Monk suggests that classification of forests in this area is particularly difficult because of the extreme influence of altitude and rainfall patterns on forest types. These vary widely in small areas and along steep slopes. Not enough work has been done on classification specifically for East Nusa Tenggara, Maluku and East Timor.

Figure 1.11 shows the types of forest which would be naturally occurring in eastern Indonesia based on the number of dry months and annual rainfall.

According to the classification utilized in Monk et al. (1997), the natural vegetation for East Timor would be various kinds of forest from evergreen in the mountains, especially the southern slopes, to thorn forest along the northern coasts. Because of the influence of the mountains on rainfall in the southern part of East Timor, by the 1950s rainforest originally occurring on the south escarpment of the Fuiloro limestone plateau had been extensively replaced by secondary forest (Felgas 1956; van Steenis unpub. in Monk et al. 1997:234).

All land would be covered by different types of forest. Savanna and grassland are assumed to be secondary vegetation (Monk et al. 1997:197) This vegetation distribution would be before the indigenous people or the Portuguese began to occupy the land. Monsoon forest, one of the most sensitive and vulnerable of the tropical forest formations, is easily lost. The original monsoon forests of the dry regions have been extensively replaced by savanna and grassland. Generations have repeatedly burnt the dry forests for hunting and to accommodate shifting cultivation. (Monk et al. 1997:202)

When these forest types are disturbed, principally by burning, then secondary vegetation, savanna or grasslands emerge. Figure 1.12 indicates there are very few areas of forest left.

Deforestation is not a phenomenon confined to the eastern part of the island. When Crippen International carried out a detailed survey of forests in West Timor, it found that the majority of this part of the island was also covered with savannas and grasslands (Crippen International 1980 vol.14 - Forestry). It is also worth noting that when RePPProT used Landsat images from 1972 to 1986 to update aerial photos and coverage estimates, there were no aerial photos available for East Timor.

Official numbers exist for the location and distribution of forest types on East Timor but these are of uncertain accuracy because of both their source and their age. Up-to-date information gathered from remote sensing satellites or aerial photography, and actual in-the-field observations will be of critical importance.

Monk et al. (1997: 211) concludes: "The accuracy of historical data available for East Timor is even more difficult to assess as no official survey seems to exist." Felgas (1956) quotes estimates by Ruy Cinatti, the head of the Portuguese Timor Agricultural

and Veterinary Technical Department indicating that there were 74 km^2 of mangroves; 2149 km^2 of primary forest and 2646 km^2 of savanna and grassland. This suggests that closed forest cover in East Timor rose from 16 percent in the 1950s to 29 percent in the 1980s. It is, however, not likely that such extensive reforestation occurred either naturally or through human activity. This casts doubt on any forest-cover figures for East Timor.

Scrub forest, savannas, and grasslands areas now make up as much as three fourths of the land. Various grasses, xerophytic shrubs in the driest areas, and other shrubs are present including evergreens, small trees, and vines interspersed with stands of casuarina, eucalyptus, bamboo, acacia, or even palms. (Metzner 1977:104-114)

Although much anecdotal information on the savannas exists, detailed quantitative descriptions are lacking. There are three ecological descriptions including two prepared by consultancy companies on West Timor (ACIL Australia Pty. 1986m; Crippen International 1980F). The relationship between savannas, topography, and soil types has been examined in detail by these projects in West Timor. Dominant savanna types are: palm, eucalypt, *Acacia,* and *Casuanna* (Monk et al. 293).

1.1.8 Flora

Valuable sandalwood was one of the principal reasons for Portuguese colonization of East Timor. As oil and powder it is used for aromatic purposes; it is also used for decorative purposes. However, sandalwood production has declined and now only small stands are left. Since sandalwood is an exceptionally slow-growing species, it is only planted and tended where long-term rights are secure. Policy changes, such as the declaration that all sandalwood trees were government property, discouraged planting and tending. Although later modifications were enacted allowing owners a 25 percent share of the return, it is uncertain if this formula for revenue sharing would be sufficient to renew production. (Jakarta Post 1996). Production of sandalwood in 1987 was 320 tons but by 1991 was only 11 tons (Gomes 1998:7).

Various species of eucalyptus are found at different altitudes. On East Timor there may be the only two species of eucalyptus which occur naturally outside of Australia (Boyce 1995:12).

Other important trees include teak, bamboo, tamarind, breadfruit, papaya, palm, banana, cashew, coconut, leucaena, casuarina, mango, and other citrus trees.

Agricultural plants include maize, rice (wet and dry), mung beans, peanuts, soybeans, cassava, sweet potatoes, red onion, garlic, chile, potatoes, cabbage, petai, carrots, red beans, tomatoes, coffee, candlenut, kapok, areca nut, cinnamon, vanilla beans, cacao, cloves and wild cotton. Most crops are grown on small farms but some, especially coffee, are grown on larger estates. East Timorese coffee, an *arabica*, is highly prized, and is beginning to appear more on world markets, including in the United States. In general, non-agricultural plants of East Timor are not well documented.

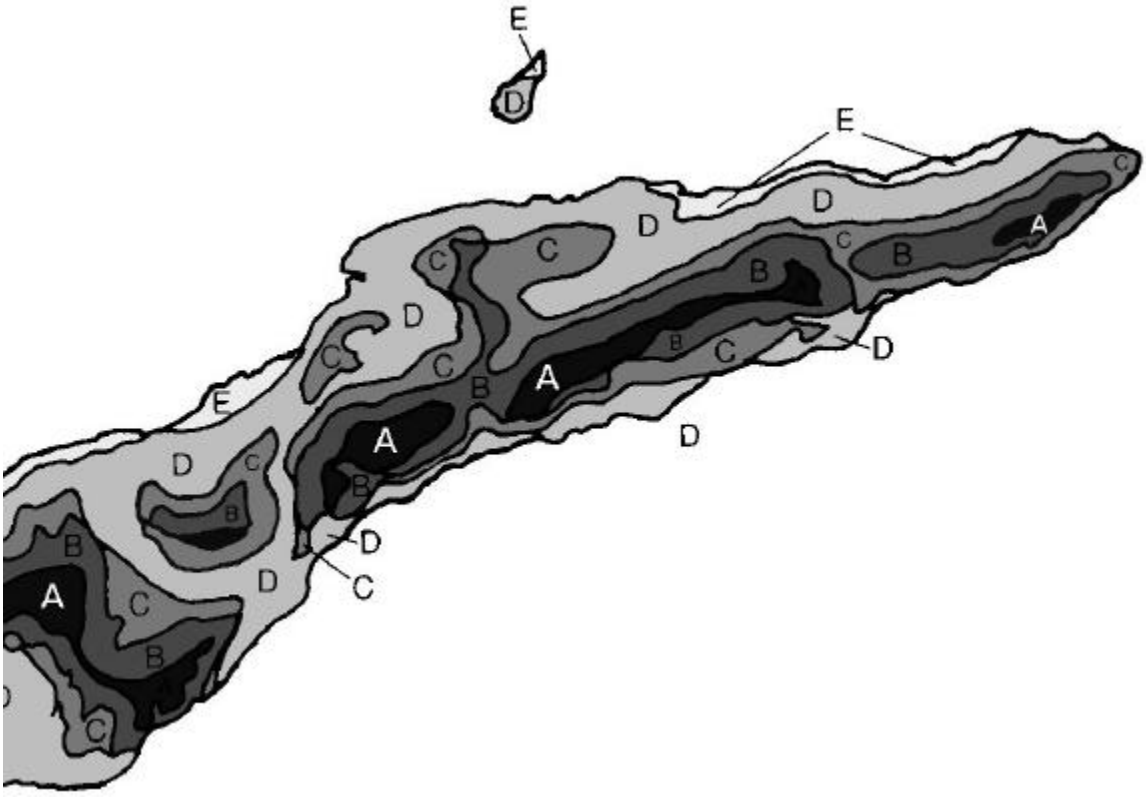
1.1.9 Fauna

Agricultural animals are principally cattle, buffaloes, horses, donkeys, pigs, and poultry such as chickens and ducks. Among mammals are deer, monkeys, civets, cuscus (pouched marsupial), and various bats.

The fauna is special in terms of its diversity and bio-geography. It has the highest level of endemism in Nusa Tenggara, as well as one of the largest Australian influences within the Archipelago. Few of Timor's birds are migratory. There are more than 200 bird species. Many species are at risk because of the deforestation (Monk et al. 1997:353-363). Reptiles include **c**rocodiles and various snakes, including deadly cobras and pythons.

The pattern of freshwater fish is more Asian than Australian. It is composed almost entirely of immigrants from the sea.

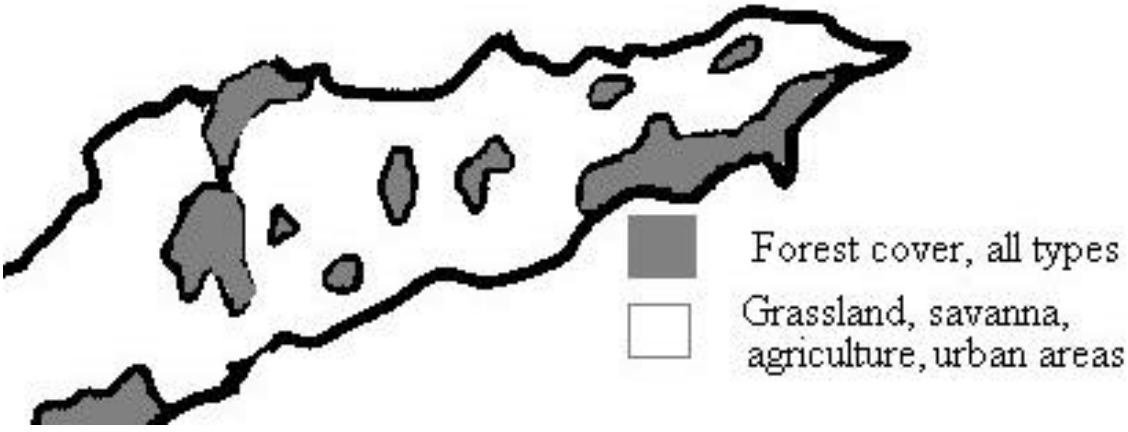
Figure 1.11: Natural distribution of forest in East Timor



Note: A = Evergreen rain forest; B= Semi-evergreen rain forest; C= Moist deciduous forest; D= Dry deciduous forest; E= Thorn forest

Source: Monk et al 1997: Figure 4.4

Figure 1.12: Actual forest cover



Source: Monk et al. 1997: Figure 4.5 Based on data and maps from Collins et al. 1991 with permission from N.M. Collins of World Conservation Monitoring Centre; The National Forestry Inventory Project, from the Directorate General of Forest Inventory and Land Use Planning and Information System Development Project for the Management of Tropical Forests; RePPProT 190b; K.A. Monk pers. obs.

Table 1.1 : Land use 1994, Indonesian government estimates

	%
human settlements	1
irrigated rice fields	3
non-irrig. rice fields	4
plantation	3
mixed farming	2
light forest	76
bush lands	9
lakes,ponds,swamps	0
critical lands	0
other	1

source: Brahmana and Emmanuel 1996:45.

Table 1.2: Land use, alternative estimation

	%
village	1
rice paddies	2
rainfed paddies	4
plantation rice pad.	1
mixed plantation	1
homogeneous mix.	8
shrubs	81
forest	1
swamps/lakes	0
roads/rivers	1

Source: Saldanha 1999

1.2 Resource Destruction and Pollution

The main consequences of deforestation are loss of genetic resources and increased risk of erosion and flash floods resulting from bare hillsides. Even before the era of Portuguese colonization, the original forest area of East Timor was shrinking as agriculture expanded through plantations or household production. Particularly in a landscape not endowed with fertile soils and regular and bountiful rainfall, the productivity of newly cleared lands quickly falls and farmers are forced to burn and clear new lands. If this occurs before the soil is1.2 Resource Destruction and Pollution

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In 1994, the GOI estimated actual land use (table 1.1). The term “light forest lands” is used for much of the shrub or savanna. Saldanha, (1999) describes a forest component distinct from the majority shrubs (table 1.2).

As many as 70,000 hectares of forest were burned in the last decade by official estimates but some analysts believe that the real number is higher (Gomes 1999; 65).

There is not adequate information on the actual extent and conditions of the various forests and forest types given the deforestation that has occurred in recent years. From the time of the first settlers on the island there has been shifting cultivation with negative but not disastrous consequences. However, in recent years with the high increase in population in certain areas, there is increased pressure on the land. Many Timorese have been displaced to more marginal lands and their former lands occupied by migrant farmers whose practices may not be adapted to Timorese conditions. Forced resettlement displaced persons to unfertile lowlands in northern coast plains in Dili, Liquiçá, and Baucau (Gomes 1998:2).

Fertilizer and pesticide use is limited and poses no environmental problem at present (see section 2.5).

Urbanization puts a strain not just on water supply but also electricity, roads, and other infrastructure. Dili, for example, grew at over 9 percent annually from 1990-95. The

lack of existing housing for new arrivals in urban areas may lead to settlements in more marginal areas which lack services such as water, electricity and sanitation. As urban areas grow they may take over the areas around existing population centers where residents previously have grown food.

There is no direct information on hazardous and toxic waste. As there is little industry, there are minimal hazardous waste or toxic substances used or produced in East Timor. There is no information on hazardous wastes from medical facilities.

There is neither data nor anecdotal evidence regarding air pollution from vehicles, industry, or households in urban areas. Burning of fields to promote growth of grass for grazing animals or to clear and prepare fields for agriculture is common in rural areas. There is no information on the extent of fires in East Timor in 1997-98, the time of tremendous fires in Kalimantan, Sumatra, and Java. Since firewood is still a major source of energy for household use, smoke is a concern for indoor air pollution but there is no data on this matter.

Global climate change (GCC) could increase rainfall in East Timor which would, on the face of it, be largely beneficial. Depending on patterns, this could also result in more erosion. (Monk et al. 1997:82) Sea rise would not flood large amounts of land because East Timor does not have low plains near sea level.

1.3 Environment and Natural Resource Policy

Within broad categories, measures are presented in rough order of priority. Specific steps are proposed for the consolidation of the environment and natural resources sector (ENR).

1.3.1 Information systems

Inventory of existing projects: Acquire up-to-date information on all projects in the ENR sector as well as in related sectors such as agriculture and infrastructure so as to assess projects for their applicability and sustainability. Use this information to promote coordination among donors.

Environmental Impact Assessment (EIA): Even before detailed regulations can be drafted and approved, information on new projects/activities must be disclosed. All infrastructure and development projects must include an evaluation of minimal environmental impacts.

Information and capabilities: Identify information including maps (topographic, land use, roads, urban areas, etc). Attempt to reconstruct important information not yet found but known to have existed including information in GOI files.

Assessment of ENR conditions: Bring together the ENR-related materials, including information on the current conditions, new satellite photos and aerial photography. Convene a group of International and Timorese experts knowledgeable in the ecology of the island to assess this information and conditions. Develop priorities for actual field verification, and identify areas for immediate protection. The methodology used should be internationally recognized. Among these methods could be Rapid Ecological Assessment - REA (The Nature Conservancy), Rapid Appraisal Program - RAP (Conservation International), and Biorap (World Bank, Australian National University/CSIRO/Dept of Wildlife).

Geographic Information System (GIS) capacity: Create systems and capabilities for analysis of satellite images and for aerial photos, and then for their use in a GIS system covering not only the environmental sector (forests, vegetation, etc.) but also the ex-urban infrastructure sector (roads, bridges, etc.). The GIS system should be compatible with the urban infrastructure sector (streets, water, electricity, sewers, etc.).

Land classification and use system: Establish a system based on internationally-recognized standards and seek cooperation with the Indonesian Land Use databank at

BPN as well as other agencies. Fundamental to this will be a soil survey (below).

Geology, soil, and physical survey: Very little information exists specifically for East Timor soils.

Technical assistance: Secure assistance from international organizations in organizing, training, equipping, and conducting field assessments.

Contact with West Timorese authorities and organizations where applicable for island-wide resources and problems: Perform consultations on development projects near border areas so that states are not "exporting" their problems. Share scarce protection resources for birds and other flying animals or for endangered ecosystems.

Technical relationships with official and non-official Indonesian organizations: GOI ministries such as Environment, Forestry, and Agriculture have useful expertise. Contact should also be established with the academic community such as LIPI and also Indonesian NGOs.

1.3.2 Policy and Legislation

Land use regulations: Enact and enforce land use regulations that permit different economic activities such as logging, farming, grazing, or industry in appropriate areas. Such regulations must be developed with the input of qualified scientists and planners.

Environmental legislation: Develop and implement new coherent, comprehensive, and consistent legislation as the basis for EIA, land use regulations, protected areas, etc. Cooperate with UN Small Island Developing States (SIDS), the South Pacific Forum, or South Pacific Regional Environment Programme (SPREP).

Environmental Impact Assessment procedures: Build on the minimal emergency notification procedures above, developing procedures for determining the impact of economic activities. Establish mechanisms for applying assessments and enforcing cessation, modifications, or other remedial measures.

Indicators and monitoring capabilities: Develop the ability to detect and analyze changes in the ENR resource base or in use practices based on field conditions or management reports and compare these with expected values. There are many indicator programs under development at the international level that can provide an intellectual foundation and technical assistance.

Universities/research stations: Develop an agriculture research station. Expand the capabilities of the University of Timor (UNTIM).

International agreements and organizations: Seek observer status leading to full member status in international agencies and treaties such as SPREP, Biodiversity Convention, Global Climate Change, etc.

Coastal zone and Exclusive Economic Zone boundaries: The most important of these will be regarding the Timor Gap (see below) but fishing rights will also be important.

1.3.3 Environment and natural resource protection

Protected areas: As recently as a few years ago, there were probably less than ten protected areas including the Tilomar Reserve, Danau Ira Lalor and Gunung Diatuto. The total area of these was about 50,000 hectares. There were also Wildlife Sanctuaries, Gunung Tatamailau, Sungai Clare, and Lore Reserve totaling about 60,000 hectares. There were two Recreation Parks: Kambing and Gunung Fatumasin totaling about 8,000 hectars.

The known threats to these areas center around the cutting of wood and other encroachments such as hunting. None of the sites are listed as a UN Protected Area (1997) and the Indonesian Ministry of the Environment does not list any protected areas for East Timor.

Having assessed the conditions, protection should be provided to these reserve areas.

Unprotected areas which warrant protection should be declared provisional protected areas and initial steps taken for their protection even before completion of full studies.

Whereas land may have been protected as communal lands, for example, around springs, provisions should be made to formalize such protection in law.

Ex-situ conservation (including collections outside East Timor): Having provided for in-situ conservation in protected areas, provisions should begin for propagation of threatened or endangered species in an agricultural research facility. Collections are already maintained in various countries such as Australia, Netherlands, United Kingdom, United States, India, and the Philippines, as well as in Indonesia.

Environmental education: A campaign of environmental education should begin to improve people's knowledge of environmental protection and to encourage traditional environmental management practices.

1.3.4 Actions and investments

Water supply and treatment systems: Take steps to protect watersheds. Sufficient supply requires protecting the sources and courses of rivers, springs, and wells. This will require financing, legislation, and enforcement.

Solid waste disposal: Develop systems for disposal of solid waste, whether in landfills, incinerators, or by using other disposal methods.

Community woodlots: Promote community woodlots as a way of reforesting some lands and of supplying fuelwood needs without further deforestation. A fast-growing species such as eucalyptus should be selected.

Dam possibilities: Investigate possibilities of damming rivers, including those with uneven flow, to generate electricity, improve irrigation, control downstream erosion, and lessen sediment load offshore. Environmental impacts and costs should be carefully evaluted.

Agricultural activities in appropriate areas: Determine appropriate areas for agriculture, livestock, forestry, fisheries and promote settlement/resettlement. Having identified priority areas for protection, focus on resettling displaced agricultural populations back to their traditional areas. Materials and services should be provided for appropriate agricultural activities.

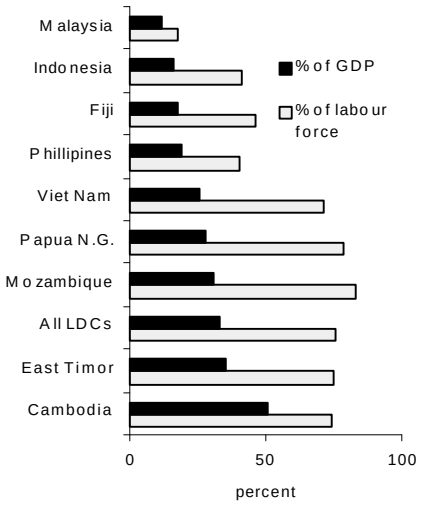
Pesticide/fertilizer promotion and controls: Promote prudent use of pesticides and fertilizers accompanied by sufficient education and supervision to prevent environmental damage.

2. Production

Summary

Subsistence farming is practiced by a large majority of East Timorese. However, East Timor has not been self-sufficient in staple food production over the past three decades, ranking at the lower end among Indonesian provinces concerning agricultural output and productivity. Neglect during both the periods of Portuguese and Indonesian rule has affected overall agricultural productivity. The agricultural sector was seriously affected by the drought of 1997-98.

Figure 2.1: Agriculture as share of labour force and production (GDP). East Timor and other regions compared.



Source: World Bank 1999c, UNDP 1999, Susenas 1998, BPS 1998

Maybe as much as 600,000 hectares are suitable for agriculture of which less than 50 percent is currently being used. Half of agriculturally useful land is found in lowland coastal areas and the other half in undulating highlands and river-valleys. Soil erosion is a major problem.

Productivity has been lethargic. From 1993-97, output increased 16 percent while the population increased by 10 percent. Maize, the main staple product for more than 300 years, has suffered decreasing yields since 1975. Rice production has grown to half the total maize production by 1976. More than 75 percent of wet rice production occurs in the northern coastal regions of Baucau, Manatuto and Bobonaro and around Viqueque in the south coastal region.

Main crops for estate production are coffee, cocoa, and banana. Coffee production doubled from 1998 to 1999. There are 13,000 smallholder coffee producers. Coffee growers have established production and marketing cooperatives linked to the US based National Cooperative Business Association. Cocoa was grown on 316 hectares producing 41 tons in 1991. In 1997, cocoa was grown on 509 hectares producing only 27 tons.

Approximately a third of all land suitable for agricultural use, or 200,000 hectares, can be used for livestock grazing. Livestock is a major export article.

The marine resources potential is projected to be 600,000 tons per year. Only less than one percent is harvested.

There is a clear need for getting more reliable baseline data.

Issues of land rights and distribution of resources are major obstacles to agricultural growth. These are very complex issues due to overlapping claims, different tenure systems (official statutory vs. customary), historical rights, lack of or unclear official records for ownership etc. Many countries in similar situations have formed land commissions to look into these questions.

Development of land management systems is necessary in order to allocate suitable lands for livestock grazing and reforestation.

To realize the growth potential in agriculture, priorities should be to: Improve mixed garden subsistence agriculture through input provision and by establishing locally managed agricultural extension

services; Promote certain export crops (such the recent success of coffee); Develop farm to market strategies; Expand estate crop production drawing on experience maximizing yields through producer and marketing cooperatives; Provide agricultural education and research; Improve the equipment and marketing facilities for fisheries.

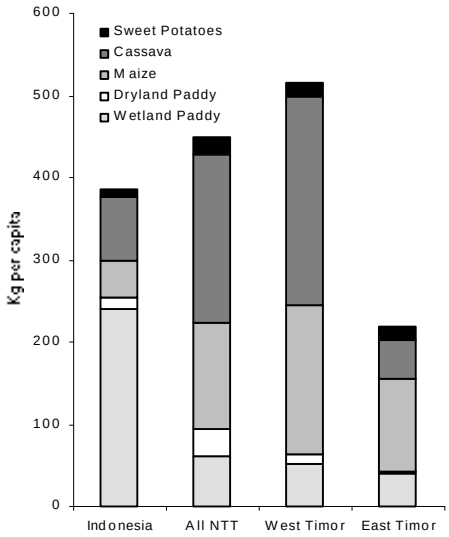
2.1 The Aggregate Picture

Agriculture is the mainstay for the people of East Timor. At least 75 percent of the labor force is employed in agriculture, and subsistence farming remains the economic basis for the large majority of East Timorese. Due to its sheer size and importance, the agricultural sector should be a priority when addressing social and economic development.

Nevertheless, agricultural development was neglected both during Portuguese and Indonesian rule. The economy in East Timor shares the characteristics of other extremely poor countries where the agriculture sector employs the majority of the labor force, but generates relatively little income due to low productivity (Figure 2.1). According to Indonesian statistics, the agriculture sector in East Timor comprised around 35 percent of gross regional domestic product (GRDP) in 1997. Food crops are the single most important contributors, with a GRDP share of about 20 percent. Second to food crops are non-food and estate crops, followed by livestock and associated products, and finally by fishery and forestry products which have only minor shares (BPS 1998) [1].

The agricultural contribution to the economy could be underestimated because large parts of the agricultural production are consumed

Figure 2.2: Food production per capita, selected regions. Kg, 1997.



and distributed outside of regulated markets[2]. Nevertheless, it is likely that the greater share of the officially reported GRDP during the past two decades has not been generated in East Timor. Deducting the Indonesian "subsidy" from the GRDP, agriculture constitutes not 35, but may be as much as 70 percent of local production.

GOI spending on the agricultural sector from development budgets has varied over the years. Although overall spending is difficult to trace, the allocation of the special development funds for East Timor indicates rather low priority to agriculture (Saldanha 1994:161). However, several development projects dedicated to specific crops have been undertaken. Efforts to promote rice cultivation to this island are worth mentioning. Not only Indonesian programs

[1] In the Central Board of Statistics of East Timor Province publications, the *agricultural sector* contains the following *sub sectors* respectively; *farm food crops*, *farm non food and estate products*, *livestock and products*, *forestry* and lastly *fishery*

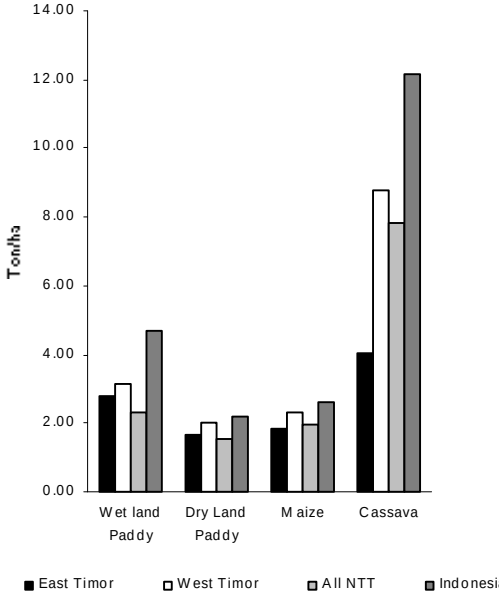
[2] From the sources for statistics on this matter it is not possible to get clear and consistent numbers on agriculture's share to GRDP. In the publications from the Central Bureau of Statistics the figure for agriculture's share to GRDP does not sum up the elements of the agricultural sector. Adding up from food crops through forestry to fishery gives a substantial higher figure.

have been involved. Foreign aid has been received from the Catholic Relief Service in the early 1980s. Current programs are run by USAID and AusAID (chapter 10). Tractors have been introduced as well as irrigation systems.

The overall performance of the agricultural sector remains low. Development efforts have not been adequate to regain production levels which existed before the annexation of East Timor. Output shows large fluctuations from year to year. According to official Indonesian statistics, the output in the agricultural sector increased by 16 percent during the period from 1993 to 1997. As the population increased by some 10 percent during that same period, per capita growth was only 6 percent. Agricultural products with the highest growth rates were those categorized as farm non-food and estate products.

After the annexation there was an important set-back of all production as well as reductions in livestock and capital. A reduced fishing output was also notable.

Figure 2.3: Agricultural crop productivity comparison



Tons per hectare 1997.
Source: : Director General of Food Crops and Horticulture

Three main factors were involved. First Indonesia's desire to control the territory by relocating people and restructuring production inhibited the development of traditional agriculture.

A second factor was the lack of capital in most sectors aggravated by conflict.

A third factor is that capital supplied to enhance production through mechanization and technological improvements requires follow-up. For example, more than half of the large type tractors supplied as aid were broken by 1997 (Viegas, E. 1999; 8). In this respect, "the government has tried to change too much too quickly, without carefully assessing the merits and dangers of the proposed changes" (Viegas, E. 1999: 7).

East Timor has not been self sufficient in staple food production for the last three decades. According to Figure 2.2 and 2.3, East Timor ranked at the bottom of Indonesian provinces in terms of food security and agricultural productivity in 1997. Rice has been imported by among others the provincial rice logistics agency (Dolog NTT). Famines have been reported during the drought beginning in mid 1997. Events following the August 1999 consultation also have effected agricultural output. The harvest in year 2000 will most likely be minimal, as was also the case in 1997–98 due to the disastrous effects of El Nino (table 2.1).

The lack of development within the agricultural sector of East Timor can thereby be explained by several factors. The Timor island does not have favorable conditions in terms of rainfall and soil quality. Two and a half decades of conflict have had a devastating impact, in terms of lack of market development and input supply. Conditions have been a disincentive for farmers to undertake long term investments. Agriculture is therefore characterized by subsistence production, limited use of

Table 2.1: Food Crop Production 1997-1999

	1997	1998	1999*
Rice			
Harvest Area (ha)	14,198	13,826	12,679
Yield (ton/ha)	2.7	2.7	2.6
Production (tons)	37,968	36,848	33,585
Corn			
Harvest Area (ha)	53,429	31,853	54,188
Yield (ton/ha)	1.9	1.8	1.8
Production (tons)	99,204	58,857	97,593
Soybeans			
Harvest Area (ha)	939	787	1288
Yield (ton/ha)	0.8	0.9	0.8
Production (tons)	783	672	1,030
Cassava			
Harvest Area (ha)	10,319	7,996	10,319
Yield (ton/ha)	4.0	4.0	4.0
Production (tons)	41,379	32,092	41,379

**preliminary figures. Source: BPS, (Ramelan I 1999)*

inputs, low productivity and resulting low farm incomes and food security.

2.2 Agricultural Development under Indonesian Rule

The special treatment of local administrative matters in East Timor compared to other provinces of Indonesia has had significant impact on the agricultural sector as well as on the rest of the economy.

As outlined in chapter 8, a complex administrative structure was implemented in East Timor. Concerning agricultural development, the Governor of East Timor has been assisted by several agencies, such as the Regional Development Planning Board (BAPPEDA) and the Regional Investment Coordination Board (BKPMD). Development carried out at a kabupaten (district) level has not only been supervised by the Governor but also directly monitored and coordinated by assistant governors (Pembantu Gubernur) supervising the head of districts (Bupatis). Three assistant governors coordinated development in East Timor. The Regional Government of East Timor consisted of five bureaus, one covering the sector of agriculture. Government tasks have been carried out by technical agencies, and different agencies have had the responsibility for supervising agricultural food crops, plantation crops and livestock, fishery and forestry.

According to the GOI, the development of East Timor consisted in the early years of three phases. The first phase (1976 - 1977) was aimed at rehabilitation of the conditions that resulted from the annexation and subsequent standstill in food production including the almost total extinction of livestock. Few actual development activities were initiated at that time. Most activities tageted infrastructure and assisted the implementation of Indonesian power structures.

The consolidation phase (1977 - 1978), did have some limited implications for the economic development. This phase emphasized adjustments to the administrative system of the province. Measures also included physical efforts such as the establishment of markets centrally located in Dili and Baucau.

A longer-term stabilization phase (1978 - 1982) focused on building the foundations for development. Infrastructure relevant for development was initiated and in some cases completed. This included the addition of 14 public markets and 1264 km of roads. The agricultural sector was supported by direct investments. Some 580 hectares of wet rice fields were developed by the building of a number of simple irrigation networks. There were investments in fishponds and the fleet of fishing boats was expanded. Cattle were imported. Forced relocation of the mountain population was initiated.

A phase of "short term development" (1982 - 1984) aimed to develop physical structures in East Timor's districts and sub-districts. This included efforts in extensification of agriculture by broadened the infrastructure. New wet field rice areas were irrigated by rehabilitated emergency irrigation channels. Some intensification was initiated by introducing field extension workers.

Systems for managing new agricultural practices were instituted, such as the

"techniques of mass guidance" (Bimas). During 1983 - 84 the first co-operatives were established in villages aimed at producing specific crops. Despite these efforts, production levels for most crops decreased. The negative trend was most clearly expressed for traditional products such as coffee, copra (coconut mass) and sandalwood. Most prominent was the decrease in livestock such as the traditional buffalo. Indonesian publications attribute this decrease to widespread epidemics.

Fisheries are reported to have seen some increase during the early 1980s. The increase occurred as a result of increased investment in sea fisheries, development of fishing ponds and development of inland and land based fishing.

The "short term development phase" was the last step in conforming the province of East Timor to the Indonesian system of Five-

Box 2.1: Data availability and shortages

Other than Indonesian governmental agencies, sources are scarce. Few surveys and little actual fieldwork has been undertaken by independent agents.

Most agricultural sector data is provided by the Central Bureau of Statistics and its regional East Timor office. Ultimately these data sources originate from material collected by the respective subsectors and local agencies. Food crops and horticulture data are collected by both Agricultural Extension Service (*Mantri Tani*) and Subdistrict Statistical Officer (*Mantri Statistik*) in all subdistricts (*kecamatan*). Data on estate crops data were collected monthly by estate administrators and were sent directly to the Central Board of Statistics (CBS). Forest concession estate data were collected bi-annually through questionnaires in base camp locations. The annual execution of the questionnaires is by the statistical enumerator "Mantri Statistik" or staff members of Regional Statistics Office which send information directly to the Central Board of Statistics (CBS). Fishery data were collected quarterly at markets by the auction place manager. Fishery establishment production data were collected annually. Livestock data were reported quarterly. Since early 1987 livestock has been measured by *Daftar RPH*, used for recording livestock both in and out of the slaughterhouse. The *Keurmaster* recorded livestock slaughtering outside of the slaughterhouse. A large amount of data is derived from the villages themselves. Information is provided by the *Monografi Desa/Kelurahan* (*desa* is village and *Kelurahan* is the political district administered by the *lurah*) which is completed by the head of the village (*kepala desa or lurah*).

Sophisticated data collection is necessary to get a good picture of the agricultural economy. Such data collection is, however, costly and beyond the capacity of statistical agencies in many developing countries. A great majority of the agricultural production is subsistence agriculture. Providing household needs for food was the main productive aim. A large part of the staple food crops never gets to market. It is not entirely clear to what extent this production is accounted for in official statistics. Even though it is evident that political and administrative control of local settlements and activities has been pervasive throughout East Timor, it is not clear to what extent this also includes the monitoring of traditional agricultural activities.

The collection and treatment of the data are not subject to adequate quality control. Public statistics on agriculture have significant deficiencies. Frequently there are inconsistencies in tables, wrong calculations, unaccounted for large shifts in quantities from year to year. There are also wrong representations of figures due to comma and punctuation errors. It is not clear to what extent figures have been fabricated or whether some level of the bureaucracy has systematically over-estimated real activities.

Year Development Plans (Repelita). From 1984, East Timor took part in plans that which integrated development into overall strategic planning for the provinces.

During the first Repelita results from the short term development phase started to become visible. Some increases in food stocks followed the efforts in intensification and expansion of cropping areas.

Indonesia saw agriculture as a main priority for development during the first Repelita. Still, the total area of rice paddy decreased during this period. Nevertheless, as a result of two programs of special intensification (*Insus*) and general intensification (*Inmum*), production of rice started showing some progress.

By the end of *Repelita IV* the area allocated for technically irrigated rice had significantly increased, but overall area for paddy rice had decreased from 20,928 ha in 1984 to 15,635 ha in 1989. During these years the production areas for most crops saw significant fluctuations. In 1985, corn occupied 49 673 ha. It decreased to 23,534 ha in 1987 but was back up to 46,401 ha in 1989. A similar decrease during the *Repelita IV* period is seen for sweet potato, but not for cassava. The reasons for these fluctuations are not entirely evident from literature on the subject. It is possible that development efforts did not match the preferred crops of farmers. These were typically secondary crops like cassava, sweet potatoes and beans.

During the *Repelita V* (1989 – 1994) and *Repelita VI* (1995 – 1999), efforts to develop the agricultural sector have not been significant. These efforts have even decreased relative to other sectors in the economy (Saldanha 1994: 166 and 342).

The traditional staple crop of maize (corn) is described in Indonesian literature as a secondary crop[3]. Maize production has experienced the most marked fluctuations (Brahmana and Emmanuel 1996: 128) with implications for food security. Before the attempted switching to rice as the staple crop, East Timor used to be self sufficient in maize production, with higher yields than most other provinces. The policy adopted turned East Timor into a net importer of maize and rice. As table 3.1 shows, East Timor has imported 40-50,000 tons of rice annually during the recent years (chapter 3).

The potential land for high intensity rice production schemes has not fully been utilised, especially on the south coast. The inhabitants have been concentrated in certain controllable areas where they are not able to utilize agricultural capacity. Irrigation systems are still primitive. Without dams for stocking water, it is impossible to achieve two harvests per year.

2.3 Resource Base, Agro-Ecological Zones

A comparison between East Timor's agricultural practices and other islands in the Lesser Sunda Islands (Nusa Tenggara) is complicated due to geographical features. As described in chapter 1, the Timor island is part of a continental fragment, which differs geologically from its mainly volcanic island neighbors to the north and northeast. To assess the performance of the agriculture sector in East Timor, comparisons with West Timor and the neighboring island Sumba are the most relevant.

East Timor is mountainous, with generally steep slopes reaching the coast in the north, but flatter lands with perennial streams in the south. The geology is predominantly composed of limestone, but soils are also derived from other sedimentary deposits.

[3] It is disputed though, whether maize is to be held for the traditional staple crop (Saldanaha 1994: 185). There are also long standing traditions for rice production, wet rice and non-irrigated rice, at least in some districts in East Timor.

Land degradation, while not well documented, appears to be a pronounced problem. Exploitation of the forests of East Timor under colonial powers and long standing agricultural practices have probably caused, and certainly exacerbated, land degradation. A documented predisposition to soil degradation and erosion does, however, exist. Shallow topsoil covering calcareous sediments is the general feature of most of East Nusa Tenggara. In a mountainous environment such as that found in East Timor, erosion can be limited by growing the right crops on land of appropriate steepness, and by allocating land to grazing or reforestation.

The climate in Nusa Tenggara and East Timor is exceptionally dry, except on the southern coast which is agroclimatically classified as permanently moist (Monk et al. 1997. See also chapter 1 for details). Due to the dry conditions, lakes and rivers play a crucial role for development of the agricultural sector. Many rivers in East Timor are short and steep, drawing water from narrow catchments and resulting in only seasonal flowing. Widespread irrigation schemes based on these water sources have been developed over the past decades, but they are not particularly extensive in the coastal areas of both the north and the south (Figure 1.9 in chapter 1).

The lower terraces of the northern coastal zone have been subject to wet-rice cultivation. More than 75 percent of wet rice production takes place in northern coastal regions of Baucau, Manatuto and Bobonaro together with the southern coastal area of Viqueque. The southern lowland areas have potential which has not yet been fulfilled due to the lack of agricultural infrastructure.

The upper terraces are used for rain-fed crop production as the highlands and highland-plateau areas are suitable for a more evenly spread distribution of shifting cultivation. Maize, a less sensitive crop to droughts than rice, is commonly grown in such mixed systems and is grown throughout East Timor. The production of maize though has not been able to regain the level which existed before 1975. Small holder mixed gardens is the only remaining system. Extensive gardens have disappeared due to forced resettlement and security conditions.

2.4 Land

Although data differs among sources substantially less than 50 percent of land suitable for agriculture is currently being used. GOI estimated that as much as 600,000 hectares may be suitable for agriculture but only about 40 percent of this is being used (table 2.2).

Land ownership issues have been significantly influenced by colonizing powers over the last three centuries. According to the Indonesian legislation, lands are divided into communal and state lands. Communal lands are largely subject to personal, communal and village ownership. Management is based on traditional rights system (*adat* or traditional land). Communal lands also have other designations in East Timor, such as for communal plantations and transmigration areas. State lands mainly contain forested regions and other land of "public importance" (Brahmana and Emmanuel 1996: 46). Attempts to regulate land ownership were made through Government Regulation no. 18 in 1991, which addressed traditional rights and existing facilities. Full enforcement was postponed due to strong local objection (Saldanha 1994: 218).

There are three aspects that are of importance to demographic patterns and utilization of land for agricultural purposes.

First, farmers fleeing their land and forced resettlement have made land redistribution a sensitive issue. A significant amount of land has been reallocated over the last three decades. Villages have been established beyond traditional grounds, frequently on the steeper north coast. The main problem faced by farmers in the so-called guided villages was that resettling in areas with

Table 2.2: Area (hectares) of potential for agriculture and fishery, actual area under cultivation/harvesting, and percentage of potential used

	Potential	Actual under cultivation	Percent of potential used
Foodcrops and horticulture			
- wet rice	58,541	17,761	30
- rainfed rice	162,435	42,695	26
Meadows	208,706	79,309	38
Plantations	165,267	102,892	62
Fisheries			
- open water	17		0
- brackish water	20,250	31	0
- fresh water	340	84	25
- paddy fields	11,24	50	4
Total	616,680	242,822	39

Source: Brahama and Emmanuel 1996:195

high population density denied farmers any basis for self-sufficiency. It made their fields, hunting grounds and customary forests less accessible. Traditional land management became impossible.

Second, the transmigration program further complicated small holder land rights issues by transfering land from local farmers to "pioneer farmers" from Java and Bali.

The transmigration program has principally taken place in Bobonaro and Covalima, in addition to smaller schemes in Baucau and Viqueque. These transmigration locations were not, as is the case for East Kalimantan and Irian Jaya, located in pristine lands but rather in areas that were already under cultivation by local peasants. GOI categorized these lands as underutilized. Javanese and Balinese farmers were to play the role as "model farmers" teaching better farming to the locals (Aditjondro 1994: 63). Supposedly 25,000 transmigrants have arrived from Java and Bali since 1982. Voluntary migration outside the transmigration scheme has also occurred, adding to land scarcity and exacerbating quastions about land rights.

Third, the production of coffee and sandalwood was to a large extent monopolized by the army through the PT Batara Indra Group. Absentee land ownership by large-scale companies became prevalent, violating existing laws. These patterns still exist (Aditjondro 1994, Timor Link 43 Special Supplement, Saldanha 1994). In recent years however, small holders have gained importance in the production of coffee. Moreover, the supply of sandalwood has been reduced drastically, reducing the importance of sandalwood monopolies.

Gradual fragmentation of the land has occurred since the late 1970s. The most heavily populated areas in East Timor are not the more productive areas in terms of agricultural production. Population density in an area is negatively correlated even with that area's total production volume for crops like rice, maize and cassava (Dili is held aside due to its position as an administrative center)[4].

[4] One could expect that the more populated areas are even worse off than indicated by the figures, as production statistics for the densely populated (and controlled) central areas are better than in remote areas.

Table 2.3: Physical features and main agricultural activities by sub-district in East Timor.

Sub-district	Area (km^2)	Population (1995)	Physical features	Main agricultural activities
Covalima	1,225	52,623	Hilly to mountainous with plains suitable for agriculture towards the coast in the south. Dry in dry season and wet in wet season.	Sandalwood, candle nuts, tobacco, coffee and coconuts. Mainly traditional agriculture with non-irrigated rice, corn etc.
Ainaro	798	48,995	High mountains to hilly, coastal plains to the south suitable for agriculture. Fertile soils in lowland, wet in wet season and dry in dry season.	Tree crops including ironwood and rubber. Non-irrigated rice, corn, peanuts and sweet potatoes.
Manufahi	1,324	40,773	Mountainous in the north with extensive coastal plains to the south suitable for wet rice cultivation. Perennial rivers.	Traditional agriculture, generally non-irrigated rice, corn, cassava, beans and tubers. Coffee in the north, and different tree crops.
Viqueque	1,780	62,815	Mountainous and hilly to fertile lowland plains. Two wet seasons a year. Potential for flatland grazing.	Still traditional agriculture, some industrial plantation forests. Main crops are rice, copra, corn, cassava and also buffalo.
Lautem	1,702	52,298	Mostly low elevation fertile lands but also mountains and hills. Several perennial rivers. Wettest area of East Timor	Traditional agriculture; non-irrigated rice, corn, green pea, cassava, coconut. Fishery and livestock.
Baucau	1,493	89,993	Mostly hilly and dry with some wet flatlands in northern coastal region. Extensive dry season.	Minor traditional wet lands rice cultivation. Mostly non-irrigated rice, animal farming and fishery.
Manatuto	1,705	36,870	Lowlands in north and south, mountainous in central parts. Moderate rainfall throughout.	Traditional farming, fishing and livestock. Wet rice production in the south, and secondary food crops in the central highlands.
Dili	371	142,408	Lowland hilly throughout. Very dry, but still fertile soils.	Traditional farming and trading.
Aileu	729	28,375	Highland area of hills and valleys, with perennial streams.	Farming of coffee, corn and rice. Animal production.
Liquica	548	50,337	Hilly, with flatlands on some of the coastal area. Receives rains sufficient for agricultural production once a year.	Mainly coffee plantations in the hills, else traditional agriculture. Some minor production of derived agricultural produce, ex. palm leaf and *tuak* (alcoholic drink from palm). Sandalwood in the highlands.
Ermera	746	86,337	Hilly with valleys and fertile soils. Rainy season is January through April, dry months in June until October.	Traditional farming with coffee as an important crop. Irrigated rice and dryland farming of rice and corn, with some raising of pigs and goats.
Bobonaro	1,368	88,241	Wide mountainous uplands and open lowlands. Deforested highlands. Some perennial rivers, relative small rainfalls but still fertile.	Traditional farming with some livestock. Balinese farmers have introduced more intensive farming. Considered to be of importance for Timorese future food production due to high fertility potential
Ambeno	814	52,509	Mostly mountainous, few lowland areas.	Traditional agriculture, mainly cattle husbandry and food crops.

Source: Brahmana and Emmanuel 1996.

There are several reasons for this pattern. First, the most populated areas of East Timor were heavily targeted by GOI development efforts in the agricultural sector. This is the case for Liquica, Ermera, Bobonaro and Covalima. Control mechanisms have been strongly enforced, restricting movements of people thereby putting pressure on traditional practices. Transmigration to these districts have contributed to land scarcity and over-exploitation of agricultural lands.

It is also likely that in the remote and less densely populated areas, more robust, traditional agricultural practices have survived. These districts also have more available land.

The development of agriculture depends on resolving issues of land tenure, redistribution and restitution.

2.5 Technology and Input in Production

There are different types of traditional land use. The prevailing system of shifting cultivation involves clearing and burning natural vegetation before using the land for one or two seasons. In the lowland areas with comparatively good access to water and irrigation, there are ecologically sustainable practices for growing rice. Buffaloes are used for tilling the soil. Traditional systems are generally considered ecologically stable when there is an abundance of land.

There is currently little mechanization in the agriculture sector. The introduction of agricultural machinery has not been entirely successful. The larger tractors have by and large proven to be a failure, mainly because of lack of spare parts and as a result of misuse. In contrast, the smaller tractors, or "hand tractors", have been relatively successful. Of 276 hand tractors in 1997 only 11 were reported broken, compared to the big tractors where 20 out of 51 were not usable (Viegas 1999: 8). The survival of the hand held tractors has to do with ease of handling, accessibility of spare parts, and the similarity to other commonly used motorized equipment such as motor cycles.

There are obvious advantages with tractors compared to buffaloes for tilling land. In addition to being able to work long hours during peak seasons and improving weed control, the tractor can also be used for other purposes such as husking of rice[5]. From the farmers point of view tractors are economically attractive, but they do not guarantee increased crops and yields.

Chemicals are limited to minor use of pesticides and fertilizers. There is established local knowledge on insecticides used solely for wet rice cultivation. Other unidentified pesticides are also used for wet rice cultivation. Chemical fertilizers are also limited to wet rice cultivation. Neither non-irrigated rice or maize cultivation use fertilizers, except for manure in maize production. Manure is not reported used for wet rice production in contrast to traditional practices. The chemical fertilizers mostly used are urea and phospatic additions (TSP and DAP)[6]. Use varies greatly from area to area (table 2.4). In the western and middle districts fertilizers are used far more than elsewhere. In the eastern outskirts only urea is utilized. In the middle districts urea, TSP/DAP and other substances are used.

Table 2.4: Fertiliser use (kg/ha) in 1996

	Total	East	Middle	West
Urea	42,33	50,48	37,33	39,19
TSP/DAP	26,44		37,33	42,00
Others	10,67		32,01	

Source: BPS 1996

[5] The use of buffaloes in wet rice cultivation used to be a distinct system in some regions of East Timor. Subsequent to rice harvest the field was used to grow grass on dry land. The grassland was in turn used for grazing and fodder for cattle in livestock raising. The abolition of cattle and buffalo in the years of 1975 to 1980 put a halt to this practice as well as leaving many rice fields idle (Aditjondro 1994: 62).

[6] Triple superphosphate (TSP) and diammonium phosphate (DAP).

Compared to more developed areas in Indonesia, such as Java, fertilizer use is low in East Timor.

Table 2.5: Cost of Production per Hectare of Wet Land Paddy in East Timor, 1996

	Value (Rp)	% of Value of Production
Total Cost	568,732	36.4
Fertilizer	25,489	1.6
Pesticide	4,117	0.3
Other costs	539,126	34.6

Source: BPS 1996

The major costs in the production of wet land rice are for other inputs than fertilizers and pesticides. The main costs associated with the production of paddy rice, maize, cassava and sweet potato are rent for agricultural implements, rent of animals, transportation and the hiring of labor. With respect to costs per hectare, the figures for East Timor are lower than for more advanced areas. Production per hectare is also lower.

2.6 Products

2.6.1 Agriculture

Maize is commonly reported as the main staple food crop since its introduction by the Europeans in the seventeenth century. Rice has gradually gained importance over the last thirty years. By 1997, rice production had reached more than half the tonnage of maize. Rice is grown on about half as much land as maize. Irrigated rice production is gaining importance, but shifting cultivation for maize and rice is still common.

Smallholder plantations have been established, or in some cases merely revitalized. In certain regions there are accompanying nurseries. Main crops for estate productions are coffee, cocoa, banana, copra and candlenut. Information on the functioning of these plantations is scarce and contradictory. In 1997, other important food crops included cassava, sweet potatoes, potatoes, peanuts, green peas and soybean.

2.6.2: Livestock

East Timor's potential for cattle production is generally held to be of some significance. Livestock is the second largest export of East Timor after coffee (World Bank 1999). Traditional livestock types include cattle, buffaloes, pigs and horses. Lately there has been some production of chickens, pedigree hens, sheep and ducks. As noted above, the livestock population took a sharp drop after the integration with Indonesia, but has regained importance. Appropriate land for grazing covers more than 30 percent of all agriculturally suitable land and totals more than 200,000 hectares. At present, only about one third is being used (BPS 1996:50). Security concerns, land ownership disputes, and lack of capital for investment may hold back expansion. The market for livestock is also uncertain, as Indonesia might want to protects its own producers from competition (see chapter 3 on trade).

2.6.3: Forestry

Large parts of East Timor are classified in a Department of Forestry land cover map as consisting of dry, not productive land (Ministry of Forestry and Estate Crops 1999). The low rate of forest cover and low levels of activity in the sector of forestry has resulted in a general lack of documentation of forestry practices. According to official Indonesian statistics (BPS 1997 and Department of Forestry 1999), there is only minor production of saw wood, circular wood and firewood for commercial purposes. No other uses are documented with the exception of fragrant woods. Fragrant woods, primarily sandalwood (*Santalum album*), represent a significant part of all documented forest production.

The potential for forestry is restricted by scarce resources due to small amount of forest over limited areas with limited production. Figures for the exploitation of sandalwood vary greatly from source to source. As described in chapter 1, there is little sandalwood left. Severe over-exploitation in the 1980s is probably the main reason.

During the Portuguese colonial era the main deforestation resulted from the search for export lumber. The deforestation in this period (from the early 16th century to 1974) left a lasting effect in East Timor. East Timor's strategic position in the Pacific War (1942) and the role of East Timor as a battle field also had some impact. Logging during the Indonesian period was significant.

According to *The Ecology of Nusa Tenggara and Maluku* (Monk et al. 1997: 601) the extensive secondary vegetation and grasslands in East Timor are a result of widespread deforestation for hunting, cultivation and livestock grazing. In *Man and Environment in east Timor* (Metzner 1977: 92) it is stated that as much as 90 percent of the vegetation of the area has been modified by man. "In conjunction with the monsoon climate which inhibits the fast regrowth of once-felled trees, a rapid degradation from forest cover to open grasslands and in places even to badlands (without any vegetation cover) seems to have taken place in the area" (Metzner 1977: 114). For comparison large parts of West Timor are also irreversibly deforested, with exceptions for protected areas and other highland areas unsuitable for agricultural practices.

Also due to the climatic conditions in East Timor the possibilities for sustainable forestry practices should be explored, including the establishment of continuous production forest and industrial forest. Sandalwood production is very much a matter of management. Sandalwood has traditionally had a place in composite systems of agriculture, regulated by adat law, and has under former regimes proven to be sustainable. Current practices have proven to be devastating.

In addition to exploring the possibilities for timber production, investigations of the potential for non-timber forest products (NTFP) should be undertaken. Compared to the Nusa Tenggara, there are few registered NTFPs actively harvested for commercial purposes in East Timor. Only betel pepper, lesser galangal (ginger), beeswax and honey, are noted in The Ecology of Nusa Tenggara and Maluku (1997: 644) as NTFPs commercially harvested. Still in the Timor Timur Dalam Anka (1997: 153) fragrant woods and bamboo are also listed as forest products harvested over the later years. Other possibilities include rattan, cinnamon and possibly also trees for extraction of resins such as kopal (Ind. *Damar*) and benzoin (Ind. *Kemanyan*).

2.6.4: Fisheries

The marine resources of East Timor have high potentials, even though current exploitation is low. The main fishing region is around Dili and Atauro, where more than fifty percent of the total fishery work force resides. This is where most motorized vessels with more effective fishing gear are based. East Timor has an estimated potential for maritime production of more than 600,000 tons per year. However, less than one percent of this is harvested (Brahama and Emmanuel 1996: 53) [7]. The number of fishermen as well as their productivity has shown growth over the last decade, but only at a very modest level.

In 1987, 5,500 sea fishermen managed to harvest almost 600 tons of fish, a yield of only slightly more than 100 kg per fisherman. These fishermen include full time fishermen and minor part-timers. The numbers grew to 9,000 fishermen and the catch increased fourfold to 2,400 ton in 1997. This represents a growth from one tenth of a percent of the potential to one quarter of a percent. The fisheries have experienced large fluctuations in recent years, and in 1992 only 135 tons were caught (BPS 1998: 157). Some Indonesian fishery initiatives have been implemented over this same time span. Fish markets have been established, and special attention has been paid to fresh water fisheries. This includes the initiation of a fish hatchery, the

[7] The figures are wrongly represented and calculated in Brahmana and Emmanuel 1996.

installment of fishponds and supply of fry from suitable species. No information is available on the success of these projects.

However, the fishery sector is still underdeveloped. Less than half of the work force is employed as full-time fishermen. The rest are working part time or just occasionally. The majority of boats are simply dugout canoes. In 1997, there were 995 such canoes, another 402 small boats and 630 boats with outboard motors. No larger inboard motorboats were registered in East Timor in 1997 (BPS 1998: 161). Poor equipment, low skills and lack of capital are all reasons for the low levels of production. Nevertheless, the potential contribution of the fishing industry to the economy of East Timor is considerable. The main challenge is both to improve capacity for the fishing fleet, and to expand marketing channels.

2.7 Agricultural Systems

2.7.1: Small holders

The great majority of the present agriculture is small scale. It uses mainly family labor and has little purchased input. Current practices inlcude:

- Shifting agriculture
- Permanent agriculture
- Permanent upland dry fields
- Irrigated fields
- Home gardens
- Tree crop gardens
- Plantations
- Animal husbandry
- Fishing, hunting and gathering

A combination of these components is typically the foundation for the smallholder's livelihood. Different activities are pursued during different seasons. Three dominant categories of agro-ecosystems are found in East Timor:

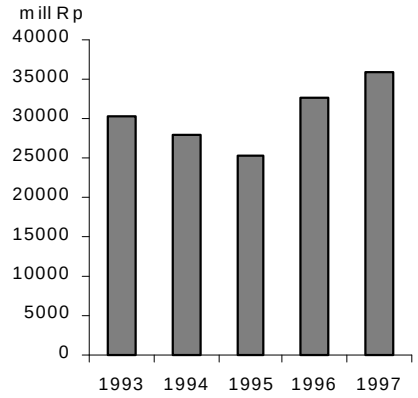
- Fishing, hunting and gathering, in combination with mixed tree gardens and some livestock.
- Shifting cultivation or permanent rice/corn production with a mixture of perennial crops. Small-scale livestock all in combination with sporadic fishing, hunting and gathering.
- Permanent dryland for rice/corn or irrigated rice production in combinations with livestock (also for tilling of land) and homegardens.

Traditional smallholders lived high on the hillsides, out of range of malaria, and grew crops at lower elevations. As noted, peasants have been relocated from the mountains into lowland "guided villages", thus changing the pattern of land use.

2.7.2 Plantations

Official statistics show that estate crops contributed about one third of food crops to regional GDP in 1997. The sector's share of

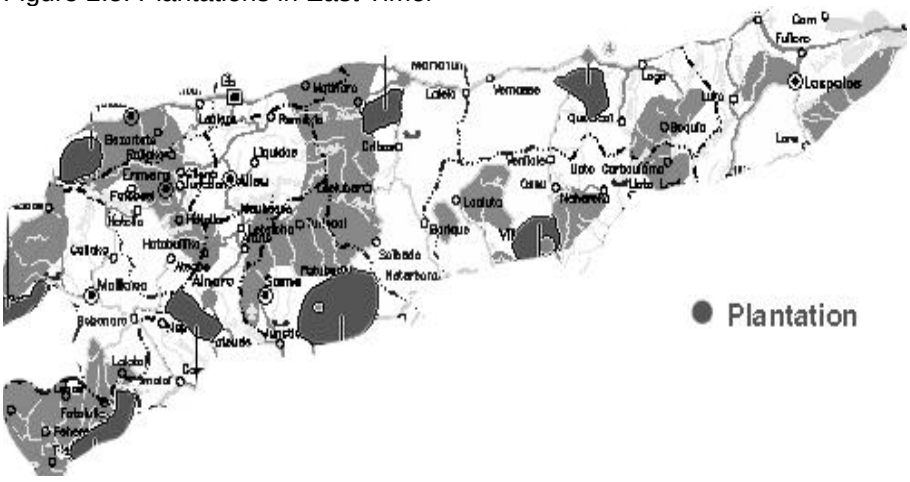
Figure 2.4: Farm Non Food and Estate Products at constant prices 1993-1997



Source: BPS 1998

GRDP has been in the region of four to almost six percent in constant prices between 1993 and 1997. Estate crop-production is the fastest growing sector of agriculture, and production value has grown since 1995 in constant prices (Figure 2.4).

Figure 2.5: Plantations in East Timor



Source: Manipulated from Republik Indonesia Departemen Pekerjaan Umum web page.

Traditionally the yields from estate crops were of great importance to local livelihood both as cash revenue generators and for local consumption. While small-scale estate crop production is still prevalent in East Timor, large-scale estates exist only for coffee, vanilla and cacao (see Figure 2.5 for plantation areas in East Timor).

Between 1976 and 1994, development of the plantation sector was severely hampered by conflict. In addition to coffee production which virtually disappeared, some products completely lost their importance. Rubber was, during the Portuguese period, the third largest export commodity from East Timor. Since 1976, it has almost disappeared as an agricultural crop (Saldanha 1994: 216).

GOI development was directed to the production of coffee and coconut. These crops had traditionally been produced in large quantities in East Timor, contributing greatly to the local economy through export. Other crops that were attempted introduced included clove, cashew nuts, cocoa, pepper and vanilla.

The only estate crop product that has been able to regain its pre-1975 position is coffee. Coffee has shown rapid growth in terms of volume in recent years, almost doubling its output from 1998 to 1999 (Murphy 1999). Currently, farmers organized by the US based National Cooperative Business Association (NCBA) control the production and marketing of coffee. Since this arrangement was duly signed and the producers formed a processing and sales cooperative with the NCBA four years ago, production has increased year by year.

Small-scale (small holder) estate production dominates that of large-scale estates in coffee production. In 1997, there were in 1997 more than 45 000 farmers involved. On average these farmers produced 215 kilos. Compared to smallholders in for example East Kalimantan this is actually a quite significant harvest.

Development of the coffee plantations has mainly occurred in Ermera, Liquisa, Manufahi and Ainaro. These are all districts close to Dili. The pattern of these efforts is easily visible in today's production volumes for the different districts, with Ermera as the largest producer (27,821 tons in 1997 in Ermera and 6,012 tons in Manufahi, as the second largest producer).

The main producers of both hybrid and "normal" coconut are found in Viqueque, Lautem and Baucau with only minor production in other districts. The hybrid coconut has nevertheless shown to be of only minor importance with five districts containing productive trees, producing only 19 tons in 1997.

The cocoa production in 1997 was only 27 tons, with the district of Bobonaro producing 22 of these tons. Two tons of clove were produced in Ermera and Bobonaro, with plantations established also in the districts of Manufahi, Baucau, and Aileu. Vanilla is found in Liquisa and Ermera, producing 4 tons per year. More significant estate production exists for areca nut and candle nut with main production centers in the districts Viqueque and Covalima, although production is not essential to national figures for Indonesia or even East Timor[8].

Kapok (Ceiba pentandra) is used for fiber and oil. There are active producers in eight districts including Bobonaro and Ambeno.

Commercial forest plantations are also present in East Timor. They are run by the government backed HTI scheme (Hutan Tanaman Industri) to provide supplies of raw materials for wood processing industries. Among the priorities of this program is to reduce and eventually halt cutting of naturally matured forests. HTI is associated with transmigration labor to the concession areas (HTI-trans). HTI operates 30,000 hectares in East Timor; 250 hectares were planted in 1989-90; and 500 ha in 1990-91. The 30,000 hectares refers to licensed area, and not area that has been planted or even prepared for planting. There has been five species of trees planted in East Timor by the HTI, from which four are not indigenous to East Timor (Monk et al. 1997: 633).

Land tenure issues are the main impediment for the development of the plantation sector. Plantation investments are greatly curtailed because of the lack of clarity on ownership issues. Many firms have considered plantation investment, especially in coffee. They have been deterred by unresolved claims from the Portuguese era.

The low productivity in the sector of plantations has been explained by unavailability of extension workers, lack of labor, infrastructure, and capital to initiate estates of adequate proportions to be economically viable.

The production of most of the plantation crops is labor intensive. Often increased production in the estate sector is suggested to increase employment and national income (see Timor Link 43, Special Supplement - Prospect for an Independent Economy). Investments in the plantation industry elsewhere in Indonesia are marked by exploitation of cheap labor, forceful expropriation of land and subsequent land conflicts. Large plantations rarely result in just distribution of benefits. There are also serious environmental concerns to take into account.

Lack of capital has been attempted solved by developing project prospects aimed at attracting foreign investment. There are examples for candlenut cultivation, banana gardens, cashew nuts, cocoa plantations and horticultural crops such as soybean and peanut, and even for the former staple crop of corn. The main promoter of such projects is The Regional Investment Coordinating Board of East Timor, which produced a number of leaflets for inviting investors in 1993 (see for example Candlenut Cultivation Project Profile, 1993). These

[8] The betel or arcea nut comes from this palm (Areca Catechu), a slender climbing tree that grows to 15 meters in height. The nut is used for chewing with ground and burnt lime and the sirih leaf of the piper betle palm (piperaceae), and is actually more popular worldwide than alcohol or tobacco. The nut and other parts of the palm also have medicinal uses, such as for traditional treatment (of cholera, dysentery, fatigue, fever, hysteria, malaria, tapeworm and much more), and a place in traditional ceremonies. Kemiri (Aleurites moluccana), or candle nut, is a versatile tree and the fruit has many uses. It is used for spices in cooking. The extracted oil is used in Indonesia for hair treatment and beauty care. It is also used as oil for candles, lamps and soap.

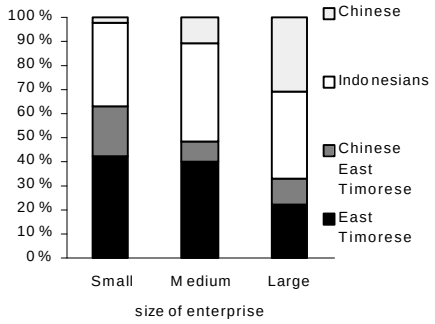
effors have, however, proven to be completely unsuccessful[9]

In 1996, major investments were initiatied for another non-traditional crop, sugarcane. These plans were made despite declining world sugar prices for the past five years or more. A large investment in a major sugar mill in Manufahi was planned and approved by the Indonesian Investment Board for a private Indonesian company. The plantation was planned to extend over 25,000 ha in Manufahi and into Viqueque and to produce 162 tons of sugar and 8 ton of molasses every year (Timor Link 43, Special Supplement - Prospect for an Independent economy). The planned investment is now on hold.

2.8 Non-Agricultural Production

The production of non-agricultural goods in East Timor is minimal. The mining and manufacturing sector together count for some 3 percent of the GDP and workforce. The commercial services sectors constitute only about 13 percent of the GDP and 6 percent of the workforce.

Figure 2.6: Ownership of enterprises in East Timor 1993



Source: Saldanha 1995

[9] See for example the web page for the regional investment statistics by the central Investment Coordination Board for the Republic of Indonesia (http://202.158.4.117/). .No foreign investments has been negotiated through this forum to East Timor and only low domestic investments have taken place.

Efforts to develop the private industrial and service producing sectors have not been successful. Native East Timorese play a minor role in business activities (Figure 2.6).

2.8.1 Manufacturing

The manufacturing sector in East Timor is composed of some 4,000 enterprises, employing around 10,000 persons. The overall majority of enterprises produce on a very small scale. Except for the processing of coffee and sandalwood, enterprises produce mainly for the home market. Essential goods such as building materials, kitchen utensils, and clothing are imported from other parts of Indonesia including Denpasar, Surabaya and Jakarta.

The coffee industry in East Timor is by far the largest producer, in absolute terms and per employee.

Sandalwood production is closely regulated by the local government. Producers, including private individuals, need a permit to cut the tree and another permit is required to sell the wood. No wood can be shipped out of the province in unprocessed form, and three firms have rights to buy wood for processing. A small percentage of the wood is allocated to two or three firms in handicraft production. In addition there is one firm authorized to produce sandalwood oil and sandalwood sawdust (a by-product of oil processing). All firms are owned primarily by non-Timorese. The potential of this industry is limited by the excessive and inappropriate resource regulation resulting in medium-term extinction.

Principal employers in terms of labor absorption are weaving, food processing and wood manufacturing such as furniture works. However, these industries have low productivity measured in terms of production per employee and contribute little to the overall economy.

Manufacturing is unlikely to become a significant source of growth in the foreseeable future, given the shortage of skilled labor, high local living costs

(particularly in urban centers), the small local market, and poor transport services. In the longer term, promising areas of growth will be resource-based processing activities which build on East Timor's experience in estate crops such as coffee and coconuts, and possibly livestock and forest industries.

The primary obstacles to promoting manufacturing continues to be the lack of skilled personnel, scarcity of capital, and lack of access to foreign markets. It is not likely that East Timor will be able to compete with Indonesian enterprises in sectors with substantial economies of scale[10].

Table 2.6: Mining and manufacturing enterprises 1996

	Units	Empl-oyees	Production value per employee (1000 Rp)
Coffee processing	1	86	265 403
Sandal oil	1	38	33 221
Coffee powder	32	176	19 956
Saw mill	10	123	13 589
Meat processing	3	9	12 000
Tofu	28	78	11 332
Bricks	61	465	6 661
Printing	14	77	6 638
Wood carving	62	382	6 422
Tyre repair	15	46	6 086
Photo & copying	28	65	5 945
Bakery	139	600	5 759
Honey	26	28	4 284
Garage	71	335	3 548
Syrup	10	128	3 346
Ice cream	20	53	3 285
Furniture (wood)	571	1 447	3 229
Garment	145	634	3 110
Sandalwood carving	3	64	2 920
Electronic repair	19	38	2 846
Marble crafting	2	14	2 345
Silversmith	41	61	1 800
Other	105	259	1 192
Tais (trad. cloth)	1 347	2 714	904
Blacksmith	342	907	884
Salt	274	623	590
Ceramics	147	331	536
Coconut oil	51	183	526
Palm-tree wine	102	235	342
Total	3 670	10 199	5 264

Source: Compiled and revised from BPS 1996 by Rui Gomes

A cement factory was being planned for Baucau before the economic crises hit Indonesia, and also several sugar factories along the south coast as a part of the aforementioned planned sugar plantation. Both investments had non-Timorese backers, and neither investment appears economically feasible now or in the medium-term future. World sugar prices have been falling for the past five years or more and are at their lowest level in decades. Indonesia has never been a low cost producer of sugar. Profitable cement production entails very large economies of scale. Given the very limited market for cement in East Timor, this firm would have to export very large quantities and would face intense competition from a number of Indonesian firms with excess capacity.

2.8.2: Mining

East Timor has many deposits of different minerals (see chapter 1) and non-minerals. Only a few are likely to be of significant quantity to be suitable for export. Although there are many minerals, the lack of accurate information concerning economic feasibility, values and sizes of deposits presents obstacles to mineral exploitation. More detailed research is required to determine the location/quantity of deposits. The research will also be useful to potential investors in the mining sector of East Timor.

The costs associated with development of mineral industries are typically prohibitive for a small economy. Mineral exploitation requires sophisticated technology. There have been no fully capitalized ventures to date.

[10] Unit cost decreases with production volume, so that large producers will be able to make a profit at prices where small producers are running a deficit.

In 1996, the Provincial government invited investors to participate in the exploitation of the marble (Indonesian Observer 1996:3). No further information is available on this, though anecdotal evidence suggests that some marble is being produced. Indonesian statistics show that there are only a dozen or so workers in the marble industry and little production.

2.8.3 Oil

Oil has been prospected for since 1902 (see chapter 1). Through the 1960s, attempts to begin production of on-shore oil were frustrated by wars or by governmental indifference. Since the 1960s the interest has increased but bureaucratic barriers, including disputes over territorial boundaries and sovereignty, have limited progress toward full production. (Jannisa 1997:157-164). There are prospects for on-shore production in Viqueque and in a few other suitable locations. Off-shore, exploitation in the Timor Gap has begun, so far only in trial production (see chapter 1).

The assertion of East Timor's legal rights over oil reserves in the Timor Gap is of critical importance to the emerging nation. It may not be realistic for East Timor to participate in extraction activities, but East Timorese authorities should prepare negotiations with international oil companies based on the latest estimates of oil/natural gas deposits/locations. This information will be the basis for production schedules and revenue projections. To maximize benefits, a resource tax regime and oil policy framework should be established. Norway's experience may help inform East Timor's consideration of these matters.

GOI has a history of high public spending in East Timor which should not be repeated. Easy access to foreign exchange through oil revenues must be accompanied by sound fiscal policies. If the oil is to benefit the whole population for generations to come, revenues must be allocated for productive investments and not only recurrent expenditures.

2.8.4 Tourism

In many poor countries with few alternatives for development, such as Nepal, Antigua and Maldives, tourism is the main industry. Viewed from its geographic, topographic, climatic situation as well as its socio-cultural and socio-economic conditions, East Timor has a potential for tourism. The region has various natural attractions in terms of sightseeing, cultural tourism and arts, as well as the unique and attractive traditional architecture and ceremonies.

However, the tourism sector in East Timor is not very developed. During the colonial period, only some parts of Dili and Baucau attracted foreign tourists, especially Australians. Tutuala's beach, Uatucarabau's waterfall, and Maubisse's beautiful scenery were not developed as tourist attractions due to lack of infrastructure, capital and technology. During the last decade of Portuguese presence in the region, several activities were undertaken to improve tourism with special emphasis on attracting Australians. The increase in tourism in this period is an indication of East Timor's potential.

The Government of Indonesia allocated 100 million Rupiah in 1991/92 for the development of tourism. These funds were to be used for the development of coastal resorts, parks and other facilities. However, little has been achieved. An impediment has been that the Airport of Baucau which used to be the gateway for tourists entering East Timor from Darwin, has been closed to commercial flights.

As a fast growing sector in the tourism industry, ecotourism is likely to be an attractive investment. There is a strong case for vigorously promoting ecotourism in East Timor, given its unique traditional village life, natural environment ranging from rainforests to savanna grasslands, and secluded beaches fringed by coral reefs. Scenic attractions include spectacular mountains.

Tourism can contribute to economic vitality without industrialization. Capital will have

to be sought from foreign sources, probably in exchange for equity participation. In addition to the skills which are needed to operate a tourism industry, other measures are needed to develop the tourism sector. Infrastructure, including transportation access by air, sea and land, needs to be evaluated.

2.8.5 A Policy for Growth

Infrastructure development policies: Target strategic development of infrastructure to support economic development in areas such as tourism and plantations, which require that infrastructure be in place. More carefully planned projects, with quality implementation and maintenance, can help encourage private sector investment.

Foreign Investment: Encourage foreign investment in targeted sectors to overcome capital shortages. Providing incentives such as tax breaks in the productive sectors, including tourism and agribusiness might encourage investment. A legal framework for foreign investments is necessary to ensure the interests of local workers and capital owners, the government and for natural resources protection.

Human Resource Base: Increase literacy, introduce on-the-job training and vocational training, and improve the quality of education to create human capital needed for economic development.

Diversification: Shift capital resources from physical infrastructure in urban centers to productive sectors. Concentrate on sectors such as tourism, agribusiness and fisheries which have the potential for increasing income and drawing capital.

Mineral Exploration: Investigate the economic viability of mineral exploitation. Work toward settling ownership issues of energy resources in the Timor Gap.

3. Trade and Finance

Summary

Private sector distributors are capable of supplying basic goods, including rice. However, future rice sales cannot rely on GOI subsidies or price supports. Further withdrawal of individual traders from the distribution chain will weaken overall distribution. In the future, the export of cattle to Indonesia is uncertain.

Over the period December 1998 – May 1999, deposits in commercial banks in East Timor increased 21 percent while outstanding credit contracted by nearly 8 percent. Indonesian commercial banks may choose to continue to operate but will require an appropriate legal environment, including certainty over land tenure issues and contract enforceability.

3.1 Imports

All the basic goods such as rice, sugar and flour are secured from outside East Timor. Prices are marginally higher in East Timor than elsewhere in Indonesia. This price differential is largely attributable to the cost of shipping and local land transport.

About one third of the total egg supply is produced locally. The remaining 70 percent is imported from Surabaya. All fresh chicken is produced locally, although there is no local DOC production. DOCs are brought in from Surabaya by air transport. East Timor is largely self-sufficient in fruits, vegetables, and beef.

Table 3.1: Imports of Basic Goods to East Timor 1996- April 1999

	1996	1997	1998	1999
Dolog rice, ton	23,162	21,113	45,317	16,591
Private rice, ton	16,070	23,016	5,120	1,250
Sugar, ton	1,682	3,143	6,303	1,000
Wheat flour	4,423	2,920	1,778	450
Cooking oil, m^3	3,909	2,772	1,863	500
Bulk oil, drum	560	1,327	1,016	250
Iodized salt,,ton	998	1,001	1,270	425

Souce: Kanwil Depperindag Timor Timur

The main supplier of cement is Semen Tonasa in Ujung Pandang. There are some limited supplies from Semen Kupang. Tonasa has three local distributors, although the primary distributor is Batara Indra. In 1998, total consumption of cement was estimated at 35,000 tons. Government-funded construction projects absorbed about 80 percent of this amount.

3.2 Exports

Exportable products include coffee, beef cattle, sandalwood, copra, cocoa and kemiri nuts. Marble has been quarried around the Manatuto area and shipped to Java for cutting and polishing, but this enterprise does not appear to have been active recently.

Table 3.2: Exports from East Timor, 1996-April 1999

	1996	1997	1998	1999
Coffee, ton	8,000	4,500	4,250	23
Copra, ton	630	998	770	
Cattle, head	3,000	3,500	4,000	1,000
Sandalwood sawdust, ton	115	18	244	150
Sandalwood oil, ton			8*	
Cocoa,ton	58	509		
Kemiri nuts, ton	142	184	484	27

**Annual permit in 1998 for 15 tons and 16.4 tons in 1999*

Source: Kanwil Depperindag Timor Timur, NCBA (for coffee)

Coffee, a key export, is harvested between May and September. The main buyers are Salazar, a subsidiary of Batara Indra, and a joint venture between the cooperatives. Though in 1999 Salazar did not buy coffee because of the security situation, NCBA began buying coffee from the Ermera area in May. It reports an excellent crop which is more than double last year's. NCBA did not buy in the Liquica area in 1999 because of the security situation, but predicted total exports would reach 11,000-12,000 tons.

Beef cattle are exported to Surabaya and Jakarta, (Table 3.2). As of May 1999, there

were three cattle traders shipping from Dili, all of them originating from outside East Timor. Cattle exports were steady during the first half of 1999. The principal shipment point is in West Timor just outside Ambeno.

Sandalwood is also an important export. Since the governor failed to issue the annual decree designating authorized buyers and their annual allowable purchases, handicraft producers did not operate in 1999. The producer of sandalwood oil was reportedly drawing down stockpiles at the rate of 1.4 tons per day during the beginning of the year.

3.3 Internal Distribution

Since January, wholesale and retail trade were severely affected by the exodus from East Timor. Many families, including those of civil servants, left East Timor with a good portion of their assets and savings. Fifty percent of private distributors did not maintain stocks. Since December 1998, the remaining 50 percent have had their turnover drop 40-60 percent.

Much of the commercial trade was concentrated in Dili. The two active distributors reported 50-60 percent of trade taking place in Dili and the remainder in the other 12 kabupaten. These firms had very wide distribution networks, with the smaller of the two supplying goods to about 350 firms in Dili alone. Most of these firms were subdistributors and some were retail outlets.

By May both firms lost half or more of their subdistributors, especially in rural areas, where firms tended to be operated by immigrants who had fled. At the village level, immigrant traders bought from farmers and sold in the local markets. In May, the head of domestic trade in the office of Industry & Trade reported that East Timorese moved into these roles quite effectively, and there were no market disruptions. The capital involved at this level is limited, and Rp 100,000 is probably adequate to set up operations. Replacing larger, kabupaten-level traders and subdistributors is more difficult, since larger capital investment and higher skill levels are required.

Demand patterns changed as wives and families left, reducing the market for higher quality goods. By May, demand was much stronger for basic goods. Sales were made at lower profit margins.

Distributors also experienced supply problems from factories. Producers were uncertain about the Dili market and were reluctant to ship goods. Suppliers used to provide a credit line up to 200 percent of the firm's bank guarantee. Credit lines are now 100 percent and full cash payments are required for amounts in excess. There are also problems with partial order fulfillment even where orders are paid for in cash. Indonesian suppliers are increasingly cautious and likely to reduce supplies further.

Financing was difficult as a result of both the crisis in the banking sector and the high-risk environment. To get a bank guarantee, firms used to deposit 10 percent of the guarantee amount in the bank and pay a fee. Now the bank demands a 100 percent deposit. Credit was also expensive. 38 percent at BRI and up to 50 percent at private banks. This also affected the ability of distributors to offer credit to customers.[11]

3.4 Rice Distribution

Local production of rice is very limited, rice is grown primarily from the south coastal areas where there is adequate irrigation.[12]

Bulog was the main distributor of rice in East Timor through its provincial and kabupaten offices (Dolog and subdolog). In recent years, private distributors have been bringing in large and increasing amounts of

[11] These changes in local credit conditions are typical throughout Indonesia, and are not unique to East Timor.

[12] These are the same areas targeted for the proposed sugar plantations.

rice to market privately, reaching a peak in 1997 at 52 percent of the total imports. However, this activity declined sharply beginning in 1998 as Bulog supplies increased. This year private traders reduced their contribution from about 7 percent to less than 0.5 percent of rice imports.

In May rice stocks in Bulog warehouses in East Timor totaled over 12,000 tons, and more rice arrived after that. Normal distribution was about 6,000 tons per month (3,000 in Dili, 3,000 outside Dili). Thus May stocks should have lasted through July at a minimum. The Dolog sold all three grades of rice, but the largest demand was for grade III. Grade II currently sold for Rp 2600-2700 in the local market. Prices tended to be quite stable, and grade III market prices were generally somewhat lower than prices in Kupang.

The Dolog had several non-market and market mechanisms for distributing rice. The budget group or Bulog has a contract to supply rice to the military and civil servants throughout Indonesia. The Dolog is notified from Jakarta when an 80 percent partial payment has been received. Dolog issues a delivery order to the appropriate local agency, and the rice is then picked up at the nearest subdolog warehouse. Local governments sometimes organize this activity for all civil servants in their area.

Operasi Pasar Khusus (OPK, or special market operations) is the government's social safety net program which delivers 20 kg/month of subsidized rice to the poorest. The recipients are determined by the local family planning offices and reported to the provincial governor's office. The Dolog or subdolog then delivers the appropriate amount of rice to the village chief or similar local official, who is responsible for distributing the rice to target recipients. The local official is responsible for paying Rp 1000/kg to Dolog for the rice, and in turn, collects this amount from the recipients. This is equivalent to a consumer subsidy of approximately Rp 1200/kg in East Timor.

Operasi Pasal Murni (OPMurni, or pure market operations) involves direct distribution. Dolog transports rice directly to the local market areas and sells it to the traders and retailers at that location. Distributor sales involving traders who purchase rice through standard delivery orders and pick it up at the local dolog or subdolog warehouse for distribution to local private markets. Yayasan or foundation sales are made to charitable or non-profit organizations for re-distribution.

Target May distribution numbers for Dili are reported in Table 3.3. April actual distribution numbers by kabupaten and type of sale is contained in Table 3.4.

The Dolog reported that the OPK program was functioning well. The OPK program in East Timor was quite large relative to the population. Average monthly distribution of OPK rice between December – April was 1,450 tons and peaked in April at 1,948 tons (Table 3.4). At 20 kg per family this covers 72,500 families. Assuming 5 people per household, 1,900 tons of rice should have been distributed to 362,500 people, or about 40 percent of the East Timor population.

Local officials have reportedly been prompt in paying the required Rp 1000/kg for the special rice, and the head of the Dolog asserted that the recipients have not had trouble coming up with Rp 20,000/month to purchase their family's allocation.[13]

The most obvious problem with the program was its lack of external monitors, as there apparently was no local organization willing and able to do the job. Few NGOs with community-level operations reported being aware of the program's activities despite its scope.

[13] The target recipients' lack of cash has been a common problem throughout the program, and would have been expected to be a constraint in East Timor given the subsistence-level economy in many areas.

Table 3.3: Dolog Timor Timur, Target distribution from Dili for May 1999

Market Segment		tons
ABRI		727
Civil Servants		525
OPK*		602
OPMurni (subtotal)		620
Satgas	300	
Distributors	200	
Outside the city**	100	
Yayasan	20	
Other		125
Regional (to subdologs)		2,800
Total		5,399

**Allocation for subsidized rice distribution just in Kab. Dili.*

*** Sales to distributors from outside the local area.*

OPMurni can be as much as 1200 tons per month, although it was around half that level in May. Satgas operations (Dolog's direct delivery and sale to market traders) were zero in April because of the security risk, but were back to normal in May. Local distributors received about 200-300 tons per month through OPMurni. April was larger than normal at 550 tons, partly because of the lack of Satgas operations. Overall, there was some expectation that rice distribution would be lower than normal during the months up to the consultation, reflecting the exodus from Dili. In May the Dolog was already seeing some evidence of this in Satgas distribution to the local markets. Sellers were declining to buy more rice. There were about 36 routine distributors operating from Dili. The margin differential between Satgas and regular distributors' operations is estimated at around Rp 200-300/kg, which was well within Bulog's permitted margin. Most of this cost was taken up by the cost of plastic bags, which were reportedly selling for Rp 200/bag in the local market. Sales were also made directly to yayasans under OPMurni, who tend to buy in small lots of 3-4 tons.

By May the departure of roughly 50 percent of the small market traders from Dili affected the rice trade just as it did other private retail trade. The general exodus started as a trickle last July, picked up steam in November, and reached its peak in March. Those who left were mostly from South Sulawesi and Java. Bulog and the local governments encouraged Timorese (putra daerah) to take the traders' places in order to develop a more stable market delivery mechanism. This was relatively successful in the villages, mainly because it

Table 3.4: Dolog Timor Timur Rice Distribution, April 1999 (tons)

	Warehouse Location									
	Dili	Same	Mal-iana	Baucau	Mana-tuto	Suai	Vique-que	Lau-tem	Am-beno	Total
Beginning Stock 3/25/99	5,972	204.5	108	-63	0	296.5	-110	23	236	
Supply										
National shipments	11,200								500	11,700
Regional shipments		300	450	500	300	300	500	350		2,700
Total stocks	17,172	504.5	558	437	300	596.5	390	373	736	21,067
Distribution	2,600	425	483	552	250	235	425	330	348	5,648
Budget Group	1,200	125	125	250	100	75	100	125	100	2,200
OPK	600	200	258	202	100	110	225	105	146	1,948
OPM	800	100	100	100	50	50	100	100	100	1,500
Regional shipment	2,700									
Ending stocks	11,872	79.5	75	-115	50	361.5	-35	43	388	12,719
Warehouse Capacity	8,500	900	2,500	2,500	500	700	1,000	500	900	18,000
Remaining Space	-3,372	820.5	2,425	2,615	450	338.5	1,035	457	512	5,281

Notes: Dili has extra ready-to-use warehouse space of 2,500 tons
Optimizing space adds +1000 tons to warehouse capacity
Source: Dolog Timor Timur
These are prognosis figures. Realized numbers are usually within 2-4% of prognosis.

required less capital. Bulog also supported local government special Saturday markets which were coordinated by the Ministry of Cooperatives.

There were 4 Dolog warehouses in Dili and 21 warehouses in the kabupaten, with a total capacity of 18,000 tons. Each warehouse had two resident Dolog staff.

There has been a strong effort at the Dolog to increase Timorese staff numbers and improve their skills. Most warehouse supervisors are now Timorese, and eight Dolog staff have completed their Bulog sponsored university education in order to assume more responsible roles in the Dolog.

3.5 Finance

Interviews with the Dili branch office of Bank Indonesia provide a broad perspective on overall financial activity in the province. Consultations with the Dili branch of BRI in order presented picture of savings and credit activity in a specific bank. BRI has the broadest rural coverage of all the banks in East Timor.

3.5.1 The aggregate picture

There are 8 banks with 31 offices operating in East Timor including 4 government banks, 3 private banks and the regional development bank (BPD). Unlike other BPDs around Indonesia, the BPD in East Timor was solvent and well managed.[14] Only two banks, BRI and the BPD had rural operations in addition to their Dili offices. Data on firm-level market shares was unavailable from BI. BI was also unable to provide any opinion on the profitability of local banks.

However, aggregate credit and deposit[15] data provided by BI showed that deposit balances in the province were double-to-triple the level of outstanding credits, indicating that East Timor was a net source of funds for banks (Table 3.5).[16]

Table 3.5: Total Deposits and Outstanding Credit in East Timor (billions of Rupiah)

Month	Depo-sits	% change	Credit	% change
July 98	403		166	
Aug. 98	408	+1.2	167	+0.6
Sept. 98	429	+5.1	167	
Oct. 98	424	-1.2	168	+0.6
Nov. 98	445	+5.0	171	+1.8
Dec. 98	475	+6.7	165	-3.5
Jan. 99	496	+4.4	163	-1.2
Feb. 99	494	-0.4	164	+0.6
Mar. 99	499	+1.0	158	-3.7
Apr. 99	488	-2.2	153	-3.2
Cumulative change		+21.1		-7.8

Source: Bank Indonesia Dili Branch

By the end of April, aggregate deposits in the province actually increased by 21 percent since July 1998, and by 3 percent since December (used here as the pre-announcement benchmark month). Deposits peaked in March 1999. One possible reason is that people felt it was safer to keep their money in banks. However, Table 3.6 shows that those deposits were placed in private banks and not in government banks.

Aggregate outstanding credit in the province declined, as banks became much more cautious in lending because of both the security situation and uncertainty over their future status. Profitability became much less

Table 3.6: Location of Bank Deposits, December 98 – April 99 (millions of Rupiah)

	Dec. 98	Apr.99	% change
Govt. Bank	399,283	397,296	-0.5
share %	84	81	
Private Bank	76,559	91,019	19
share %	16	19	
Total	475,842	488,315	3

Source: Bank Indonesia Dili Branch

[14] The BPD reportedly served as the central bank during the Portuguese period, although this was not verified.

[15] "Deposits" include all checking, savings and time deposit accounts.

[16] Data on non-performing loans were not available.

certain in the lead up to the referendum. BI estimates that only about 40 percent of the incoming deposit flow was being lent out in May.

Changes in the sectoral composition of credit are detailed in Table 3.7. State banks dominated the credit market with over 98 percent of outstanding loans. And while overall lending contracted by 7.7 percent, private bank lending decreased by -19.6 percent as compared to –7.5 percent for state banks. This reduced the small share of private banks even further. Lending decreased to all sectors except agriculture, which increased sharply by 23.3 percent. This increase is most likely a result of expansion in subsidized agricultural credits (KUT), although this needs to be confirmed. Social services (-21.8 percent), construction (-20.2 percent) and transport (-13.2 percent) suffered the largest contractions in credit.

In May, BI officials expected to see few changes other than a continued reduction in lending and possibly a shift in the type of deposits. They predicted that people would want to maintain their assets in a more liquid form because of heightened uncertainty, and expected to see movement from time deposits to regular, on-demand savings accounts. The BPD also likely saw reduced deposits, as people moved their accounts into banks that can be accessed in more than one area/province.

3.5.2: BRI

BRI tended to have a more balanced credit and deposit portfolio compared to the aggregate banking sector in East Timor. BRI accounted for just 5.4 percent of total deposits, but 14.7 percent of total outstanding credit. Consistent with the data above showing a preference for private bank deposits, BRI customers reduced their funds by 11.3 percent over December-May (Table 3.8). Dili-based deposits shrank much more sharply than deposits in the unit desa outside Dili. Bank managers provided two basic reasons for falling deposits. People moved away from East Timor due to the uncertain security environment and closed their accounts. Some people shifted their accounts to BRI branches in other parts of Indonesia, especially NTT. Neither evaluation adequately explains why BRI deposits fell while aggregate deposits rose.

Both credit and deposits fell more sharply in Dili than in the outlying areas, because the urban population tends to be wealthier and more mobile. BRI did not collect any data on Timorese vs. non-Timorese customers.

BRI had 12 Unit Desa (8 outside Dili) which were all managed independently. The local manager was responsible for credit decisions. The maximum loan amount was

Table 3.7: Outstanding Credit by Sector in East Timor, December 98 – April 99 (millions of Rupiah)

	December 1990			April 1998			Change
Sector	Govt. Bank	Private Bank	Total	Govt Bank	Private Bank	Total	%
Agriculture	7,817	318	8,135	9,320	316	9,636	+23.3
Mining	0	0	0	0	0	0	
Manufacturing	5,012	3	5,015	4,521	3	4,524	-9.8
Electricity & gas	0	0	0	0	0	0	
Construction	17,587	175	17,762	14,078	101	14,179	-20.2
Trade	25,893	2,188	28,081	24,142	1,730	25,872	-7.9
Transport	7,669	19	7,688	6,654	19	6,673	-13.2
Business services	141	0	141	135	0	135	-4.3
Social services	197	0	197	154	0	154	-21.8
Other	98,594	173	98,767	91,675	143	91,818	-7.0
Total	162,910	2,876	165,786	150,679	2,312	152,991	-7.7
Change %				-7.5	-19.6	-7.7	

Source: Bank Indonesia Dili Branch

Rp 25 million, but there were only one or two medium-large borrowers in each of the Unit Desa. The bulk of loans are for Rp 3 million or less. BRI also expected outstanding credit to decline between June and August because of the continued risk.

The future of BRI in East Timor had not yet been decided in May. Those decisions were to be made by the central office in consultation with the local branch. Besides the basic question of profitability, the decision will depend primarily on the legal environment. Banks will need to have some certainty over land tenure issues and especially contract enforceability. If the legal environment is appropriate, there is no obvious reason for them to withdraw. BRI management pointed out that they already have branches in New York and Singapore.

Table 3.8: BRI Timor Timur Branch, Recent Changes in Deposits and Outstanding Credit (millions of Rupiah)

		Dec. 98	Mar.99	Change %
Deposits	Dili	8,102	6,158	-24
	Outside Dili	21,758	20,341	-6.5
	Total	29,860	26,499	-11.3
Credit	Dili	8,508	7,412	-12.9
	Outside Dili	16,833	15,140	-10.1
	Total	25,341	22,552	-11

Source: BRI Dili Branch

BRI had numerous Timorese staff, including 1-3 (out of 6) in each unit desa. If BRI ceases operations, all staff regardless of origin could get positions elsewhere. As long as BRI continues to operate in East Timor, all staff will remain. Non-Timorese staff will not be selectively sent out of the province.

Section II:
Population and Human Resources

4. Population

Summary

Standing at about 0.9 million, the East Timorese population is growing at around 2.4 - 2.6 per cent per year, which currently translates into a yearly absolute increase of approximately 23 thousand people.

There is comparatively high fertility. About 42 percent of the population is less than 14 years old. At the same time as war, famine and out-migration has reduced the working

Data and Information gaps

The sources for population data for East Timor for the Indonesian period is mainly the 1980 and 1990 population censuses, the 1995 Demographic Survey (SUPAS 95) and the yearly living conditions monitoring surveys (SUSENAS). Of these the 1980 Census is not available. We have used anonymized micro data from a 10 per cent sample of the 1990 Census, as well as the micro data from the SUPAS 95 and the 1997 and 1998 SUSENAS. The local Central Board of Statistics of East Timor Province also produces population estimates. For the Portuguese period our main source has been the population figures published in the Colonial Reports.

Considering the huge amount of published statistics on the East Timorese population, there are surprisingly few firm conclusions that may be drawn on population issues. This has several reasons.

- The East Timorese population experiences a time of change, and it is likely that there are demographic changes associated with this that are not yet recorded by any survey.
- The various data sources are not always consistent with each other. Of particular concern is that the data on the age structure are inconsistent.
- Migration statistics are absent or misleading. This is serious in the case for migration into East Timor, which many sources describe as substantial. Internal migration and forced resettlement are not covered by the statistics. Migration out of East Timor is also not covered, but appears to be small.

The infant and child mortality statistics varies widely in the published literature, but the micro data available are generally consistent.

The fertility estimates that can be obtained from the various micro data sources appear consistent, but many of the estimates that are floating around in the literature pertain to the late eighties rather than present conditions.

Adult mortality statistics are not available, or cannot be reliably estimated from the micro data.

In sum: First, while the data gives fairly good indications of mortality and fertility, recent changes due to the present difficult conditions are not reflect in the data. Second, it is difficult to have very much confidence in either population size or its distribution by age and sex. For this reason for planning purposes the population data should be used only with extreme care.

A census of East Timor would be extremely useful for planning purposes, and one should start planning for it as soon as possible. However, a census is fairly long in preparation, and a demographic and health survey that also focus on estimation of population size would be very useful in the short term.

age population. The result is a high dependency burden. It would have been even higher if the migration into East Timor had not taken place, as the immigration consisted mainly of people of working age.

Fertility shows a very slow decline. The current total fertility rate is around 4.6.

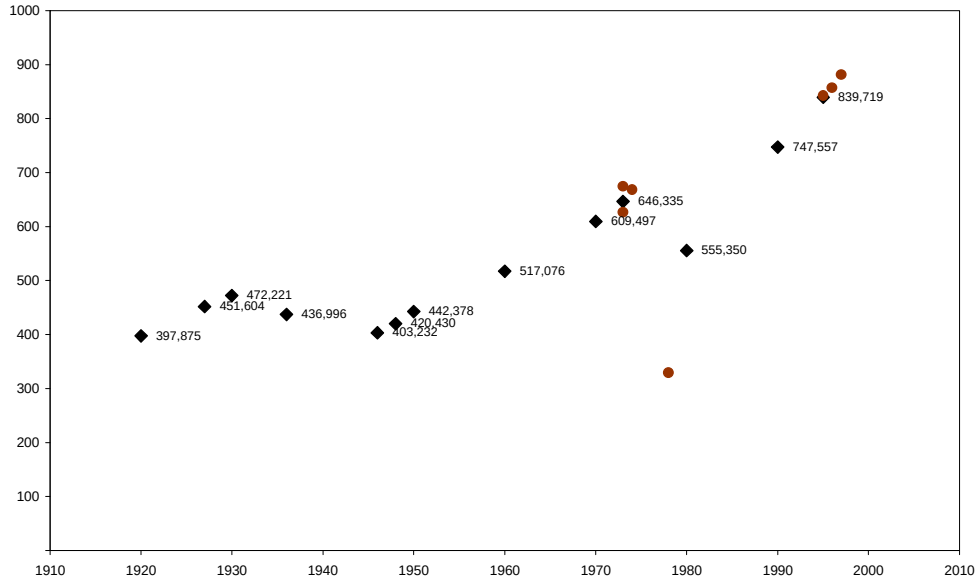
Infant and child mortality appear to have followed a steady downward trend during the beginning of the 1990s, but data documenting the effects of the 1998 drought and the current crisis are not available. The latest available data (1997) indicate an infant mortality rate of around 60 per 1,000 (i.e. 60 out of 1000 children die before their first birth day). The child mortality rate in 1997 was around 80 per 1,000 (i.e. 80 children out of 1000 die before reaching age 5).

that were carried out during Indonesian rule had shortcomings due to the security situation and an unenthusiastic population. The total count may be quite complete although other aspects of the census reporting may have suffered.

Despite the caveats discussed above, Figure 4.1 shows the overall pattern of population development. It rose during the early part of the century, was substantially reduced during the Japanese occupation, increased during the post war period, and apparently crashed during the early phases of Indonesian rule. Since 1980 it may have increased at somewhat less than three per cent per year, although the growth rate presently appears less at between 2.4 and 2.6 percent.

Estimates of the current population size are

Figure 4.1: Historical estimates of the population size of East Timor.
Note alternative numbers for 1973-1978



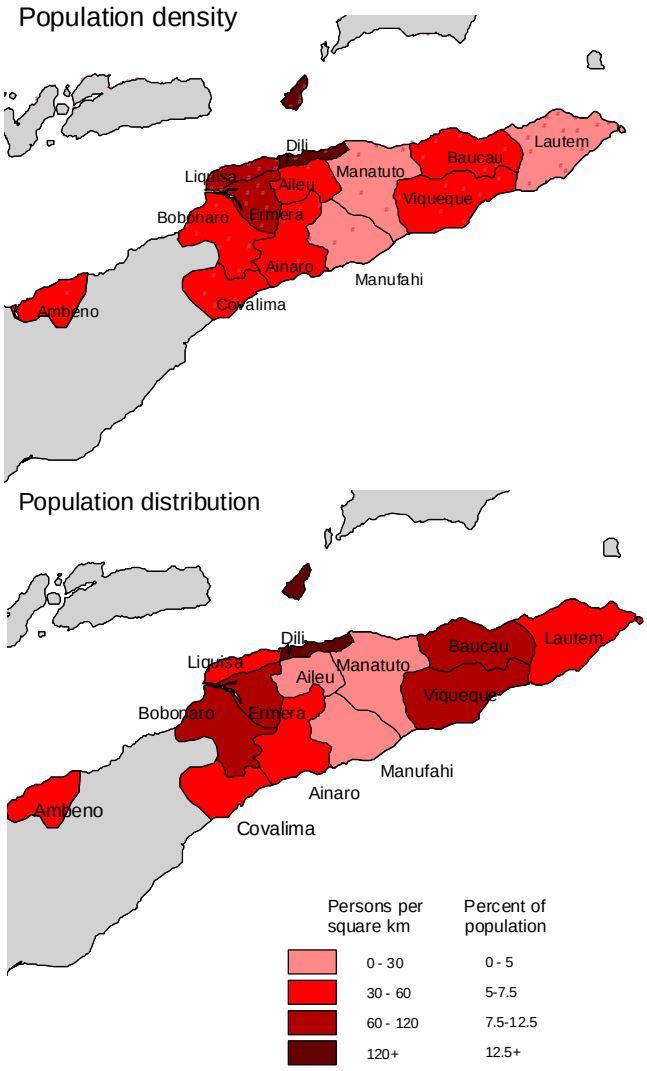
Sources: BPS 1997,Sherlock 1981, Census 1990

4.1 Population Size and Historical Development

At present about 0.9 Million people inhabit East Timor, but the exact figure is not known. The Portuguese never conducted a proper census. The 1980 and 1990 censuses

likely to be somewhat inaccurate as nearly ten years have passed since the last census. The estimates given in the various sources are all based on projections of the 1990 population.

Figure 4.2: Population density and population distribution 1990



Source: Population Census 1990

Aside from enumeration problems referred to above, there are two main issues that make it difficult to form firm opinions on the size of East Timor's population. The first of these issues is the substantial population decline after the Indonesian annexation, and the second is the migration, both out of and probably more importantly into East Timor. It is beyond the scope of this chapter to go into the population decline following Indonesia's assumption of control, but some aspects of the migration issue will be considered below.

4.2 Geographical Distribution

In 1990 the East Timorese population was concentrated in Dili and to the east and west (Figure 4.2). The central highland is less populated than other areas.

In recent years it appears that Covalima and Dili are rapidly increasing their share of the population, but according to the Central Board of Statistics (BPS 1997) no district experienced a population decline. Covalima is an area where transmigrants have been settled. The recent disturbances have led to a substantial displacement of the population, but no hard data exists.

4.3 Migration

4.3.1 Internal migration

Migration within East Timor has been great because of urbanization and, more importantly, as a result of the forced resettlement of the population in controlled areas – "guided villages" – by the military. Recently, the creation of a large internally displaced population as well as a large number of refugees in West Timor has further complicated patterns of internal migration.

4.3.2 Immigration including transmigration

People moved into East Timor in four principal ways. First, there was an influx of inhabitants from West Timor, Sulawesi, Java, Sumatra and other parts of Indonesia who came to get work in the public sector. These are primarily teachers, health workers or administrators. Second, transmigrants have come as part of the official Indonesian transmigration program which aims at moving populations from the most densely settled islands to less populous ones. Third, there has been spontaneous immigration outside of the official transmigration, for instance from West Timor but also from other islands. And fourth, the return of East Timorese from stays outside the island.

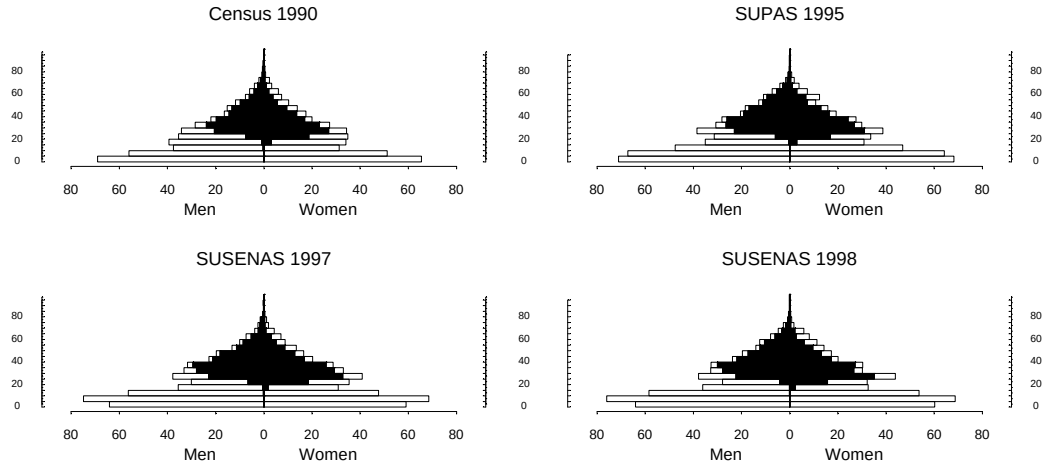
The official transmigration program to East Timor is fairly small, compared to transmigration programs elsewhere in Indonesia. The main receiving areas have been the western part of East Timor (Covalima and Bobonaro).

The total of non-East Timorese that live in East Timor are often put at about 150-200,000 people (AusAID 1999:9). It is not clear if this includes military personnel. If the 1980 population census figure of about 550,000 people is accepted as accurate, 150,000 non-Timorese seems high, as it leaves little scope for the growth of the indigenous population. It is not clear whether the figure of 150-200,000 constitutes only immigrants or also descendants of immigrants. The 1990 population census counted 46,700 people not born in East Timor, then comprising 6.2 percent of the population. Assuming that the overall child/woman ratio is also valid for immigrant women there were about 62,000

Table 4.1: Different estimates of immigrants

Type of estimate	Source	Number	Percent of population
1. Official transmigrants	BPS 1992:49 (up to 1990)	4,453	
2. Population in 1990 not born in East Timor	Census 1990	46,682	6.2
3. As above but including children estimated from Child Women Ratios of 1990 census	Census 1990	61,560	8.2
4. As above but adjusted to present number population (fixed proportion, no new migrants)	Census 1990	73,800	8.2
5 As above, but added new migrants with rates similar to 5 year period before 1990 census.	Based on BPS 1990:15	105,400	11.7
6. Number of people speaking Bahasa Indonesia at home (population aged 5 and above) Note: Many transmigrants and other migrants are not Bahasa Indonesia native speakers.	Intercensal survey 1995 BPS 1995:42	36,453	5.8
7. "Floating figure"	Original source not known, time reference not known	150-200,000	17-27

Figure 4.3: 1990, 1995, 1997 and 1998 population structures



Note: Black represents married persons.
Source: micro data from Census 1990, SUPAS 1995 and SUSENAS 1997, 1998.

immigrants and their children in 1990. There are about 74,000 immigrants today if no additional immigration is assumed since 1990.

The 1995 SUPAS finds practically the same percentage of immigrants with 7 percent born outside of East Timor.

4.3.3 Emigration

There is very little data on emigration from East Timor. Some sources report that as a result of the fighting in the seventies "tens of thousands" fled (Soesastro 1989), while others dispute this and point to the comparatively small numbers of East Timorese that are registered in Australia and Portugal (Aditjondro 1994:38). The figure of around 40,000 East Timorese abroad often appears.

4.4 Population Structure

The East Timorese population structure shows clear distortions in comparison to a population with stable mortality and fertility rates. There is a credible overall shape of the population pyramids, characterized by much fewer adults than one would expect in a normal population. It is expected in the case of East Timor because of war, famine and migration. Nevertheless, details of the age and sex structure are problematic, and the various sources are conflicting.

The age and sex structures of the East Timorese population in 1990, 1995, 1997 and 1998 are depicted in Figure 4.3. The 1990 and 1995 structures are roughly consistent with each other, and structures in 1997 and 1998 are consistent as well. However, given the available fertility and mortality data, the 1990/1995 pair and the 1997/1998 pair of structures are not consistent.

The 1990 age structure resembles other areas that have experienced prolonged war, such as Eritrea, although it is not quite as extreme as the Eritrean case. The distortions are similar to those of the populations of Northern Sahel after the droughts in the seventies and eighties. The male age structure appears more "normal" than the female one, even though the subtraction of those born outside East Timor reverses the sex ratio from a surplus of men (relative to women) to a pronounced lack of males. The male structure indicates that war and famine affected men, and the distortions in the female age structure testify to the effects on

women. However, since age structures in the region are usually marked by misreporting of women's ages in the age groups where the distortions are most marked, firm conclusions cannot be made. Most of the reported age structures show a sex ratio indicating a surplus of males at nearly all ages, which is surprising given that men tend to have higher mortality or flee more often than women in situations such as that of East Timor. The sex ratios may indicate an underreporting of women in the census.

Table 4.2: Dependency ratio and percent of the population below 15

Source and date (microdata)	Dependency ratio	Per cent below 15
Census 1990	77	42
SUPAS 1995	82	43
SUSENAS 1997	81	43
SUSENAS 1998	82	43

The 1997 and 1998 age structures as revealed by the SUSENAS are even more extreme than that of 1990. The lack of adults is more pronounced. Moreover, there are also very few children. This lack of children is not consistent with the 1995 SUPAS. There are roughly 15 thousand less children in the 0-4 year group in the 1997 SUSENAS than in the 1995 SUPAS, but about 9,000 more children aged 5-9. Considering that the surveys took place about 14 months apart the differences are clearly impossible. The 1997 age distribution published by the Central Board of Statistics of East Timor Province (BPS 1997:48ff) also has a shortage of children.

A consequence of the age structure is that the dependency ratio[17] is quite high, but not exceptionally so (Table 4.2).

[17] The dependency ratio, *d,* is calculated as the population below 15 and above 64 divided by the population between 15 and 64 multiplied by 100,

$$d = \frac{N_{0-14} + N_{65+}}{N_{15-64}} 100,$$

where N is population and the subscript indicate the age group.

Since most of the differences between the various sources pertain to displacement of the population within the 0-14 year group and the 15-64 year group, the inconsistencies do not affect the dependency ratios or estimates of the population below age 15.

4.5 Household Characteristics

The East Timorese household has a mean size of 4.9 persons (median is 5). These figures are similar to those of other developing countries. There are about nine percent female headed households (about 16,600 in 1999). This is a much smaller percentage than in other regions that has experienced war or labor migration (e.g. Eritrea or Botswana). This is likely because East Timorese seem to form extended households by including other relatives to compensate for the loss of adults. That nearly 6 per cent of households have adopted or fostered children, a common cultural practice, is just one example of household extension. The tendency to extend households is probably even greater than indicated by official surveys, since these tend to use household definitions that result in quite small households.

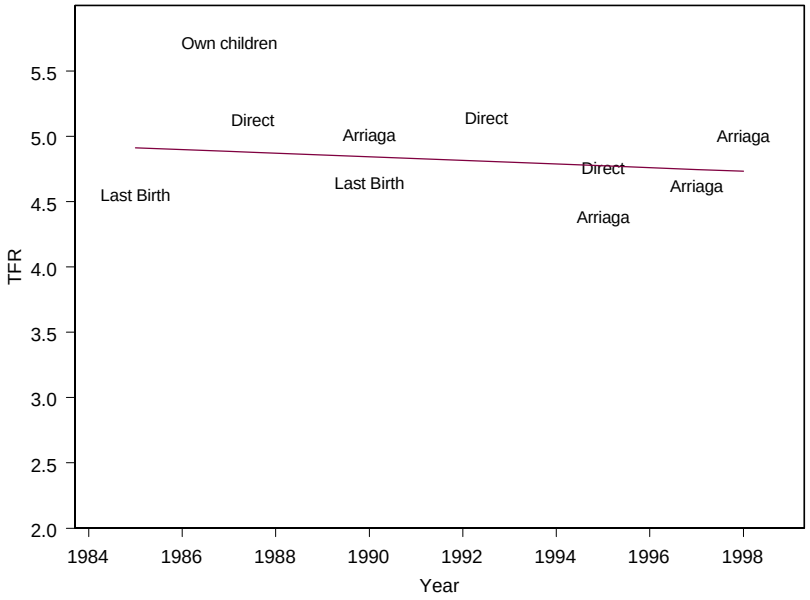
Table 4.3 provides a breakdown of the various types of households. About half of the households, or 103,000, include children less than 5 years old. Nearly four fifths have children less than 15 years old. Single person households are fairly rare, at four percent, and as in most societies nuclear families dominate.

4.6 Fertility

The total fertility rate (TFR) in East Timor appears to have a very slow downward trend, descending from 4.7 in 1990 to 4.6 in 1997 (Figure 4.5). In contrast, the TFR for Indonesia was 2.85 in 1994 (http: //www.bps.go.id/statbysector/population /table7.shtml).

Various methods of estimating fertility have been used because the data available in the various sources differ. The 1990 census

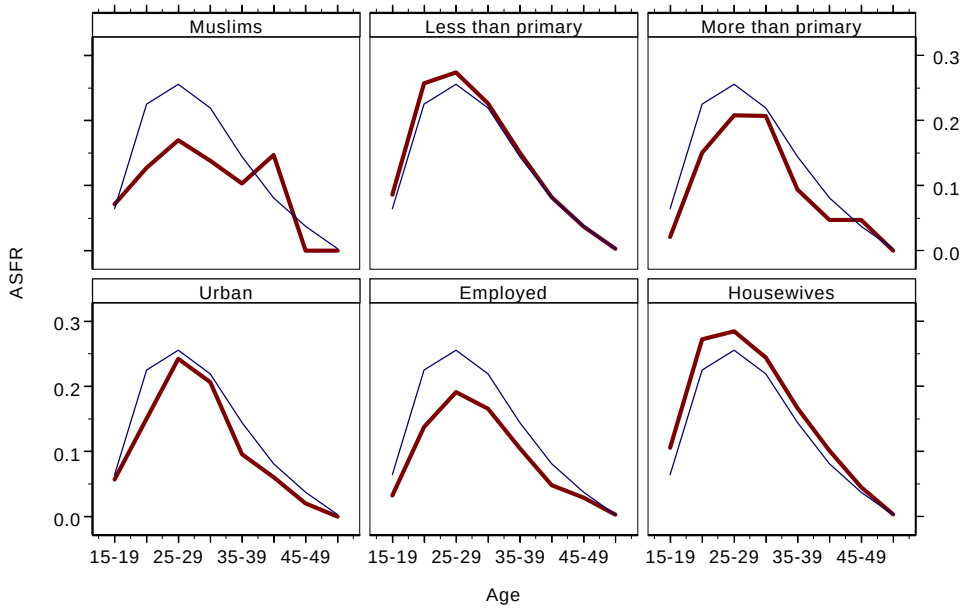
Figure 4.4: Fertility estimates (TFRs) from the 1990 Census, the 1995 SUPAS and the 1997 and 1998 SUSENAS



Note: The estimation method used is indicated on the graph. The trendline is estimated using Least Trimmed Squares Robust Regression (MathSoft 1999), resuting in a regression line TFR=32.4033-0.0139Year.

Sources: Census 1990 estimates from Anwar 1995 ("Own children method"), All other calculated from data files.

Figure 4.5: Age specific fertility rates by various sub groups. Reference line in all panels is average ASFR



Source: Calculated from birth history data, SUPAS 1995

Table 4.3: Household types in East Timor. Percent of all households

District	Single person	Single female	Female headed	Single couple	Couple with children	Female headed children < 15	Com-plex	With adopted	Nuclear with adopted	Childre n less than 5 years old	children less than 15 years old
Covalima	2	1	11	7	54	8	26	10	3	56	83
Ainaro	3	0	6	3	57	4	26	4	2	63	84
Manufahi	4	0	4	5	56	2	30	13	5	62	83
Viqueque	4	2	11	7	49	5	25	6	2	47	71
Lautem	5	2	13	6	55	8	21	2	1	53	74
Baucau	4	2	13	7	50	6	22	4	1	54	76
Manatuto	2	1	8	7	61	5	17	5	2	55	77
Dili	5	2	10	4	53	5	27	5	2	51	75
Aileu	4	0	3	4	70	2	14	5	3	56	83
Liquica	2	1	4	4	59	2	25	9	3	63	83
Ermera	2	0	5	4	71	3	13	3	1	58	82
Bobonaro	2	1	8	4	56	5	25	10	6	49	81
Ambeno	4	1	7	8	67	4	14	3	1	51	79
Total	4	1	9	5	57	5	23	6	2	54	78
Total 1999	6,994	2,477	16,554	10,305	109,877	9,164	43,206	10,984	4,524	103,395	150,105

Note: Household types are not mutually exclusive.

Source: Calculated from SUPAS 1995, total number of households 1999 calculated on the basis of average household size and population in 1999.

estimated fertility to be 5.7, substantially greater than the other estimates. Fertility in various sub groups of the population differs in predictable ways (Figure 4.5 and 4.6). Employed women have the lowest fertility of calculated groups. Muslim women have similarly low fertility rates which are most likely correlated to their high rate of employment. Women who are not in the labor force, women with less than primary education, and Catholic women have higher fertility rates.

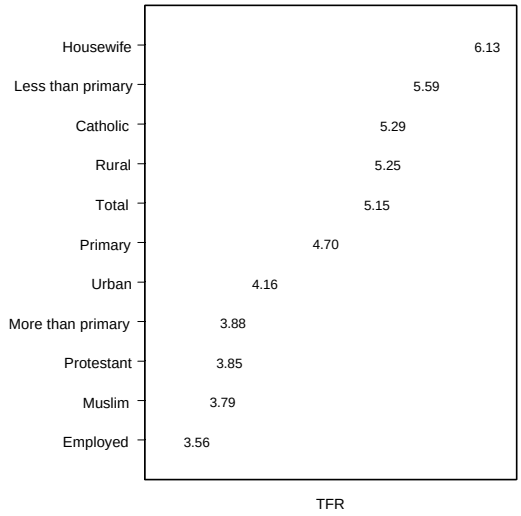
The age patterns of fertility for various sub groups of the population show a baseline age pattern of fertility in which fertility increases rapidly with age, but does not reach the really high intensities characteristic of very high fertility populations (Figure 4.5). The fertility then tapers off, suggesting some use of contraception or involuntary sterility at the end of the reproductive period. The age pattern also shows that adolescent fertility, while detectable, is not particularly high.

A limitation of the fertility data is that questions about fertility have only been posed to women who are or have been married. This follows common practice in East Asian surveys. Thus children born to unmarried women are not registered. Often the omission of unmarried women is not a large problem. This may also be the case in East Timor. Nevertheless, since East Timor has for a long time had a large military presence, it is not inconceivable that there has been childbearing outside marriage.

4.6.1 The proximate determinants of fertility

Fertility is influenced by many factors, but among the most important and most directly relevant are marriage, contraception, breastfeeding, pathological sterility and abortion. Fertility may be predicted with a high degree of accuracy by considering the aforementioned factors (Bongaarts 1982, Stover 1998). In the case of East Timor, the interaction between the factors also sheds

Figure 4.6: Total Fertility rates for various sub-groups of the East Timorese population 1990-94



Source: Calculated from birth history data from SUPAS 1995

light on the consistency of the data available. We will, however, only deal with marriage, contraception, breastfeeding and pathological sterility, since there is no data on any form of abortion.

4.6.3 Marriage

In East Timor in 1988, only 66 percent of the women aged 15-49 were married. Moreover, a significant proportion of the senior women has never been married.

4.6.2 Contraception

Contraception is not widely used in East Timor. Of married women aged 10-49, only 22 per cent use a modern method of contraception according to the 1998 SUSENAS survey. This is slightly below the contraceptive prevalence of Java and Bali in 1976 and less than half of the 1994 level of Indonesia (52 percent www.macroint.com/ dhs/indicator). The most striking feature regarding contraceptive use is the high frequency of injections. As the method employed by 71 per cent of users of contraception, the prevalence of injections is much higher than in Indonesia (at 20 per cent in 1987, Kono and Hayase 1994, and 15 percent in 1994, Tuladhar et al 1998). It is also higher than in NTT or the West Timor part of NTT. One should note that the contraceptive prevalence recorded from service statistics by the National Family Planning Board of East Timor is much higher, at 48.5 percent (BPS 1998:105). This statistic seems unlikely because if contraceptives were so prevalent there would be lower fertility. SUSENAS data and service data do agree, however, on the types of methods used.

Contraception has been highly controversial in East Timor. The Catholic Church does not condone contraception, while the Government of Indonesia has an active family planning program, that outside of East Timor is considered quite successful. Through the application of "guided democracy," and mass campaigns ("safaris"), Indonesian family planning includes policies which, if not coercive, may at least be characterized by lack of informed consent. Lack of informed consent has characterized the Indonesian family planning program as a whole not just in East Timor. Some sources (e.g. Storey 1995) hold that Indonesian authorities have carried out an implicit genocide by systematically imposing contraception on women. There is little evidence in the SUSENAS data that this, if attempted, has been terribly successful. The very high frequency of injections may indicate an element of force since it is one of the few methods that can be applied without the consent or knowledge of the woman. In contrast, the use of implants, an even more effective long-term contraceptive, is not particularly high. All told, the overall low use of contraception and the negligible number of sterilizations do not suggest a systematic program of forced contraception. While underreporting of contraception is possible, the comparatively high fertility rates and the current population growth also imply that East Timor has had one of the least successful family planning programs in Indonesia.

4.6.4 Breast feeding

Apart from its beneficial effects on the health of the child, it is well documented that breast feeding reduces fertility. In a population where children are breastfed for many months after birth, one expects fertility to be lower than in a population where children are only breastfed for a few months. The average duration of breast feeding[18] is 16.0 months which is short compared to Indonesia's average of 20.8 months (www.bps.go.id/statbysector/socwel/atbel1.shtml) and also shorter than in West Timor and the rest of Nusa Tungara Timor (18.3 and 19.3 months respectively).

4.6.5 Significant pathological sterility

Pathological sterility probably occurs in East Timor because of sexually transmitted diseases, widespread tuberculosis and generally poor health conditions. A conventional way of indicating the prevalence of sterility due to disease is to estimate the proportion of childless women in the age group 45-49 (see Stover 1998). Anything above 3 percent indicates sterility caused by disease. In East Timor about 11.5 percent of the women in the age group in question are childless. This is a comparatively high number, but lower than in many African countries. However, the interpretation of the figure is somewhat complicated because of the comparatively high number of women who has never been married in East Timor.

4.6.6 Summing up the proximate determinants

How the proximate determinants act together to produce a given level of fertility is posited by Bongaarts who relates the theoretical average number of children a woman can have throughout her reproductive life (total fecundity, TF) with the fertility inhibiting effects of various factors. Thus, the total fertility rate (TFR) is seen as $TFR=TF*C_m*C_i*C_c*C_p*C_a$ the product of the total fecundity and indices derived from the proportion married, the duration of breastfeeding, contraceptive use, pathological sterility and abortion. Here we have assumed total fecundity in East Timor to be 15.3 (following Bongaarts 1982) and we assume that abortion is negligible. The effectiveness of contraception at 0.8[19] is somewhat arbitrary.

Table 4.4: Proximate determinants of fertility

Base data		Index	
Proportion married	66.4	Marriage	0.664
Mean duration of breastfeeding	16.0	Postpartum sterility	0.580
Proportion childless 45-49	11.5	Pathological sterility	0.872
Current users of contraception	21.8	Contraception	0.812

The assumptions and the data result in an estimated TFR of 4.2, (i.e. lower than the estimated one for 1998 of 4.6). There may be a number of reasons for the discrepancy including faulty base data.

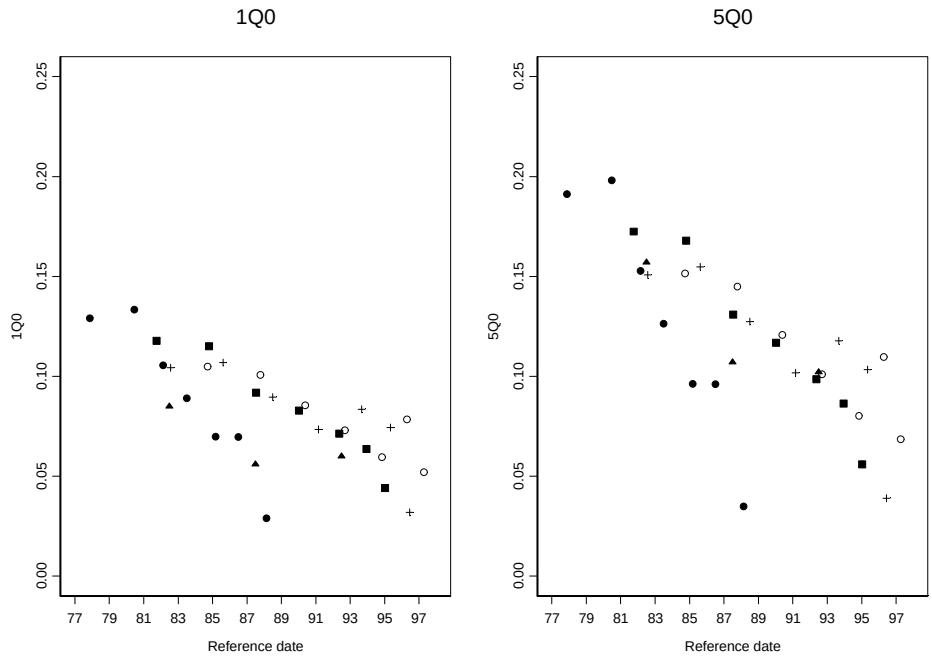
Nevertheless, the decomposition of the TFR into contributions from the proximate determinants has several important implications. First, it indicates that the real contraceptive prevalence is not much higher than the one recorded by the survey, as this would bring the fertility to much lower levels.

Second, it points to the possibility of unwanted sterility being an important factor in determining fertility. While far from conclusive, this result would further indicate that improved health care, including

[18] The average duration of breastfeeding is calculated simply as the average recorded for children in the age group two to four years. This is inaccurate, but the result may be directly compared to Indonesian statistics, which are calculated that way.

[19] The reason for the low assumption here is that while the use effectiveness of injections are quite good, the duration of the effect will not necessarily be clear to the woman. Also, there may also be confusion between the contraceptive injections and other injections.

Figure 4.7: Infant mortality rates ($_1Q_0$) and under five year mortality rates ($_5Q_0$)



Source: estimated from the Census of 1990 (●) Intercensal survey 1995 (■) and SUSENAS 1998 (o) 1997 (+). (Children ever born and children surviving by age of mother method, Trussel variant, West model, UNITED NATIONS83:76). Also, birth history data from SUPAS 95 to arrive at direct estimates (▲) A linear trend for the Infant mortality rates has been estimated as 204.2430-4.0727(Year-1960) using Least Trimmed Squares Robust Regression (Mathsoft 1999).*

tuberculosis control could result in an increase in fertility.

Third, a large part of the reduction of fertility comes about through very low proportions of married couples. Fertility will likely increase when conditions of peace and stability prevail. Most developing countries have an index higher than 0.75, as does Indonesia (Kono and Hayase 1994:42).

While it may seem counter-intuitive, increased fertility in the early phases of modernization has been observed in many countries.

4.7 Mortality

4.7.1 Infant and child mortality

The available data are broadly consistent and indicate a trend from extremely high mortality levels around 1980 to high – but not excessively so – levels around 1997. In 1980 about 140 out of 1,000 children died before they reached 1 year, and in 1996 the figure was about 60 per 1,000. Similarly the child mortality rate (i.e. the number of children dying before they reach five) was as high as approximately 240 per 1,000 in 1980, and dropped to about 80 per 1,000 in 1996. The possible effects of the drought of 1998 or of the recent problems in delivery of social services are not reflected yet in any data.

Given the uncertainties in the age distributions referred to above, estimates of the number of children dying each year must necessarily be inaccurate. However, an estimated 1,500 children below one year of age die annually.

A wide range of infant and child mortality estimates exists for East Timor. Diverging figures are found in the literature. The infant mortality estimates range from 57 per 1,000

(BPS) to 135 per 1,000 (UNPD) for recent years[20]. Part of the divergence is caused by the specific method used, and interpretation of the results. It is possible to reconstruct most of the estimates using the children born/children surviving method used in the 1990 Census, the 1995 Intercensal survey

Table 4.5: Direct estimates of infant mortality 1990-1994

Sex	Boy	Girl
Neonatal Mortality	19	11
Post neonatal Mortality	48	41
$_1Q_0$	67	52
$_2Q_0$	86	72
$_3Q_0$	97	82
$_4Q_0$	106	89
$_5Q_0$ (U5MR)	111	94

Source: 1995 SUPAS

data and the SUSENAS surveys. The method is based on the survivorship of children born to women of different age groups. It gives separate estimates for each five-year group of women from age 15 to 45 years. The older the women are, the farther back in time is the reference for the estimate. If mortality is falling, women aged 20-24 will usually be the base for the lowest estimate, while the experience of older women will suggest higher mortality. The various figures published by Indonesian sources derive from the lowest and most recent estimates that can be obtained from the data, while international organizations have chosen higher figures with time references back to the late eighties or early nineties.

Figure 4.7 shows the infant ($_1Q_0$) and child ($_5Q_0$) mortality estimates from the various data sources at our disposal. All surveys show fairly smooth declines in mortality, from infant mortality levels well above 100 per 1,000 (or 0.1 as given on the graph) in the early 80s, to around 60 per 1,000 in the early 90s. A similar trend is seen in the under five mortality rates.

The 1995 SUPAS collected birth histories from ever married women. Information on the date of birth, sex and survival status of all children born to the women as well as the age at death for deceased children were recorded. From this data, direct estimates of infant mortality can be arrived at. How possible sources of error affect the estimates can also be determined. The direct estimates from SUPAS 95 result in estimates of infant mortality that are substantially lower than the other estimates for the periods before 1990, but consistent after 1990. To a lesser extent this is also true of the child mortality estimates. The reason is that the there is significant rounding and clustering of ages at death, so that many get recorded as having died at 12 months of age and are not counted as infant deaths. This problem is reduced in the period of time closest to when the survey was conducted. An examination of the overall reporting quality in the 1995 SUPAS birth history data suggests good quality for the five years preceding the survey, but lesser quality prior to that (see Part II, Table 2.9 and 2.10).

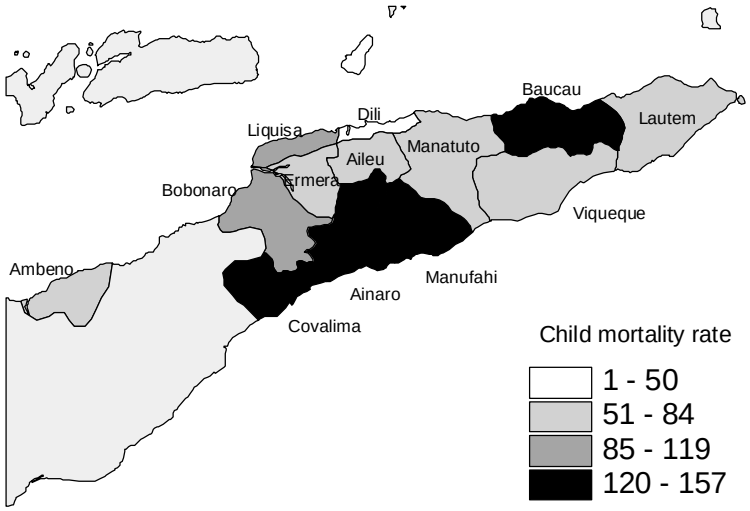
4.7.2 Mortality differences

As is generally found, boys have a higher mortality than girls. In the case of East Timor, the surplus male mortality is slightly higher than one would expect. This may be caused by the tendency to undercount girls in the birth history data (See Volume II, Table 2.10). Nonetheless, the finding that boys are also more malnourished than girls, as documented in the health chapter, support the conclusion that there is a real mortality difference between boys and girls that is larger than what one would expect from biological differences between the sexes alone.

There appear to be substantial geographic differences in mortality as well. For the period 1990-94, Baucau and the

[20] The UNPD actually base their estimate on the Indonesian estimate for 1985 to 1990 (UN 1995:166).

Figure 4.8: Geographic distribution of child mortality 1990-94



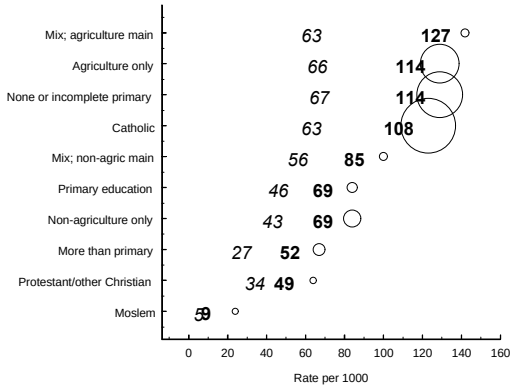
Source: SUPAS 95 and SUSENAS 1998

southwestern areas of Manufahi, Ainaro and Covalima have infant mortality of 75 to 102 per 1,000 and child mortality rate of 120 to 157 per 1,000 (Figure 4.8).

The high mortality rates in Baucau (with an infant mortality of 102 and a child mortality of 150) may be related to the fact that in Baucau there is a major concentration of the so-called "guided villages". In contrast, Dili and Alieu come at the end of the list with infant mortality at 34 and 42 respectively, and child mortality at 50 and 75. Since sample sizes for estimation of mortality on the district level are rather small, estimates from the 1998 SUSENAS and the 1995 SUPAS have been merged[21].

Infant and child mortality also show the expected association with background characteristics of the mother. Children of Moslems, Protestants, and of mothers with more than primary education have low

Figure 4.9: 1990-94 Infant and child mortality by selected background characteristics of mother.



*Infant (italic) and child (**bold**) mortality. Circles indicate relative number of children in each group.*

Source: Calculated from SUPAS 1995 birth history data

mortality while those with mothers in the agricultural sector, without education and of Catholic faith have higher mortality (Figure 4.9)

Analysis of the mortality data suggests that to a large extent the reduction in infant and

[21] In the case of the 1995 SUPAS direct estimates were used. In contrast, the 1998 SUSENAS allows only indirect estimates, and those with appropriate time reference, i.e. from women aged 20-24 and 25-29 were used.

child mortality during the last 10 years is due to the influx of groups with low mortality, rather than a large improvement for the majority of the population.

4.7.3 Maternal mortality

The maternal mortality ratio in East Timor is around 830/100,000 births (1990), the ratio is among the highest in the world. This corresponds to roughly 275 maternal deaths each year. The estimate was derived by using the indirect estimation model that UNICEF has used in its revised world estimate of maternal mortality (Stanton et al. 1996). The model estimates maternal mortality as a function of fertility and characteristics of the population. Because of the method, the figure is uncertain, but not unreasonable. It compares well with health service data which is somewhat contradictory 500/100,000 births (Oxfam 1999) or 830/100,000 births in hospitals (World Bank 1999). Such data often underestimates maternal mortality. Several NGO sources cite an estimate of 250/1,000 births, a figure that fortunately is impossible and most likely a result of a misplaced decimal point or mere guesswork. Compared to other areas of the world, East Timor's maternal mortality ratio is extremely high, with only Guinea Bissau, Eritrea, Central African Republic and Mozambique having higher ratios (UNICEF 1998).

4.7.4 Life expectancy

The life expectancy at birth is a common measure of the average number of years a person can expect to live. It is also a good indicator of health conditions. To estimate life expectancy at birth reliably one needs data to calculate the probability of dying for all age groups. Such data are hard to come by for East Timor. The SUPAS 95 contains data that in theory can be used to estimate survivorship of adults. But the methods rely on assumptions about the stability of the population, which makes them unsuitable for East Timor. The estimates refer to a time several years before the survey. Therefore, we do not present estimates of life expectancies. The reader will note that estimates of life expectancy are used for the population projections. Those estimates are based solely on the use of models on the estimated infant and child mortality rates. It is assumed that the adult mortality patterns are the same as those in other populations with the same infant and child mortality. This is obviously not correct, since the violence in East Timor is not included in the models. The life expectancy estimates that are used in the projections should therefore not be thought of as real life expectancies for East Timor, but rather what the life expectancies could have been in the absence of violence.

4.8 Population Growth and Projections

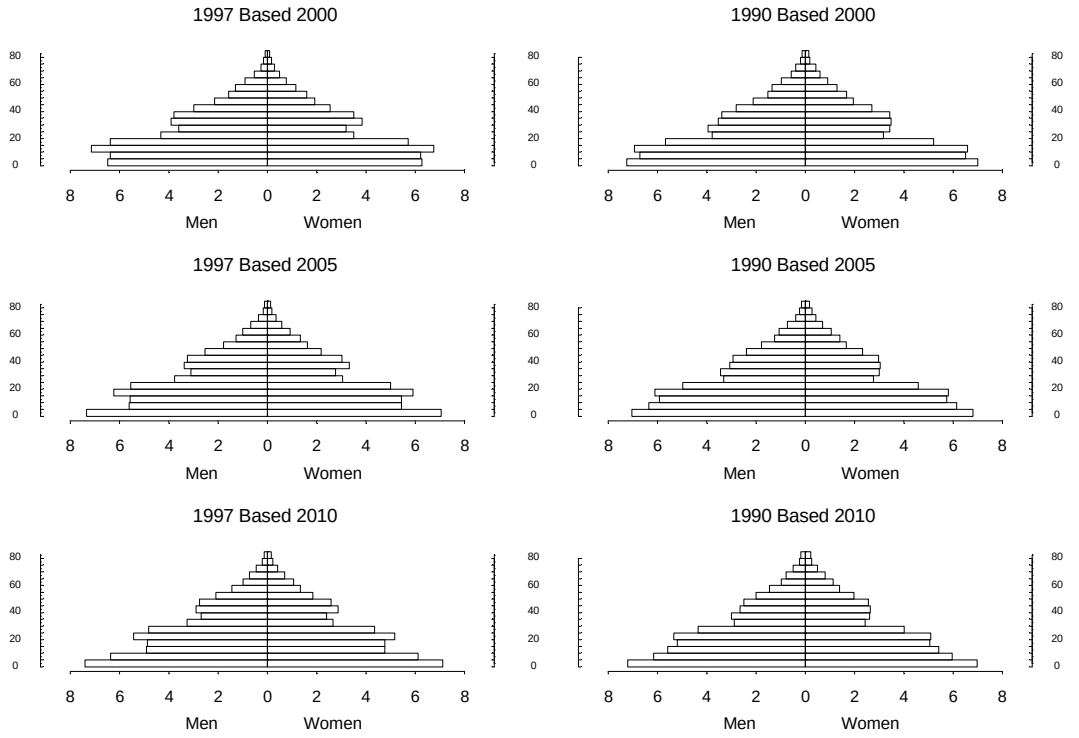
Population growth has three components: births, deaths and migration. To know the size and structure of the population in the future, assumptions about these and the current structure and size of the population are needed.

Fairly good estimates exist for birth rates and death rates, but the actual numbers of births and deaths are dependent on assumptions about the age distribution. As we have seen, the age distribution data are not reliable and the migration data are weak.

Despite the problems associated with projecting the East Timorese population there currently are at least four sets of population projections available for East Timor, in addition to the one we will present here.

First, there is the projection made by the Central Board of Statistics of East Timor Province, which is used in much of the statistics from East Timor (e.g. BPS 1997). Second, there is the projection of the Department of Manpower and the University of East Timor. (Soares et al. 1996). Third, the Demographic Institute of the Faculty of Economics of the University of Indonesia, Jakarta (Anwar 1995) and

Figure 4.10: Projected age distributions for the year 2000, 2005 and 2010 based on age structures from 1997 (left) and 1990 (right)



fourth, the United Nations World Population Prospects provide population projections (United Nations 1995). Given the uncertainties, it is not surprising that the projections vary. They also include somewhat different levels of detail. The Jakarta and UNPD projections are for total population, while the Central Board of Statistics of East Timor Province appears to project district populations. The emphases are also slightly different, in that the Central Board of Statistics of East Timor Province mainly estimates the current population by projecting the past while the others provide projections into the future.

Assumptions behind the different projections vary. It is not clear what they are in the case of the Central Board of Statistics. The Demographic Institute projection is characterized by a radical decline in fertility from an estimated level of 4.4 in 1990-1995 to one of 3.2 in 2005-2010 and a gradual increase of life expectancy (from 60.2 to 65.4 for women and 56.7 to 61.7 for men). In contrast, the UNPD assumes a life expectancy of 45.9 years for females in 1990-95, increasing to 52.2 in 2000-2010 period. The corresponding male figures are 44.1 and 50.4 years respectively. In UNPD projections fertility is assumed to drop from 4.8 to 3.64.

The most immediate use of population projections in the case of East Timor is in relation to the future size and costs of service sectors such as education and health. It is children who to a large extent determine the needs in the primary health care system, and the need for education. It is precisely the data on the size of the child population that is most problematic.

Nevertheless, the population projections may be used to get a rough idea of the magnitude of the different population

groups, and also to explore the viability of some of the population estimates.

We have made two different projections. One takes as its point of departure the 1990 population, and the estimates we have of mortality and fertility as described above. We assume that there have been no improvements in mortality since 1998, but that fertility has continued its slow decline. No migration has been assumed. This is obviously incorrect, but if we factor in net migration into East Timor, our population estimates will be substantially higher than the current estimates by the Central Board of Statistics of East Timor. More importantly, the number of migrants that will remain after the end of the current turmoil is far from clear. Our zero net migration assumption implies that recent immigrants will leave, but that those that have been in East Timor for a long time will stay.

The other estimate is based on the 1997 population and its distribution as depicted by the Central Board of Statistics of East Timor. Otherwise the assumptions are the same. Although one might easily vary the mortality and fertility assumptions, it is really the uncertainties associated with the age distribution that in the short term play a determinant role for the size of the population in the various age groups. In the long-term, fertility and mortality conditions play a more important role, but projecting the population far into the future on the basis of existing data is meaningless.

An essential difference between the projections presented here and other projections is the fertility assumption. Neither of our projections includes a rapid fertility decline. This is for three reasons. The first is that the fertility data from the census and from the various surveys indicate only a very gradual decline. The second reason for assuming quite stable fertility is that use of contraception is not yet very widespread. While this of course leaves a wide margin for improvement, contraception is not condoned by the Church and appears to be unpopular as it is associated with the Indonesian presence.

The third reason for which our projections do not consider a rapid decline in fertility is that the proportion of married women in East Timor is quite low compared to other third world populations. This may simply be because of lack of men to marry, as well as the instability of the situation. In the short term the proportion of married women is likely to remain low.

Table 4.6: Population projections (1000 persons)

Year	1997 Based	1990 Based	UNPD (medium)	Demo-graphic Institute
1997	874	899		
1998	897	922		
1999	920	945		
2000	944	968	884	974
2001	969	991		
2002	994	1015		
2003	1019	1039		
2004	1046	1064		
2005	1073	1090		1092
2006	1101	1116		
2007	1129	1143		
2008	1159	1171		
2009	1188	1200		
2010	1218	1230	1018	1221

Table 4.6 sums up the projections. Both projections indicate a population growth rate of 2.4-2.6 per cent per year, which indicates that the population needs only 28 years to double its size. In year 2010, the population, in both projections, will be about 1.2 million. Projections much beyond 2010 have little practical value. The projection by the Demographic Institute in Jakarta arrives at very similar figures, although with somewhat different assumptions. The UNPD projection appears too low. This is because the assumptions behind the projection

stipulate very low fertility and high mortality rates. UNPD also provides different projections, but they all assume too low fertility and mortality rates which are too high.

The main difference between the projections lies in the age structure rather than the total population size (Figure 4.10). The age structure resulting from the 1990 based projection is much more regular than the one based on 1997 data. The inconsistencies in the 1997 age structure are clearly visible, in that the number of children picks up rapidly.

Although the service statistics from the health and education sectors in East Timor are far from reliable, the 1990 based projection has the benefit of being in greater accordance with the numbers provided by these services. Therefore we prefer the 1990 based projection.

It must be stressed that the projections are mainly useful because they reveal how the dynamics of population growth worked before the crisis of 1999.

5. Health and Nutrition

Summary

Classical diseases and ailments associated with poverty characterize the health situation in East Timor. Tuberculosis is an important cause of morbidity and mortality, as are other infectious diseases. Even before the current crisis, the general rate of malnutrition (weight/age) was high at 38 percent of children aged 12-59 months.

Vaccine preventable childhood diseases are generally not reported in East Timor, in contrast to developing countries. This may be because of disease underreporting or an effective vaccination program. However, Indonesian data on vaccination coverage are contradictory varying from below 50 to above 90 percent of children.

Trauma, both physical and psychological, resultant from violence and crisis must be prevalent in East Timor, but there is no data on what forms it has taken.

Even prior to the post-consultation crisis, the health care system was in disarray. This is partly due to the departure of a large number of staff, but also to a multi-line administration system that created inefficiency.

The Catholic Church is a large health care provider. While there is no hard data available, it may cover as much as 20 percent of the sector.

Data and data gaps

Data on health in East Timor are generally suspect. Different sources give very different pictures.

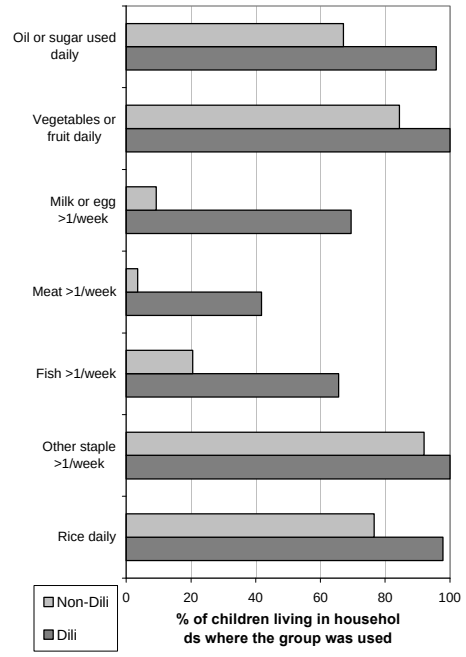
The main sources are data from the health services. The yearly SUSENAS surveys also include some health data.

The service statistics generally indicate a better situation than do the survey data. In many cases the survey data appears more credible, but there are also clear quality problems with the survey data.

Three actions should be taken to obtain better data for policy planning:

- A census of equipment, infrastructure and personnel in the health sector
- A health, nutrition and population survey that can document the situation in more detail.
- An overhaul of the system for recording and transmitting service statistics from the operational level to the administrative.

Figure 5.1: Main foods consumed by households with children 1998



Source: SUSENAS 98

Table 5.1: Ranking of most common causes of death from various GOI published health statistics (1= most commonly reported cause of death)

Source	1994/1995 Registered Deaths in Hospitals & Clinics	1995/1996 Registered Deaths in Hospitals & Clinics	1996 Registered Deaths in Govern-ment Hospitals & Clinics	1996 Registered Deaths in Govern-ment Hospitals	1996/1997 Registered Deaths in Hospitals & Clinic	1997 Registered Deaths in Govern-ment Hospitals
Death total cases	2000	1367	n.a.	594	786	147
Tuberculosis	1	1	1	2	1	4
Malaria	2	2	2	3	2	1
ALRI [1)]	2	4	3	2	3	3
Diarrhea	4	5		4	5	4
Stillbirths	3	3		1	4	2
URTI[2)]	4	5		5	6	5

Source: Collection of health statistics from various Indonesian government agencies.
[1)] Acute lower respiratory infection (pneumonia)
[2)] Upper respiratory tract infection

5.1 Nutrition and Food Security

Although food may generally be available, this does not automatically mean that people have access to it. Within a population, unequal distribution of economic resources combined with inadequate systems for redistribution can restrict access to food.

Following a May/June 1998 East Timor Health Study Tour, Cariddi reported that the usual East Timorese diet was deficient due to poor agricultural practices, the limited amount of arable land and the bad seasons. Malnutrition increased as a result of the Indonesian monetary crisis which has caused food prices to rise, thereby exacerbating the population's already limited means for purchasing food (Cariddi 1999, see also chapter 7). This argument is most applicable to people who buy food, rather than grow their own.

Compromised biological utilization of food is also likely to play a role in under-nutrition as the heavy prevalence of infectious diseases in East Timor would cause food to be under absorbed as calories are diverted to fight infection. A nutritional survey is needed to accurately convey the nutritional status as well as the food intake for individuals in East Timor.

Social surveys (SUSENAS) from recent years report that households spend on average a high two-thirds of their total expenditures on food. The largest expenditure is for rice (more than 20 percent). Vegetables, beverages, meat, oil/fat, roots, tubers, fish, eggs, milk, peanuts, fruit, and spices follow in descending order. There are no available data on the quantity of the above items consumed per capita or average caloric intakes.

The data from the 1998 SUSENAS survey shows that there were significant differences in the types of food consumed in Dili compared to the rest of East Timor (Figure 5.1). The consumption in Dili is more varied, which results in less malnutrition in Dili than in any other district. In particular, there is much more frequent consumption of animal products such as milk, egg, meat and fish in the capital.

In official publications, no morbidity or mortality has been attributed to either malnutrition or violence (Table 5.2). This is unusual, as one would expect deaths from malnutrition in a region as underdeveloped as East Timor. Malnutrition deaths are probably hidden in deaths attributed to various infectious diseases that would not

cause such high incidence of death in adequately nourished people.

5.2 Prevalent Infectious Diseases

To gain an understanding of which infectious diseases account for the greatest morbidity and mortality, statistics reported by government hospitals and clinics are reported in tables 5.1 and 5.2[22]. For each statistical source, the tables simply present the ranking of the importance of each disease.

and diarrhoea are always listed among the top five causes of fatality.

In 1997, infectious diseases caused 43 percent of deaths in the developing world. Global mortality from infectious diseases was highest for acute lower respiratory infections, followed by tuberculosis, diarrhoea (including dysentery), HIV/AIDS, and malaria (WHO, 1998). East Timor has a similar profile. However, malaria is more frequently cited as a main cause of death in East Timor compared to acute lower

Table 5.2: Ranking of most common infectious diseases from various GOI published health statistics on visits to health care facilities (1= most commonly reported infectious disease)

Source	1994/ 1995 1st Level Health Offices	1995/ 1996 1st Level Health Offices	1996/ 1997 1st Level Health Offices	1997 Primary Health Care Center Visits	1997 Primary Health Care Visits New Cases	1997 Hospital Out-patient Visits	1997 Hospitalizations
Total visits	178167	154338	107325	255486	151848	86961	10807
URTI	1	1	1	1		1	4
Malaria	2	3	3	4	1	2	1
Skin Infections	3	2	2	2		3	5
Diarrhoea	4	4	4	3	2	3	2
TB	5	6	5	5	3	4	3
Mouth/teeth	6	6	7			5	
ALRI	7	5	6				
Eye Infections	7	6				5	
Worms		7					

Source: Collection of health statistics from various Indonesian government agencies.
1) Acute lower respiratory infection
2) Upper respiratory tract infection

Sources vary in the order for which they list the frequency of diseases, but they all give a similar profile of infectious disease causing morbidity and mortality. All but two sources list tuberculosis as causing the most fatalities followed by malaria. Pneumonia

respiratory infections globally. HIV/AIDS has not yet been listed as a cause of death in East Timor.

The prevalence of infectious disease is highly correlated to sanitation, water, public health and poverty in general. Poor sanitation can lead to contamination of food and water supplies by fecal material. Ingesting contaminated food and water causes the majority of prevalent infectious diseases. Stagnant water is ideal for mosquito breeding which contributes to subsequent malaria epidemics. Poverty leads to crowded living conditions and under-nutrition. Crowding is a major contributor

[22] Although a significant portion of the population receives care from church clinics rather than government ones, no statistics are available on disease morbidity from church clinics at this time. Therefore, the populace that utilizes church clinics or health care sources other than governmental is not represented in this analysis

to the spread of infectious diseases such as tuberculosis by increasing the chance of person to person exposure to disease pathogens. Under-nutrition lowers immunity, making persons more susceptible to infection and disease.

The fact that East Timor has a high prevalence of infectious diseases confirms that East Timor's population is poor, and has poor access to potable water, sanitation, and general public health care. Adequate public health measures include community education on fecal disposal, water protection and storage, and personal hygiene. In addition, improving the existing septic drainage system so that it does not contaminate the water table would be helpful. Digging bore holes to provide uncontaminated water, building covered wells, and developing water treatment projects are all appropriate public health measure that would greatly diminish the incidence of infectious diseases.

5.2.1 Malaria

Malaria is cited in all sources as one of the two main causes of mortality in East Timor. Malaria is given as the cause of up to one-third of all health care visits and is undisputedly a major cause of suffering in East Timor.

In the cases where a laboratory diagnosis has been made, plasmodium falciparum malaria is identified slightly more than plasmodium vivax malaria. A USAID malaria control project in the 1980s identified the prevalence of chloroquine-resistant falciparum malaria.

Malaria can be treated with a variety of anti-malarials, of which the most widely known and least expensive is chloroquine. Treated malaria is rarely fatal unless it is chloroquine-resistant falciparum malaria or cerebral malaria which is always caused by plasmodium falciparum. Although there are effective drugs that treat chloroquine resistant malaria, these are more expensive and need to be administered soon after infection. Plasmodium falciparum malaria can cause cerebral malaria which may be fatal even with appropriate anti-malaria drug therapy. Partial immunity, based on repeated childhood infections protects persons from complications associated with malaria.

5.2.2 Tuberculosis

Four of the six sources report tuberculosis (TB) as the most prevalent cause of identified deaths. Worldwide in 1998, TB was the second most frequent cause of death following acute lower respiratory infections (WHO 1998).

The fact that TB is a main killer in East Timor paints a picture of a health system which fails to provide even the most basic level of health to the population.

In 1998 the TB eradication program was enhanced by the participation of motivators who were given the task of following patients' progress through a domiciliary outreach program (Cariddi 1999). The 24 Catholic health centers in East Timor are implementing a five year long TB eradication program that is funded and guided by Caritas Norway. In reviewing Caritas' 1998 report, it is clear that they are having problems with continuity. The report describes clinics stopping TB treatment because of departing staff and poor participation by patients. Interrupting TB treatment for any reason is a major public health problem, as defaulters are likely to develop and spread tuberculosis strains resistant to first line treatment.

Generally, TB is highly correlated with poverty and is most prevalent in crowded living conditions. According to the 1990 Census, 20 percent of the households in East Timor had 5 square meters or less available per person, and 40 percent had 7 square meters or less[23].

[23] Floor area measures are notoriously inaccurate in censuses and surveys. Still, the figures convey an impression of rather crowded conditions.

Malnutrition also plays an important role in disease prevalence by lowering the defenses of persons infected with the bacteria but without the active disease. Many times more people are infected with TB than have the disease. TB can only be spread by those with active pulmonary TB.

Effective TB treatment using multiple drugs for several months is relatively expensive. Successful treatment requires major public health education, dedicated care givers, a regular drug supply, and a patient who complies with the lengthy treatment. The high prevalence of tuberculosis in East Timor will severely challenge resources and health manpower at a time when there is a major exodus of health care professionals. Tuberculosis will prove one of the most difficult health problems facing East Timor during the coming years.

5.2.3 Gastro-intestinal diseases

Diarrhoeal diseases are reported by all sources as one of the leading causes of both morbidity and mortality in East Timor.

Diarrhoea can be caused by virus, bacteria, protozoa, parasitic infections or infestations. Dysentery is caused by bacteria or protozoa infections. Both diarrhoea and dysentery are spread from contaminated water and food and are highly correlated with water supply and sanitation. Diarrhoea and dysentery are usually self-limiting conditions. Morbidity is caused by the ensuing dehydration.

Mortality is particularly high in malnourished persons and young children who become dehydrated. The young or malnourished are affected much more rapidly than older children and adults. The highest reported incidence of diarrhoea /dehydration mortality is in the six-month to two-year age group, followed by the two to five-year-old age group.

Adequate rehydration treatment drastically reduces mortality from diarrhoeal diseases. The development and use of oral rehydration solution (ORS) over the last three decades has significantly decreased the number of diarrhoea/dehydration caused deaths in the developing world. However, diarrhoea remains the second greatest global cause of death for children under five-years-old and is commonly associated with malnutrition (WHO 1998).

Breast feeding for at least the first year of life significantly reduces the incidence of diarrhoea in infants. The vast majority of East Timorese women breast feed for at least one year. Sanitation combined with water supply and storage must ultimately be improved in order to alleviate the incidence of diarrhoeal diseases. Improved nutrition will also increase resistance to diarrhoeal diseases. A type of oral rehydration solution (ORS) is usually available in health clinics. There is little information on family knowledge and use of ORS in the home. Health education campaigns promoting home use of ORS offer the potential of drastically reduced diarrhoeal morbidity and mortality in East Timor.

5.2.4 Respiratory infections

All sources cite acute lower respiratory tract infections (ALRI), mainly pneumonia, as the third or forth leading cause of death in both hospitals and clinics in East Timor. Together, pneumonia and bronchitis are cited as being the cause of 2 to 4 percent of health clinic visits, while upper respiratory tract infections (URTI) are cited by every source as the most common cause of out-patient visits to health centers.

URTI is cited among the leading causes of death in East Timor. This is very unusual. Normally, upper respiratory infections only indirectly cause death. This is primarily when they are complicated by acute lower respiratory tract infections.

5.2.5 Measles and diphtheria

Measles and diphteria were the reported cause of only a few visits to primary health centers in 1997. These diseases probably caused morbidity and mortality in previous years, but they were not cited in available data.

5.2.6 Yaws

Yaws primarily affects the skin by creating large, open wounds. It is transmitted by person to person contact (Benenson 1985). Yaws is effectively treated with one injection of penicillin. Because of massive treatment campaigns begun in 1950 and the ease of treatment, WHO no longer considers yaws a significant problem in most of the world (WHO 1998). There are cases still reported in East Timor.

5.2.7 Dengue

Dengue hemorrhagic fever (DHF) is caused by a virus transmitted by certain species of aedes mosquitoes that bite during daylight (Sandler and Jones 1987). DHF often occurs in massive epidemics and was listed as the tenth most frequent cause of global infectious disease mortality in 1997. Since there is no vaccine or drug available, DHF efforts are limited to controlling the vector (WHO 1998). Although not many cases of dengue were reported in the last few years, there have been major DHF epidemics in East Timor during the last decade.

5.2.8 Typhus

Typhus is neither a major cause of mortality globally nor a major problem in East Timor. Its presence is indicative of poverty and poor sanitation.

Typhus is transmitted to humans by a vector. Mites, lice and rat-fleas are the vectors for different types of typhus. Vector control through improved sanitation is the main means of decreasing the incidence of typhus while antibiotic treatment is usually effective in shortening the course of the illness.

5.2.9 Leprosy

According to available GOI data, leprosy accounted for 1,375 clinic visits in 1997, but it is unclear how many, if any, of these cases are new. Due to WHO'S promotion of multiple drug therapy to treat leprosy, the global burden of leprosy has been significantly decreased in the last 18 years. After a few months of dapsone treatment or a few days of rifampin treatment, leprosy is no longer contagious. Untreated, leprosy transmission requires close, prolonged, intimate, and usually household contact (Sandler and Jones 1987).

5.3 Prevalent Non-Infectious Diseases

In analyzing available data on East Timor's current health situation, very little information is found on non-infectious health conditions. In 1997, non-infectious conditions caused around half of mortality in developing countries. One would expect non-infectious diseases to cause a substantial number of deaths in East Timor as well.

However, the available statistics do not identify cases of cardiovascular disease, cancer, diabetes, smoking, or physical and mental disabilities as causes for morbidity and/or mortality in East Timor. These diseases are probably covered in the category of "other" which is listed as the cause of approximately one-third of deaths.

Government sources do list other non-infectious causes of ill health (Table 5.3). Hospitalisations in 1997, for reasons other than infectious diseases, were injuries, accidents, burns, calorie/protein malnutrition, and fractures according to hospital records. Other sources identify muscular and collagen diseases, malnutrition, asthma, dental disease, and mental illness as prevalent in East Timor (Martins et al. 1999, Cariddi 1999, Pemerintha Daerah 1996). In addition, NGO sources have frequently cited violence and psychological trauma as contributing to major health problems in East Timor during the last 23 years.

Although malnutrition only accounted for 2 percent of the diseases reported, it is known that a malnourished person is much more likely to report on infections and other diseases.

Table 5.3: Common Non-infectious Diseases Reported as percentage of all Diseases Reported

Common Diseases	94/95	95/96	96/97	97/98
Rheumatism	2			9
Anemia	1	2	1.3	
Accidents	1.4	2	1.5	2.2
Malnutrition		2	2	
Asthma		0.5	1.4	

Compiled from Dinas Kesehatan 1995, 1996, 1997, 1998

5.3.1 Violence

Violence, whether at a local or international level, is a major public health problem. In addition to death, violence is a leading cause of physical and mental disability which taxes the social and economic development of societies.

All sources report increased deaths in East Timor during the period following Indonesia's annexation. However numbers differ dranatically. Government sources report a decline in East Timor's population between 1973 and 1980 of 69,000 persons. They attribute most of this to migration and only acknowledge 9,214 deaths during this time. These deaths are attributed to civil war, hunger, and disease (PGRI 1999). At the other end of the scale, many East Timorese and international sources cite between 160,000 and 200,000 deaths as a direct result of the Indonesian invasion and military occupation. These numbers represent up to one third of the pre-occupation population (Aditjondro 1994; Carvalho 1985, Defert 1992, Ndyiaya 1994, Webb 1995, Gunn 1997:26, Carey and Carter 1995:7).

5.3.2 Disabilities

Physical disabilities would be expected as a result of the violence that has been present in East Timor. In the overall health system, disabilities are taken care of by the "vertical instance" of Social Affairs ("KD Sosial Propinsi Timor Timur"). Yet, there is little official mention of disabled people. BPS (1997:117) lists a total of 11,009 disabled in 1997, or barely one percent of the population. This seems unreasonably low. Non-governmental sources refer to the prevalence of both visibly disabled children and adults in East Timor (Cariddi 1999).

5.3.3 Mental health

Political conflict and violence are known to cause emotional stress and disability. In East Timor, there are no mental health professionals and according to some sources, mental health is not considered a medical condition (Silove et a. 1999, Martins et al. 1999). BPS (1997:117) lists 475 persons as having "mental defect" (no definition of this term is given). Oxfam's research team, summarizing findings from their recent human development study of East Timor, identified widespread trauma and stress resulting from years of conflict as a limiting factor to development. Oxfam stressed that human resource development programs must also address psychosocial needs (Oxfam 1999).

There are many East Timorese that give testimony to the prevalence of mental disorders resulting form killings, torture, rape, domestic violence and family disruption (Martins et al. 1999). The UN Special Rapporteur concluded that there was widespread traumatization of the East Timorese people as a result of arbitrary and summary executions experienced under Indonesian occupation (Silove 1999).

Psychological trauma must be addressed in East Timor. By receiving appropriate mental health care and/or social support, preferably from their peers, the East Timorese can start the process of healing. The training of mental health workers and professionals should be a priority for East Timor.

5.4 Reproductive Health

5.4.1 Antenatal care

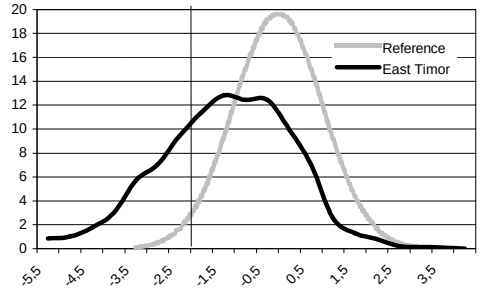
Of 28,270 East Timorese women reported pregnant in 1997, 84 percent had at least one prenatal visit. Sixty-nine percent of pregnant women in 1997 received two tetanus vaccines, therefore protecting their

unborn infants from neonatal tetanus (GOI sources). The thirty-one percent of women not receiving two tetanus vaccines with their 1997 pregnancy could have received them within the preceding ten years and therefore, did not need additional vaccination. Only unvaccinated women need two tetanus vaccines. With such reports of widespread vaccination, it is unclear why 69 percent of pregnant women would need vaccination. The sources do not define what constituted a prenatal health visit or more specifically, if it involved a trained health professional. In order two receive these two vaccines, at least 69 percent of pregnant women should have had a minimum of two health care visits of some sort.

Maternal mortality, as identified in the population chapter, is a major problem in East Timor. This raises some concern that the reported vaccination coverage may be a fiction.

As is the case for most data on health personnel in East Timor, estimates of the number of midwifes vary. WHO sources, citing government and USAID data, report that there were 424 midwives practicing in 1995. This corresponds to roughly 63 births per midwife per year. Two other sources report 279 midwives practicing in East Timor in 1997. Some village clinics that offer antenatal care find that husbands frequently do not allow a health worker or nurse to examine their pregnant wife. Instead, a family member is sent to the clinic to get advice. This demonstrates a lack of health knowledge or trust at the village level that needs to be addressed by health education/service providers.

Figure 5.2: Distribution of weight for age nutritional z-scores in East Timor



5.4.2 Intrapartum Care

Hospital records for 1996 identify stillbirths as the leading cause of hospital deaths. It is unclear how a stillbirth is defined and if it includes infants born alive who die shortly after birth or just infants born dead. Contrary to WHO recommendations, many developing countries classify miscarriages and infants who do not survive the first week of life as stillbirths.

Government data reports 26,901 babies were born in 1997. (See Table 5.4 for a breakdown of delivery attendance.) Statistics from East Timor's eight non-military government hospitals in 1997 report the delivery of 2,451 infants. Of these hospital births, 17 percent were reported as weighing less than 2,500 gms. The figure is high. Three percent were described as born dead. It is unclear if this 3 percent only represents stillbirths or if it includes infants born alive but who died shortly after birth.

If the birth figure of 26,901 given above is correct, the 2,451 babies born in hospitals represent 9 percent of 1997 births in East Timor.

Table 5.4: Percentage of births by assistance during delivery. Various GOI sources

Source	Susenas 1996	Susenas 1997	Susenas 1998	Provincial Program & District Health Profile
Dukum	15	16	13	37
Paramedic	6	6	4	43
Trained midwife	14	18	15	na
Doctor	4	4	4	na
Untrained family member	57	55	58	na
Other	5	2	5	na
Not reported	na	Na	na	20

In villages, many women give birth at home assisted by only an untrained midwife. This may be due to both traditional cultural practices and mistrust of government run clinics. Some villages are too remote and inaccessible even when the woman recognizes that medical intervention is needed.

In order for women to have better delivery outcomes, health education, improved transportation and increased capacity for training more rural midwives or birth attendants is needed.

5.4.3 Family planning

In 1980, Indonesia instituted an official family planning program that aimed to control population growth by disseminating advice on contraception through provincial and local clinics. In East Timor, as elsewhere in Indonesia, the family planning program was organized through the National Family Planning Board. In 1997/98 there were 113 local clinics, up from 78 in 1990/91 (BPS 1998:105).

Considered from a public health point of view, the family planning program is largely detached from other public health provisions (see section on contraceptive use in population chapter).

5.4.4 Sexually transmitted diseases

Both gonorrhea and syphilis are present in East Timor. In 1997, gonorrhea accounted for 690 health clinic visits, and syphilis was given as the reason for one visit (GOI data). WHO sources report 25.6 cases of gonorrhea per 10,000 population in 1995 compared to 13.6 for Indonesia. They report 8.2 cases of syphilis per 10,000 population compared to 2.4 for Indonesia (WHO 1999). It is not clear how WHO has arrived at the figures.

HIV/AIDS is not mentioned in government publications for East Timor. The WHO 1998 World Health Report cites 32 cases of AIDS for Indonesia in 1996. Because HIV/AIDS is present globally and has high prevalence in South East Asia, it is likely to be prevalent in East Timor as well. Caritas is planning an HIV/AIDS program scheduled to commence in 1999 (Caritas 1998).

Table 5.5: Ranking of causes for Child Hospitalisation and Clinic Visits, 1997.
(1= most commonly reported infectious disease)

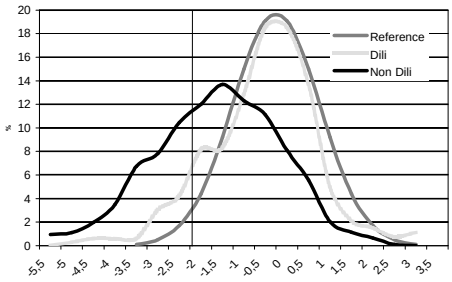
Cause	Hospitalisation Child < 1 year	Hospitalisation Child 1- 5 years	Clinic Visit Child < 1 year	Clinic Visit Child 1- 5 years
Malaria	1	1	3	3
Diarrhoea	2	3	4	2
ALRI	3	2		4
URTI	4	5	1	1
Skin infection	5	5	2	2
Tuberculosis	6	4		
Anaemia	7	6		
Injury	7	6		
Eye infection			5	5
Rabies		7		

Source: Collection of health statistics from various Indonesian government agencies

5.5 Infant and Child Health

For children less than five years of age, nearly all hospitalizations and clinic visits were due to infectious diseases (Table 5.5). Infectious disease patterns were similar to those for the population as a whole. The major difference in infectious disease patterns reported in East Timor as compared to other underdeveloped countries with similar health status indicators, is that most

Figure 5.3: Weight for age z-scores, Dili and elsewhere



other countries had significant incidences of vaccine preventable diseases, especially measles.

5.5.1 Nutrition

Even though breast feeding durations are somewhat shorter in East Timor than in Indonesia women breast feed their children quite long. In East Timor 45 percent of mothers breast feed their infants and children between 12 and 18 months. Another 25 percent breast feed longer than 18 months which leaves only 29 percent of mothers breast feeding less than 12 months (Pemerintha Daerah 1996). An optimal breastfeeding pattern is exclusive breastfeeding for 4-6 months, and continued breastfeeding at least during the first 12 months of life.

In the data from Susenas 1998, 38 percent of the children in the age-group 12-59 months of age were found to be malnourished having a weight for age below –2 z-scores (Figure 5.2). In Dili 15 percent of the children in the age group were found to be malnourished, while for children living elsewhere in East Timor as many as 44 percent were malnourished. The distribution of weight for age (general nutritional status) in Dili was similar to the reference[24] population (Figure 5.3).

[24] Nutritional status of children is assessed by comparing their weight and age to a reference population of adequately nourished children. We have used the WHO/CDC reference population.

The nutritional status of children is closely related to what kind of food was consumed in the household (Figure 5.4). Frequent consumption of milk, eggs and meat have a positive impact on the nutritional status of the children.

Other collected information on the nutritional status of children is anecdotal and suggests a somewhat higher occurrence of malnutrition than the social survey. One source reports that 53 percent of children are malnourished but does not indicate how this was figure was determined (Saldanha 1998). Recently, an American doctor running a clinic in East Timor was quoted as saying "my records show that out of every 100 children I see, 44 of them are suffering from advanced malnutrition" (http://www.etan.org/news/news99a/adoctor.htm).

It is apparent that there are undernourished children in East Timor. More quantifiable information, or nutrition surveys quantifying the extent of under nutrition are needed so that appropriate child nutrition programs can be developed.

5.5.2 Vaccination coverage

Government data indicate an impressively low incidence of disease preventable by vaccination in East Timor in recent years. Polio was reported as causing one fatality in 1997. No other vaccine preventable disease was cited as causing mortality in recent years. For the three reporting periods of 1994/5, 1995/6, and 1996/7, causes for 1569 deaths were classified as "other" (Dinas Kesehatan 1996, 1997). It is likely that this classification partially accounts for mortality from vaccine preventable diseases.

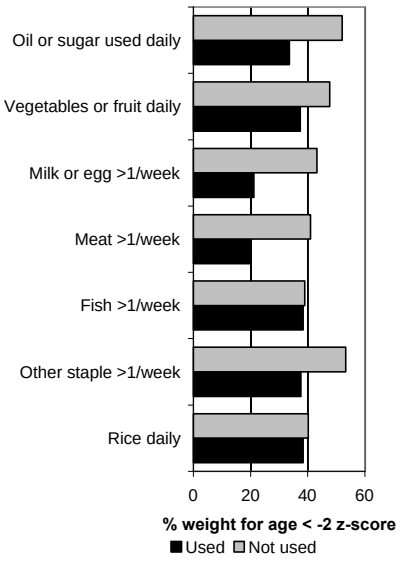
Although the BCG vaccine targets tuberculosis, it mainly lowers the incidence of miliary and meningeal TB in the first year of life. BCG vaccination is not significantly effective in preventing pulmonary TB, therefore, the high prevalence of pulmonary TB in East Timor does not necessarily indicate a problem with BCG vaccination practices.

Indonesian WHO sources identify immunization coverage as 92.8 percent for East Timor. According to statistics sources of SP2TP Provincial Program and District Health Profile, 99.6 percent of infants born in 1997 received their first DPT vaccination. All received their BCG vaccination, 92 percent received their measles vaccination, and 94 percent received their fourth polio vaccination (GOI data). Since DPT 4 is given at the same time as polio, this implies that 94 percent received their fourth polio vaccine. This same source cites the immunization drop out rate for 1997 as 7.7 percent, for 1996 as 12.8 percent, and for 1995 as 16.7 percent. Not only does this represent impressive vaccination coverage, it also represents a significant improvement in coverage between 1995 and 1997.

The SUSENAS surveys provide rather different figures. They report that only 49 percent of children under five in 1995 and 1996 had full immunization coverage. The 1998 data report that 59 percent of children between 18 and 59 months of age completed their vaccination schedules. Complete vaccination is defined as at least one BCG and measles vaccination and DPT and polio vaccination at least three times.

Because the SUSENAS data refer to children born between 1990 and 1996, the statistics cannot be directly compared with government statistics cited above especially if there has been a large-scale expansion of the vaccination coverage during the 1990s.

Figure 5.4: The impact of food consumption patterns on malnutrition. Percent below -2 z-scores (weight for age)



Source: SUSENAS 98

Table 5.6: Percentage of children 18-59 months of age with vaccination completed in East Timor by district

District	Percent	sample size
Cova-lima	64	196
Ainaro	44	190
Manufahi	15	180
Viqueque	24	149
Lautem	53	241
Baucau	31	222
Manatuto	74	176
Dili	50	336
Aileu	34	149
Liquica	68	129
Ermera	19	227
Bobonaro	34	236
Ambeno/Oecussi	54	195

Note: only children with immunization card included.

Source: Susenas 1998.

However, the SUSENAS data represent vaccination coverage for children up to age five compared to the first source which just covered infants born in the preceding year. Children fully vaccinated in the first year can later miss appropriate vaccination boosters. This changes their vaccination status.

Table 5.6 shows that there were huge variations in the vaccination coverage between districts, ranging from only 15 percent in Manufahi up to 74 percent in Manatuto.

It is difficult to assess the state of overall child vaccination coverage in East Timor. The favorable government data are

supported by further data indicating a low prevalence of the vaccine preventable childhood diseases of measles, tetanus, diphtheria, whooping cough, and polio.

The SUSENAS surveys pose the vaccination questions in such a way that one normally would expect the results to be biased upwards rather than downwards.

Vaccination against tuberculosis only offers limited protection. Therefore, the prevalence of tuberculosis does not necessarily indicate poor vaccination coverage. Nevertheless, the high levels of vaccination suggested by the service data should give the population good protection.

A strict cold chain must be observed for vaccines to be effective. There is no information on East Timor's cold chain. However, cold chain failure would be more serious for vaccines other than tuberculosis which is not as sensitive to heat as several others.

5.7 Health Care Resources

5.7.1 Health care system

Both public and private health care resources exist in East Timor. GOI run the public sector responsible for health development through two organizations. The majority of private health resources are provided by the Catholic Church. There are also a few NGOs including the ICRC with small programs that impact health, either through the provision of direct services or indirectly through water and sanitation projects.

The government organizations responsible for health care provision and development in East Timor are the Regional Office Department of Health (Kanwil) and the Provincial Public Health Service (Dinas Tk). The head of the East Timor Kanwil is elected by the national Ministry of Health (MOH) and is under their jurisdiction. This sector is responsible for all activities funded by the national government. The head of the Dinas Tk is elected by the provincial government but must be approved by the MOH. The Dinas Tk is responsible for all programs funded by the provincial government. This management system causes confusion and health program mismanagement, including alleged misuse of health budget funds (Martins et al. 1999).

Theoretically, the population of East Timor should have free access to whatever health services the government provides but anecdotal information indicates this is not the case. There is no universal health care coverage and people must pay for health education, health care, and medications (Cariddi 1999).

In East Timor, health care delivery reputedly focuses on primary health care (PHC) which is carried out through a health service network. This network offers services ranging from specialist care in the Dili hospital to integrated health posts offering care in remote villages. But it appears that clinics at all levels are poorly attended due to a lack of medicine, unaffordable medicine, and a general lack of trust for Indonesian health services (Anonymous 1998, Martins et al. 1999).

Table 5.7: Health Care Facilities in East Timor

	Pub-lic	Pri-vate	Mili tary	Tota l
Hospital type C	1			1
Hospital type D	8	1	2	11
Puskesmas with inpatient beds	21			21
Puskesmas, no inpatient beds	46	24		70
Puskesmas pembantu	305			305
Sanitary post	287			287
Posyanda	1130			1162
Laboratory	1	1		2
Pharmacy	16	13		

The Catholic Church clinics are often staffed by non-professionals because the qualified Timorese doctors and nurses prefer to work for the government services that pay higher salaries. The Catholic Church clinics are reported to dispense the least expensive

medicine (BPS 1997). Often, however, these clinics do not have adequate resources to address health problems and end up referring patients to government services (Cariddi 1999).

5.7.2 Health care facilities

In East Timor, only the type C hospital has specialty departments staffed by medical specialists. Type D hospitals are staffed by general practitioners. The government primary health centers or "puskesmas" are located in each sub-district and are meant to offer full primary health care with some secondary health services. The puskesmas is normally headed by a medical doctor who is assisted by nurses, midwives, sanitarians, dental nurses, and ancillary health personnel. Each puskesmas serves a population of between 10,000 and 20,000. In villages, there are health sub-centres called puskesmas pembantu (supporting puskesmas). Each serves a population of 2,500 to 10,000 and is run by a nurse under the supervision of the puskesmas. The posyanda, or integrated community health care post, is an institution led by village leaders. These are mostly volunteers who have received training by puskesmas staff. The volunteers are responsible for mobilising populations which are then, in theory, supplied health services by the puskesmas, puskesmas pembantu, or the rural midwife. This public system is augmented by private Catholic Church clinics (Table 5.7).

The puskesmas and supporting puskesmas are the most frequently used health services in East Timor, both in Dili and outside Dili (Table 5.8). In Dili, 40 percent of the outpatients visited a puskesmas during the month prior to the interview, and 32 percent had visited the hospital. For the population living outside Dili, the supporting puskesmas was used most frequently, by 44 percent of outpatients. 31 percent of the outpatients used the puskesmas and only 16 percent had visited a hospital.

Table 5.8: Outpatient use of health facilities in East Timor (Percent)

	Outside Dili	Living in Dili	All East Timor
Hospital	16	32	18
Private Hospital	3	3	3
Doctor Practice	5	13	6
Puskesmas	31	43	32
Supporting puskesmas	44	7	39
Polyclinic	6	9	6
Paramedics practice	5	3	5
Traditional healer	11	0	9
Polindes	1	0	1
Posyandu	1	0	1

Note: Percent of all patients. Some of the outpatients have used more than one service
Source:Susenas 1998

5.7.3 Health care personnel

One of the major health sector problems in East Timor is a shortage of well-trained health professionals. This is exacerbated by the practice of sending the least experienced Indonesian doctors to East Timor. East Timor is considered a hardship post. Up until present there has been a ban on foreign physicians working in East Timor. Some foreign medical volunteers have circumvented this practice by volunteering their services while formally on vacation in East Timor. There has been a major exodus of non-Timorese public servants including doctors and nurses since January 1999.

Different data sources for health care sector professionals and para-professionals classify the personell differently and are not easily comparable (Table 5.9). Most government sources do not specify educational differences that make a large difference in ability to perform. For example, all nurses are often classified together and can include those with university degrees, diploma school education, high school education and paramedics with minimal training (Pemerintha Daerah 1996).

The estimated number of medical doctors per 100,000 people varies somewhat from

Table 5.9: Health care personnel

Type	Practicing in East Timor WHO 1999	Practicing in East Timor, Department of Health 1997	Personell of East Timorese origin in 1999*
MD specialist	9 to 12	7	1
MD generalist	146 to 166	134	25
Senior nurse/ midwife	65		80
/Nurse (level 3 diploma)	Not broken down by education		100
Midwife	442 (1995 data)	383	600
Nurse (senior high school level)	1079	1,124	2,165
Dental nurse	75	58	80
Dentist	34 to 42	30	
Health analysts			150
Nutritionist	51 from academy 43 helpers		80
Environmental specialist	122		0
Sanitation assistant			200
Auxiliary	2,376		3,940
Information source	IRCS 96/97 & Gov./USAID 1997	BPS 1998:95	CNTR NCD 1999

**It is not quite clear from the source which medical personnell that are included in the list, if it includes East Timorese abroad and in East Timor, and/or medical and nurse students.*

source to source, but has in recent years been between 15 and 20, corresponding to around 150 medical doctors. This is high compared to Indonesia. Somewhat contradictory, it is reported that almost 50 percent of the government puskesmas have no doctors (Lobo 1999). The number of doctors was dramatically reduced during the recent exodus. By April 1999, only 69 doctors were reported present in East Timor. There are few doctors of East Timorese origin.

There is only one surgeon in East Timor and he is a military surgeon working for the military hospital. During the last two years, two Australian surgeons visited West Timor regularly and were able to perform surgery for some East Timorese.

The type D hospital in Dili has surgical facilities, as does the Catholic hospital in Suai, although no surgeries have been performed at the latter because of the lack of a surgeon.

5.7.4 Pharmaceuticals and medical supplies

In March 1999, an AusAID fact-finding mission visited hospitals, government warehouses responsible for medicine supply and distribution, and private pharmacies. It determined that in aggregate terms there were adequate stocks of medicine and medical supplies. The AusAID report acknowledges that hospitals dispense medicine for the initial treatment but patients must then supplement the balance of needed medicine through direct purchases from private pharmacies (AusAID 1999). This is a common practice in many developing countries.

Another Australian team, which visited East Timor in 1998, found that there was no free medicine and that the price East Timorese had to pay for medicine made it out of reach for most of the population already struggling to feed their families (Cariddi 1999). A 1999 Oxfam study cited an absence of medicine, limited access to available medicine, the high cost of medicine, and the limited capacity of the Ministry of Health to manage essential drug distribution as

significant factors contributing to the poor heath care situation in East Timor (Oxfam 1999). The Australian Council for Overseas Aid, in March of 1999, reported a shortage of medical supplies and noted that the army is buying available drugs in East Timor for their own stock (Walsh 1999).

Available data sources indicate that there is a significant shortage of medicines and medical supplies. However, the data cannot conclude whether the problem is mainly due to distribution shortcomings, a true lack of medicine and supplies, or a pricing structure which makes medicines beyond the means of the majority of East Timorese.

6. Education and Human Capital

Summary

The education sector in East Timor is large, but ineffective. A sustainable education system will have to be smaller, more efficient and responsive to the needs of the local labor market.

There is a lack of teachers. Most teachers in secondary schools, and also many at the tertiary level, were from other parts of Indonesia and have left East Timor. Secondary education and tertiary agricultural education is in practice non-existent unless outside teachers and agricultural experts are recruited immediately.

In addition to recruiting new teachers, improving the quality of teachers at all levels is necessary to improve system efficiency.

Management training for existing and new personnel will be vital for a successful development of the education sector.

An assessment of the education facilities after the recent destruction must be performed in order to start planning the rebuilding of schools.

The introduction of a new language(s) will put a heavy burden on the education sector, especially through development of a new curriculum, new teaching materials and teacher training and re-training. There is also an additional cost of running a parallel system to ensure that pupils enrolled in the Indonesian school system will be able to finalize their education.

Some of these costs can be considered as one-time investments that can be covered by aid. However, the sustainability of the system requires that operating costs, for example teacher salaries, can be financed by the local economy. Being a poor country with high fertility and low general education level, East Timor is facing particular constraints in financing the education sector. School-age children constitute a large share of the population. The tax base is small, and most importantly, teachers' salaries are high compared to the general income level (Mingat and Tan 1998). Spending on education has been financed by the Indonesian government. Even if all locally generated revenues of East Timor were spent on education, it would not be sufficient to cover current costs.

Budget constraints clearly restrict the means available to improve system efficiency. Experience suggests several ways to improve teacher productivity without raising costs to unsustainable levels. The most important is to introduce a new curriculum that is considered relevant by teachers, pupils and their families. Secondly, to introduce appropriate teaching materials and methods, employ teaching assistants, and increase community participation in construction and maintenance of facilities.

In the medium-term, the challenge is to increase the education level of the population by providing all children with basic education and adults literacy skills. The districts Ermera and Ainaro need priority in order to increase the comparatively low supply of education and poor availability of resources.

Poverty is the main reason why some 20 percent of children never get the chance to go to school. Poor parents cannot afford fees, books and uniforms. Subsistence agriculture requires that children work on family farms. Children, especially boys, work when their parents do not have jobs or their families are headed by single mothers. Lack of motivation and interest from children and parents is the number two reason for lack of schooling. Regional disparities in resource allocation is the third important reason.

There are policy implications to these findings. Expenses related to having

children in basic school should be kept to a minimum. For example, school uniforms could be abandoned and means tested assistance for books could be introduced. Enrolment subsidies for children from poor families should be considered. Schools in rural areas could be organized so as to allow children to combine school with work in agriculture.

There is a strong relationship between the education of parents and that of children. Up to now, few parents have had any education. It is likely that the demand for education will increase substantially in a few years when children of more educated parents are old enough to start school. Hence, it is important that the education system is restructured in order to meet the expectations of the new generations. Today tertiary and, in particular, secondary education is not directed toward the needs of the local labor market. It has produced graduates aspiring for public sector jobs, but half of them end up unemployed. Improvement in the quality of education will not by itself solve the weak labor market. Rather than resorting to expensive "job creation" (which commonly means expanding the public sector), the education sector should produce graduates to meet the demand of the labor market.

Following are priorities in re-building the education sector in East Timor:

- Give priority to universal primary education;
- Rebuild the supply of academic secondary education at a smaller scale, in order to provide high-quality preparation for students aspiring for tertiary education;
- Increase the supply of technical vocational education in co-operation with employers through apprenticeships, on-the-job training and school enterprises;
- Restructure the supply of tertiary education to meet the needs of the labor market in the fields of agriculture, fisheries, tourism, physical infrastructure, health, education and planning.

Information Gaps

Quantitative data on different languages are vital for planning the introduction of new languages, such as Tetum and Portuguese, in the education system. Although the Social Survey from 1998 collected information on so-called "second language" (after Bahasa), the sample is too small and the level of detail not adequate. There is no evidence on how many of the East Timorese children speak Tetum, and hence would benefit from teaching in that language. Accordingly, data on the command of Portuguese, especially among teachers is needed to plan for teacher training. Decisions with regard to official languages in East Timor are pending.

Reliable data on literacy and numeracy are not available. The official Indonesian literacy statistics seem severely inflated, and presumably include semi-literate school drop-outs. The low quality of the education services in East Timor indicates that there is a large number of semi-literate people. Hence, the need for adult literacy training cannot be assessed properly.

Statistical data often cover only the private or only the public supply of education. Many figures are misleading, overlapping or inconsistent. Classification of institutions is confused, especially for vocational secondary and tertiary education, as well as non-formal vocational training. Building an integrated information system for the education sector is necessary for policy planning, regardless of the model that will be selected.

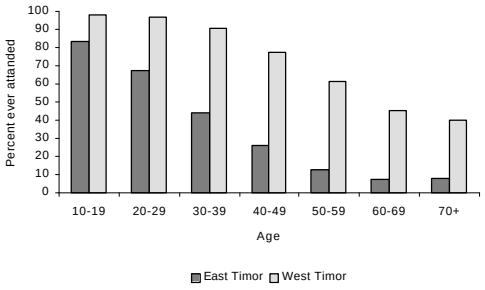
6.1 Brief History

Except for the last decade of Portuguese rule in East Timor, education was, to a large extent, a neglected area during the colonial period from the mid-1500s to 1975. Most schools were run by the Catholic Church,

teaching was in Portuguese, and only a small fraction of children had access to education. Secondary or tertiary education was not available. In the 1960s and early 1970, the Portuguese made significant investment in the education sector, with the number of primary school students almost at 60,000 in 1972 (Saldanha 1994:59-60 and Portuguese official papers). Civil war and Portuguese withdrawal damaged much of the existing school system, and in 1976 there were less than 14,000 pupils in 47 elementary schools and 2 junior high schools serving a population of more than 600,000.

After 1975, developing the education sector was of high priority for the Indonesian authorities in order to spread Indonesian language and policy. The education sector was important not only for the process of integrating East Timor into the Indonesian nation state, but also for the purpose of control. The Indonesians generally did not speak Portuguese or local East Timorese

Figure 6.1: Percent of population in East Timor and West Timor who has ever attended school. 1998



Source: SUSENAS 98

languages. Notably, in the early years of occupation, military personnel were teachers in remote areas (Brahmana and Emmanuel 1996:109).

The Portuguese language and school system was rapidly abolished and replaced by an Indonesian system. This was followed by a large-scale expansion of the education sector giving young East Timorese more expanded education opportunities than the older generations (Figure 6.1). The Indonesian education policy in East Timor in the late 1970s and early 1980s focused mainly on the supply of basic education through the establishment of primary and secondary schools. By 1980, the education sector had regained its former size under Portuguese rule. The number of pupils in primary school increased to around 130,000 by 1986. Tertiary education became available in the late 1980s. In the 1990s, the education sector expanded primarily on the secondary and tertiary levels.

6.2 Diagnosis and Potential of Education Supply

6.2.1 Overview of the education supply

The largest supplier of education in East Timor has been the Indonesian government which serves some 85 percent of all pupils. The main non-governmental supplier is the Catholic Church, and there are also a few Moslem and other private schools. According to Indonesian law, all schools must follow the Indonesian curriculum, and are under government supervision. The Indonesian authorities commonly pay the salaries to teachers in private schools. Some sources indicate that the GOI covers around 80 percent of teacher salaries in Catholic schools.

Figure 6.2 illustrates the educational ladder in Indonesia. At the lowest level, kindergartens for children 5 or 6 years of age are available in East Timor. There are some 5,000 kindergarten pupils, covering around 10 percent of the children in the relevant age group. The Catholic Church runs 95 percent, or 61 out of 64 kindergartens.

Basic school is a nine-year compulsory education composed of primary school and junior secondary school.

Some 160,000 children attend the 788 primary schools in East Timor, and every

village has at least one school though some schools are not operative[25]. Around 140 schools are private, most run by the Church, covering 10-15 percent of pupils[26]. The gross enrollment rate of around 90 percent is the same for boys and girls. However, since many of the pupils in primary school are older children who are repeating grades, the actual number of children in the age group 7 to 12 years attending school is lower, 70 percent, compared to 97 percent for Indonesia.

In primary schools there are four times as many pupils in grade one as compared to grade six due to high rates of school repeaters and drop-outs. Another reason is that several schools only cover the first few grades.

According to MoE, almost 100 percent of primary schools graduates continue on to junior secondary schools, which is higher than the Indonesian average of 75 percent. However, this must be interpreted in light of the low level primary school completion. Coverage of junior secondary school in East Timor is at about the same level as in Indonesia, which is quite low compared to other countries in the region. Of around 32,000 pupils in the 114 junior secondary schools, some 99 percent receive general academic education. The remaining attend the one agricultural school. Although data are conflicting, they suggest that around 30 junior secondary schools are run by the Catholic Church, covering 16 percent of the pupils.

Of the almost 19,000 senior secondary school students, 23 percent follow the vocational stream (17 schools) and the remaining the academic stream (37 schools). The majority of vocational secondary students pursue commercial or secretarial programs, which are available in most districts. Mechanical schools are available only in major urban areas, and less than 25 percent of vocational secondary students are trained in technical skills. Some 500 students attend the two home economics schools. There is only one agricultural school, located in Covalima, with some 300 students[27]. One in three senior secondary school students attend private schools with more than 40 percent in the academic and 20 percent in the vocational stream respectively.

Some 20 percent of secondary school graduates continue on to higher education, compared to 40 percent in Indonesia. Tertiary education has a short history in East Timor. The University of East Timor (UNTIM) in Dili was established in 1986 as a private University with three faculties: Social Politics, Teacher Training, and Agriculture. The University had around 3,500 students in 1998/99[28].

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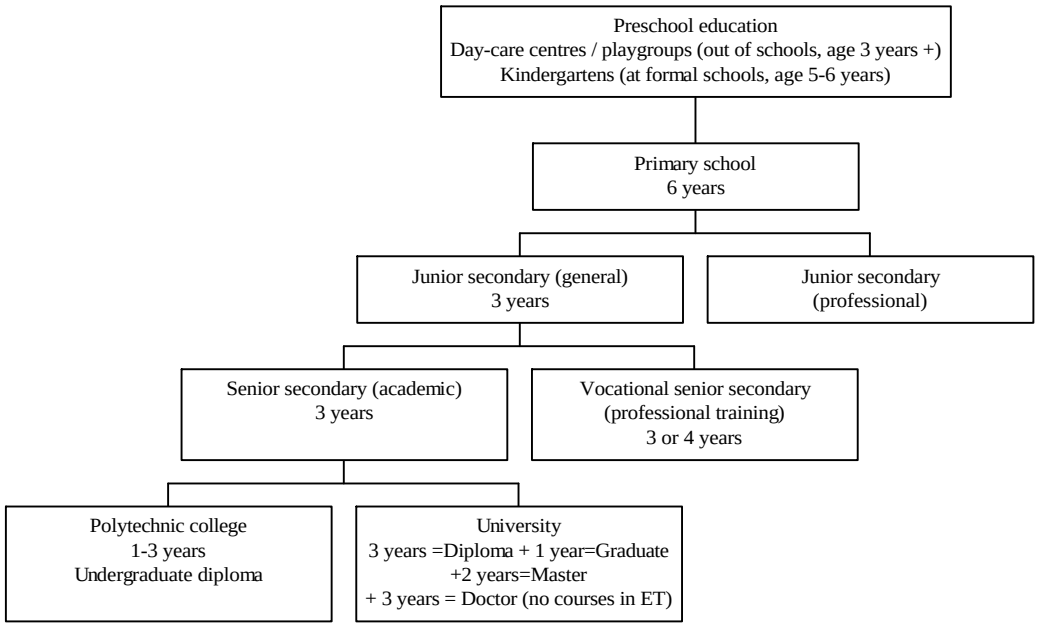
[25] Estimates of number of primary school children in 1998 vary from 148,000 using survey data from SUSENAS to 167,000 according to the government education administration. There is a general under-reporting of children in SUSENAS, which can explain the difference. There is no indication that the education information for the children who are registered in SUSENAS is wrong. Hence relative measures based on SUSENAS seem reliable, whereas one should be aware that the absolute numbers are somewhat biased downwards.

[26] The private share of primary education supply varies from less than 10 percent according to the government, to nearly 15 percent using SUSENAS survey data.

[27] The statistics on vocational education institutions are somewhat confusing, since the one junior vocational secondary (agriculture) sometimes is classified as senior secondary. East Timor In Figures refers to one agricultural senior secondary, and AusAID (1999) report three agricultural extension schools. East Timor in Figures also refers to one "vocational" of the vocational senior secondary schools. It might be the same as the Catholic Technical College at Fatumaka, described in AusAID (1999: 31).

[28] This figure was reported in Sousa (1999) for the year 1998, whereas BPS(1997) says 2221 the year before. Of those, 559 in Agriculture, 956 in Social Science, and 699 in Teacher training. Not known whether the large increase is due to statistical errors or actual increase.

Figure 6.2: The Indonesian education ladder



In 1990, the governmental Dili Polytechnic College was established. It offers two-year education in four subjects; Machine Engineering, Civil Engineering, Electronic Engineering and Accountancy . Indonesian statistics reported around 800 students in 1995/96, whereas the number was 450 in 1998/99 (Sousa 1999).

The private Dili School of Economics (STIE) was established in 1998 with programs in Accountancy and Management. Nearly 500 students are enrolled. There is also one tertiary agricultural institute (260 students) and a health academy with 400-500 nursing students, graduating 150 nurses each year. One tertiary teacher training institute had reportedly only 40 students in 1998, and several sources report an Indonesian institute of theology with 260 students. All tertiary institutions are located in Dili.

Students seeking high quality tertiary education, and who have the necessary financial resources, typically go to Indonesia or other countries to study (see chapter 10).

The Indonesian government has a national campaign for the elimination of illiteracy, which teaches adults to speak Bahasa Indonesian.

According to official figures, 30,000 persons in East Timor learned to read and write Indonesian in the scholastic year 1996/97, which seems like an unreasonably high figure even if it includes school children. The MoE reports some one thousand participants in out-of-school literacy training, and a few adults in basic school equivalent training. Until recently, UNICEF sponsored the development of literacy trainers through local Indonesian authorities and a local NGO. The Cathedral and one high school in Dili have started giving youth and adult training in Portuguese and English. Several agricultural and other training centers are reported, but it is not clear whether they are part of the formal education system.

According to official statistics, the ministry of employment supervises vocational training courses, which in 1996 included some 750 trainees in crafts and 100 in management. Around 250 of the trainees received on-the-job training.

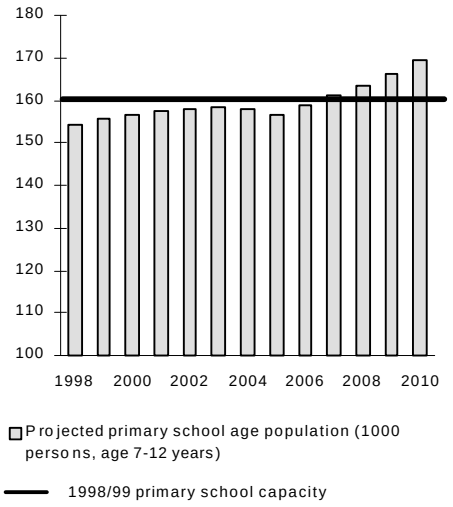
6.2.2 Financing education

Education is primarily financed by the Indonesian government. Budget and cost figures from the education sector have not been accessible. The only figure available at the current stage is a partial budget for the 1998/99 budget year. The budget for 9 districts (Kabupatens) indicates that 25 percent of the government budget in East Timor is spent on education. Taking into account that the contribution of the local economy to the budget is estimated at only 15 percent (World Bank 1999b), allocating all the locally generated revenue for education would still not be enough to cover the current level of spending on education.

Although population data for East Timor are somewhat uncertain, the most reliable estimates indicate that the current primary school capacity is sufficient to cover all children below 13 years of age. The fact that only 70 percent of school age children attend is caused by a combination of late enrolment and high repetition rates. In order to obtain universal primary education, the capacity needs to be increased if repetition rates are not reduced. With a constant unit cost of one pupil, the budget for the education sector will increase. A sustainable system requires increased efficiency and lower costs per pupil. If repetition rates were reduced to zero, the current capacity of primary schools is sufficient at least for the next 5 years (Figure 6.3).

As cost data for the education sector have not been accessible, it has not been possible to undertake a thorough cost analysis. However, it is noticeable that less than 20 percent of the total education budget is for "routine" expenditures whereas more than 80 percent is for "development" expenditures. If teachers' salaries are covered by the "routine" budget, there is a large potential for reducing costs by reducing expenditures on capital investments. Costs for construction and maintenance can be reduced by increasing community responsibility and control, use of local manpower, construction materials, designs and techniques.

Figure 6.3: Projected primary school-age population

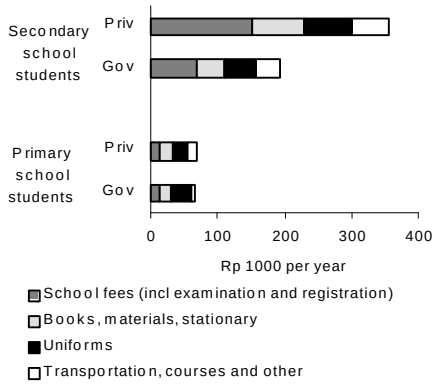


Source: own projection based on revised cesus data

Teachers' salaries will decline immediately by more than 50 percent due to the departure of Indonesian teachers. In order not to raise costs to the previous level, several measures can be taken which are related to system efficiency (see section on teachers and on efficiency below). The costs related to teaching materials will increase with education reform (see section on curricula and language below). However, better teaching materials will partly be paid back through higher quality teaching, in the form of reduced teacher input per pupil, and lower repetition rates.

A tempting solution to the budget problem is to privatize the education system, by leaving it to the Church, already a large provider of education. Unless the private sector is able to provide education at a lower unit cost than the public sector is, the total cost will be the same. The government can save money if the Church and parents are willing to pay directly for education services. However, there is a danger of creating a segmented education system where wealthier parents send their children to private schools. Cross-country evidence

Figure 6.4: Mean annual education expenses paid by students. By grade, 1998



Source: SUSENAS98.

(Mehrotra and Vandermoortele 1997) shows that in all countries with high educational achievement, primary education is the responsibility of the state.

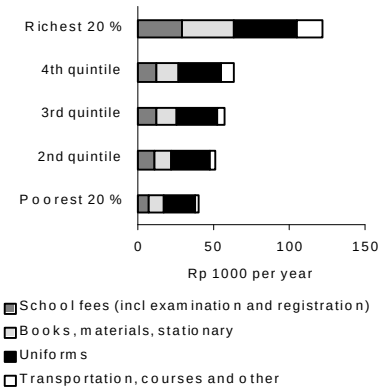
Costs to the students increase as they climb the educational ladder (Figure 6.4). School fees in primary schools are low, but there are substantial costs imposed on pupils and their families, who have to buy all books and uniforms. Based on the social survey from 1998 (SUSENAS 98), average annual household expenditure for having a child in primary school is estimated at 67,000 Rp. Poor households spend considerably less, around 40,000 Rp., whereas the well-off spend around 120,000 Rp. on a child in primary school. Most households with children in primary school spend 2-3 percent of their total expenditures on education. The finding that poor families use almost the entire outlay on uniforms, whereas well-off families spend more on books and equipment, indicates that poor families have problems in financing education (Figure 6.5). Depending on the price of children's clothing, abandoning uniforms can free money for books.

In secondary schools, fees are substantially higher and are reported to be a real obstacle to education for children from poor families (Oxfam 1999). Tertiary education is financed by student fees, the local government, the Catholic Church, as well as through foreign aid. The University and Economics School receives very little governmental funding. Students can, however, apply for scholarships from several NGOs (see chapter on aid). Indonesia has a tradition of high cost recovery in tertiary education so that priority may be given to providing universal basic education (Mehrotra and Vandermortortele 1997).

Although several NGOs provide scholarships, the small scale of such programs has little impact on the expenses of the population. According to SUSENAS 98, families finance educational expenses for more than 99 percent of students in primary and secondary school. Tertiary school expenses could not be assessed due to lack of data.

Regardless of the distribution of education suppliers, a unified system with government supervision of quality is a requirement for effective education policy. UNICEF recommends that primary education be free

Figure 6.5: Mean annual expenses paid by primary school students, by household income, 1998



Source: SUSENAS98

and not involve tuition costs. It is preferable if cost recovery occurs at the secondary and tertiary levels. Cost recovery in vocational education can be obtained by organizing education as school enterprises selling

products and services, provided that teachers are capable of administering these enterprises. Cost recovery on the primary level can be achieved through community participation in construction, maintenance and local supply of teaching assistants. The commonly reported negative attitudes to education in the East Timorese population combined with low attendance among children from poor families (see below) demands caution when considering an increase in tuition fees.

6.2.3 Facilities and materials

Though the large-scale construction of schools by the Indonesian government has provided every village with a school building, the standard is reported to be quite low:

> "Indonesian classrooms in Timor have the bare minimum - benches, tables and a blackboard. Usually there is no power…. There is no learning environment in the schools. The atmosphere resembles a barrack-room" (Odling-Smee 1999).

The destruction of infrastructure following the consultation in August has most likely affected school buildings as well. An assessment of the current stock of buildings should be conducted in order to identify needs for rebuilding and temporary locations.

It is generally acknowledged that adequate books and teaching materials greatly improve the productivity of teachers and hence contribute to increased system efficiency. Nevertheless, teaching materials have, to a large extent, been neglected in the rapid expansion of the Indonesian school system:

> "East Timor's education facilities are relatively deficient in terms of access to books, laboratories, quality instruction and learning materials. The cost of books in East Timor is expensive compared to national levels, due to the high transportation costs… At the University, there are insufficient rooms and books in the library." (Oxfam 1999).
>
> "There are almost no teaching or learning resources of any kind, eg teaching aids, resource books, charts, pictures, libraries, photocopiers. Children rely upon the teacher, and, in the unlikely event that they have one, a textbook. Teachers equally rely upon the textbooks (which they must buy, and therefore sometimes do not have)." (Odling-Smee 1999).

Estimates from SUSENAS 98 confirm that students often do not have the required books. In primary school, slightly more than every second student has a math book. In junior secondary school, two-thirds of students have a math-book, but only half have an English book and one-third a physics book. In senior secondary schools, the figures are two-thirds for math and English, but only one-third for physics.

Establishing a high quality library with mobile units to reach the whole country will improve access to books. A library should also have internet access.

6.2.4 Teachers

The most urgent issue in the short-term development of education in East Timor is the departure of Indonesian teachers. As Table 6.1 reveals, more than 50 percent of teachers are not from East Timor. The escalation of violence in late 1998, resulted in the departure of Indonesian teachers from East Timor. It is believed that around 2,000 East Timorese teachers are working elsewhere in Indonesia, but there is no detailed information about their qualifications, nor about the probability of their return. Several sources report that many East Timorese who are trained as teachers refuse to work for Indonesian schools. If that is the case, one would expect more available teachers to follow independence. The CNRT Education Task Force is developing a database of skilled Timorese to fill teaching vacancies in a transitional period.

Table 6.1: Schools, teachers and teachers per student.
Total and East Timorese 1998/99.

	Schools	Students	Teachers	Students per teacher	East Timorese teachers	Students per East Timorese teacher
Kindergarten	66	2,168	183	12	30	72
Special school (for the blind)	1	45	13	3	0	.
Primary	788	167,181	6,672	25	5,172	32
Junior secondary	114	32,197	1,963	16	65	495
Academic Senior Secondary	37	14,626	1,059	14	87[1)]	168
Vocational secondary	17	4,347	478	9	55	79
University	1	3,498	78[2)]	45	36	97
Polytechnic	1	450	160	3	60	8
Agricultural institute	1	260	16	16	2	130
School of economics	1	473	32	15	17	28
Institute for teacher training education	1	40	7	6	1	40
Health academy	1	400	32 [3)]	13	12	33
Total	1,029	225,685	10,693	21	5,537	41

Source: Sousa (1999), BPS(1997) and BPS(1996). Several other sources report widely varying figures, for example AusAID (1999), referring to a newspaper article (Kompas, 2, Feb 1999): 3698 teachers in East Timor, of which only 427 are from East Timor. The large discrepancy needs to be addressed.

[1)] Includes 80 new teachers (Timorese graduates educated in Indonesia). [2)] 46 full-time and 32 part-time lecturers. [3)] Different sources give different numbers here, ranging from 18 to 34.

In the junior and senior secondary schools, most of the 3,000 teachers have left, which makes it impossible to keep up the supply of secondary education unless teachers are recruited from abroad in large numbers.

In tertiary education, the small number of East Timorese teachers in core subjects such as agriculture is clearly not sufficient to support institutional continuity. Given the vital importance of agriculture to the economy of East Timor, immediate measures need to be taken in order to increase the agricultural teaching capacity by hiring people from abroad. Further, as many education teachers were Indonesian, the lack of teachers will be exacerbated by the lack of teacher trainers.

In primary school, the lack of teachers will not be dramatic. Decreasing from around 6,700 to 5,200 teachers, the overall pupil/teacher ratio will increase from 25 to 32[29]. However, if the decline in the number of teachers reinforces the already uneven geographical allocation of teachers, effects in some districts might be more pronounced. For example, the number of pupils per teacher varies from 20 in Baucau to a high 42 in Ermera, indicating that the latter district cannot cope with many teachers leaving, and that relocation of teachers will be necessary[30].

Both in terms of cost effectiveness, and because of the sudden reduction in the number of teachers, several measures need to be taken in order to increase output per teacher[31]. In addition to possible relocation of teachers to areas with low coverage, the number of pupils per teacher can be

[29] Not to be confused with average class size. Some teachers are occupied with administrative work, and schools sizes differ. Several sources report that class sizes of around 60 pupils are common in East Timor.

[30] There are no available data on geographical distribution on East Timorese vs Indonesian teachers to assess this effect though.

[31] Information is needed on double-shifting, multi-class teaching and so on, whether this is done today, or can be an option for the near future.

increased either by having more pupils in each class, or by some form of double-shifting through longer working hours for teachers or shorter attendance hours for pupils. In areas with few pupils in each grade, multi-class teaching can be considered. Lastly, the introduction of teaching assistants from the community provided with low-cost training can increase the effect of each teacher, and increase community participation in education. However, more unqualified personnel require more in-service training, as well as support materials. In secondary schools, assistants can contribute to solving the substantial disciplinary problems, if persons with respect and authority in the local community are recruited[32].

More urgent than the lack of teaching staff is teacher quality. Cross-country evidence suggests that the education and experience of teachers is far more important than the number of pupils per teacher for the achievement of students (Hanushek 1995). According to Carvalho (1999), more than 90 percent [33]of primary school teachers do not have the minimum qualifications. Other sources confirm the low quality of teachers in East Timor.

The poor reputation of teachers in East Timor reported by many sources is likely due to a combination of inadequate formal qualifications as well as lack of motivation and incentives. Both factors might be partly related to the wage level for teachers (US$28 – $145 per month, Oxfam 1999:26), resulting in teaching as the "last resort" for educated people. An assessment of the local market for teachers in order to establish the wage level necessary to attract and keep people with desired qualifications should be undertaken.

Many sources report that teachers are commonly absent, either because they have additional jobs or because they dislike staying in the remote village where they are assigned. A system of incentives to teachers in order to increase motivation could be considered[34]. More important is teacher re-training to increase qualifications. In-service training, using a combination of distance and contact training, has proved more cost effective than pre-service training. In the long-term teacher training institutions could be more selective in choosing their students, thereby opening up possibilities for shorter and less expensive teacher training (Mehrotra 1997).

6.2.5 Curriculum and language

During the colonial period, Portuguese was the language taught in schools to the few Timorese who were enrolled. In 1950, figures indicate that less than 1 percent of the population, or only some 4,000 people, could speak Portuguese (Lutz 1995, referring to Weatherbee 1966:684). There are no statistics on the number of East Timorese Portuguese speakers inside or outside East Timor today, but numbers mentioned are around 150,000, or less than 20 percent of the population. Portuguese has remained the language of the Church as well as of the independence movement.

Since 1976, Bahasa Indonesian has been the official language in East Timor, and the only language used in schools. Indonesian government figures indicate that the number of East Timorese who can speak Indonesian has increased from almost none in 1975, to 30 percent in 1980, nearly 50 percent in 1990 and 56 percent in 1998. Since only a small minority (immigrants) speak Indonesian at home (less than 6 percent of the population according to the 1990 census), most children have not been introduced to the school environment in

[32] Such as ex-combatants?

[33] Rui Gomes (1999) reports 30 percent, Odling-Smee (1999) 26 percent in 1992 quoting ET education director in Jakarta Post.

[34] Incentive wages has proved difficult to implement, and even dangerous if corruption is widespread.

their mother tongue, contrary to what is recognized as optimal for learning achievements. The command of Bahasa among the remaining population largely depends on whether they have attended school during the Indonesian period. While almost 90 percent of individuals in the age group 10-19, and 85 percent in the age group 20-29 years, can speak Bahasa, the figure declines steadily to below 20 percent for people above 60.

There are at least twelve mutually unintelligible indigenous languages in East Timor, four Austronesian and eight non-Austronesian which can be sub-divided into some 35 dialects and sub-dialects (Lutz 1995). None of the indigenous languages are written languages. Tetum, which is found in three main forms, is the language most widely spoken and has reportedly served as a lingua franca all over East Timor except in the eastern part (Lautem) and in Oecussi/Ambeno (the East Timorese enclave in West Timor).

Efforts to standardize the orthography of Tetum started after the Catholic Church adopted Tetum as the liturgical language in 1980. Recently, Indonesian authorities permitted teaching local languages for 3 hours weekly, but teaching materials are lacking (Viegas 1999). A Tetum literacy program started in 1994 with the co-operation of the Catholic Church and the Australian Mary MacKillop Institute of East Timorese Studies. The program aims at developing primary school teaching materials in the Tetum Dili/Prasa form, and has so far resulted in books, manuals and teacher training courses for the first two or three grades. The program is being implemented in 45 Catholic schools.

Due to the large variety of languages in East Timor, the introduction of Tetum teaching materials is not the same as introducing all children to the school environment in their own language. It should be assessed whether it is feasible to supply all children with some education in their own mother tongue, in order to prepare them for other languages.

The selection of an official language has more implications for the education system than for any other sector of the society. It is of high importance that the language is considered relevant by the population, since parents' attitudes towards the school play a crucial role in the educational achievement of a child.

The potential phasing out of Bahasa Indonesian and subsequent reintroduction of the Portuguese language and formalization of Tetum, will require an allocation of considerable resources and time from all sectors of society. However, the education sector will be the most affected as curricula and teaching materials will have to be completely redesigned[35]. A considerable cost will be born training teachers in Portuguese, since many do not speak the language themselves.

The abandonment of Bahasa will also mean that East Timor in the long run cannot rely on less expensive tertiary education in Indonesia for specialized training. Sending students to Portuguese or English speaking countries will be more expensive.

In addition to Portuguese, English language skills will be needed for East Timorese to enter the age of globalization. In tertiary education, English is necessary in order to be updated on the achievements of science. English training at the UNTIM has started, and should be intensified. English training should preferably start early in primary school.

The introduction of a new language provides an opportunity to completely change the content of the education system. The Indonesian curriculum is focused on nation-building and emphasizes Indonesian Pancasil

[35] To our knowledge, the CNRT education commission in Dili has started curriculum development with the assistance of Australian scholars and NGOs. However, it is not clear whether this is the same as, or separate from, the development of teaching materials in Tetum provided by Mary MacKillop Institute of East Timorese Studies. See chapter 10.

morals, language and history. Apart from a recent optional extra curriculum in some provinces for "local content", the curriculum makes no allowance for Timorese history, geography, arts or oral literature (Odling-Smee 1999). It promotes conformity rather than development (Viegas 1999:2), and is considered irrelevant and alien by many East Timorese. The requirements of the curriculum are unrealistic which contributes to a higher incidence of failure in exams (Oxfam 1999).

Efforts to improve the curriculum and teaching materials have been driven mainly by the Catholic Church and NGOs. In a new political setting, the government and private suppliers of education can coordinate their efforts to develop a coherent curriculum which relates education to the familiar and practical aspects of Timorese life. This will contribute to strengthen national identity as well as individual self esteem. Main emphasis should be on science, mathematics and languages.

6.2.7. Access to education

Access to basic education in East Timor has increased steadily both in terms of numbers and coverage. The primary school gross enrolment ratio, or the number of primary school pupils per 100 children in the age group 7-12, has increased from 40 percent in the mid 1980s to 90 percent today.

However, this figure gives an inflated picture of the real school coverage since many pupils stay in the school system for extended periods due to high repetition rates[36]. In fact, only 70 percent of the children between 7 and 12 years of age are currently enrolled in school. This is lower than in any of the Indonesian provinces (Figure 6.6) and far behind the regional high-achievers South Korea and Malaysia. It is better, however, than countries at a comparable economic level such as Mozambique.

Another reason for the low enrolment ratio is that children in East Timor start school late. Only some 60 percent of children 7 and 8 years old attend school, peaking at around 80 percent at age 11. This indicates that some 20 percent of children do not receive any schooling at all.

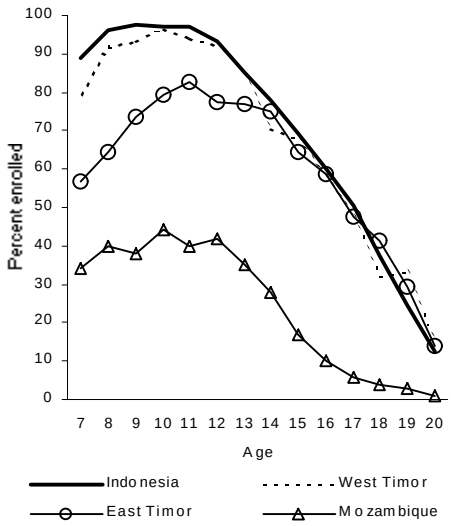
Various sources report that reasons for inadequate schooling are family poverty (Odling-Smee 1999) and family disruption, that children have to help out with farm work or domestic tasks, and that girls are especially disadvantaged in this regard (Oxfam 1999: 15). However, there is no quantitative evidence of substantial gender bias regarding access to education before senior secondary level. While statistics show that girls received less education than boys only 10 years ago, children today seem to have the same opportunities to basic education regardless of sex. Net enrolment rate is 71 percent for boys and 70 percent for girls for primary school, and 38 and 39 percent respectively for secondary school. Table 6.2 shows the relationship of school enrolment to family background and geographical location based on the social survey (SUSENAS) from 1998. A multivariate model was used to control for correlation between variables.

Inadequate supply of education is a major problem in the districts Ermera and Ainaro, where only 55 and 58 percent of children ages 7 to 18 years had ever attended school. The same districts also had the poorest teacher coverage with 42 and 32 pupils per teacher in primary school respectively.

The hypothesis that family disruption keeps children out of school is difficult to test. In support of the hypothesis, statistics indicate that boys (but not girls) from female-headed households commonly miss the opportunity to attend school. Thirty percent of boys aged 7 to 18 who live in female-headed households have never attended, compared to just above 20 percent of boys from male-headed ones. Our findings support the

[36] Expected school-life for a child at 7 is around 8 years (compared to 10 in Indonesia and 14 in South Korea). This is not the same as expected level (due to high repetition rates).

Figure 6.6: Age specific (net) enrolment rate. Selected regions. Indonesia and East Timor: 1998, Mozambique: 1994



Source: SUSENAS98 and UNESCO Website

conclusion that boys have to take up employment to provide for the family in the absence of a male provider[37]. However, the group is small and does not significantly add to the total number of persons in the out-of-school population.

Attitudes have a significant impact on children's access to education. Children with parents who have themselves received education are much more likely to go to school (more than 90 percent), than children with un-educated parents (around 70 percent)[38]. An implication of this is that the demand for education is likely to increase dramatically in a few years when today's better educated population, in their early 20s, start sending their own children to school.

Around 10 percent of children aged 10 and 11 years are employed, which is a typical level in Asia. Most employed children work in agriculture. Half of the employed children in this age group combine work with schooling. Older children are more commonly employed, and they are also less likely to combine employment and schooling. Among those 12-14 years old, almost 20 percent are employed, and 40 percent of children aged 15 to 18 are employed. Only a few of them attend school.

Family poverty and labor-intensive agricultural technology keep children in the work force and out of school. Analysis confirms that children from peasant families receive less education than others. Only 70 percent of children 7-18 years old in families where the head of the household is employed in agriculture have ever attended school, compared to more than 90 percent in families where the household head has a non-agricultural occupation.

Poverty not only forces children to work, but it also restricts their ability to attend school due to school fees and the cost of textbooks and compulsory school uniforms. Whereas only 70 percent of children between 7 and 18 years in the poorest households have ever attended school, the corresponding figure for the most well off are 96 percent[39]. Poverty

[37] The effect of female-headedness is not statistically significant when controlling for other household characteristics, -in particular the employment status of the head of household. This can be explained by the fact that female heads often are not employed, and that the significantly negative effect of non-employed household head on children's access to education incorporates some of the effect of belonging to a female-headed household. It also explains why only boys are affected.

[38] Parent's education can be treated as a proxy for attitudes to education, since income is controlled for in the model.

[39] Since we include children 7 and 8 years of age in the table, many of which will start school later, the figure reported here is of course lower than the percent who will ever receive any education.

Table 6.2: Percent of population 7-18 years of age who have ever attended school

	Total	Boys	Girls	n[1)]
Total	78	78	77	7930
7 years of age	58	61	55	912
8 years	65	66	64	944
9 years	75	76	75	812
10 years	82	84	80	912
11 years	86	84	88	557
12 years	85	85	85	857
13 years	86	85	87	569
14 years	87	89	85	570
15 years	82	82	82	565
16 years	85	87	83	422
17 years	80	79	81	402
18 years	77	79	75	408
Family characteristics				
Male headed household	78	79	77	7414
Female headed	74	70	79	516
Head never attended	68	69	67	4846
Head attended school	91	92	91	3084
Spouse never attended	72	73	71	5258
Spouse attended school	94	94	94	1799
No spouse	74	74	74	873
Head not employed	73	71	75	298
Head agriculture	70	71	69	5099
Head other industry	92	92	91	2533
Poorest 20 %	70	71	69	1871
2nd quintile	70	70	70	1849
3rd quintile	75	77	74	1687
4th quintile	84	84	83	1388
Richest 20 %	96	96	95	1135
Location				
Covalima	81	80	83	550
Ainaro	58	59	58	628
Manufahi	75	81	68	550
Viqueque	79	79	78	506
Lautem	88	87	90	637
Baucau	75	78	73	624
Manatuto	87	83	92	477
Dili	94	94	93	1010
Aileu	74	79	68	419
Liquica	74	75	74	480
Ermera	55	53	58	672
Bobonaro	77	80	75	796
Ambeno/Oecussi	71	73	69	581

Source: Susenas98
1) n is the number of observations in dataset on which the estimate is based (not the number of children).

is a major reason for lack of schooling, even when the education of parents and agricultural attachment are controlled for.

When families are asked directly about the reason why children do not start school, drop out or quit, economic reasons are by far the most commonly reported. The second most important reason is lack of interest and motivation. Reasons such as health problems, domestic tasks, marriage and distance to school were rarely reported.

The finding that poor children and children from peasant families have low enrolment rates suggests that strategies for combining schooling with agricultural work must be developed if school attendance is to be increased. For example, schools may hold sessions only every second week or during half of the week. Evidence from the Bangladesh Food-for-Education-Program suggests, however, that economic incentives are more important than time constraints, and that fighting child-employment is not the most efficient way to increase schooling for poor children. Offering parents a small premium for sending their children to school was enough to ensure nearly full school attendance (Ravallion and Wodon 1999). Only a few children on the program stopped working.

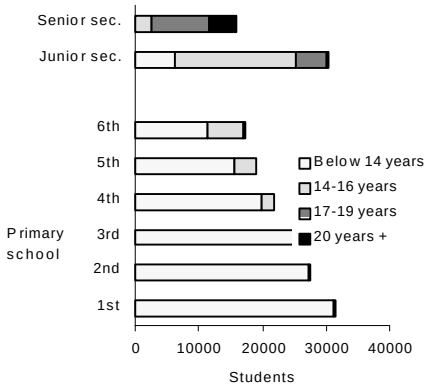
6.2.8. Quality of education

Although access to education, particularly primary education, has improved dramatically over recent years, the performance of the education sector is still low. Many pupils drop out without acquiring basic skills or have to repeat several levels. Given the resources (money and time) put in to the system, less is achieved in terms of increased human skills than could be expected.

According to the social survey from 1998, 7 percent of the population 15 to 19 years and 4 percent in the age group 10-14 dropped out of school before completing grade 4[40].

[40] This is quite consistent with drop-out rates reported in official Indonesian statistics (7 percent in primary and 4 percent in junior secondary school in 1996), which are not very high compared to other low-income countries.

Figure 6.7: Number of students by level and age, 1998



Source: SUSENAS98

Most of the resources spent on them were wasted. At least 4 years in school is considered necessary for retaining literacy and numeracy skills (Mehrotra 1998b:8).

Analysis of available administrative and survey data as well as several qualitative assessments suggest that a problem much more severe than the rate of school drop-outs, is that the pupils who stay in school do not acquire the necessary skills and must repeat classes. Together with late enrolment, repetition has produced a peculiar structure with overage students clustered in the lower grades (Figure 6.7). Overage pupils further lower educational efficiency as they face increased domestic and work responsibilities leading to frequent absenteeism (Kelly 1995).

Administrative statistics from the Indonesian government (MoF 1999, BPS 1996 and 1997, Provincial Government of East Timor 1996) suggest that the number of pupils in primary school decline by around 20 percent for each grade. Whereas almost 21,000 pupils entered primary school in 1990, only 9,000 graduated six years later. This number includes repeaters who started earlier. Hence, far less than 50 percent of children complete school in time.

According to the same sources, 15 percent of the pupils in primary school and 4 percent in junior secondary were repeating grades in 1995/96. Hence, a large share of the budget for recurrent costs is wasted. The age distribution of pupils (SUSENAS 1998) shows that around 30 percent of primary and junior secondary students and almost 40 percent of senior secondary students are more than 2 years behind schedule[41].

Several reasons for the inefficiency of the education system in East Timor have been suggested, most relating to supply-side failure. Discussed above are explanations such as the low quality of teachers and teaching methods, the fact that most school entrants do not understand the language, and that the Indonesian curriculum is considered inappropriate.

Some districts seem to be able to run schools more efficiently than others. Liquica, and to a lesser degree Manufahi, are considerably worse with 49 and 40 percent respectively of students being more than 2 years behind schedule, compared to 23 in Dili and 18 percent in Ambeno/Oecussi. This indicates regional inequalities in the qualification of teachers and educational administrators.

Several sources report that Catholic schools are of higher quality than government schools. The SUSENAS data indicate that pupils in Catholic schools have to repeat levels somewhat less frequently compared to pupils in government schools. 25 percent of students in Catholic school are more than 2 years behind schedule, compared to 30 percent in government schools.

The many small and remote schools pose a particular efficiency problem, due to high per capita cost. It is also difficult to recruit teachers for these schools. However, centralizing education institutions will lead to lower enrolment and higher dropout rates among children from the most disadvantaged families. To accomplish universal primary education, primary schools need to be near every village.

As with lack of access to schooling, low efficiency is not only caused by the supply

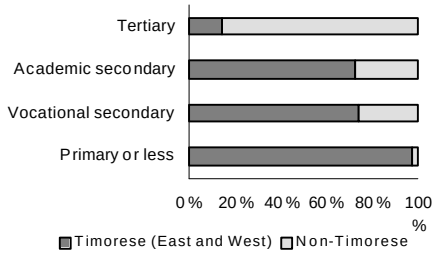
[41] On schedule defined as starting school at age 7 and not repeating any grade.

side, but can also be attributed to the demand side. Children from poor families are delayed in their education twice as often as wealthier children. As stated earlier, the education level of parents as well as their economic adaptation (agriculture) is an important determinant of delayed schooling. Measures have to be taken to improve the attitudes toward education among poor and peasant families, as well as to assist children from these families with homework, books etc.

Primary level: The particularly high number of pupils repeating the first grade, indicates that either the teaching is bad, children are not prepared for starting school, or the second grade entry requirements are too advanced. In general, failing to progress may contribute to a student's disengagement and hence reinforce the lack of achievement. Pre-school education might prove useful for preparing children for school in general. For children who will be taught in a language different from their mother tongue, pre-school language training is required for normal progress.

Academic Secondary Level: The political conflict has left the Indonesian teachers without legitimacy, which translates into negative attitudes towards education and subsequent lack of achievement. Several sources report that teachers in secondary schools are targets for violent youths (Oxfam 1999, Sousa 1999, Odling-Smee 1999). [42] Survey data confirms other reports of male students in senior secondary schools having an extremely high rate of delayed school progression (46 percent compared to 27 percent of female students). At least 20 percent of male senior secondary students are above 20 years of age. The high occurrence of repeaters reinforces the disciplinary problems. Many adult male pupils still in secondary schools are often in conflict with teachers, corrupting the learning environment, which produces more repeaters. Discipline must be restored in secondary schools, for example by introducing teacher assistants to help out in the classrooms. It should also be considered whether it is necessary to reduce the supply of secondary (academic) education in order to improve quality. Reductions in the number of students can be achieved by raising the entrance requirements to secondary schools.[43]

Figure 6.8: Education level by place of origin. Percent, 1998



Source: SUSENAS98

Vocational Secondary Level: Little information is available on the quality of vocational tertiary education. The Technical School run by the Church in Fatumaca has high drop-out rates (Oxfam, 1999:31). AusAID (1999) does not mention drop-out rates in their description of the institute. The reportedly high fees and financial constraints in vocational technical and agricultural education indicate there are problems financing up-to-date equipment.

Tertiary level: All reports on the University of East Timor (UNTIM) refer to it as an institution of low quality with

> "…weak internal infrastructure, political polarization of the faculty, absence of adequate facilities to support practical

[42] According to Sousa (1999), passing an exam in secondary school is not equivalent to having attained the necessary skills. He reports that the Indonesian policy was to let all students pass exams in order to prevent social unrest, and that teachers are threatened by students who fail.

[43] Swedish Caritas (funded by the European Union) are involved with quality improvements in catholic Secondary Schools.

> instruction, out-dated teaching methods, extreme resource-poor conditions… unstable institutional leadership, culture of unpredictability, lack of framework for project implementation and know-how, lack of human development training in personal and interpersonal relations … [and] long absences by faculty and staff" (Georgetown University 1998).

With the importance of a tertiary institution for nation building, democratization and economic development, raising the quality of UNTIM should be a short-term priority. Provided that an operative institutional leadership is established, institutional development can be accomplished only through extensive co-operation with high quality universities and research institutions abroad. Immediate measures can be taken in order to extend the current links with foreign institutions to give courses at UNTIM, as well as for sending students for training abroad.[44]

There are few available reports on the quality of other tertiary institutions (Dili Polytechnic College, Dili School of Economics (STIE), the Health Academy, Teacher Training Institute and Institute of Theology). However, an investigation should ascertain whether there is capacity in East Timor to operate six tertiary institutions. Strategic centralization may be preferable.

6.3 Human Capital, Education and the Labor Market

6.3.1 Level of human resources

The level of human capital as measured by the educational attainment of the population living in East Timor is low (Table 6.3). It is distributed unevenly geographically; it is shaped by the large proportion of the population which has never attended school.[45] In 1998, of the working-age population (10 years and above) who were not attending school, almost 60 percent had never attended school, compared to less than 20 percent in West Timor. There are also large geographical differences in the level of human capital. In Dili, 70 percent of the working age population had attended school, compared to 20 percent in Ermera and Ainaro.

Table 6.3: Education level of working age population. Percent, 1998.

	East Timor			West Timor
	Total	M	F	Total
None	58	51	65	18
Incomplete prim	13	15	11	20
Primary	10	12	9	34
Junior sec.	6	7	6	9
Acad. sen. Sec.	8	9	6	10
Vocat. sen. sec.	3	4	2	5
Tertiary	2	2	1	4
Total	100	100	100	100
n	18907	9569	9338	10251

Note: M: Men, F: Women, n:observations

Source: SUSENAS 98, students excluded.

A large share of the educated workforce came from elsewhere in Indonesia to fill positions at the higher levels in government administration. The departure of these

[44] To our knowledge, UNTIM has (had) co-operation arrangements with Universitas Sanata Dharma (Jesuit University in Indonesia), Ateneo University in the Philippines, Georgetown University in USA, Indonesian-Australian Language Foundation in Denpesar, British Council in Jakarta, Udayana University in Denpesar, Agriculture Institute/Bogor, Alpha-Omega Foundation, Kupang.

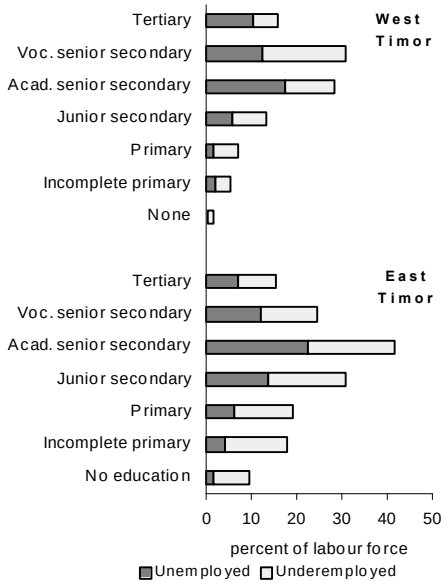
[45] As a supplement, the literacy level can be used as an indication of human capital. Although they are commonly quoted, the available data on literacy in East Timor are considered severely inflated, as the questionnaire design in the social surveys and census seems inadequate for measuring functional literacy.

immigrants has reduced the number of people with tertiary education dramatically.

Based on SUSENAS 98, which collected information on the mother tongue of respondents, an estimated 85 percent of persons with tertiary education and more than 25 percent of persons with senior secondary education came from locations outside Timor (Figure 6.8).

The education level among East Timorese currently living abroad, mainly in Australia, Portugal and elsewhere in Indonesia, is considerably higher. Although this group has potential to immediately fill some of the gaps left by the Indonesians, their return will not change the overall picture of low human capital[46].

Figure 6.9: Percent of the labour force who are un- or underemployed, 1998. East and West Timor compared.



Source: SUSENAS98

[46] It has not been possible to obtain data at this stage on the number and qualifications of East Timorese living abroad. CNRT is currently doing a survey of this in Australia. As regards the education and skills among ex-combatants, it is not known.

6.3.2. Utilization of human capital

Although the level of human capital is low, it has not been fully utilized. There is a mismatch between the supply of education and the needs of the labor market. Excluding persons who were unable or unwilling to work, Figure 6.9 shows the percentage of the labor force who were unemployed (actively seeking but have no work) or underemployed (part-time employed and are actively seeking work[47]) in 1998. As in all agrarian societies without unemployment benefits, the unemployment rate was moderate at 6.3 percent compared to 4.9 percent in West Timor.[48] Unemployment was highest for youth and women. For example, of women in the age group 20-25 years, 26 percent were unemployed.

Unemployment was almost non-existent among people without formal education, basically because they have no other opportunity than to take whatever employment is available (most are peasants). With increasing education levels, job-seekers tend to be more selective, particularly those from wealthier families who receive family support while waiting for the right job. The share of the labor force not being fully utilized was particularly high for persons with a general academic education. Among academic senior secondary school graduates, 22 percent of the labor force was unemployed, and 19

[47] This definition of underemployment does not include invisible underemployment (i.e. people who have jobs below their qualifications, which would be widespread among indigenous Timorese if they were discriminated in the labor market).

[48] Several sources report wild unemployment rates for East Timor, for example AusAID (1999: 10): "Unemployment is also very high with between 60% and 80% of the local population out of work". Oxfam (1999:9), quoting "Statistik Timor Timur 1994", reports unemployment at 82 percent. Whatever the sources for these figures are, they are clearly not in accordance with internationally recognized definitions of unemployment.

percent underemployed. This is twice the rate of under-utilization recorded in the 1990 census 8 years earlier, and is a common feature of countries with rapidly expanding education systems. Academic secondary school graduates are aspiring for non-manual clerical jobs, typically in the public sector. However, with an increasing supply of tertiary graduates to the labor market, youth with secondary education are not able to compete for such jobs.

The excess supply of academic secondary education has been recorded by many observers, who commonly conclude that resources should target vocational secondary education. However, almost 25 percent of the active population with vocational secondary education are not fully utilizing their resources. The available data are not sufficient to reveal the excess supply of various types of vocational courses. Vocational education in East Timor is more oriented towards accounting and clerical skills than technical ones. This indicates that the content of vocational education should be restructured towards more technical subjects.

Figure 6.10: Un-and under-employment among labour force with secondary or tertiary education in East Timor, by place of origin, 1998

Source: SUSENAS98

Native Timorese with secondary or more advanced education had substantially higher unemployment and especially underemployment rates than immigrants from elsewhere in Indonesia (Figure 6.10). With the departure of highly educated Indonesians, jobs should become available for all Timorese with higher education. This is a one-time demand shock and does not imply that the current structure of tertiary education is what the economy needs in the future. Lower unemployment among persons with tertiary education than for secondary school graduates indicates that excess supply of education is higher at secondary than tertiary level[49].

6.3.3. Economic returns to education

The educated population in East Timor enjoyed substantially better economic conditions in 1998 than the large majority of people with little or no education. For example, some 8 out of 10 families headed by a tertiary graduate belonged to the richest quintile of the population (compared to 6 of 10 in West Timor). The general lack of economic data for the large population relying on subsistence agriculture makes it impossible to undertake a comprehensive analysis of the effect of education on the livelihoods of peasant families. Cross country evidence suggests, however, that formal education is an important determinant of peasant productivity and income. Formal education above the threshold level that sustains literacy and numeracy is more effective in raising agricultural productivity than non-formal education through extension services (Moock and Addou 1995).

The formal sector, defined as the wage employment sector, covered less than 20 percent of all employed persons in East Timor in 1998 (same as in West Timor). Formal sector wages were comparatively high, almost twice that of West Timor. The reason is that 75 percent of formal sector

[49] This might seem inconsistent with other sources: "Apparently few, if any graduates get jobs" (AusAID 1999: 31); "Tertiary education institutions report … lack of interest from the students due to difficulty in obtaining employment" (Oxfam 1999: 17). However, qualitative methods are not suitable for measuring unemployment. Some figures seem to be based on labour office records, and hence are severely exaggerated.

employees in East Timor worked in the government administration (against 36 percent in West Timor). Adding to this, government employees in East Timor were given a hardship allowance that could nearly double their wages. Hence, the very high private returns to education in the formal sector[50] do not necessarily reflect the value of education in the economy, but is rather a mirror of the GOI wage policy.

6.3.4. The future education system

East Timor will not have the capacity to immediately implement the large-scale rebuilding that is needed. Training should start immediately to up-grade the skills of the Timorese who will be responsible for and involved in the process[51].

In the longer run, many children and youth currently enrolled in school have the potential to increase productivity and economic growth. A realization of this potential requires a restructuring of the economy. Under Indonesian rule, most highly educated human capital was engaged in government administration. Increasing the education level while maintaining this economic structure might be counter-productive by slowing down economic growth (Pritchett 1996).

Due to the importance of agriculture, priority should be given to this sector in the design of a new education system. Secondly, the tourism sector has a large potential for generating foreign exchange. Tourist industry skills such as planning, investment, construction, management and services provision should be developed. Thirdly, technical skills will be needed to develop and maintain infrastructure in the form of water supply, sanitation, electricity and communication. Lastly, the provision of basic health and education services requires increased local capacity for educating teachers and health personnel.

The supply of secondary education needs to be harmonized with the supply of tertiary education. If the demand for highly skilled labor is covered by tertiary graduates, academic secondary education should be scaled down to serve mainly as preparation for tertiary education. In recent years, nearly 4,000 students graduated from academic secondary schools every year, of which, maybe 20 percent had the chance to continue onto higher education in East Timor. Accordingly, among the more than 10,000 graduates from junior secondary, around 60 percent continued to senior secondary. If the re-building of the education sector would use the old system as a model, 7,000 academic secondary graduates would enter the job market every year, with aspirations that cannot be met by current economic realities. Despite East Timor's large public sector, almost half of the graduates were unable to find jobs in 1998.

To avoid adverse distributional effects of restricting access to secondary education and to increase the number of females enrolled, students should be selected based on their qualifications. This should be accompanied by scholarship arrangements for students from low-income families.

With the high cost of technical vocational education, the employability of graduates from such courses should be continuously surveyed. Design and implementation of vocational education should be made in close co-operation with employers, for example through apprenticeship programs, on-the-job training and school enterprises instead of training students in schools with out-dated technology and equipment.

Regarding tertiary education, available information indicates that almost half of the students are studying government administration and political science. It is not likely that the administration of East Timor will need several hundred new graduates in

[50] Based on an estimated wage equation (reported in Part II, table 3.27)

[51] Several small initiatives have already been taken, for example the training of economists in the World Bank as well as of future "oil bureaucrats" in Norway.

these fields each year. Official statistics also report that some 25 percent of the students at the polytechnic school are studying administrative subjects. Restructuring will be necessary. It is possible to scale down the supply of tertiary education without imposing negative effects on the economy. Raising entrance requirements could be accompanied by scholarships for talented students from low-income families, especially women.

Given the small size of East Timor's population and economy, there will be demand for educating people abroad even in the long run. It is not feasible to provide very expensive training locally, such as educating medical doctors. Scholarships will be needed to support overseas education of East Timorese.

7. Poverty

Summary

East Timor is one of the poorest areas in East Asia. While Indonesia has had considerable success in reducing poverty over the past two decades, East Timor has lagged behind. Poverty incidence in East Timor was more than double the average for Indonesia and higher than any Indonesian province including the other Eastern Islands.

East Timor experienced a decline in poverty incidence between 1993 and January 1997, but the percentage of poor households rose in 1998 after the economic contraction. Income inequality is low. Poverty is thus primarily a problem of low production – not of unequal distribution.

When poverty is as widespread as in East Timor the administrative costs involved in targeting transfers and development project benefits to the poorest may outweigh the benefits. Simple geographical and self-selection targeting is likely to be the most cost-effective way to reach the poor.

Control of inflation and population resettlement are high priorities for poverty reduction.

Identification and needs assessment for vulnerable households, together with the design of appropriate safety net programs, is likely to be a priority for poverty reduction.

Poverty reduction programs need to be designed to reach the illiterate. Programs which target children are likely to be beneficial to the poor. Growth in agriculture will tend to reduce poverty more than growth in manufacturing or urban services.

Recovery and growth are prerequisites for a sustainable reduction of poverty in East Timor. It might be necessary to tax urban services and subsidize agriculture during the period of UN administration. Foreign aid should be used for rural poverty reduction.

7.1 The Poverty Line

Based on available data, we use Indonesian comparators to contrast the poverty profile of East Timor with neighboring areas. Most of the indicators used are taken from the SUSENAS of January 1998. Though these indicators should capture the initial impact of the Indonesian economic crisis and the effects of the 1997 drought, they do not show the impact of the rise in local conflict and population displacement taking place over late 1998 and 1999. These indicators should be up-dated.

The basis for the poverty line used is the official poverty line from the Indonesian Bureau of Statistics (BPS). The last official poverty line calculated in Indonesia was for 1996, based on the detailed consumption and expenditure information available in the SUSENAS. BPS calculates provincial food and non-food poverty lines using consumption weights specific to urban and rural areas. The food poverty line is based on the cost of consuming 2100 calories per day using 51 selected food items, with consumption weights calculated for a reference group of households around the poverty line. The total poverty line (used for the poverty profile below) is calculated from the average value of non-food expenditure for the same reference group, subjectively adjusted to reflect judgements about basic needs.

Detailed consumption and expenditure information is not available in the 1997 and 1998 SUSENAS core surveys. Poverty lines have therefore been adjusted to reflect the core expenditure items available in the 1997 and 1998 surveys, and updated using price data, weighted to reflect actual urban and rural consumption patterns of the bottom 30 percent of households in the SUSENAS. This is an inexact method, and indicates that results should be interpreted with caution until the release of the 1999 SUSENAS (which included the full consumption and

expenditure module) permits recalculation of poverty lines and poverty measures.

The poverty measures used are the so called Foster-Greer-Thorbecke series. This comprises:

- *Poverty Headcount.* This shows the percentage of households whose per capita income falls below the poverty line, and is also called poverty incidence: it aims to answer the question "how many people are poor?"
- *Poverty Depth.* This shows the percentage by which the average income of poor households falls below the poverty line, and is sometimes referred to as the depth of poverty: it aims to answer the question: "how poor are the poor?"
- *Poverty Severity.* This index places a higher weight on the very poor. A rise in the index indicates increasing inequality *between* poor households, and can be interpreted as a rise in household vulnerability.

7.2 How Many are Poor?

7.2.1 Around half the population is poor

Whilst Indonesia has had considerable success in reducing poverty over the past two decades, East Timor has lagged behind. Figure 7.1 shows the percentage of households falling below the poverty line in East Timor and Indonesia between 1993 and 1998. Poverty incidence in East Timor was over double the average for Indonesia in any of these years, higher than any Indonesian province including the other Eastern Islands. East Timor experienced a decline in poverty incidence between 1993 and January 1997, but the percentage of poor households rose in 1998 after the economic contraction. The Gini coefficient, which measures inequality in expenditure between households, was 0.31 for East Timor in 1998. This compares with 0.37 for Indonesia as a whole, and is very low in comparison with other developing countries.

At poverty rates this high, there are typically low gains from poverty targeting. When over half of the population is poor, the administrative costs involved in targeting transfers and development project benefits to the poorest may outweigh the benefits. Simple geographical and self-selection targeting is likely to be the most cost-effective way to reach the poor.

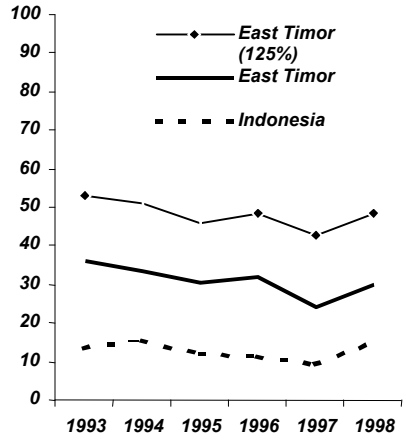
7.2.2 Recent trends

Figures are not yet available from the 1999 SUSENAS to assess more recent poverty trends. Two factors are likely to have increased poverty rates in East Timor over this period.

First, the territory, as with Indonesia as a whole, suffered high inflation during 1998. The poor were particularly disadvantaged by price changes. Prices for the basket of goods purchased by the bottom 30 percent of households rose 69 percent in urban areas and 70 percent in rural areas, compared to 57 percent for the East Timorese population as a whole.

Second, the territory has experienced severe local conflict and population displacement. In addition to affecting incomes through disruption of the agricultural cycle and work opportunities, this is likely to have damaged household wealth, either directly through

Figure 7.1: Trends in the incidence of poverty. Percent of population below poverty line 1993-1998.



attacks and looting or indirectly, as households are forced to sell assets or pull down savings in order to finance their consumption.

As a result of these factors control of inflation and population resettlement are high priorities for poverty reduction.

Figure 7.1 also shows how sensitive the core poverty figures are to the poverty line used. Making a relatively small adjustment to 125 percent of the official line, poverty rates increase from 29 percent to 49 percent in 1998. As many households are clustered around the poverty line, the income of a household classified as "not poor" might be only marginally higher than the income of a household classified as "poor". To conclude, the recent deterioration of incomes coupled with a poverty measure that is very sensitive to income changes, suggest that around half the population in East Timor can be characterized as poor.

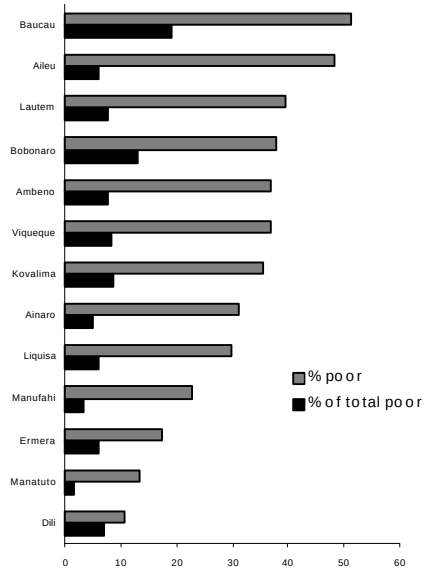
Identification and needs assessments for vulnerable households, together with the design of appropriate safety net programs, is likely to be a priority for poverty reduction.

7.2.3 Regional differences

Whilst it is fair to say that all areas of East Timor are poor, some are poorer than others. Figure 7.2 shows the percentage of poor households by kabupaten in 1998. This should be interpreted with caution, as sample sizes are small at the district level. Dili, as would be expected since it is the only relatively urbanized kabupaten, shows a lower level of poverty incidence. Of the rural districts, Baucau has the highest incidence of poverty. This remained relatively unchanged between 1993 and 1998.

Since population levels differ by kabupaten, however, the district with the highest percentage of poor does not necessarily have the highest number of poor. Poverty incidence in Aileu is almost as high as in Baucau, but Aileu holds a much lower percentage of the total number of poor households because its population is lower.

Figure 7.2: Poverty incidence by district. Percent of households below poverty line, and percent of total poor. 1998.



Poverty reduction programs should target rural areas, but the relatively small variance and the unreliability of data between districts makes strong targeting of particular kabupatens unadvisable. In addition, in a post-conflict situation geographical location is associated with political affiliation. It may therefore be desirable to avoid targeting particular districts in order to avoid exacerbating conflict over resources.

7.3 How Poor are the Poor?

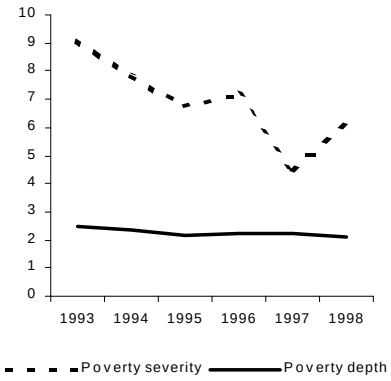
Measurement of poverty depth and severity also shows that the poor in East Timor are, on average, slightly poorer than in Indonesia, and the depth of poverty decreased up until 1997, but rose again following the economic contraction. Figure 7.3 shows the trends in poverty depth and severity between 1993 and 1998. On average, poor households in East Timor earned 2 percent less than the poverty line in 1998 – similar to Indonesia. The index of poverty severity, which gives extra weight to the very poor decreased steadily until 1997, but rose sharply in 1998, indicating that some households suffered a severe

income shock during the economic contraction.

7.4 Characteristics of the Poor

In addition to economic poverty, other principal social indicators such as health and education are also at worryingly low levels in East Timor. Moreover, the people who are economically poor are also those suffering the most from lack of other resources.

Figure 7.3: Poverty depth 1993 – 1998.



7.4.1 The poor lack education

Education is highly correlated with consumption poverty. Table 7.1 shows the average education levels of heads of household for each expenditure quintile. "Bottom 20" are the poorest 20 percent of households. The "top 20" are the richest 20 percent of households. Astonishingly, 58 percent of all households heads have no schooling.[52]

The probability of household heads having either no schooling, or never having completed primary school, decreases substantially in the richer sections of society: 38 percent of the top quintile, compared with 87 percent of the bottom quintile. The contrast is even more stark in urban areas, where only 3 percent of heads of household in the top quintile have no schooling, compared to 38 percent in the bottom quintile. As was shown in chapter 6, poverty also has a negative impact on children's enrolment. Low education levels are not only a reason for poverty, but also a consequence of poverty. Hence, poverty reduction programs need to be designed to reach the illiterate. Increased literacy and primary school enrolment will most likely reduce poverty, and will certainly have a positive impact on the livelihoods of the poor. As was explored in chapter 6, private returns to secondary and higher education in East Timor has primarily been an effect of the Indonesian governmental wage regulations, since the large majority of educated people work in the government administration. Whether increased access to secondary and higher education will actually contribute to reducing poverty is ultimately dependent on the economic development and corresponding need for skilled labor.

Table 7.1: Poverty and education of the head of household

	Poorest 20%	21-40%	41-60%	61-80%	Top 20%	Total
No School	75	71	67	49	28	58
Some primary	13	13	11	14	8	12
Complete primary	7	8	11	12	13	10
Junior second.	3	4	5	7	10	6
Senior sec. +	2	4	6	18	41	14
Total	100	100	100	100	100	100

7.4.2 The poor have high dependency burdens

Poverty is strongly correlated with household size and composition. Large families are more often poor than smaller families. Table 7.2 shows the percentage of families in each expenditure quintile with different household sizes. 36 percent of the richest families have only 1 or 2 people in the household, whilst this is true for less

[52] This relates, however, to the age structure of households. Household heads are older, and therefore were of school age at a time when few educational opportunities were available.

than 1 percent of the poorest families. 38 percent of the poorest families have over 7 people in the household, compared to only 7 percent of the richest families. This indicates that programs which target children are likely to be beneficial to the poor.

Table 7.2: Poverty and household size

Persons	Poorest 20%	21-40%	41-60%	61-80%	Top 20%	Total
1-2	1	4	8	18	36	13
3-4	17	33	39	41	39	34
5-6	44	38	33	23	18	31
7+	38	26	20	18	7	22
Total	100	100	100	100	100	100

The presence of a widow in the household also correlates with poverty levels: 18 percent of the poorest households have a widow, but this steadily declines as incomes rise, to 11 percent of the richest households. The human tragedy of lost family members is thus exacerbated by the economic effects on those remaining, who often lack able-bodied labor for agricultural production or wage employment. While special social and economic support may be given to widowed households, the correlation is not strong enough to indicate proxy targeting on the presence of widows in a household. The gender of household heads does not correlate with poverty levels, and should not be used as a poverty proxy.

Table 7.3: Poverty and occupation of household head

	Poorest 20%	21-40%	41-60%	61-80%	Top 20%	Total
Agriculture	92	85	78	58	32	69
Non-agriculture self-employed	2	5	4	10	16	7
Non-agriculture employee	6	9	17	31	52	23
Total	100	100	100	100	100	100

7.4.3 The poor depend on agriculture

Table 7.3 demonstrates the dependence of poor families on agriculture. For the poorest half of society, agriculture is the primary occupation of over 85 percent of household heads, dropping sharply to 32 percent for the richest section. Less than 10 percent of the bottom half of society are paid employees in government or the formal sector, whilst this is the primary occupation for over 50 percent of the richest households. Thus growth in agriculture will tend to reduce poverty more than growth in manufacturing or urban services.

Section III:
Governance, Infrastructure and Aid

8. Governance

The governance of East Timor during the transition must take into account previous structures of governance and public administration. The institutions of governance in East Timor, in place until summer 1999, will be considered here. Transitional challenges faced by the East Timorese will be highlighted.

8.1 The Constitution

East Timor is in a state of legal limbo. The May 1999 agreements among Indonesia, Portugal, and the UN, established concrete guidelines for implementing an autonomous region within Indonesia, but it did not set up political formulas in the event that a new independent state was voted by the East Timorese. The only proposal for a new constitution is the one offered by the Independentist movement. The Indonesian Constitution and the rejected proposal for the autonomous region are only historical antecedents. The UN will assist the development of a new constitution through UNTAET (United Nations Transitional Authority for East Timor). The design of the constitution should be based on consultation with the East Timorese people and leaders.

8.1.1 The agreement of May 5, 1999

The Agreement of May 5, 1999 established the possibility of creating a Special Autonomous Region in East Timor (SARET) within the Indonesian State. It stipulated that a Popular Consultation should determine if the East Timorese would or would not accept this option. The Agreement allowed East Timorese older than 17 years to register and vote in the popular consultation. This is the same age established by the Constitution of Indonesia for legal voting. Registered Timorese could vote in the East Timor territory, in other regions of Indonesia or in countries where significant East Timorese populations reside.

The Agreement defined East Timorese as any lawful resident of East Timor before or in December 1975, those whose parents and grandparents were lawful residents prior to December 1975, and all persons who have permanently resided in East Timor for a period of five years prior to the date "of entry in force the agreement." Thus the criteria for defining a Timorese citizen in the Agreement is a combination of *jus solis* and *jus sanguinis*. The effect is that both native East Timorese and Indonesians that emigrated to East Timor had the right to vote.

With the participation of 98 percent of registered voters, 78.5 percent voted to reject autonomy within Indonesia on August 30, 1999. The May agreement does not specifically delineate events subsequent to the vote. It does mention, however, that

> "the Government of Indonesia shall take the constitutional steps necessary to terminate its links with East Timor thus restoring under Indonesian law the status of East Timor held prior to 17 July 1976."

It also mentions that after these steps are taken, a United Nations transitional authority will operate until an independent East Timor government is installed.

The Agreement does not pay significant attention to policies for the period between the popular consultation and the establishment of the interim UN administration.

8.1.2 The Indonesian framework for governing East Timor

After the invasion of 1975, the Indonesian armed forces – ABRI – formed a Provisional House of Representatives of East Timor. This assembly submitted a petition that requested the Government of Indonesia to accept the integration of East Timor.

The House of Representatives of Indonesia accepted the petition on July 15, 1976. President Suharto completed the procedure after the ratification of Law No. 7 on July 17, 1976. The law decreed the formation of East Timor as the 27th province of Indonesia. Resolution No. 19 was issued in 1976, designating East Timor with the status of first level province. It also divided

the province into 13 districts and 61 sub-districts.

8.1.3 The constitutional proposal of the National Council of Timorese Resistance (CNRT)

In 1988, the East Timorese opposition, initially composed of the FRETILIN and its armed wing the FALINTIL, created the National Council of Maubere[53] Resistance (CNRM - *Conselho Nacional de Resistencia Maubere, or CNRT Conselho Nacional de Resistencia Timorense*). The CNRT was formed by the FRETILIN and the Democratic Timorese Union (UDT-*Uniao Democratica Timorense*), which were the protagonists of the disastrous confrontation of 1975.

The CNRT (primarily its exiled members who met in the Algarve, Portugal in 1998) wrote a constitutional proposal concerning freedom, rights, duties, and guarantees for the people of East Timor (April 25, 1998). The document mentions the "illegal annexation and aggression" of Indonesia. It also emphasizes the differences between Indonesian and East-Timorese people and the latter's "historical, cultural, spiritual, and religious heritage…" Based on this declaration and other international agreements[54], the members of this convention presented their own version of a future Constitution for East Timor. The document states that traditional rules of law should be considered as a basis for future East Timorese laws, so that a proper framework could be provided for traditional values within the new legal system. The State of East Timor should be governed by the rule of law.

The document also mentions the right to education, the necessity of eliminating illiteracy, and protection of the environment among other social issues. It defines East Timor as a country whose official language will be Portuguese. "East Timor shall promote relations with those countries in Africa, Latin America and Europe that share the same language and moreover it will strive to strengthen the Community of Portuguese Speaking Countries, as well as promoting relations with the communities and countries of the Asian-Pacific region." It also notes the need to participate in the ASEAN (Association of South East Asia Nations), the South Pacific Forum and the APEC (Asia Pacific Economic Cooperation.)

The CNRT document mainly contains a declaration of rights without being a precise juridical proposal, since it does not refer to the organization and political structure of the State. Its importance is mainly political rather than juridical.

8.2 The Administration

8.2.1 Traditional governance

When the Portuguese arrived in East Timor the autonomous traditional kingdoms (in Tetum *rai*) and their respective peoples (the *Ema*) were localized in two areas: one in the West, called S*erviao*, and one in the East, called *Belos/Belahe*. All regions appear to have been small scale chieftainships, with leaders called *liurai ("kings")*, who were in charge of an area constituted by several *sukus*. These *sukus,* many of which were autonomous, were constituted of various towns called *knua*. Each *knua* embodied various types of clans, some of which were patrilineal and some matrilineal. The Portuguese called the chief of a *knua* a *dato*. In each clan, the *uma lulik,* represented a group of families whose chief was the *uma úlum.*

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[53] *Maubere* comes from one of the dialects of East Timor, and it represents a group that has historically resisted Portuguese colonization. The Portuguese used the term pejoratively as a synonym for Timorese resistance. The resistance appropriated the name and used it to stress the positive aspects of the resistance in East Timor. In this context it means "Children of East Timor."

[54] Among the International Agreements and Conventions that CNRT recognized are: the United Nations Charter, the Universal Declaration of Human Rights of 1948, the International Convention on Civil and Political Rights of 1966, the Convention on Genocide of 1948, the Convention about War Crimes of 1968, the Convention on Elimination of Racial Discrimination of 1965, the Convention against Torture of 1984, the Convention against Discrimination of Women of 1979, the International Labor Organization Convention, and the Convention of Law in the Sea.

In the social hierarchy, following the *liurai* and the *dato*, we find free men (*kaum ema)* and, in some of the clans, slaves (*ata)*, resulting from the confrontations amongst clans[55].

As in many other countries, the traditional structure is still relevant, despite the massive transformation that the island has experienced through modernization. Some of the *liurais* assisted the Indonesian administration as they did in the past with the Portuguese. Others resisted the Indonesian administration. Some of the cultural standards of the past, especially those regarding the organization of the family, communal conflicts and the distribution of land, helped maintain the relevance of traditional institutions. However, both the introduction of secular education and population movements have modified the influence of traditional institutions.

The role of traditional governance in the future is uncertain. Traditional mechanisms rarely succeed at a national level since they are designed to operate only in small rural communities. The cohabitation of the state with traditional forms of governance is not necessarily effective (Nordstrom 1997; Ntamonbay and Mankarze 1997). However, the symbolic value and possible practical applications of traditional institutions in certain areas can be important. For this to work, an accurate knowledge of these institutions is required. In addition to existing studies, specific research on the traditional institutions should be done. This could help in designing a system to promote politics of consensus that would help reconcile conflicts, end violence, and contribute to the construction of more efficient state institutions.

8.2.2 The Portuguese practices: from indirect rule to civil administration

The Portuguese initially tried to reach a compromise with traditional chiefs in order to facilitate their control of the colony. The Portuguese ranked *liurai* as Portuguese "colonels" and their sons as "lieutenant colonels". The rest of the traditional authorities were considered subaltern officers. According to Matos (1974), in some of the kingdoms the tribunal judge ranked as a major.

In 1920, a civil government structure emerged in East Timor, coupled with administrative districts which group old kingdoms or *sukos* according to the structure of military control created at the end of the 19th century. Every military district corresponded to a civil one (Martinho, 1943). Once the Japanese occupation – in which authorities were exclusively military – ended, the renewed Portuguese control of the territory created the so-called 13 *concelhos* (councils), and below them, the *postos administrativos* (administrative offices or posts) held by a "colonial delegate" with military and civil prerogatives in its district. Generally, the Portuguese tried to manage large parts of the territory in accordance with the traditional chiefs. With respect to communal conflicts, except for penal cases, the majority of the disputes were left in the hands of traditional tribunals (Guterres 1995).

Decree 45378, dated November 22, 1963, created the administrative division of East Timor. It is still in force today with modifications introduced by Indonesia. This

[55] Guterres (1994) describes the traditional society of a group called *búnak* as a matrilineal system founded on a clan figure of each lineage, denominated *DeuPho* (holy house, in Tetum *uma lilik).* A group of lineage houses forms a *Taz* (*knua* in Tetum). The chief of the *Taz* is the *Deu Gubul* and he convokes community events attended by families. He is assisted by the *Lal Gomo,* the man of words; a "priest or the one who transmits the oral history". The *Besi Lomo* is the war commandant, the *Lolo Gomo* the agricultural attorney, who supervised the agricultural production, and the *Locar Gomo* is the guardian of the *Taz*'s entrance. Occasionally, the *Bolu,* or assembly of all lineage chiefs, and the traditional tribunal formed by three *Lal Gomo* would meet to resolve conflicts.

The *suku* and the *Rai* have a similar structure. The essential figure in all of these cases is the *liurai*, considered as the protector, grandfather and lord of the entire people. It is the "big three in whose shadow all its subjects rest".

decree established the existence of a Governor, appointed by Lisbon, a Legislative Council and a Government Council composed of Timorese.

Lisbon delegated some central and autonomous rights and privileges (such as post mail), to local sectors. The local administration consisted of thirteen Councils, in which "*freguesias*" were formed; when the latter ceased to exist, administrative posts emerged that resembled the group divisions of the pre-existing *sukus* that would take their place. The administrative posts were subdivided in "*regedorias*" and these, in turn, into "groups of populations". Some of the councils were merely administrative districts administered by a 'post' chief "*jefe de posto".*

The Portuguese authorities, along with ethnic Chinese who controlled most private enterprises, dominated the decision-making at the end of the colonial period. After the 1975 invasion, both groups left their posts and possessions, and were replaced predominantly by Indonesians and the elite group of Timorese that supported annexation.

The primary legacy of Portugal's colonial administration is the use of the Portuguese language and the Catholic Church.

8.2.3 The Indonesian dual organization

The Indonesians did not remove the administrative structure that East Timor inherited from the Portuguese Colonial system. The Dutch had imposed a similar structure on the rest of the islands, and the Indonesians had modeled their system after this structure following independence. Nonetheless, the Indonesians introduced some modifications. The three-tier structure of *Provincia*, *Concelho* and *Postos* left by the Portuguese was extended vertically down to the village level, and even to neighborhoods within villages. Traditional institutions have been abolished. The Indonesian

Table 8.1: Links between civil and military/police administrative chains of command. (The final name is the official denomination in Bahasa).

Civilian Level	Chief/Head	Police Level	Com-mander	Military Level	Com-mander
Province/ Propinski	Gubernur (Governor) and Administrative Secretary (Sekwilda)	Regional Police / Polwi	Polwi	Provincial Military Commad /Korem, Komando Resort Militer In Timor is the 164/Wira Dharma	
3 Regional Assistant governors. Created in 1987. (*)				Five Military Regions (*)	
District/ Regency/ Kabupaten	Bupati and Sewilda	Resort Police /Polres	PolRes	Military District Command /Kodim Ko.Distrik M.	
Subdistrito/ Kecamatan	Camat and Pendamping (Ad. Secr)	Sectoral Police /Polsek	Seksi Polisi	Sub-District Military Command /Koramil Ko. Rayon. M.	
Village/ Desa	Kepala Desa	Police Representative/ Babinpol	Binpolda (Police Delegate)	NOC Military Representative/Babinsa	Babinsa
Sub – Village/or Neigbourhood Kampung	Kepala Kampung				

(*) At this level, there is no correspondence between civil and military structures, and the lines between the three civil districts and the five military ones are different.

vertical organization is composed of eight administrative tiers.

- Province: East-Timor was declared the 27th province of Indonesia *Propinski in Bahasa*
- 3 Regions of Governor's Assistant *Wilayah Pembantu Gubernur*
- 13 Districts: *Kabupaten (Conselhos* under the Portuguese)
- 62 Sub-districts[56]: *Kecamatan* (*Postos Administrativos* under the Portuguese)
- 442 Villages[57]: *Desa,(Suco* under the Portuguese)
- Sub Village *Dusun*
- Neighborhood: *Rukun Warga*
- Neighborhood: *Rukun Tetangga*

The total number of units on the last three levels is 1,835.

This administrative structure has also been extended horizontally in order to embrace the military/police structure. As noted, Indonesia's doctrine of dual function (*dwifungs*i) justifies the ABRI's involvement in social and political affairs. A very hierarchical and complicated administrative system resulted from this dual function. The so-called *karwayan* appointees assure the presence of the Armed Forces in civil administration. At the provincial level in East Timor the *karwayen* control 19 administrative offices including the Deputy Governor, two Assistant Governors, and many others. Finally, at the district level they control 64 posts.

Table 8.1 demonstrates the interrelation of civilian and military/police structures. In

Table 8.2: Districts, Sub-districts and villages

District	Number and name of Sub-districts	Number of Villages
1 Kova-Lima	5 (Suai, Fatumean, Fatululik, Fohorem, Tilomar,)	29
2 Ainaro	5 (Ainaro, Hatobuilico, Maubisse, Turiscai, Zulamai)	21
3 Manufahi	4 (Same, Turiscal, Welaluhu, Alas)	29
4 Viqueque	5 (Viqueque, Lacluta, Ossu, Watulari, Watukarbau)	34
5 Lautem	5 (Los Palos, Lautem, Luro, Illiomar, Tutuala)	34
6 Baukau	6 (Baukau, Vernasse, Venilale, Kelikai, Laga, Baguia)	58
7 Manatuto	6 Manatuto, Laclo, Lalcia, Laclubar, Barique, Natarbora)	29
8 Dili	4 (Dili East [Dili Timur] Dili West [Dili Barat]), Matinaro, Atauro)	33
9 Aileu	4 (Aileu, Laulara, Remexio, Liquidoe)	31
10 Liquiça /Liquica	3 (Liquiça, Maubara, Bazartete)	23
11 Ermera	5 (Ermera, Hatolina, Atsabe, Letetoho, Railaco)	52
12 Bobonaro	6 (Maliana, Bobonaro, Balibo, Atabae, Cailaco, Lolotoe)	51
13 Ambeno/Oecussi) [1)]	4 (Pante Makassar, Nitibe, Oe-Silo, Passabe	18
Total	**62**	**442**

[1)] *Enclave in the Nussa Tenggara Timur Province*

Source: BPS Timor Timur 1996

[56] One source mentions the existence of one more sub-district called *Cibra*, totaling 63. Nonetheless, most of the official Indonesian documents refer to 62.

[57] Some sources mention that the total number of villages is 464: 441 in the main part of the territory, 5 in Aturo, and 18 in Ambeno/Oecussi enclave. This information is proportionated by: http://homepage.esoterica.pt/~cdpm Observatorio de Timor Leste, based in Lisboa.

Table 8.3: Dinas, Technical / Operational Units in East Timor

Functions	Name in Bahasa
Agriculture (small scale)	Dinas Pertanian
Animal Husbandry	Dinas Peternakan
Education & Culture	Dinas Pendidikan & Kebudayaan
Fisheries (small scale)	Dinas Perikanan
Forestry (small scale)	Dinas Kehutanan
Local Revenue	Dinas Pendapatan Daerah
Mining (province small scale)	Dinas Pertambangan
Plantation (small scale-coffee prod.)	Dinas Perkebunam
Public Health	Dinas Kesehatan
Public Works (only province level)	DinasPekerjann Umum
Roads Traffics	Dinas Lalu Lintas & Angkutan Jalan Raya
Social Affairs	Dinas Sosial
Tourism	Dinas Parawisata

practice there is military control over the whole system. The mechanism of *Muspida* (consultative body) which has been imposed on each level of government further enhanced the power of the military.

The Indonesian administration increased the number of *Postos Administrativos*, the current *Kecamatan*, from 58 to 62. Even when taking into account the scattered settlement pattern, the number of administrative units, be it at the district or sub-district level, is very large. The structure was established for reasons of security and social control. Clientism established a patronage system which enrolled Timorese at different levels of government under the control of the military.

Under Portuguese rule, a significant number of *Sucus (Desa*) were in the hands of the *luirais*, because the administration was very elementary. Their role was to register the population (*arrolamentos*) and to collect taxes. Under the Indonesians the chief is the *kepala desa.* Most *luirai*s are illiterate and do not have experience managing administrative matters. Consequently, the Timorese feeling of rejection by the Indonesians has increased. This is a common in other countries where modernization has been implemented without an adequate role for the old traditional chiefs who end up joining opposing groups. The case of the *Renamo* in Mozambique is illustrative in this respect.

8.2.4 A centralized state

The organization of the province of East Timor replicated the high level of national centralization in Indonesia. Though the Indonesian doctrine stipulates decentralization and co-administration, the unifying criteria imposed from Jakarta submerged East Timor in a net of institutions with different tasks and functions.

Governmental administration was imposed through a bureaucracy effectively encompassing the entire country. A web of patron-client relationships comprised of members of the local government, distinguished military, technocrats in charge of firms, influential families, political and traditional leaders, and business elites.

Jakarta commissions the governor for five-year periods. A Timorese normally held this position. An Administrative Secretary, usually a military officer, assists the governor as a "political commissar". Military administrative secretaries also assist the district leaders, the *Bupati,* and the sub-district leaders, *Camat.* The administrative secretary is called *Sekwilda* at the province and district levels, and *Pensamping* at the sub-district level.

A group of *Kanwil* government departments (also called "vertical agencies") and bureaus that are branches of national departments *(Kanwil - Kantor Wilayah Department*) assist the governor. These bureaus are State Ideology, Family Planning (BKKBN), Statistics, Regional Logistics, Regional Planning and Development Board (BAPPEDA), Social-Politics, Rural Development and Provincial Inspector. A karyawan (military officer) appointee headed all Kanwil, except Statistics and Family planning. BAPPEDA officially coordinates economic and

social development. The majority of the officials in the *Kanwil* come from outside East Timor.

Three governor's assistants manage the affairs of three regions (*Wilayah*). The formal purpose of this administrative level is to implement programs and policies carried out by each *Bupati*. The first region localized in Baucau is comprised of the districts Baucau, Lautem, Viqueque, and Mananuto. The second region, with its center in Gleno, groups the districts of Ermera, Liquica, Aileu, and Manufahi. The third region, with its center in Maliana, embodies the districts of Bobonaro, Ainaro, Kovalima and the enclave of Ambeno.

Jakarta directly decides and manages a significant part of governmental functions, such as budget allocation, national taxes, agricultural and industrial policies, and oil exploitation.

Vertical Instances (*Instansi Vertikal)* are under the direct control of the central government in Jakarta. The Vertical Instances includes the Transmigration Agency *(Kanwil Transmigrasi*) that tracks movements between provinces and departments of Public Works, Mining and Energy, Agriculture, Cooperatives, Social Affairs, Education and Culture, Employment, Industry, Trade, Health, Forestry, Transportation and Information. Each department has a Provincial Minister as a Head.

Dinas or Technical / Operational Units, are institutions set up in accordance to the tasks that the central government has entrusted to the Province. There are thirteen *Dinas* (Table 8.3) which are instructed by the Indonesian central government in Jakarta, just as they are in the

Table 8.4: Approximate size of government sector 1998

Level		Number of employees	East Timorese
Province level / Level I, under the Governor	**Vertical agencies** *(Kanwil)*: Departments under a Minister: Public Works, Mining and Energy, Agriculture, Co-operative, Social Affairs, Education and Culture, Employment, Industry, Transmigration, Trade, Health, Forestry, Transportation, Information	12600	max 20 %
	Bureaus, Directorates and Provincial Inspectorate: State Ideology (under minister), Family Planning (under minister), Statistics, Regional Logistics (under minister), Bappeda, Social-Politics, Rural Development (under minister), Provincial Inspectorate	2700	60 %
	Technical/operating Units (*dinas*): Education and Culture, Social Affairs, Health, Agriculture, Public Works, Tourism, Taxation, Fisheries, Animal Husbandry, Transportation and Traffic Control, Mining, Plantation, Forestry		
District level / Level II (*Kabupaten*), under the Bupati	**Technical/operating Units** *(dinas*) Local administration employees, public services and infrastructure workers	18000	Total: 60 % Rank 1: 100 % Rank 2: 85 % Rank 3: 50 % Rank 4: 50 %
Total except military		at least 33000	max50 %
All persons employed by government	SUSENAS98 estimates for all government employees in administration and public services, and military/police who live in permanent households	45000	From East and West Timor: 64 %

Sources: Gomes, F. C. (1998), Gomes, R. (1999), SUSENAS 1998, civil functionaries in ABRI 1998.
Rank1: Education below senior secondary (0-11 years education) start here. Promotion to Rank 2 normally after 12years, Rank2: Senior secondary graduates (12 years) start here. Promotion to Rank 3 normally after 12 years, Rank3: University undergraduates start here, Rank4: Professors , Ministers, Governors etc.

other Indonesians provinces. Vertical Instances sometimes clearly overlap with the jurisdiction of several *Dinas*.

There are also technical units on the district level. Together they have a much larger staff than the technical units on the province level. The local government tends to be a mere extension of the central government.

8.2.5 East Timor civil servants

Based on various sources, the estimated 1998 size of the Indonesian government sector in East Timor, apart from the army and police personnel, numbered around 33,000 (Table 8.4). Of these, maybe some 12,000 are teachers and medical personnel. Almost half of the government employees work in the province administration and the remaining half at the district (Kabupaten) level. At the central level, less than 30 percent of the employees are from East Timor, whereas on the district level East Timorese hold 60 percent of the jobs, mostly in lower positions.

An alternative source, the social survey (SUSENAS) from 1998 reports that 13 percent of all the employed, or 45,000 persons, work in government administration, defense and education and health services. Since the survey presumably covers all households, this figure includes police and military personnel living in ordinary households, which might explain the difference. However, being estimated from a sample survey, there is some uncertainty attached to the number. 34 percent of government employees came from outside the Timor island according to this survey.

8.2.6 A new administration for East Timor

The new administration that will be established for East Timor is part of the process of nation building. Ideally such a process should observe the following features:

- Give continuity to the existing legal setting before undertaking conclusive reforms to prevent a power vacuum and social chaos;
- Reform the state in such a way that it guarantees the existence and training of an adequate number of functionaries in the region.

Certainly, East Timor will inherit the existing structure and officers. As we have seen, however, quite extensive changes are needed to transform East Timor from a very small province in a large country to a small, independent island state. Moreover, a large proportion of the existing officers have left or will leave, making the lack of qualified personnel even more dramatic than before.

The Indonesian Administration has stopped paying salaries and will eliminate Timor's budget starting in November 1999. As the Indonesian National Assembly has approved the result of the referendum and reversed, East Timor is in the hands of the international community through UN's mandate. A transitional administration should be implemented also through the UN.

The UN has to decide what to do with old administrative institutions and their employees. It should solve who will remain, who will not and who will provide the funding for the implementation of the transitional administration. Portugal is willing to pay employees salaries in the transitional administration.

The role of the international community will be crucial since the local capacity to carry out changes is limited. However, there must be a time limit, so that the provisional international presence does not become seemingly permanent, as has occurred in the West Bank and Gaza Strip during near half a century and in Cyprus in the last 25 years.

The World Bank and the International Monetary Fund will presumably have to handle delicate economic and financial issues, such as establishing a central bank and a currency. It will also be important to carry out a census on population, social conditions and economic activities as soon as possible to provide the future government with an instrument for strategic planning.

East Timorese returning from the diaspora who can use their knowledge to effectively contribute to the reform of the state should be included in

the process while avoiding the recreation of privileged positions or clientism.

The background that some people might have acquired abroad may be contradictory. For example, if the country continues to uphold the Roman European continental law, people qualified in Anglo-Saxon law will face difficulties. The clashes between these two schools in law have caused problems in other countries, creating political vacuums and chaos.

8.3 Armed Forces, Militias, and the Resistance: Demobilization and the Creation of a new Police Force

8.3.1 The presence of the Indonesian military and the police (ABRI/TNI/Polisi)

As previously mentioned, the military presence in East Timor has been permanent and has played a dual role. It has worked as a security force for East Timor. At the same time, it has been an organ of political control and governance. The nexus between the armed forces and the civil bureaucracy influences political governance and security in East Timor.

After the Indonesian annexation in 1975, the members of the ABRI rose dramatically. The ABRI, the Indonesian security arm on the island that included military and police, used not only their own personnel but also the Timorese people called Wanras, as an auxiliary force. Later, it promoted pro-integration militias. In April 1999, the police and military section split. The military organization is currently called Indonesian National Defense Force (TNI-*Tentara Nacional Indonesi*). The exact number of personnel of the TNI in the region is unknown. In addition, the TNI was able to move soldiers in and out of East Timor through the open border with West Timor.

Considering the rotation and movement of personnel and the information above, one can estimate a total number of approximately 17,000 military / police personnel present in East Timor in early 1999. It also must be remembered that this information takes into account the theoretical Table of Organization and Equipment figures. Thus the information indicates the number of personnel that should be present given the types of army and police units present. It is not a count of the actual numbers of people.

The Wanras, auxiliary troops that formed part of the ABRI and currently form part of the TNI, work under temporary contracts with salaries lower than those of the permanent personnel from the ABRI and the TNI. The Wanras are cheap soldiers who work as a "self-defense" unit. They are included in the total number of TNI personnel.

8.3.2 Militias

The militias are tacitly backed by the regular armed forces although they act independently. Some of the militias' equipment is composed of machetes and lances but others carry light weapons. Sometimes TNI furnish the militias with weapons, but the extent of collaboration is unclear. It is difficult to distinguish among the local military personnel on the island – the *Wanras* and the militias – even their uniforms are similar. During the consultation, some of the militias wore uniforms with the insignia of their organization.

The Indonesians have followed a strategy of using local troops as self-defense forces. Consequently, local militias are employed to fight against the local guerrillas[58]. This method has been used extensively around the world in rural areas. The English implemented it in Malaysia in the 1960s, and the French in Algeria in the 1950s. It was also used in Peru with "peasant patrols (*Rondas Campesinas*)" and in Guatemala with the "self-defense patrols (*patrullas de autodefensa*)". The Minister of Defense and Commandant of the new TNI, General Wiranto pointed out that "the Militias were legally created by the government […] not for political reasons but to help the Indonesian army to deal with the groups threatening

[58] Colonel Sutmaran stated, " we can not distinguish who is who. Who is FRETILIN and who is not FRETILIN, because they are all the same – East Timorese. It is only the Timorese who know who their enemies are" (Quoted in: Greenlees 1999).

security, the GPK." (Newspaper: Kompas January 26, 1999) The GPK is an Indonesian term for the Timorese resistance. At the same time, General Wiranto has also contradicted himself by saying that ABRI has never armed civilians, but it has dissolved some local militia

Table 8.5: Militias in East Timor

Name	Location	Persons in force
AHI	Aileu	
Mahidi	Ainaro	2000
Tim Saka	Baucau	970
Daudurs	Bobonaro	
Haimetin Merah Putih	Bobonaro	
Laksaur Mera Putih	Covalima	500
Aitarak	Dili	1000
Gardapaksi	Dili	
Halilintar	Ermera	800
Naga Merah	Ermera	
Dara Merah	Ermera	
Kamra	Keamanan Rakyat	
Tim Alfa	Lautem	300
Pana	Liquiça	
Jati Merah Putih	Lospalos	
Besi Mera Putih	Maubara (HQ),Liquica, Loes	2000
Sakunar	Oecussi/Ambeno	
ABLAI	Same	100
Sera	Sera Malik	
Makikit Rajawali	Viqueque	200

Source: Human Rights Watch based on the newspaper Jawa Pos (Surabaya) April 12, 1999. (www.igc.org/hrw/press/1999/apr/etmilitias.htm) and ETIC 16/09/99. (www.easttimor.com/background_update/00006.htm) Size of militias approximate for April 1999.

groups such as *Saka* and *Makiki*. Furthermore, the local commander Suratman observed that the local militias only play a role in insuring security, and they received a monthly payment of 200,000 rupiah, approximately US$93 dollars.

There is significant confusion around which militia groups receive open support from the TNI and which do not. According to Greenless (1999), eleven militia groups currently function under the so-called Forum *Persatuan Demoktasi and Keadilan* (FPDK), led by Dili's District Head Domingo Soares. In total about twenty groups operate, mainly in the region close to West Timor and Dili (Woodley 1999).

In Dili, Eurico Guterres[59] heads three of the largest militia groups, *Aitarak* (Thorn), *Mahidi*, and *Gardapaksi* (Young Guard for Upholding Integration). It is said that the *Gardapaksi* militia group was formed by ex-FALINTIL prisoners who won their freedom from the Indonesians by agreeing to be part of this organization. Another two groups work in the capital.

Another important militia group is the tough *Besi Merah Putih* (Iron Rod for the Red and White) localized in the area of Liquica and Maubara and led by Domingos Policarpo. In the region of Malian and Atsabé, the militia group is *Hallintar* (Thunderbolt), one of the oldest militias (the group was formed in 1976), led by Joao da Silva Tavares. According to a public statement by a former Indonesian intelligence officer in May 1998 in Australia, this group consisted of approximately 120 men. Tavares was a former *bupati* of the sub-district of Bobonaro and is now a member of the Advisory Council (*Muspida*). The militia *Mega Narah* (Red Dragon), created at the end of 1998 together with the previously founded Railacan, operates in Ermera.

The Militias *Dadurus* in Bobonaro, *Ahi* in Alieu, *Laksaur* and *Merah Poutih* in Suai, *Ablai* in Same and *Mahidi* (*Mati Hldup Demi Integrasi* - Dead or Alive with Integration), headed by Cancio Lopes de Carvalho, works in Suai and Ainaro with bases in Cassa al Sur de Ainaro. Lopes de Carvalho is the son of Mateus Lopes, the *liurai* of Cassa. He is the youngest brother of Francisco Lopes Carvalho, former private secretary of Abilio Osorio who is currently

[59] A former member of FALINTIL logistical support group, was jailed in 1983, and afterwards became a protégé of the Indonesians. He also runs a casino in Dili. In an interview to the newspaper *Standard* of Sydney in August he said that he earns U$D 3125 a day as an average for the gambling activities.

Secretary General of the CRPTT, the movement led by Manual Carrascalao. Cancio claims to have 1,300 men in his organization. They also operate in the territories of other militias, such as in Liquica and Dili.

Since 1983, the militia known as *Saka* has operated in Baucau. The District Chief Edmundo de Conceicao leads the Militia Tim Alfa in Lautem. *Jati Merah Putih* operates in Los Palos, and *Makikit* in Viqueque. Finally, a small militia called *Sakunar* operates in the capital of Ambeno, Pante Macassar.

In April 1999, the combined force of the militias for which estimates existed counted at least 7,900 men. This figure is likely to have increased prior to the consultation.

It is also not known to what extent the militias reflect traditional social organization or power groups. In many conflicts around the world, factions on both sides of the conflict turn out to be linked to particular groups, which may be organized by kinship, locality or other principles. Social origin of the militias has significance for the future demobilization and reintegration process.

8.3.3 FALINTIL

Following the Indonesian invasion, the National Liberation Armed Forces of East Timor (*FALINTIL-Forcas Armadas de Libertacao Nacional de Timor-Leste*), the armed side of FRETILIN, fought the Indonesians. By December 1978, the resistance was almost destroyed by the ABRI. Nonetheless, the leadership of Jose Alexandre Gusmao (*Kay Rala Xanana* in Tetum) reinvigorated the FALINTIL, which continued to fight against the Indonesian forces until 1983, when a cease-fire was negotiated. The cease-fire, a product mainly of the efforts of Colonel Purwanto, was short-lived.

Up until 1992, the Indonesians had followed a relentless military policy against the FALINTIL. In 1992, Xanana Gusmao was arrested. Since then, FALINTIL forces have decreased considerably. In the beginning of 1999, the FALINTIL consisted of 200-1,000 armed people, with some support networks among the civilian population.

8.3.4 Demobilization

There is extensive international experience in demobilization under international supervision. In brief, this experience suggests that it is necessary to:

- Concentrate the combatants in de-mobilization camps under international monitoring.
- Take possession of and destroy weapons and ammunition. Programs that link disarmament with aid for development may be considered as well as arrangements whereby weapons are exchanged for money, seeds, tools, etc.
- Incorporate some of the demobilized people into the military or police forces as part of a post-conflict agreement. Most of the time, this process of creating a new security force requires extensive training not only in policing functions but also in human rights and basic education.
- Support the demobilized economically during the transition process. A special fund may be required.
- Assure that only proper ex-combatants receive compensation by compiling accurate lists, thus avoiding the problems of opportunism by “last moment fighters”.
- Establish programs for integrating ex-combatants into civilian life, emphasizing income generating activities.

This process takes at least one to two years, so it is necessary to have an international security presence during this time.

The Salvadoran experience with the integration of ex-guerrillas and members of the ex-police force into a new police organization has been successful. However, many ex-combatants who did not participate have since opted for criminal activities.

In Nicaragua where there was no agreement to integrate contra-revolutionaries into the security forces, many have formed bands of "re-compas" (former members of the Sandinista army), "re-contras" (former members of the contra-

revolutionaries), and "revueltos" (a mixed group of former fighters with various ideologies).

Haiti offers an example of what should be avoided. Once demobilized, some money was offered to the ex-combatants but no employment generation scheme was provided. This has resulted in a large criminal "work force" difficult to control.

In Africa, there are also experiences of integration of ex-combatants into police forces. South Africa and Mozambique are two relatively successful cases. On the contrary, in Angola, although the members of UNITA were integrated into the Angolan armed forces, the lack of political influence triggered UNITA's decision to reinitiate fighting, which caused the demobilization and reintegration processes to fail.

The existence of groups whose only ability is to fight constitutes a serious problem for maintaining peace. In East Timor, the number of people to be demobilized is not as great as other cases mentioned here, but the total population is also smaller.

8.3.5 A new police force

An internal security apparatus requires a local police force. International experience suggests that East Timor must build this force from scratch. Such a police force needs to fulfil at least three functions. Police forces have been organized by many countries according to the following functional divisions.

The first function entails control of difficult situations such as terrorism, banditry, civil riots, and border control. In East Timor, the border control may be especially difficult in the western part of the country and in the boundaries of the enclave. The personnel serving those functions need specific training for the tasks to be accomplished.

A second function is the normal control of order and preventing crime. Officers carrying out this function must be friendly with the population, efficient and professional. The principles of the community police must be applied to this corps. The profile requires educated persons who are trained according to their community role.

The third function is that of the technical police, which is in charge of criminal investigations, identification, etc. Their recruitment supposes the existence of human resources. Chiefs in charge of this police corps have to study law and police techniques.

In all cases, personnel have to be trained to respect human rights.

8.4 Civil Society in East Timor

Aside from the Catholic Church, which is the largest and most influential local organization, civil society is weak. East Timorese NGOs have been created in recent years, but they are few and usually overburdened.

The Catholic Church has become an organization for identification, support and information in East Timor. Catholics are the majority in East Timor. East Timor will on becoming independent, be the country with the second highest percentage of Catholics in Asia following the Philippines. The Church is organized into dioceses. A bishop heads those of Dili and Baucau.

Certainly, a predominantly rural and poorly developed society with an elite sector living on subsidies transferred by the central government has little to no chance of developing a civil society in the Western sense.

Traditional institutions could be used to promote participation and consensual decision making at the local level. The concept of *Halu Damen ou Badam* – meaning making peace or reconciliation – is widely used in East Timor. The *liurai* play a central role in traditional mediation and conciliation problem solving techniques. Salustiano Freitas (1999) asserts that these mechanisms are insufficient to solve problems at the state level and are more adequate for addressing community problems.

NGOs in East Timor have grown slowly and have focused on small projects. They have often been closely related to political organizations. NGOs are important actors in conceptualizing governance and creating participatory mechanisms to discuss the great goals of nation-building. This implies not only participation through traditional representative democratic

mechanisms, but also through consultations with the private sector and the civil society. In order to avoid lack of transparency, and avoid corruption, a clear juridical framework for NGO action is needed.

8.5 Immigrants

Migration from Indonesia to East Timor is described in chapter 5. It appears to be difficult to reverse the migration process now without causing further instability. So far, pro-independence leaders have publicly expressed that they will not require the return of these migrants.

As explored in other chapters of this report, private businesses were primarily run by immigrants from Indonesia and of Chinese origin. Moreover, a large share of the skilled professionals working in the education and health sectors, government administration and infrastructure sectors were from outside East Timor. The recent out-migration of non-East Timorese is crippling the economy and essential service sectors. The new Timorese authority has to provide guarantees to those that want to stay in the country and for those that want to return. On the other hand, efforts should be made to facilitate the return of diaspora Timorese. Programs such as TOKTEN (Transfer of Technology through the return of qualified immigrants) by the UNDP could be useful for achieving this goal.

8.6 Media and Governance

Popularly supported governance must start with a sound communication policy. It is also important to create bridges between the rural and urban populations, including people residing in small and medium-sized cities. Here, language becomes crucial because of the many languages present in East Timor. Mass media, especially the radio and television, can help to unify people through the dissemination of one language. Additionally, the media could contribute to literacy efforts if an ad hoc campaign were designed.

Table 8.6: Media use 1998, percent using media during week prior to interview

	Listened to radio		Watched TV		Read newspaper	
Age	M	F	M	F	M	F
15-19	45	41	40	37	20	16
20-29	48	39	33	28	20	14
30-49	44	27	29	20	19	8
50+	19	13	12	10	6	2
Total	41	30	29	23	17	10

Source: SUSENAS 1998

Three TV channels, two radio stations and one tri-monthly magazine currently constitute the mass media in East Timor. According to Almeida (1999), the Indonesian State or members of the Suharto family control the TV and radio stations, with the exception of the radio program "The Voice of East Timor" (*Suara Nain Feto*), which is controlled by the Catholic Church. Church radio programs, however, only reach the population around Dili and Baucau. All of the newspapers with the exception of the ecclesiastical paper support the Indonesian regime. International media has started broadcasting in East Timor. The Radio *Difusao Portuguesa International* (*Timor Loro Sae)* started in January 1994 with a one-hour daily program in Tetum and Portuguese. Voice of America broadcasts in Bahasa, and the BBC or Radio Netherlands and the Australian radio stations devote some programs to Timorese groups. However, some of their programs such as Radio *Timoroan*, Radio *Lemorai*, Radio *Timur Liam*, or Radio *Laline*, are only accessible to the more educated groups of the population.

Exposure to the media is somewhat lower for women than men. Only 35 percent of the population aged 15 and above listens to the radio regularly, 26 percent watch television, and 14 percent read newspapers or magazines (Table 8.6).

8.7 East Timor and the International Community

The UN mission has to fill two roles. One as a Transitional Authority, working in the process of dialogue and reconciliation and helping to build the new institutions of East Timor. The second one is as an administrative power, to ensure the continuity of activities on a day to day basis.

Aid Management in Bosnia

- Short-term relief and assistance strategies were developed for problems requiring effectively longer-term solutions.
- Unrealistic timelines gave rise to unrealistic expectations by Bosnians and donors.
- There was a main focus on "hardware" programs such as reconstruction and infrastructure development, and less focus on legal/judicial reform, governance and conflict resolution.
- Different donors and agencies have different dialogues with Bosnian counterparts.
- Many beneficiary authorities and communities go "donor shopping". There is a lack of linkage between sectors and between programs and projects.
- Extensive overlap and little co-ordination and policy guidance exist.
- More efforts should have been made towards making of Bosnian counterparts responsible and accountable.

(Dahrendorf and Balian 1999).

Coordination of different international agencies, missions and programs, including the World Bank and the International Monetary Fund will be needed to manage the different interest of the donors and monitor carefully use of the assistance.

East Timorese counterparts need to be designated in each sector. This would permit a smooth withdrawal of the interim administration and facilitates the process of state and nation building.

Undoubtedly, individual countries will have a major role in this process. Countries of the region such as Australia, New Zealand as well as Malaysia, Thailand, the Philippines and Japan share a strong interest in successful solutions to these problems. This applies also to former Portuguese colonies of Africa such as Mozambique and Angola as well as the ex-metropolis Portugal and Brazil for cultural reasons.

The international community must express its ideas as quickly as possible and sketch basic strategies for the post-consultation period. Appropriate participation by the international community in East Timor will be a major determinant in the future political transition and governance in the region.

Aid Management in Eritrea

- Shortly after independence in 1991, the Eritrean government established a centralized body to coordinate foreign aid.
- All projects need approval from the Macro Planning Office, whether they are multilateral, bilateral, or NGO funded.
- Approval ensures that the priorities of the Eritrean government are followed. Several donors have been rejected, and there are limitations on how large a share of project expenditures can be used for technical assistance by foreign organizations.
- Maximum wages were imposed on local staff working for international organisations.

Appendix 8.1 Timorese Political Parties

All political groups except the official one linked to the Caetano's government in Portugal were banned in East Timor just three weeks after the Carnation Revolution in Lisbon. After that event, the Timorese Democratic Union (UDT) and the Social-Democrat Association of East Timor (ASDT)[60] were constituted.

The Timorese Democratic Union UDT became the first political party and the most popular one for several months after the Portuguese withdrew. The first president, Mário Veiga Carrascalao, devised a political platform in which Portugal would keep as much of its presence on the island as possible, without discarding the possibility of independence. Carrascalao was the owner of a coffee plantation, the director of Agriculture Services under the Portuguese, as well as a former member of the Popular National Association (*Associacao Popular Nacional)*, a pro-caetanist party and the only authorized political group. This party ultimately wanted the consolidation of East Timor into a Portuguese language community. The UDT party was based on two groups, the administrative elite and the owners of coffee plantations. It was supported by many *liurais* (traditional chiefs). The party used the *liurais*' influence to gain support in Liquiça, Maubere, Ainaro, Manatuto, Laclubar, and elsewhere.

The fall of the Portuguese President, Spinola, left the UDT without support. The new President Da Costa Gomes and the Premier Vasco Gonçalves favored the annexation of East Timor to Indonesia. Portuguese military command in Timor, however, preferred the FRETILIN. For this reason, the UDT shifted its political platform to support independence. After losing the 1975 civil war against FRETILIN, the majority of the UDT members ended up accepting annexation as the best solution. As years passed by, however, several of its leaders abandoned that position and recreated a pro-independence UDT which is today part of the CNRT. Mario Carrascalao, among those who returned to the pro-independence position, had held very important positions in the Indonesian government and was governor of East Timor for a period up until the massacre of Santa Cruz in 1991.

The Social-Democrat Association of East Timor (ASDT- *Asociacion Social Democrata de Timor Leste*) was founded on May 20, 1975. Basing its doctrine on socialism and democracy, this party called for gradual independence, preceded by administrative, economic, social and political reform within the framework of an extended Portuguese presence. While it envisioned a period of transitions ranging from three to eight years, they contemplated Timorese participation in the current administration.

The ASDT's members belonged predominantly to the urban elite, mainly those living in Dili. A great number of them were descendents of traditional chiefs. Xavier do Amaral, a member of the social-democratic line, became the ASDT chairmen, followed by Justino Mota, Alarico Fernandez and José Ramos-Horta. Nicolau Lobato, a former sergeant and administrator in the Portuguese period, as well as a former seminarian, led a second group within the ASDT. Lobato held a more radical position advocating rural development as a national development strategy based on the model of revolutionary Marxist groups in Angola, Mozambique, Guinea, and even Cambodia. This second group began to prevail after the transformation of the ASDT into the FRETILIN in September 1975. After the civil war, the FRETILIN tried to "ruralize" the party by setting up a literacy campaign to expand its base of rural support.

The Popular Democratic Timorese Association (APODETI- *Asociaçao Popular Democratica Timorense*) was founded on May 25, 1975[61]. This third party aimed to integrate East Timor into Indonesia as an autonomous region. The APODETI advocated mandatory teaching of

[60] See: Http://www.uc.pt/timor/parties/html

[61] The APODETI was initially founded under the name of Association of Timorese Pro-integration to Indonesia (*Asociaçao por la Integracion de Timor en Indonesia)*.

Bahasa Indonesian in schools, free education, and medical assistance, as well as workers' right to strike. Despite the fact that a minority of 100 followers backed this position, the elite members such as Osório Soares (*luirai* from Atsabé), Guilherme Gonçalves and the cattle breeder Arnaldo dos Reis Araujo formed part of the government as Governors and/or high officials during Indonesia's rule. The most important party support came from the townships (*sucos*[62]*)* of Atsabé as well as from the small Muslim community of Dili. After the Indonesian invasion, FRETILIN considered APODETI as an illegal organization. Members of APODETI became part of GOLKAR (*Gologan Karya*), the official party of Indonesia , and APODETI was dissolved.

At this time, two small parties were constituted and entered the political spectrum. The Workers Party (PT-*Partido Trabalhista*) with only eight members, and KOTA, a party advocating for a constitutional monarchy with a King elected among the *liurais*. A Democratic Association promising integration with Australia was short-lived due to Australia's lack of support. Indonesians maintained the KOTA and PT for some months after the invasion, with the sole purpose of pretending that four of the five parties had petitioned for integration into Indonesia. After annexation, the Timorese leaders that supported integration joined GOLKAR. The APODETI, KOTA, PT and UDT disappeared.

As Indonesian citizens, Timorese participated in the elections of 1982, 1987, 1992, 1997, and 1999. GOLKAR, the official party of Indonesia until the resignation of Suharto, has won all of the elections by a large percentage of the votes (90 percent). In some cases, the results were clearly fraudulent, such as in 1992, when the votes counted represented 300 percent of the registered voters.

On March 31, 1988, two main Timorese parties, the UDT and FRETILIN agreed on a political platform and formed the CNRT. Thereafter, the CNRT emerged as the leading organization of all East Timorese resistance, with Xanana Gusmao, the Commandant of the FALINTIL forces, as its leader. CNRT is a unified non-partisan body created to coordinate resistance.

[62] See the section "Traditional Inheritance"

9. Infrastructure

Summary

Under the GOI economic development program, most government funds were spent on infrastructure. Despite this, infrastructure systems in East Timor have remained underdeveloped. Road repairs and maintenance were inadequately funded.

It is uncertain whether producers in an independent East Timor can continue to ship cattle through Atapupu, located in NTT.

Electricity and telephone services could continue through their current providers, but might require subsidies.

Capacity for electricity generation must be increased. Oil-fired generators may be a fast and easy solution, but will require costly fuel importation. Appropriate long-term solutions should also be found.

Hydroelectricity is a possibility and Lake Ira Lalaro has an estimated capacity for producing 73 MW of hydroelectric power (Brahama and Emmanuel 1996:57).

Water supply and sanitation should be a priority.

9.1 Roads and Road Transport

9.1.1 Roads

Road construction and maintenance was the responsibility of the provincial office of the Ministry of Public Works (Kanwil DPU). As of May 1999, the numbers of contractors by kabupaten are contained in Table 9.1. Most moved the bulk of their equipment to Atambua for safe-keeping. Three of the 16 Class A contractors were state owned companies. Two of these were small. About 40 percent of the contractors were thought to be Timorese firms, and nearly all were in the class C1 and C2 qualification category.

Since the early 1980s, the Ministry of Public Works has had an active training program for Timorese at the provincial and kabupaten levels. There are 11 Timorese staff in formal civil engineering training including 10 in Bandung and 1 in Semarang. Last year there were 8 trainees from East Timor although not all were East Timorese. At the kabupaten level, there was an active local recruitment program and a plan to replace all non-Timorese heads of offices. Out of

Table 9.1: Civil Works Contractors in East Timor, by Kabupaten and Qualification (1998)

	Civil Contractors					Consultants			
KABUPATEN	Qualifications					Qualifications			
	A	B	C1	C2	Total	A	B	C	Total
Covalima			4	23	27				
Bobonaro		2	7	35	44				
Manufahi			2	45	47				
Ainaro			1	25	26				
Viqueque			2	55	57				
Lautem			7	23	30				
Baucau			1	21	22				
Manatuto			2	29	31			1	1
Aileu			1	3	4				
Dili	16	27	104	249	396	12	9	14	35
Ermera			2	27	29				
Liquica				23	23				
Ambeno		1	2	23	26				
Total	16	30	135	581	762				36

Source: Kanwil DPU Timor Timur

Table 9.2: Public Works Budget Summaries 1998/99 and 1999/00 ('000 rupiah)

		1998/99			1999/00			
		Rupiah Murni	BLN	Total	Rupiah Murni	BLN	Total	% change
I	Water							
1.	Irrigation Projects	12,590,000		12,590,000	14,000,000		14,000,000	+11%
2.	Water resource management and flood control projects	1,603,400		1,603,400	1,492,990		1,492,990	-7%
	Subtotal A:	14,193,400		14,193,400	15,492,990		15,492,990	
II	Bina Marga							
3.	Planning and oversight of roads and bridges	1,029,847		1,029,847	295,500		295,500	-71%
4.	Building roads and bridges	1,768,000		1,768,000	1,320,488		1,320,488	-25%
5.	Improving roads and bridges	5,195,000	979,060	6,174,060	899,892	1,236,363	2,136,255	-65%
6.	Rehab and maintenance of roads and bridges	7,187,618 4,100,000	2,981,190	10,168,808 4,100,000	5,171,062	7,128,516	12,299,578	-14%
	Subtotal B:	19,280,465	3,960,250	23,240,715	7,676,922	8,364,879	16,041,801	-31%
III	Cipta Karya							
7.	Improving housing		8,615,142	8,615,142	6,715,645		6,715,645	-22%
8.	SLTP (intermediate schools)	11,579,885		11,579,885	6,564,709		6,564,709	-43%
9.	SMU (high schools)	1,391,234		1,391,234	1,100,000		1,100,000	-21%
	Subtotal C:	12,971,119	8,615,142	21,586,261	14,380,354		14,380,354	-33%
	Total Budget A, B, C:			59,020,376			45,915,145	-22%

Source: Kanwil DPU East Timor

13 kabupaten offices, 10 are headed by Timorese, and 2 more are in the transition process with apprenticeship programs.

The 1998/99 and 1999/00 budgets for public works are contained in Table 9.2, and include funding for all centrally-implemented projects as well as local projects. Although the portions differ between the three categories detailed in the budget, an average of 80 percent of the total budget goes to physical output and 20 percent is spent on administrative overhead. Hence, planned real investment totaled about US$4.6 million this fiscal year (at Rp 8,000/$).

The overall public works budget for the province was reduced by 22 percent from last year. Irrigation is the only area that received an increase (+11 percent). The planning budget decreased most significantly at -71 percent. The head of the Kanwil indicated that most roads are already built in the province, even if at a basic level, and thus the planning for new projects is minimal anyway. The construction budget fell by 25 percent, and road improvement was reduced by 65 percent. Rehabilitation and maintenance was reduced by -14 percent despite the numerous reports that the roads to Same and Viqueque are not passable because the road has fallen away in parts. Dolog was forced to send rice by boat to these areas. The reductions are based on nominal rupiah calculations, therefore, real purchasing power is even more sharply reduced when considering inflation.

9.1.2 Vehicles

The provincial office of the Ministry of Transportation reports that there were 12 buses operating in East Timor. A subsidy was provided on a per passenger basis, amounting to just over Rp 200 million per year.

The same office indicates that only 44 percent of registered public transport vehicles were in operation as of May 1999. These include buses, trucks, taxis etc. This is attributable to the fact that operators tend to be immigrants, especially from South Sulawesi, and have fled. Some vehicles have been removed and the cost of parts and repairs are prohibitive.

9.2 Sea Transport

There are 4 ports in East Timor, most with limited depth limiting ship access:

- Baucau (6m).
- Oecussi/Ambeno (8m).
- Kom/Lautem (10-11m w/ regular Perintis service).
- Dili (16-17m w/ regular Perintis service).

There is another small port just outside Dili for local ferries which includes a new warehouse facility. Ferry service operated to/from Kisar, Kalabahe, Atauro and Arwala (on Wetar) and can carry autos and small trucks.

Cattle from East Timor was shipped out of Atapupu port in West Timor, located between Liquica and Oecussi/Ambeno.

Regular passenger service to Surabaya and Ujung Pandang was provided twice per month. Regular but less frequent service was provided to Jakarta, Irian Jaya, and Banyuwangi (East Java). During January to May 1999, 16,738 passengers disembarked in Dili; 20,705 embarked. In addition, 701 vehicles have exited; 5 have arrived.

Dili is an international port where Korean, Japanese and Singaporean ships used to dock fairly regularly. In 1998 only 1 Singaporean ship put into port, and from January to May 1999 none arrived. The port has 4 public warehouse units of 3225 m^2, plus one warehouse dedicated for military use. Capacity is 70 percent. Due to internal construction barriers, actual warehouse capacity is about 2260m^2. Equipment includes one 5 ton forklift, one 25-ton crane, water supply of 400 tons and 60 tons/hour and open storage of 6,272 $m^{2.}$

Table 9.3: Profitability of Dili Port Operations 1997-1999

Year	Profit/Loss (rupiah)
1997	+ 30 million
1998	- 140 million
1999*	- 200 million

* *forecast*

Source: Kanwil Departemen Perhubungan Timor Timur

The port had 300 persons in fixed employment for un/loading. Total personnel including administrative staff was 420 persons.

The port services manager reports that one gang can unload 210 tons/day on average. Theoretically, the port capacity is 500-700 tons per day for bagged goods like rice and sugar. In contrast, port users complain that actual capacity is a maximum of 500 tons per day. As much as 10 percent is lost due to theft or damage, adding substantially to local costs.

Two ship captains were reportedly beaten in February, causing domestic shippers to refuse cargo to Dili. Though this situation has been rectified[63], Dili has been described as one of the worst ports in the region. Commercial users complain that this can raise costs to the point where goods can often be trucked into the province by Kupang distributors at a lower cost.

The port management has been organized as a state enterprise since 1984. Given the large capital costs, it is difficult for the port to be profitable with limited turnover (Table 9.3). Losses this year were predicted in May to reach about US$25,000.

To improve the port facilities, depth should be increased so larger ships could dock, and the Dili dock facilities should be expanded so that more boats could unload at the same time. Right now, passenger ships have priority, adding substantially to unloading time, reducing port volume, and increasing cost. Additional tug-boats are needed.

9.3 Air Transport

In May 1999, Merpati was the only airline servicing East Timor, with 3 flights/week to Dili using a Boeing 737 with 110 seats. Merpati used to have a daily flight from Jakarta to Dili, and Bouraq and Sempati

[63] After working closely with local authorities to improve the situation, private distributors were forced to travel to Surabaya to convince shippers to resume shipments to Dili.

both flew in. There was also one flight a week on Tuesday going from Dili-Suai-Kupang using a Cassa.
There are three airports in East Timor. Dili (Comoro) has a runway more than adequate for a Boeing 737. There are no Timorese technical personnel working in the tower or in maintenance). The Baucau airport was originally built by the Japanese. It was the international airport used by the Portuguese in East Timor but has in the Indonesian period been strictly for use by the army. It has an excellent runway big enough for jumbo jets.

Suai, with an 800 foot runway, currently has Cassa service through Merpati to Kupang and Dili.

9.4 Electricity

Only one fourth of households have electricity, primarily in Dili (Brahama and Emmanuel 1996:181).

Electricity production is provided by independent diesel-powered generators. They have 4 main units (ranting) in Dili, Baucau, Maliano and Gleno, and 64 smaller units (subranting). Each subranting unit has stand-alone capacity. There are 2 units in Dili and 4 subranting in Ambeno under the Dili ranting. Perhaps three microhydroelectric units have been installed in rural areas. There are 290 home solar energy installations (Brahama and Emmanuel 1996:273-5).

The electricity company has 240 employees of which about 25 percent are Timorese. There are a few Timorese in mid-level management, and most are among the lower ranks of the staff. Though there was an active training program, with training conducted both locally and outside East Timor, there have been difficulties attracting Timorese to more technical positions. Presently, there are no Timorese in the core technical positions.

Electricity throughout all 13 kabupaten was supplied by the state-owned PT PLN. The Dili office is a sub-branch of the Denpasar branch office which covers most of Eastern Indonesia except Irian. In March 1999, the Dili office served 44,030 customers, up nearly 10 percent from end-April 98. PT PLN sells about 6.2 million KWH per month, with about 70 percent of customers in Dili and 30 percent outside Dili. The biggest single user is the textile plant, Dilitex, just west of Dili, which has a 250 KVA connection.

Electricity operations are divided between retail and development. The development portion, consisting of new investment and upgrading, is paid from the GOI central budget. Once capacity is developed, PLN assumes responsibility for retail management and system maintenance. Equipment is mobile and the two main plants are easily disassembled.

PLN has receipts of about Rp 1.2 billion per month. Operating costs are Rp 3 billion per month, PLN operates at an overall loss of roughly $2.7 million annually[64].

PLN has had a serious and growing problem with unpaid bills, that increased througout 1998. In May 1999 cumulative outstanding receivables were Rp 204 billion, about double what they were a year before. Unlike other areas of Indonesia, PLN did not disconnect service when bills were past due. Non-payment by the local government was a main chronic problem.

9.5 Telephones

Telephone services to all 13 kabupaten in East Timor are provided by PT Telkom in a joint venture with Singtel and Bukaka. All areas utilize automatic exchanges (SDO), although 5 areas do not yet have access to International Direct Dialing (Same, Ainaro, Aileu, Los Palos, Ambeno).

[64] Calculated at Rp 8,000/$. This does not include the subsidy on the 2 million liters per month of diesel fuel, the cost of which is borne by the central budget. An estimate on the cost of the diesel subsidy is being obtained.

In May 1999 PT Telkom had 6,795 subscribers and 7,053 lines including public phones.

Telkom had a number of projects still in progress, especially transmission projects. They were in the process of replacing local satellite transmission with a digital microwave system, which will make the connections clearer and more reliable. This upgrade has been completed in Manatuto and Liquica. From Dili outward, users still rely on satellite connections. Eight areas still rely on VSAT connections.

Outside Dili, their biggest subscriber areas are Baucau, Viqueque, Maliana, Suai, and Gleno. Each of these areas has more than 200 subscribers. The other areas have less than 200 each.

Growth over the past few years has included up to 100 new connections per month. In 1998 they installed about 1000 new lines were installed. The target for 1999 was 2,500 manlines. Telkom estimates there was very good growth potential of more than 2,000 lines in the western suburbs out toward Comoro, where a number of housing complexes are being built in the area, including the Delta Comoro complex. This market has not been developed due to inadequate financing for cable installation.

Over the past year, total staff in the Dili office have been reduced from 180 to 170. One year ago, the staff was 70 percent/30 percent non-Timorese/Timorese. Telkom is actively pursuing an ambitious substitution program with a goal of 70 percent Timorese. However, the remaining 30 percent non-Timorese represents technical staff. In May 18 staff were sent for technical training, 10 of which are Timorese. Telkom has several Timorese in senior management positions, including the current offices directors in Merauke and Timika.

9.6 Water Supply

Water, supplied through pipes primarily in Dili, reaches approximately one fourth of households. In other districts, less than 10 percent of households are connected to pipes. Of these, 7 out of 13 districts operate at 50 percent of capacity or below.

The amount of water supplied to Dili is sufficient for 147,000 persons at approximately 90 liters per day per capita. However, the city's population has already surpassed this figure (Gomes 1998). In Dili only half of the population receives piped water.

The City of Dili treats water before delivery as shown by expenditures on water treatment chemicals. There is no indication that this is the case in other areas. Most water supply maintenance staff are of Timorese origin.

9.7 Solid Waste Disposal

There is no information on solid waste disposal. Solid waste which is not removed from inhabited areas breeds disease. Sanitary dumping of solid waste in a manner which does not allow for leachate to run off and pollute water supplies or agricultural areas is of vital importance. This may be particularly difficult in East Timor because limestone soils which are the base of the island are very permeable. If done in a controlled manner, burning of solid wastes may be a preferable alternative to unsanitary disposal.

9.8 Sanitation and Waste Water Treatment

There is no collection and treatment of wastewater. In Dili a majority of the population uses septic tanks. In other districts, the percentage who use septic tanks varies from under 1 percent to 17 percent. This is a concern as the majority of the population receives their water from springs and wells.

Temporary systems for sanitation are crucial for keeping epidemic diseases under control.

10. Overview of Development Assistance to East Timor

Summary

The sources and types of development assistance to East Timor have been shaped not only in response to developmental attributes, but also by political history. Indeed, politics has helped shape both these attributes and the Indonesian government's willingness to allow development assistance to occur. Many of the organizations with a presence in East Timor are agencies with links to the Catholic Church. The religious basis of these organizations probably facilitated their ability to negotiate access with the Indonesian government and, once established, to implement projects via local Catholic organizations. It is not surprising therefore, that many of the most active non-governmental organizations (NGOs) are Catholic agencies based in countries whose governments do not feature prominently in political debates over East Timor.

Although aid to East Timor has increased substantially throughout the 1990s, it remains extremely low in per capita terms, particularly when compared to countries with similar levels of development or that have experienced similar levels of violence (See Table 10.1). Development assistance over the past decade cumulatively totals $82 million, increasing from $1 million in 1989 to more than $12 million in 1999. Following a 247 percent increase from 1990 to 1991, when several bilateral projects commenced, funding has increased by approximately 10 percent per annum. These levels of funding - indeed aid flows since 1975 - can be understood in terms of three phases that reflect the twin influences of politics and development/welfare. First, the fourteen-year 'closed' period immediately following Indonesia's annexation. Second, the 'opening' of East Timor in 1989 that allowed for increased development assistance. Third, the drought of 1998 that was a catalyst for increased donor and NGO interest in East Timor, as well as sharply increased humanitarian relief. Subsequent to the Indonesian government's decision to allow a referendum on autonomy, this latter phase merged with new concerns by agencies regarding the need for additional emergency assistance and long-term programs for sustainable development.

East Timor is characterized by widespread poverty, poor health and nutrition, limited education, an imported civil service, weak civil society, and a small, predominantly agricultural, economy. As a result, development assistance should be spread across several sectors for optimal impact. Nevertheless, emphasis should be placed on addressing basic needs, services and infrastructure. To be sure, the majority of funds and projects have focused on critical needs in Agriculture/Rural Development and Water Supply/Sanitation. Education/ Training and Health have also received assistance (See Table 10.2.3). However, since before 1975 there has been a clear need for increased indigenous capacity to organize and manage development, far greater humanitarian assistance, and projects focused on governance and law. Notwithstanding these needs, these kinds of programs have been strikingly under-funded or absent, although funding for humanitarian assistance has risen dramatically. Therefore, while the concentration on agriculture, water, education and health does partly reflect real needs - and possibly the specialization of the agency involved – it can also be understood as a strategy that has, inadvertently or not, minimized East Timorese control over policy and resources.

This chapter and its appendices offer an overview of aid and development activities over the past decade. In large part it serves to catalogue the organizations involved, levels of funding, project activities and

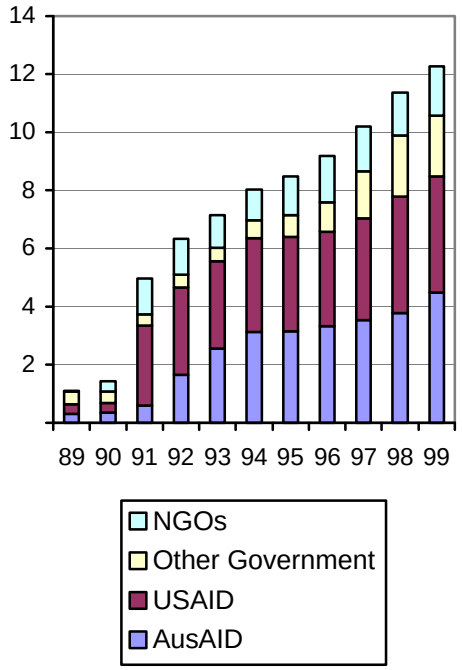
locations, and which sectors have received funding. The importance of such a review is that despite ever-increasing interest in developing programs for East Timor, there has been no comprehensive attempt to document what has occurred to date. Knowledge of projects - and thus knowledge of what is available to be built upon, or existing gaps - is lacking within the aid community. This chapter will attempt to facilitate coordination efforts among agencies already working in East Timor and those planning to work there.

This report does not seek to endorse either the organizations or projects mentioned, nor does it offer any kind of evaluation of the projects themselves or the accuracy of the information provided by agencies. Agencies and their activities are referred to solely due to their involvement in East Timor.

10.1 The Organizations

The donor with the longest involvement in East Timor is the United States Agency for International Development (USAID) which has provided funding since 1977 (although some recent USAID documents indicate that initial involvement commenced in the late 1980s). USAID is also one of the two largest donors, the other being the Australian Agency for International Development (AusAID) which began funding activities in 1989. Other more significant governmental donors include the Canadian Agency for International Development (CIDA), the New Zealand Overseas Development Agency (NZODA), and the Norwegian Agency for Development Cooperation (NORAD). Significant non-government donors include the Christian Children's Fund (CCF), Misereor (Germany) and Missio (Germany). Although government funding far outweighs that of NGOs in percentage terms, funds provided by NGOs – typically raised through public appeals and church donations - were crucial throughout the 1980s and early 1990s. Even today, donations received by NGOs from individuals and churches remain very important for the continuation of many projects.

Figure 10.1: Levels of funding by source, 1989-1999: Millions of nominal USD



AusAID is by far the largest agency implementing projects in East Timor, although its projects are managed and implemented by managing contractors (see below). The Non-Governmental Organizations (NGOs) with the longest experience implementing projects in East Timor are Misereor, Missio, the Catholic Fund for Overseas Development (CAFOD, GB), and the Caritas network, especially Caritas Norway and Sweden and their partner Caritas East Timor. Most of these agencies work very closely with East Timorese Catholic Church organizations, and continue to be major implementers of development and welfare activities. During the 1990s the following organizations have also been significant in terms of volume of funds disbursed or the number and scale of projects implemented: CARE Canada (and its partner, CARE Indonesia), the Christian Children's Fund (CCF), the National Cooperative Business Association (NCBA, USA), and World Vision Canada.

East Timorese organizations have also been involved in implementing projects. While it is difficult to ascertain the number and capacities of local NGOs, the consensus is that overall indigenous institutional capacity is very weak. Some agencies have responded to limited local capacity by establishing an East Timor branch such as Caritas East Timor and Yayasan Timor Aid. In other cases Indonesia branches assume institutional responsibilities, such as CARE Indonesia and the Indonesian branch of the International Committee of the Red Cross/Red Crescent (ICRC). Other international NGOs and donors have focused on the East Timor branches of Indonesian organizations, such as the National Commission for Human Rights (KOMNAS HAM), Bina Swadaya Timor Timur, and Serikat Pekerja Seluruh Indoneisa (SPSI, Indonesian Workers Union). Catholic NGOs have historically implemented projects in partnership with the Catholic Church. Thus these local church organizations (usually organized around dioceses) do have some implementation capacity. (Appendix 10.1 indicates the operational links between government agencies, international NGOs and East Timorese NGOs, and their sectors of focus). Nevertheless, there is a clear paucity of non-church affiliated local organizations with capacity to implement projects. Evidence for this include the several projects that focus specifically on building institutions and improving their capacity at the grass roots level (see Capacity Building).

10.2 Funding Patterns

There are two basic patterns of funding and implementing development assistance projects in East Timor. The first pattern primarily involves two organizations: 1) donor organization, and 2) an implementing organization. In this first pattern, donors – usually but not always a government agency - provide funding to a 'non-profit' or non-governmental organization (NGO) with implementation capacity 'on the ground'. Organizations of this type operating in East Timor include CARE, World Vision, CCF, and ICRC. For example, CIDA provides funding to CARE Canada for its *Capacity Building Community Self-Management Project*.

There are two variations on this pattern. First, government funds for projects are provided to a 'managing contractor' – a commercial firm – that is contracted by donors to implement projects. For example, Acil Australia Pty Ltd managed and implemented AusAID's *Agricultural and Regional Planning Assistance Project*. Both international NGOs and managing contractors often work with local NGOs, and managing contractors often work in partnership with an international NGO. Second, donors such as UNICEF work with Indonesian government agencies by providing funding and technical expertise to assist in the implementation of jointly planned and managed projects and programs.

The second pattern involves three organizations: 1) donor(s), 2) an intermediary organization that receives the funding and then channels it to, 3) an implementing organization. In this pattern, the intermediary organization, often an international NGO, receives funding from several sources, and then channels all of these funds through to an implementing organization that may be either another international NGO or a local NGO. For example, a project treating and eradicating tuberculosis involves: 1) funds from the British Catholic Church, public fundraising in Britain and Norway, and the Norwegian Government, being collected by 2) CAFOD (GB) and Caritas Norway, that provide these funds to, 3) Caritas East Timor and the Diocese of Dili that jointly implement the project.

10.2.1 Methodology and methodological problems

Information and figures for funding were obtained from two key sources. First, documents available on the internet websites of aid agencies. Second, project and

program documentation sent by librarians, information officers, and individuals on the East Timor or Indonesia 'desks' in different organizations. Financial data in Tables 10.2 were constructed using both figures provided in these documents and from e-mail messages specifically directed to this report. These figures were then converted into nominal US dollars by using annual market exchange rates provided in the IMF's *International Financial Statistics* series[65].

Obtaining financial data on aid to East Timor is not straightforward. The primary reason for this is that many aid organizations do not have a separate budget 'line' for East Timor, as it is considered to be one location in a larger program of national assistance (to Indonesia). Given this, the best way to obtain figures for funding is to determine what projects are in place, as information on project funding is usually easier to obtain from both donors and implementing agencies. Unfortunately, constructing a history of funding to East Timor by using project information also presents some difficulties. Primarily, some agencies do not make project data available to the public, others do not have it available because they do not keep records specifically for East Timor, and other agencies have provided incomplete figures (and acknowledge this). Further, as not all aid is in project form (exceptions, for example, include funding for humanitarian relief and grants for small-scale community activities), funding statistics for projects alone do not represent total funding. This is particularly the case for East Timor as substantial funds have been donated for drought and humanitarian relief, although it is difficult to obtain clear figures even for these types of assistance.

[65] Figures are reported in nominal terms. As most funding has been allocated in the past few years, and as US$ inflation has been low during the period covered here, the difference between nominal and real US$ figures is not substantial.

Therefore, while all figures in Table 10.2 should be viewed as conservative estimates, this table has also been divided into two categories. Tables 10.2.1a and 10.2.2a contain figures for funding and implementing organizations that provided clear data. Tables 10.2.1b and 10.2.2b on the other hand, contain figures for organizations that provided less comprehensive or incomplete data (it should be emphasized that while these organizations' data are incomplete, this has no reflection on the significance of their role in East Timor).

10.3 The First Phase: The 'Closing' of East Timor: 1975-1989

A very small number of Catholic organizations funded activities through the Catholic Church during the Portuguese colonial period, although foreign governments were not involved in these programs. Portugal's departure in 1974 and subsequent Indonesian annexation resulted in war and unrest that led to a quarter century of violence and insecurity for East Timorese – and to concern across the aid community for their welfare. However, little emergency relief or development assistance eventuated – certainly not in proportion to areas of the world with similar needs. Further, the severing of diplomatic links between Portugal and Indonesia blocked any potential assistance from Portuguese government or non-government sources. While many foreign governments and organizations wished to develop aid programs, the Indonesian government's 'closing' of East Timor and imposition of travel restrictions made operating an aid program very difficult. In some instances, governments also discouraged NGOs from delivering emergency supplies or commencing programs out of concern that such activities might jeopardize bilateral government relations with Indonesia. For example, in 1975 the Australian government hindered Community Aid Abroad's (CAA,

Table 10.1: Per Capita Aid Flows to Selected Countries and East Timor

	1991			1996		
	Population (millions)	ODA (millions) (USD)	Per Capita ODA (USD)	Population (millions)	ODA (millions) (USD)	Per Capita ODA (USD)
Ethiopia	53	1,097	27	58	849	17
Mozambique	16.1	1,073	67	16.6	923	56
Guinea Bissau	1	118	118	1.1	180	164
Cape Verde	0.382	107	280	0.387	120	310
Indonesia	181	1,874	10	196	1,120	6
East Timor	**0.75**	**5**	**7**	**0.81**	**9**	**11**
East Timor[a]	**0.75**	**115**	**153**	**0.81**	**119**	**150**
Fiji	0.752	44	59	0.803	45	56
Papua New Guinea	4.1	397	99	4.4	383	87
Haiti	6.6	182	28	7.3	375	51
Lower Income Country Average			14			12

Notes: Figures are in nominal USD
[a] ODA figures for this line include the annual transfer of $110 million from the Indonesian government (as estimated by the Governor of East Timor, reported by USAID), and thus represents total aid and development financial flows from external sources.
Source: World Development Report 1998/99, The World Bank; and Geographical Distribution of Financial Flows to Aid Recipients, OECD, 1991-1996.

Australia) attempt to send relief supplies by barge from Darwin to East Timor.[66]

Some development activities did occur. A small number of Catholic aid organizations that were well connected to the Catholic Church in East Timor, such as Misereor, continued their work during this period. Their activities largely consisted of providing funds through established links with local churches for welfare and some longer-term education and health projects. The Indonesian government also permitted two NGOs funded by USAID to operate. From 1977 to 1980 USAID provided funding to the Church World Service and Catholic Relief Service (CRS) for food relief and a maternal and child health project. USAID also funded a CRS agricultural project in the early 1980s, as well as a malaria control program (in East and West Timor) from 1982-1987. The Canadian International Development Agency (CIDA), through its Jakarta embassy-based *Canada Fund for Local Initiatives* (CFLI), channeled some funds to small-scale community projects beginning in 1979. ICRC also maintained a presence in East Timor during its 'closure'.

The severity of conditions during this period is indicated by both the types of organizations that operated and the activities they implemented. ICRC and UNHCR (which has had a very limited role in East Timor, although in 1986 it disbursed $300,000) both specialize in distressed populations; CRS and the Church World Service received funds for emergency relief activities. This latter category of people were unable to receive adequate assistance from humanitarian or aid organizations due to the constraints imposed upon their operations, and restrictions on other agencies commencing relief programs. Levels of funding during this period were probably around $800,000 per year (largely provided by ICRC and USAID), or approximately $1.00-$1.30 per capita. This is an extremely low figure compared to most populations. For a comparison of more recent per capita ODA (Official Development Assistance) levels, see Table 10.1.

[66] Community Aid Abroad, *Submission to the Senate Foreign Affairs, Defence and Trade References Committee: Inquiry into East Timor*, 1999, p1.

The continued dispute over the status of East Timor prevents member governments of virtually all multilateral organizations from agreeing on funding or implementing projects.

10.4 The Second Phase: Timor is Declared an 'Open' Province: 1989

The Indonesian government's declaration that East Timor was an 'open' province in 1989 heralded the arrival of an ever-increasing number of aid organizations, and a subsequent increase in the number of sectors to which development assistance was targeted. Aid became less welfare or emergency oriented as existing organizations and newcomers directed funding into larger, more complex, and longer-term development assistance projects.

As indicated in Figure 10.1, levels of funding increased to over $1 million annually in the early 1990s, followed by a sharp increase to $5 million (1991) as new projects were implemented, and a further doubling to $9 million (1996). Per capita ODA is now above the World Bank's estimated *Lower Income Country Average* - although this statistic is considerably skewed by per capita ODA figures of approximately $1 and $2 for India and China respectively. A better comparison is with countries with similar population size (such as Fiji), or similarly poor undeveloped countries that have suffered violence (such as Ethiopia, Mozambique or Haiti), or even other former Portuguese colonies with similar levels of development (such as Cape Verde and Guinea Bissau). By comparison with these nations it is apparent that East Timor receives far less per capita ODA than countries with similar levels of economic and social development. East Timor's status as one of Indonesia's least developed provinces, might also normally lead one to assume that it would receive substantially more per capita ODA than Indonesia as a whole.

Following Indonesia's 'opening' of East Timor, AusAID quickly developed an East Timor extension to its *Eastern Indonesia Veterinary Services Project*, followed by new bilateral projects in water supply and sanitation in 1992, and agriculture and regional planning in 1993. Throughout the mid-1990s USAID continued to provide funding to U.S. and local NGOs, particularly for projects focusing on increasing incomes and promoting and strengthening civil society. In 1992 CIDA dedicated a special budget for local initiatives in East Timor, ensuring that East Timorese requests did not need to compete for funds with requests from elsewhere in Indonesia for its CFLI funds. AusAID and the New Zealand Overseas Development Agency (NZODA) have similar programs of small community development initiatives. Since 1993 twenty-two percent of NZODA's program has been directed to thirty-six projects in East Timor. In 1992 UNICEF Indonesia also commenced a program in East Timor.

Several international NGOs also took advantage of the new openness and established or expanded programs. These programs were funded by both government sources and through the organization's own public fund-raising. CCF commenced 13 *Child and Development Projects* in 1990, mainly by affiliating with eleven local foundations, including the Naroman Social Foundation, Hati Kudus Yesus Foundation, Keluarga Maria Ratu Damai Social Foundation, Perdhaki, Santa Maria Fatima Foundation, and the Cinta Kaum Wanita Foundation. World Vision Canada established its CIDA-funded *Aileu Area Development Project* focusing on children's health in 1995; and CARE Canada, using the findings of an Indonesian government poverty alleviation mapping exercise, established its *Capacity Building Community Self-Management Project* in 1995. Catholic organizations including Caritas Norway, Trocaire (Ireland), Misereor (Germany), and the Catholic Fund for Overseas Development (CAFOD, Great Britain), channeled funds to Caritas East

Timor for a variety of projects, mostly focusing on health and education. In particular, Caritas Norway using funds partly provided by the Norwegian government, considerably expanded its activities following Bishop Belo's visit to Norway in 1996. ICRC continued its programs of humanitarian assistance to displaced people and political detainees.

10.5 The Third Phase: The 1998 Drought Emergency

In 1998 a drought extended through Eastern Indonesia to Papua New Guinea. The drought affected food production in lowland areas – areas that are normally characterized by low rain fall and poor soils. However, the impact of the drought on food production was exacerbated due to both increased population pressure (as a result of Indonesian government resettlement programs to the lowlands) and ongoing disruption of traditional farming systems. Drought relief was largely delivered by international NGOs (such as CARE, Caritas, CCF and ICRC), while being funded and provided with supplies by governments and in some cases the NGOs themselves. For example, USAID working with CARE, provided emergency food relief (rice) in 1998 - and in 1999 when East Timor continued to require disaster relief - totaling $1.8 million.

The drought relief effort included several smaller Australian NGOs with existing affiliations in East Timor, including the Mary MacKillop Institute for East Timorese Studies (MMIETS), the East Timor Relief Association (ETRA), and Opportunity International Australia. Some of this relief was delivered through local NGOs, such as Caritas East Timor, Yayasan Bina Sejahtera Lestari, Yayasan Timor Aid as well as through Catholic dioceses.

10.6 The Current Situation

The orderly expansion in the number of development assistance projects and organizations in East Timor over the past 4-5 years was interrupted by events following President Habibie's January 1999 announcement that Indonesia would allow a consultation on East Timor's future political status. Ongoing conflict flared into intense systematic harassment and violence against civilians by military and paramilitary forces seeking to suppress public support for independence. Paramilitary forces, largely acting with impunity, intimidated suspected pro-independence supporters and disrupted voter registration efforts. As a result of this situation, by mid-1999 virtually all aid programs were disrupted and in some cases suspended, due to security concerns regarding foreign advisers, the displacement of project recipients due to fear, violence and unrest, and the population's overwhelming general preoccupation with security and political issues.

The displacement of people as a result of unrest related to the referendum, led many aid agencies to extend and refocus drought relief activities to general humanitarian relief. Several aid organizations that were already considering establishing development programs felt a new urgency to do so as a result of the decision to hold a referendum. These concerns, coupled with the desire to assess the emergency situation, have sparked a flurry of visits and program planning missions which may yet herald a stampede by donors to implement projects once the security situation improves.

10.7 Future Assistance[67]

AusAID, CIDA, the British government's Department for International Development (DFID), and USAID have all approved or

[67] Plans by governments and NGOs for increased development assistance are separate from funding provided for preparations for the 1999 referendum. The majority of these funds have been contributed to the UNDP Trust Fund for preparations for the August 1999 ballot, including from the Australian, British, Japanese, New Zealand, Portuguese and United States governments, as well as the UN itself.

are planning additional projects and have increased funding for humanitarian relief. AusAID and USAID in particular are planning very large expansions of their programs that may result in an increase of annual funding from seven- to ten-fold. The Portuguese government, welcoming the opportunity to assume some responsibility for development following East Timor's vote on autonomy, has also allocated funds for a major $150 million dollar program to be implemented over the next three years.

Many Australian and international NGOs that already implement projects are also planning to expand their programs. In addition, CAFOD, Trocaire and Oxfam GB are considering moving from mainly providing funds to local partners, to establishing a presence on the ground. The International Rescue Committee (IRC) has received $250,000 from the Portuguese government, with a pledge of additional assistance, to establish a humanitarian relief program that will be implemented through East Timorese NGOs.

The likely flooding of East Timor with donor funds may yet be tempered by additional human resources. Australian Volunteers International (AVI), CAA, and the Voluntary Services Overseas (VSO, GB) with its Portuguese partner, OIKOS, are considering establishing programs that focus on providing human resources, in the form of volunteer professionals. USAID has also indicated that it may consider funding a future program of Peace Corps volunteers.

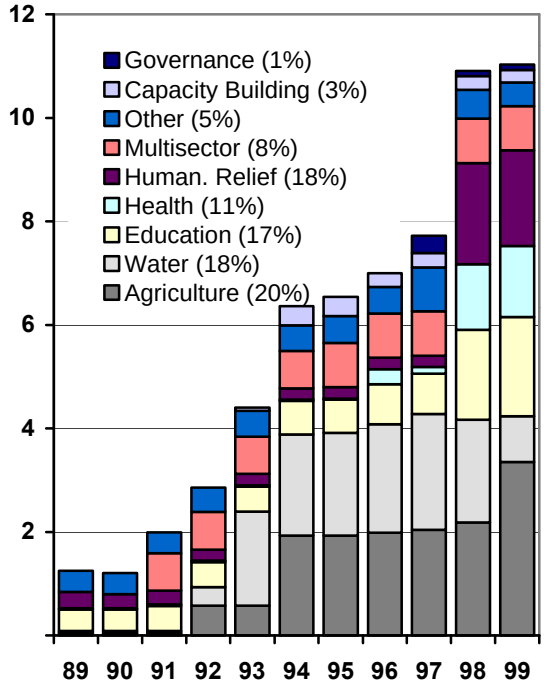
Local incapacity to absorb high levels of aid, and the consequent need for coordination amongst aid agencies, and between aid agencies and local NGOs, is recognized by many people in the aid community. Amongst donors, USAID is historically the largest single source of funding, but it recognizes that AusAID will become the dominant donor and that close coordination with AusAID (and UN agencies) is therefore necessary. In order to facilitate coordination at the local level, AusAID is making use of advisers from its suspended *Bobonaro Rural Development Project* to coordinate an 'NGO forum'. The purpose of this forum is to compile a database of NGOs operating in East Timor, and to train NGO personnel to improve their proposal development and project management skills. The Australian Council for Overseas Aid (ACFOA) is also facilitating coordination between Australian NGOs through the *ACFOA East Timor Working Group* by providing information to members interested in funding or implementing East Timor programs. Oxfam GB (in consultation with partner East Timorese NGOs) has also developed a *Human Resource Development Strategy* that emphasizes building the capacity of local NGOs, improving human resources, and facilitating coordination among agencies. The IRC's planned program will also focus on institutional strengthening and capacity building.

Despite limited local capacity, there *will* be an urgent need for funds. This is because the large annual transfers to East Timor from the Indonesian government have been cut off. From this perspective an increase in total funding is vital, but these funds would be best characterized as emergency budget support, rather than development assistance. Clearly, however, the long-term goal is to develop a program of sustainable development.

10.8 Sectors

For the purposes of this chapter development assistance activities in East Timor have been divided into nine sectors: Education & Training, Health, Water Supply and Sanitation, Agriculture & Rural Development, Governance & Law, Capacity Building, Humanitarian Relief, Multisector, and Other. Development assistance has been divided into sectors in order to give a clearer sense of the type of activities that are being implemented, as well as to indicate which organizations specialize in different areas. The sectors chosen do not correspond to those of any particular aid agency. However, they do include a range of activities that vary in scope and size.

Figure 10.2: Indicative distribution of sector aid flows



Note: Millions of nominal US Dollars. Figures in parentheses are percentage distribution for 1998

In 1998 the sector that received the most funding was Agriculture & Rural Development ($2.2 million, or 20 percent), primarily due to two projects funded by AusAID and USAID. This sector, together with Water Supply & Sanitation ($2 million, 18 percent) have consistently received more funding than any other since bilateral projects commenced in the early 1990s. Education & Training has also historically received a substantial portion of funding, and was the third largest sector ($1.9 million, 18 percent) in 1998. Funds have always been directed towards humanitarian relief. However the drought in 1998 together with referendum-related violence in 1999 caused funding to this sector to rise dramatically. In 1998, Humanitarian Relief was the second largest sector ($2 million, 18 percent) and will probably surpass all other sectors in 1999, partly because most other aid activities are suspended. Funding for Health, which has traditionally received limited funding, has increased in recent years to make it the fifth largest sector ($1.3 million, 11 percent). See Table 10.2.3 for distribution of funding by sector since 1989.

Sectors with the highest concentration of organizations (including government, international and East Timorese NGOs) are Humanitarian Relief (23) and Other (18 - mostly for small business and gender activities), followed by Education & Training (16), Governance & Law (15) and Health (14). Interestingly, although Governance & Law features a large number of agencies, reported levels of funding are low.

10.8.1 Education and training

Since 1975 Misereor has provided a total of approximately $2.1 million to Catholic schools and for vocational training programs. However, assistance in this sector has been distributed only recently and funds have been directed toward individual scholarship provisions rather than improving overall teacher training or curriculum. NZODA has funded 34 tertiary level students since 1991 to attend universities in New Zealand. AusAID has provided 11 scholarships since 1994 for graduate education in Australia, but emphasizes that while more funds are available, few undergraduates are able to meet academic entry requirements. Caritas Norway, working with Caritas East Timor, administers the Bishop Belo Fund that provides scholarships for 641 university students (29 percent female). NORAD (Norwegian Agency for development Cooperation) is the major donor to this fund. 86 percent of students are at the University of East Timor, the remaining 14 percent study at other Indonesian universities due to their specialty being unavailable locally. Of the students, 48 percent are in teacher training. If conditions allow, the program may be expanded to fund 1,200 students by the second half of 1999. Estimated expenditure for 1999 is $346,000. Worldview Rights (Norway) in cooperation with Timor Aid, also coordinates a scholarship program for secondary school

students to attend undergraduate institutions. The first group of 15 students in this program received funding in 1999 to attend Indonesian universities outside of East Timor. This program is funded by a donation of $400,000 from Statoil, the Norwegian state oil company, of which $14,000 will be disbursed in 1999.

USAID has also provided funds to the tertiary level. A grant of $1.2 million (1995-1998) was provided to Georgetown University (Washington DC, US) to utilize resources from an existing bilateral education project, to improve curriculum and train staff in English language and animal husbandry at the University of Timor.

Caritas Sweden implements two education projects. The $230,000 *Comoro Educational Project* (1996-1999), implemented using funds from the Swedish International Development Agency (SIDA) (95 percent) and Caritas Sweden (5 percent), focuses on upgrading and expanding technical education, skills training, and special interest courses for poor children at the Salesians of Don Bosco training center near Dili. Caritas Sweden is also using $1 million from the EU to provide educational and professional training for 174 Catholic schools (1998-2002). The Dioceses of Dili and Baucau are key partners in this project. $210,000 (95 percent from SIDA, 5 percent from Caritas Sweden) was also provided for the now completed (1996-1998) construction of a girls' school supported by the Salesian Mission of Laga (Baucau).

AusAID provides funding worth $2.2 million to the Salesians of Don Bosco Congregation Center of Technology for its *Partnership for Skills Development* project. This project focuses on vocational training, and will operate from 1998 to 2003. As part of its *Second Indonesia Australia Polytechnic Project*, AusAID also provided funds to upgrade the Dili polytechnic. Future assistance to the education sector from NZODA will focus on developing the English language capacity of Indonesia's Eastern Islands education institutions, including the University of Timor in Dili. USAID has also provided funding to the (US-based) Salesians Missions. Grants since 1989 total $3.2 million or approximately $320,000 annually, for programs focusing on improving education for orphans, technical training for youth, and assistance to the Don Bosco Agricultural School in Fuiloro.

Some of the most innovative work in education is being conducted by MMIETS, which is sponsored by the Sisters of St Joseph of Australia. MMIETS in cooperation with East Timorese writers and Australian linguists, is developing Tetum language materials for primary schools (121 schools were involved in the program as of 1999). Established in 1994, the program focuses on revitalizing and strengthening Tetum as a language medium, facilitating the Church's work in Tetum, and increasing access to Tetum-language education materials. It includes the production of children's books and teachers' manuals, as well as providing in-service training for teachers to teach the materials. Projected expenditure is $80,000 for 2000, $96,000 for 2001 and $112,000 for 2002. MMIETS has received funding from Caritas Australia ($25,000 in 1998; $96,000 in 1999), the Marist Mission Center, and from public fundraising by the Sisters of St Joseph. The Australian trade union organization, Australian People for Health Education and Development Abroad (APHEDA), is also involved in this project.

Other agencies also focus on primary education. CCF initiated the establishment of fifty preschools catering to 1,850 children, as part of its *Early Childhood Education and Development Program*. It also supports more than 8,500 school age children in primary education. Oxfam GB also emphasizes primary education, and is considering what interventions would be appropriate at this level. Timor Aid and its East Timorese affiliate Yayasan Timor Aid also implement smaller-scale education projects through Timorese partner

organizations. These projects are funded from a variety of sources, including Fastenopfer (Switzerland) which has funded a number of such small projects.

10.8.2 Health

As in other sectors, Misereor has provided funding for health and social services – $650,000 since 1975, mostly obtained through public appeals. From 1980 to 1987 USAID funded a *Timor Malaria Control Project* in East and West Timor. This project focused on building long-term disease management capabilities, and included house-to-house application of DDT, drainage improvements, application of larvicides to standing water and the introduction of larvivorous fish. A 1987 evaluation found that the protected population in East Timor had increased from 12 percent in 1982 to 42 percent in 1986 (in West Timor the gain was from 14 percent to 31 percent). Malaria continues to be a problem in East Timor and Nusa Tenggara Timur, especially as chloroquine-resistance falciparum malaria has now been found.

Recent projects have focused on tuberculosis (TB). AusAID provides funding worth $1 million to its *National Tuberculosis Program* that provides funding and technical assistance to support the Indonesian government's program in East Timor and Flores. Activities include training health workers, producing and disseminating public information, community outreach and operational research in tuberculosis drug research. Oxfam GB has also been involved in TB eradication, commencing with a $16,000 grant in 1996. This initial work was complemented and expanded upon by a joint initiative to treat and eradicate TB, that involves CAFOD, Caritas Norway, Caritas East Timor and the Diocese of Dili. This program has been active since 1997, with Caritas Norway providing $1 million since 1997 and CAFOD providing $90,000 in 1998. This initiative includes community-based health care activities, nutrition information programs, and support for supplementary feeding in areas of special need. Caritas Norway has identified HIV/AIDS prevention as an area for future assistance.

In 1997 UNICEF commenced a *Programme for Maternal and Child Survival, Development and Protection* in East Nusa Tenggara and East Timor. NZODA donated $438,000 to this project, which involves close liaison with both local communities and government agencies. The project focuses on promoting sanitation and access to potable water, improving infant nutrition, and increasing understanding of maternal health.

APHEDA and the Australian Foundation for Peoples of Asia and the Pacific (AFAP) have also received funding from AusAID to implement health activities. Timor Aid and Yayasan Timor Aid have managed many small grants in the health sector, and have worked with AFAP to purchase equipment (using AusAID funds) for a new clinic in Biade Manatuto. AusAID has also provided funds to local NGO Yayasan Bia Hula for health and sanitation projects in Dili and Suai. CCF is implementing a $120,000 acute respiratory infection (ARI) prevention program with Perdhaki, a local NGO. This project which will focus on thirteen health centers includes production of health education materials in Tetum, ARI workshops for health cadres and project staff, and provision of medical supplies. The National Cooperative Business Association's USAID-funded *Economic Development Project*, primarily focusing on coffee producers, also includes a $1.2 million extension for health services for agriculture workers that is provided through a network of six clinics (see Agriculture & Rural Development).

The Australian corporation BHP Petroleum also donated $65,000 to the Saint Paulus hospital (Suai), to assist with the purchase of consumable items, employment of a permanent doctor, and the purchase of an ambulance. This donation was made in 1998 under the auspices of a now-dissolved joint venture between BHP and World

Vision Australia, to explore the possibility of implementing a community development project.

Caritas Australia is planning a major *Health Management Program* commencing in 1999, to support Caritas East Timor's Health Unit raise standards of health care in all catholic clinics. This includes supporting a coordinated catholic health system, achieving sustainable health service in rural clinics, establishing consistent minimum standards of health care in all catholic clinics, and supporting the development of a community based health care system in parishes.

10.8.3 Water supply and sanitation

This sector features the smallest number of organizations, although projects have considerable scope. The inclusion of Indonesian government funded development (such as the construction of rural infrastructure) in this report would considerably increase the size of funding and activities dedicated to water supply and sanitation. However, as with all infrastructure projects that do not feature appropriate design and construction, nor participatory approaches with communities, the actual effect of these projects is unclear.

The most notable donor-funded project is AusAID's completed *Water Supply and Sanitation Project*, jointly managed by Coffee MPW Pty Ltd (Australia) and CMPS&F Environmental (Australia), that focuses on strengthening water management agencies, and rehabilitating or building water supply and sanitation facilities in rural and urban areas. The project disbursed approximately $12.3 million from 1992 to 1999. AusAID also has plans for a new $10 million *Environmental Health and Sanitation Project* (1999-2004), which will build on the work of the first project, and focus on the least advantaged communities in five districts.

CCF implements a *Liquica and Ermera Water Project*, which aims to provide access to potable water for 3,500 people in two villages in Liquica and one in Ermera. This project commenced February 1998 and is valued at $85,000 (1998-1999). It is funded by AusAID, CCF and in-kind contributions from local communities. Although nearing completion, it is suspended as of mid-1999.

Other activities include assistance from Misereor totaling approximately $100,000 since 1975, for small drinking water supply projects. ICRC also implements a European Union-funded public health program that, in addition to primary health care, has a safe water component which focuses on constructing simple wells, repairing water distribution networks, and providing water to isolated hamlets. USAID has contributed to ICRC's activities in this sector, providing a four year grant (1997-2000) for approximately $1 million to support its water and sanitation program.

10.8.4 Agriculture and rural development

In terms of funding and activities this sector is dominated by the large bilateral projects funded by AusAID and USAID, and considerably smaller projects implemented through local NGOs. As mentioned earlier, AusAID's first project in East Timor was an extension to its $1.6 million *Eastern Islands Veterinary Services Project* that was implemented from 1989-1998. Managed by the New South Wales Department of Agriculture (Australia), this project focused on strengthening extension services with a focus on poorer farmers and village women, and providing support for the Indonesian government's brucellosis program. Approximately $400,000 of project funds were disbursed in East Timor. AusAID also funded the recently completed (1993-1998, $3.1 million) *Agriculture and Regional Planning Assistance Program*, managed by Acil Australia Pty Ltd, that sought to improve the capacity of agriculture-related agencies to plan and implement sustainable projects and programs for community development. In addition, AusAID funds the $2.2 million *Bobonaro Rural Development Project* (1998-2002), also

managed by Acil Australia Pty Ltd. The focus of this short term project, is to prepare a longer term (12-15 year) rural development project based on investigation and assessments of development potential, institutional capabilities and piloting of community-based participatory planning processes. Advisors from this project – currently suspended - are being used to assist the coordination of an East Timor 'NGO Forum' (See Capacity Building).

USAID also funds a large agriculture project – the $6.8 million *Economic Development Project* (1995-1999) which is being implemented by the National Cooperative Business Association (USA). The project provides support to 17,000, or approximately 100,000 people. The project has two key components: 1) increasing the incomes of smallholder farmers by establishing cooperatives (mostly for coffee, but also vanilla and livestock); and 2) improving the efficiency of procurement and processing, and promoting exports, of coffee. The second component also includes agriculture extension activities, planting shade trees, increasing productivity, as well as a health component for agriculture workers (a $1.2 million extension to the larger project, for 1998-1999). The prices of coffees - all organic due to the historical absence of commercial fertilizers or pesticides - produced by project participants now average 60 percent higher than that grown previously.

NZODA has also provided funds for a project focusing on coffee. In 1996 it gave $69,000 to Bioglobal Limited (New Zealand) to undertake a feasibility study for a proposed project that would enhance smallholder coffee production. NZODA funding for non-coffee agriculture includes training conducted in Suai in 1995, by the Christian World Service.

From 1981-1987 USAID also funded an *East Timor Agricultural Development Project,* implemented by CRS, to control wild grass and improve land use and agricultural production. A 1987 project evaluation estimated that benefits of the project reached 10,000 people, although farmers with dry land fields and women were not incorporated into project activities. The evaluation also identified land registration issues and weak water users' associations and farmers' groups as continuing issues. In 1987 management of this project was turned over to the local ETADEP foundation which was established using USAID funding (see Capacity Building).

Funds for smaller scale agriculture projects have been provided by Misereor to local church organizations, mostly sourced from private donations, totaling approximately $150,000 since 1975. Caritas Australia funds a *Rural Development Program*, which commenced in 1997. The project involves training in participatory techniques for staff and the introduction of sustainable agriculture techniques for participants (from three hamlets in the Comoro valley). Funding since 1997 totals $170,000. Several East Timorese organizations have also implemented smaller projects. This includes Yayasan Bina Swadaya Timor Timur (which has received funds for agriculture projects from the New Zealand government), the Bobonaro Catholic parish, and ETADEP.

10.8.5 Governance and law

Two key factors have led to funding for activities related to governance and law. First, the extent of harassment and abuse in East Timor distinguish it as being in particular need of both 'watch dog' organizations that monitor the activities of coercive forces, and advocacy groups that seek to strengthen the rule of law and establish fair and transparent procedures. Second, many governments and international NGOs claim a link between the existence of these kinds of organizations - which make up 'civil society' - and the spread of democratic ideas and rule. Thus, in order to meet a real need for advocacy groups in East Timor, and out of a belief that such organizations will lead to greater

democracy, governments and NGOs have supported the establishment and strengthening of organizations that focus on good governance and law.

USAID is the biggest donor in this sector, and in 1997 provided funding to The Asia Foundation (TAF, USA) to help establish East Timor's first and, to date, only legal aid organization: Yayasan HAK. TAF, an organization that focuses on supporting activities in the areas of human rights monitoring and investigation, education, and legal assistance, continues to assist Yayasan HAK, using USAID funds worth approximately $70,000 annually. Assistance is focused on developing Yayasan HAK's capacity to provide legal assistance, monitor human rights violations, and develop human rights training and education courses for community groups and organizers. Yayasan HAK has subsequently also received support from CAA (and funds from AusAID, Oxfam NZ and the NZODA) for assistance in developing legal aid procedures, policy development and human rights monitoring. USAID also provided $240,000 in 1997 to support the Commission for Peace and Justice (CJP), founded by Bishop Belo and a part of the Diocese of Dili, which supports human rights work in East Timor.

TAF received USAID funding in 1995 to establish and equip the East Timor branch office of the National Commission for Human Rights (KOMNAS HAM). In addition, AusAID has provided funds to the CJP for work in legal aid and human rights, and the Institute for Policy Research and Advocacy. ICRC has also funded training in international human rights law for East Timorese. Norwegian Church Aid (NCA) provided funds (80 percent from NORAD) and assistance to the Australian-based East Timor Human Rights Center for work in human rights advocacy and support for groups in East Timor.

USAID also provided funding to TAF (1996-1997) to help establish an independent media in East Timor. These funds were used to assist the Tatoli Naroman Foundation to establish *Suara Timor Timur* - East Timor's first locally owned and operated newspaper. Funded activities included business and journalism training. NZODA also provided funds to the newspaper, including for journalism training in 1997, and funds for the replacement of a printing press and computer equipment that were destroyed in 1999 during referendum-related violence.

10.8.6 Capacity building

Capacity building or institutional development focuses on improving the performance of institutions and organizations. This typically involves developing human resources through training programs, but, depending on the size of the organization, it can also entail restructuring work units and changing lines of communication and management. Strengthening or building the capacity of local NGOs is usually focused on improving general organizational and management skills in order to make NGOs' programs more efficient, effective and sustainable. Such programs also focus on proposal writing skills (to increase the likelihood of receiving donor grants) and financial management skills (often to meet donor requirements for accounting practices). Many projects include capacity building as a component, although the projects described under this sector are those primarily focusing on these activities.

Some of the first funding from foreign sources in this sector came from USAID in 1987 to establish ETADEP, now a leading East Timorese NGO, which received funding until 1998. ETADEP is involved in many activities across different sectors, including the establishment of rural branches of the credit union, well drilling for drinking water and working with smaller local NGOs to provide hands-on training in micro-enterprise, credit systems, water catchment systems and family health systems. It has also established an institutional and human resources center in

Dili to teach skills essential to the institutional development of local NGOs.

As previously mentioned, AusAID is making use of advisers from its *Bobonaro Rural Development Project* to coordinate an 'NGO forum'. This forum is being coordinated by Bia Hula, a local NGO that was previously involved with AusAID's *East Timor Water Supply and Sanitation Project*. The purpose of this forum is to facilitate mutual cooperation and coordination amongst local NGOs, government and donors. A component of CARE Canada's *Capacity Building and Community Self-Management Project* - funded by CIDA for approximately $1.5 million 1994-1999) – also focuses on strengthening the institutional capacity of local NGOs to deliver development services to households targeted by the project. Local NGOs Pikul and ETADEP have received funds to improve their own capacity and the capacity of other community organizations, as has Posko which received funds and assistance from CAA for this purpose. Oxfam GB and partner East Timorese NGOs, researched and developed a proposal for a major human resources development project that will focus on capacity building in civil society and strengthening education services. Oxfam GB subsequently received funding worth approximately $850,000 from DFID in 1999 for this project. USAID provided $260,000 (1993-1996) to Bina Swadaya, a national Jakarta-based NGO) to provide institutional development for NGOs in East Timor. This project initially involved working with five local NGOs, which formed and trained a total of 46 community self-help groups. Two of these organizations have developed proposals, and elicited funds from international organizations.

Assistance has also been provided to establish labor organizations. APHEDA together with the Australian Education Union (AEU), have provided funding and technical expertise to SPSI units to establish an East Timor public sector teacher union. Similarly the Solidarity Center (formerly the Asian-American Free Labor Institute) an institute of the American Federation of Labor - Congress of Industrial Organizations (AFL-CIO), has in the past conducted trade union education workshops for East Timorese, as part of a larger national program to Indonesia. This program was funded by USAID, although the Solidarity Center currently has no direct programs in East Timor.

10.8.7 Humanitarian relief

Since the Indonesian government's annexation of East Timor, humanitarian assistance and emergency relief have been features of development assistance. Emergency relief largely involves providing food, shelter and health care to people who are either unable to work or tend crops or internally displaced persons (IDPs). The major cause for this instability is real or perceived threats of violence by the Indonesian military towards civilians supporting, or suspected of supporting, anti-Indonesian sentiment and forces.

Historically, ICRC and catholic organizations have provided the bulk of such assistance. ICRC operated in East Timor throughout the 'closed' period using funds obtained from public fundraising as well as from government sources, such as AusAID, DFID, and USAID. During the 1998 drought ICRC provided assistance worth approximately $500,000. Catholic organizations such as Misereor, Caritas Australia, Caritas Norway and more recently Trocaire, have provided funds to local church organizations, including Caritas East Timor, for humanitarian relief. In the 1970s Catholic Relief Services and the World Church Organization also received funding from USAID for humanitarian relief.

International NGOs such as CARE (Canada and Australia) and CCF (Australia and USA) have also provided assistance for both drought assistance and emergency relief in 1998 and 1999. CARE has implemented food-for-work programs to approximately 13,000 families since 1998, as well as emergency food relief worth $1.8 million

from by USAID. CCF provided drought relief including food-for-work programs and construction of water systems for 5,000 families in East Timor and 14,000 families in the similarly drought-affected neighboring province of Nusa Tenggara Timur. Smaller NGOs with networks established in East Timor through their development assistance projects, also provided humanitarian relief during the drought in 1998, and in 1999 when violence flared in the lead up to the 1999 referendum. APHEDA, CAA, ETRA, MMIETS, Opportunity International (Australia), and Timor Aid provided assistance to IDPs through their East Timor networks, including with organizations such as KOMNAS HAM, Yayasan Bina Sejahtera Lestari, and Yayasan Timor Aid, and the Atambua Diocese in West Timor. In 1999 NZODA also provided NZ$160,000 to Oxfam NZ for assistance to IDPs.

United Nations organizations have been restricted in their operations in East Timor due to political reasons. UNICEF, however, has implemented emergency and non-emergency activities. UNICEF received $700,000 from AusAID for emergency relief and immunization activities in 1999.

10.8.8 Multisector

Two organizations fund and implement multisector projects. The CCF has 13 *Child and Development Projects* in 22 villages, covering approximately 30,000 people. The projects focus on nutrition, health, potable water and education activities. These projects receive approximately $720,000 per year from CCF's child sponsorship program, with some additional funds also being provided by AusAID. World Vision Canada also uses funds from its child sponsorship program for the *Aileu Area Development Project*. The project comprises activities in the areas of health, education, income generation, gender and capacity building. It is a long-term 17 year project, scheduled to operate from 1995 to 2002, and is expected to disburse approximately $2.3 million, or $137,000 annually.

10.8.9 Other activities

This sector includes a wide variety of activities that are diverse in scope and level of funding. Many funds provided for activities in this sector originate from programs dedicated to small community development projects, such as maintained by AusAID, CIDA and NZODA. Two main kinds of activities predominate: 1) gender and development, and 2) income generation. The East Timorese women's forum, Fokupers, working with international partner CAA, provides assistance to women political prisoners, wives of political prisoners and women survivors of torture and trauma. Funds from AusAID, NZODA, Oxfam NZ, and CAA have been directed to these activities. World Vision's multisector *Aileu Area Development Project* also provides funding for gender and development activities. Funding for women in development activities has also been provided by Misereor, which has contributed approximately $450,000 since 1975.

Many small business and income generation projects have been funded by CIDA, NZODA, USAID and Fastenopfer. Funds are typically channeled through organizations such as Timor Aid and Opportunity International (Australia) to their East Timor partner organizations, or are provided directly through embassy-based community development funding mechanisms. East Timorese organizations that implement such activities include the Salesian Brothers (Baucau) and the Bobonaro Catholic Parish, or local NGOs such as ETADEP (Dili), Sadep Foundation (Suai), Yayasan Bina Sejahtera Lestari (Ermera, Lospalos), and Yayasan Bina Swadaya. The latter organization – whose board of directors comprises leading East Timorese entrepreneurs - has received funds from USAID for loans to micro-entrepreneurs and to provide practical business skill training for individual borrowers and organizations.

Other notable activities are ETRA's support for families of political prisoners and 'street

kids' in Dili, and TAF's support in 1998 for Indonesia's first ever forensics training program, which brought together participants from government, police, and human rights organizations, including representatives from Yayasan HAK in East Timor.

In addition, Misereor provided $100,000 in 1998 to Caritas East Timor to help establish East Timor's first Tetum language station, Radio Timor Kmanek. USAID is now considering a three year grant to this radio station, which is owned by the Diocese of Dili.

Missio (Germany) uses private donations and church taxes to assist the development of the local church, particularly recruitment and training of personnel. Since 1991 Missio has funded 75 projects, with annual expenditures of approximately $250,000 per year.

10.9 Conclusion

While politics always plays a role in the direction and type of development assistance, East Timor has been especially affected. Politics has shaped its developmental attributes (such as reduced food production, the incidence of trauma, the dearth of East Timorese involved in development policies and processes), the extent of development agencies' presence (such as the 'closed' phase, restrictions on certain NGOs, and increased interest following Bishop Belo and José Ramos-Horta's Nobel peace prize) and the type and scope of programs (such as concerns regarding governance, and interest in producing Tetum language education materials).

Funding and projects have historically been concentrated in Agriculture/Rural Development and Water Supply/Sanitation, although Education/Training and Health have also consistently received funding. Since the 1998 drought, humanitarian relief funding has also increased. Nevertheless, ODA per capita remains very low, even if compared with small, poor, and largely agricultural countries with few natural resources.

Recent emergencies such as the drought and violence associated with the 1999 referendum, have seen agencies present in East Timor further expanding their activities. The arrival of new agencies and plans by yet other organizations to establish programs is a positive development. The increase in the number of agencies interested in East Timor has been matched by an increase in the commitment or allocation of funds by donors. Unfortunately, these increases have yet to be complemented by an expansion in indigenous East Timorese capacity to participate in development processes or implement activities. There is, however, a small and competent core of local NGOs, and there are continuing efforts and plans by some aid agencies to help develop local human resources.

Table 10.2.1a[a]: Sources of Funding, 1989-1999[b] (in thousands of nominal United States dollars). Organizations with complete data.

Funding Agency	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999[c]
Governments											
AusAID	317	352	584	1654	2550	3110	3151	3327	3535	3776	4493
CIDA	300[c]	300[c]	300[c]	414	388	503	501	500	762	724	706
DFID	0	0	0	0	0	0	0	0	0	371	166
NORAD	0	0	0	0	0	0	7	146	442	622	938
NZODA	143	100	97	40	92	104	230	224	297	270	151
Portugal, Government of	0	0	0	0	0	0	0	0	0	0	0
SIDA	0	0	0	0	0	0	0	122	122	122	122
USAID	319	319	2750	3000	3000	3250	3250	3250	3500	4000	4000
Subtotal	1079	1071	3731	5108	6030	6967	7139	7569	8658	9885	10576
Non-Government Organizations											
CAFOD, UK	24	13	131	137	72	97	141	108	130	135	322
Caritas Australia	0	0	0	0	0	0	0	0	87	105	216
Caritas Norway	0	0	0	0	0	0	0	7	23	33	49
Caritas Sweden	0	0	0	0	0	0	0	6	6	23	23
Christian Children's Fund	0	0	720	720	720	720	720	644	649	753	720
World Vision Canada	0	0	0	0	0	0	93	93	93	93	93
Misereor	6	346	143	112	84	0	105	479	326	117	0
Missio (German Catholic Church)	0	0	241	256	242	246	279	266	231	227	222
Timor Aid	0	0	0	0	0	0	0	0	0	0	20
Trocaire (Irish Catholic Aid)	0	0	0	0	0	0	0	0	0	0	20
Subtotal	30	359	1235	1225	1118	1063	1338	1603	1545	1486	1685
Corporate											
BHP Petroleum, Australia	0	0	0	0	0	0	0	0	0	65	0
Statoil, Norway	0	0	0	0	0	0	0	0	0	0	14
Subtotal	0	0	0	0	0	0	0	0	0	65	14
Total	1109	1430	4966	6333	7148	8030	8477	9172	10203	11436	12275

Table 10.2.1b: Other[d] Sources of Funding, 1989-1999[b] (in thousands of nominal United States dollars). Organisations with incomplete data.

Funding Agency	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999[c]
European Union	0	100	600	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	316	316
Fastenopfer (Swiss Catholic Aid)	0	0	0	0	0	0	0	0	0	n.a.	30
MMIETS	0	0	0	0	0	0	0	0	n.a.	n.a.	n.a.
East Timor Relief Association	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Other[e]	0	0	0	0	0	0	3	3	0	0	8
Total	0	100	600	0	0	0	3	3	0	316	354

Table 10.2.1c: Combined total for Sources of Funding, 1989-1999 (in thousands of nominal United States dollars)

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999[c]
Sources of Funding (Table 10.2.1a)	1109	1430	4966	6333	7148	8030	8477	9172	10203	11436	12275
Other Sources of Funding (Table 10.2.1b)	0	100	600	0	0	0	3	3	0	316	354
Combined Total	1109	1530	5566	6333	7148	8030	8480	9175	10203	11752	12629

Additional Notes to tables 10.2.1:

a Given that it is not always clear what programs or organizations are funded by which donors, a better indication of both total amounts disbursed and potential capacity to implement projects is Table 8.4.2: Implementing Organizations and their Expenditure.

b Each line is for a single source of funding (there is no double counting). For example, AusAID funds to CCF are recorded on the AusAID line only. For projects that were funded from two sources, the funding was divided and recorded according to source.

c Estimate.

d These sources were unable to provide data that could be included in this report. Figures that are reported were obtained from another organization.

e Typically includes once-off donations by a small organization.

Table 10.2.2a: Implementing Agencies and Their Expenditure 1989-1999 (in thousands of nominal United States dollars). Organisations with complete data.

Implementing Agency	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999[a]
AusAID (Bilateral Projects[a])	40	40	40	1330	2348	2483	2509	2617	2516	3980	2893
CAFOD	24	13	131	137	72	97	141	108	130	223	322
CARE	0	0	0	0	0	267	267	267	267	1193	1033
Caritas Australia	0	0	0	0	0	0	0	0	87	105	334
Caritas Norway	0	0	0	0	0	0	0	175	315	757	1040
Caritas Sweden	0	0	0	0	0	0	0	138	138	461	391
CCF International	0	0	720	720	720	720	720	761	761	1182	860
CIDA (Embassy small grants)	300[b]	300[b]	300[b]	414	388	366	364	367	325	287	269
Misereor	6	346	143	112	84	0	105	479	326	118	0
Missio	0	0	241	256	242	246	279	266	231	227	222
National Coop. Business Assoc.	0	0	0	0	0	1360	1360	1360	1360	1960	2710
Norwegian Church Aid	0	0	0	0	0	0	8	8	0	0	0
NZODA (Embassy small grants)	45	45	43	40	45	81	125	87	111	179	298
The Asia Foundation	0	0	0	0	0	0	0	0	80	75	70
Timor Aid	0	0	0	0	0	0	0	0	0	0	500
World Vision Canada	0	0	0	0	0	0	93	93	93	93	93
Worldview Rights	0	0	0	0	0	0	0	0	0	0	14
Total	415	744	1618	3009	3899	5620	5971	6726	6740	10840	11049

Table 10.2.2b: Other[c] Implementing Agencies and their Expenditure 1989-1999 (in thousands of nominal United States dollars) Organizations with incomplete data.

Implementing Agency	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999[a]
APHEDA	0	0	0	0	0	0	0	0	0	n.a.	n.a.
AFAP	0	0	0	0	0	0	0	0	0	3	n.a.
East Timor Relief Association	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
ICRC	249	228	227	200	200	200	200	200	1500	1192	n.a.
MMIETS	0	0	0	0	0	0	0	n.a.	n.a.	25	96
Nusa Tenggara Association	0	0	0	0	0	0	0	0	0	n.a.	n.a.
Salesian Missions (US-based)	319	319	319	319	319	319	319	319	319	319	319
Opportunity International Australia	0	0	0	0	0	0	0	0	0	n.a.	n.a.
UNICEF	49	28	27	n.a.	n.a.	n.a.	n.a.	n.a.	219	n.a.	700
Total	617	575	573	519	519	519	519	519	2038	1536	1115

Table 10.2.2c: Combined total for Implementing Agencies and their Expenditure 1989-1999 (in thousands of nominal United States dollars)

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999[a]
Implementing Agencies (Table 10.2.2a)	415	744	1618	3009	3899	5620	5971	6726	6740	10840	11049
Other Implementing Agencies (Table 10.2.2b)	617	575	573	519	519	519	519	519	2038	1536	1115
Combined Total	1032	1319	2191	3528	4418	6139	6490	7245	8778	12376	12164

Additional Notes to tables 10.2.2:

a Bilateral projects are those implemented directly by AusAID through a managing contractor. AusAID also funds activities via NGOs and multilateral institutions; these latter funds are included under the implementing organization.

b Estimate.

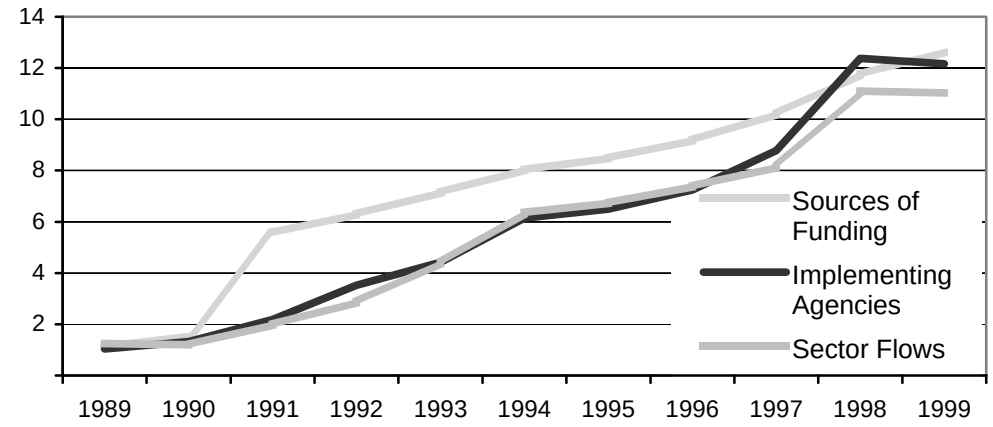
c These implementing agencies were unable to provide data that could be included in this report. Figures that are reported were obtained from another organization.

Table: 10.2.3: Estimated Distribution of Expenditure by sector, 1989-1999[a] (in thousands of nominal United States dollars)

Sector	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Education and Training	407	407	479	484	484	640	840	1178	1178	1934	1919
Health	27	27	27	27	27	27	27	273	127	1269	1366
Water and Sanitation	42	42	42	362	1821	1956	1982	2090	2239	1989	887
Agriculture and Rural Devt	46	46	46	570	570	1930	1930	1987	2040	2179	3346
Governance and Law	0	0	0	0	0	0	0	0	340	100	108
Capacity Building	0	0	0	0	60	367	367	267	277	267	235
Humanitarian Relief	317	274	272	219	219	219	219	219	219	1955	1850
Multisector	0	0	720	720	720	720	857	857	857	857	857
Other	407	407	405	478	500	500	513	513	847	558	462
Total	1246	1203	1991	2860	4401	6359	6735	7384	8124	11108	11030

Additional notes to Table 10.2.3*: Given that it is not always clear what programs or organizations are funded by which donors, a better indication of both total amounts disbursed and potential capacity to implement projects are tables 10.2.2.*

Figure.10.3: Chart of different totals (in millions of nominal US Dollars)



Additional Note to Figure 10.3*: Discrepancies between the three totals are due to donors having more accurate data for how much funding they have provided, compared to figures on expenditure provided by implementing agencies. Discrepancies between Sources of Funding and Distributions by Sector are due to donor funds not being recorded for a specific program or project (and thus sector). These 'unmarked' funds are difficult to trace. For example, USAID claims that it has provided $26 million (1991-1998), but data for projects (information also provided by USAID) provides a lesser total. Without good data from each implementing organization on what activities the funding was directed to, it is impossible to obtain similar totals for either implementation or distribution by sector.*

Notes To All Tables:

Figures for 1999 in some cases represent expenditure to date (that is, May 1999), and thus substantially under-represent probable expenditures. In cases where the figure is larger than 1998 this probably indicates forecast expenditure, rather than expenditure to date as all programs are increasing in size.

Figures have been collected from donor and NGO documents.

All figures exclude funds provided for the referendum activities during 1999.

All figures are converted to US dollars using exchange rates in the *International Financial Statistics Yearbook,* International Monetary Fund. Declining exchange rates (such as for Australia, Canada and New Zealand in the early 1990s) results in expenditure appearing to decline, even though the amount in the local currency may remain constant or even increase.

For projects where a yearly breakdown is unavailable, project totals were divided by the life of the project to obtain an approximate yearly average.

Technical Appendix: Data and Data Quality

When we set out to write on social and economic conditions in East Timor our initial concern was that there would be no data to work on. That turned out to be unfounded. As the bibliography shows, there is a large body of documentation about East Timor. In compiling the descriptions used in this report we have used data from many sources. The sources may be divided into five main groups:

1. Statistical and qualitative descriptive data produced by the governing bodies of East Timor (both Portuguese and Indonesian).
2. Data files from the 1990 census and various social surveys carried out in East Timor. These have been provided to us by the Central Statistical Office of Indonesia. The surveys include the 1995 Intercensal survey (SUPAS 95) and the 1997 and 1998 data sets from the yearly SUSENAS surveys.
3. Works by scholars on East Timor.
4. Field mission or background reports from various government and non government organizations
5. Documents produced by East Timorese, Indonesian or international sources that aim to convey a particular view on the conflict.

While surprisingly large amounts of data exist, there are serious questions concerning the reliability of data on the conditions in East Timor. This has several reasons. One is that the security situation has made data collection difficult or impossible. This was especially true during the immediate post-invasion period until around 1990, but is also true after 1990.

An equally important reason for lack of reliability is that the regional government of East Timor has had weak capacity to collect and analyze data properly. This is a well-known phenomenon in the Third World that is not unique to East Timor. When an area is underdeveloped, it also affects the agencies that are responsible for collecting data, as well as the analysts trying to make sense of them.

Another reason for lack of reliability (or rather validity) is that the situation in East Timor is extremely dynamic and volatile. Thus, what was reliable data may still be reliable, but they may not be descriptive anymore of the current situation. Perhaps the most tragic instance of this is the population figures and some of the information as regards infrastructure, which may be totally out of date because of the violence following the consultation.

Reliability of data has also suffered because the various parties producing information about East Timor have had their own political agendas or aims in presenting data. This may be rather innocuous, such as the regional government's presentation of economic possibilities in East Timor. These documents present East Timor as the land of opportunity, with the purpose of attracting investors. They resemble similar documents from other parts of the world, and are basically advertisements. As such they are not more or less misleading than other such documents. But the data can also be more misleading. For example international agencies tend to present the infant and child mortality estimates that indicate extreme mortality, while Indonesian sources prefer a selection of estimates that relay a better impression. Both sources cannot be right, and since the difference in estimates is as large as 60-70 deaths per 1,000 children born, the biases are quite significant.

An issue that is related to both the question of security, political aims of the various parties and the weak capacity is that of outright fraud. This unfortunately has to be considered. Under authoritarian rule it is quite common that the integrity of data suffers. First, authorities may have particular aims in presenting particular data and they may change figures to accommodate those needs. Second, those in charge of production of data quickly learn that only data that supports the dominant view will be acceptable and safe to

present. Therefore they tend to put little priority on quality checks on raw data since it really does not matter if good or bad data gets changed in the end. Changed they are in any case. This will affect the overall system of data collection. It is important to note that the culture of inaccuracy that develops affects all data and not only those that the authorities consider sensitive.

Fraudulent data, or data that are believed to be fraudulent, also stimulate a reaction among those that oppose the authorities in that they feel free to construct their own estimates, which they believe more truthfully represent the situation. The result is a rather confused cauldron of fraudulent, real and imagined data that are rather difficult to make sense of.

In a politically charged situation such as that of East Timor, it may seem that the task of sifting the imagined from the real is an impossible task. Nevertheless, when confronting the data, it is clear that the quality and usefulness varies between sectors.

In evaluating the available data we have used different strategies. First, we have asked ourselves if the data make sense at all. For instance, some NGO sources report a maternal mortality ratio of 250 per 1,000 births. Such a maternal mortality ratio would effectively wipe out the female population and fortunately cannot be true. This is a case where the author has believed the situation to be bad, and has not questioned the lack of three zeros on the number of births. Similarly, some of the figures for coffee production contain a hodge-podge of kilos and tons that probably should have been noted by the recorder of the figures. Another example is the WHO report that 10 percent of the women between 15-49 in East Timor die of tuberculosis. On the surface this may seem a plausible figure, but its meaning is far from obvious. It may mean that 10 percent of the women who reach 15 die of tuberculosis before they reach 49. This is possible, but we doubt if anybody, given the general state of demographic and health data of East Timor, has the data that can support the contention. The figure cannot mean that 10 percent of the female population in the age group dies yearly, since then there would be few women left after a very short time. Finally, the figure may be taken as indicating that of the women that die in the age group, 10 percent die of tuberculosis. Again this is a plausible figure, but again it lacks a plausible base.

Second, the example of the tuberculosis deaths also indicates another strategy for evaluating data, namely the system of production implied in the presentation of the information. From the overall evaluation of the data and their sources, we have a fairly clear view of how data are produced in East Timor, and the limited capacity of that system. Very few systems of primary health care that are not able to carry out the main task – that of providing health care – satisfactorily are able to produce good data. Thus we cannot see how the health care system could generate data that would indicate a precise figure for the number of women in East Timor that dies from a given disease.

Third, we have asked if the data sources are consistent. Sometimes they are not. For example, the age distributions of the population that were recorded in the 1995 SUPAS survey and the 1997 SUSENAS survey cannot both be true. The little data that there are on availability of pharmaceutical supplies are wildly inconsistent, and since all stem from the same type of source (mission reports), they either represent a very dynamic situation as regards pharmaceutical supplies or simply that some of the reports are wrong.

Fourth, we have asked if the data depict an empirical pattern that is what one would expect in a situation such as East Timor. An example is the data on causes of death, where non-infectious diseases hardly appears. While it is true that infectious diseases are the main killers in developing countries, significant mortality from non-infectious causes should also be expected, and their near absence is not plausible.

Finally, we have asked if the trends indicated by the data are plausible. For instance, the development of the age distribution of the

population for 1990, 1995, 1997 and 1998 does not seem credible, since it would imply a huge sudden death of children between 1995 and 1997 that is not mentioned in any source.

Whatever the form of presentation in the range from government reports to mission reports, nearly all the data ultimately are from one of 3 sources:

1. Administrative records and service statistics of government agencies or other service providers.
2. Surveys and censuses carried by the government.
3. More or less systematic data collected by missions.

We have dealt with particular problems relating to the data we use in each chapter of the report, here we will only discuss some of the general features.

Service statistics

Service statistics are statistics that are collected by agencies in the process of delivering services. In East Timor many, if not all, of the government service providers produce statistics of their own performance.

A health center may record data on each patient, such as the reason for contact, diagnosis and treatment. It may then relay data to a central agency that compiles the data from the various health centers. As a source of information about the state of health of the population such records have obvious limitations. The first and most obvious one is that only a selection of the patients with illnesses go to an health center. Second, only some of the health centers actually collect and pass on data. In the case of East Timor, only government health centers provide data, so patients that seek NGO or private sources of treatment are not recorded. Also there seems to have been no recording at the village level. Third, some patients do not seek help for lack of money or for lack of trust in the services.

The records are still useful, however, in that they provide information about the types and patterns of disease that the health centers have to cope with. They can in theory be used to assess costs. Costs for public health are determined by the actual use pattern of services and only indirectly by the prevalence of disease in the population. However, we have not found information on the running costs of health centers or other public services in East Timor.

The service statistics can often be checked for consistency by using other sources, such as census data and survey data. In East Timor such comparisons often reveal inconsistencies. For example the use of family planning as reported by the family planning services is nearly twice as high as the prevalence recorded in the SUSENAS surveys.

Our general assessment of the service data is that they are quite poor, but not very much more so than in other situations with a poorly performing administration.

The census and the surveys

Far from being an area where there have been few surveys carried out, East Timor has seen many social surveys. Indonesia has an impressive program of household surveys and most cover East Timor. Much of the data in this report is directly or indirectly derived from those surveys.

Therefore, it is useful to consider those sources in some detail. From the Central Bureau of Statistics in Indonesia we have received micro data files from the 1990 Census, the 1995 SUPAS and the 1997 and 1998 SUSENAS surveys. The SUSENAS surveys are designed as a core with add on survey modules. In the case of the 1998 SUSENAS we have also acquired the education and health add-on-modules. We also asked for, but did not acquire the agricultural survey, since the Central Bureau of Statistics indicated that the data were unreliable for East Timor. The published data from that survey for East Timor suggest that this is indeed the case.

It is unusual to have that much recent survey data available for a study in the third world. Statistics Indonesia is therefore to be

commended for their efforts in making data available to researchers.

The survey data are all anonymized household and individual level files. A statistical agency needs to anonymize the data records before distribution in order to secure that individuals and households surveyed cannot be identified. Nevertheless, the drawback is that we cannot track the sample construction, and it is therefore impossible to calculate variances (and statistical uncertainty) properly.

The 1990 census is the only census micro data we have used. While the 1980 census is theoretically available, we have not gained access to it. The 1980 census is extremely controversial because it apparently shows a very small population and presumably a very distorted age distribution due to the war.

The 1990 census data files contain a 10 percent sample of the census records. See Table 1 for an overview of the sample sizes of the surveys. It is a standard third world country census and focuses on housing, basic demographic data, fertility and mortality and employment.

The SUPAS survey is a demographic survey that focuses on fertility and mortality. The SUSENAS (*Survei Social Ekononi Nasional,* i.e. National Social and Economic Survey*)* is carried out yearly all over Indonesia and covers a wide range of topics: basic living conditions for households, education, labor force and employment, poverty, education and health.

Since the Indonesian government has been accused of falsifying data on East Timor in order to present a better picture than the real one, it is necessary to consider the authenticity of the data in some detail.

There are several ways in which data may be falsified. Sometimes governments just alter published data, but leave the original data files intact. This of course is a procedure that might backfire badly if the original data files are released, so it is not particularly surprising that the published data (for instance in the various survey reports and the different volumes of East Timor in Figures) match the data files. For complex estimates, where methodological choices have to be made, the published estimates sometimes differ from what we have arrived at using the same data. For instance, the age group of children used is quite important when it comes to reporting vaccination coverage, and the age groups we would prefer is different from that used in the published reports. This, of course, merely reflects differences in approach and does not relate to the quality of the data.

Table 1: Sample sizes in East Timor for the Census and Surveys used in the report

	House-holds	Individuals
Census 1990	10,607	53,512
SUPAS 1995	5,663	28,061
SUSENAS 1997	5,664	27,126
SUSENAS 1998 Core	5,664	27,349
SUSENAS 1998 Health	896	4,243
SUSENAS 1998 Education	892	4,229

A micro data file from a survey may be tampered with in many ways. Some of those are easy to detect, and some are not. For instance, a way that is both easy to carry out and detect is to change estimation weights[68] so that better off households count more than those that are worse off, effectively creating an impression of better conditions. Since the weights then become correlated with the response variables, it is easy to detect. There is no evidence of it having been carried out here in the East Timor data sets.

There is, in general, no overt evidence that the files have been changed. The most telling evidence that the files have *not* been changed, is that in the data files there is evidence of a system of service provision to the population that functions much worse than what is presented in other statistics derived from other government sources. Again, an example

[68] In a survey a person "stands for" or is "representative for" a part of the population. Depending on the sampling scheme this part may be equal to for all, or vary. The weights used are numbers that indicate how many persons a given person stands for.

is provided by the vaccination statistics. The health service statistics suggest an impressive coverage, the SUSENAS a poor one. Similarly, while the age distribution of the SUSENAS 1997 and 1998 surveys are likely wrong, it is wrong in the direction opposite to the one we would present if we wanted to paint a rosy picture. For instance, the surveys show that the population in areas dominated by "guided villages" suffers, and that conditions for native East Timorese are much worse than for those that have their origin in other parts of the archipelago.

Another indication for the authenticity of the data files is that the data files exhibit flaws that in some cases are particular to the East Timor section of the data. For example, diarrheal diseases among children in East Timor show no correlation with income, a highly unlikely occurrence. In contrast, the correlation exists in West Timor, suggesting that the East Timor data are simply bad.

Thus, the indication is that the survey data are probably authentic, but also that they are far from unproblematic. Some key problems should be mentioned. First, the data have been heavily edited. Most survey data will have omissions, errors and inconsistencies. Some households will not have been interviewed, and some probably did not respond to all questions. Some of the answers are inconsistent or improbable (for instance a 15 year old girl with 5 children). While in most surveys every effort is made to reduce the number of errors, it is not possible to be perfect. Therefore the survey statistician must either assign missing to some data values, or impute them. Except in the case of ages the general strategy in the Indonesian surveys appears to have been to impute values before presenting the data to users. While this is a legitimate and useful practice, it has the side effect of masking any field work problems that may have occurred. We have no indication of non-response patterns. In particular it is not clear if some parts of the sample or sections of the questionnaire have more non-response than other parts.

Second, we do not really know much about the details of the sample. The general outline of the sampling scheme for the various surveys is quite clear, and the same approach has been generally used. The samples are standard multi stage samples. What is not clear is the exact procedures followed, how estimation weights were derived, how large sampling clusters were or what the stratification was. We also do not know if any part of East Timor was excluded from the sample frame.

Third, some sections of the questionnaires have better data than others. As mentioned part of the health data appears poor and of little use. On the other hand, data on malnutrition looks quite reasonable, with few of the errors that one often finds in such surveys.

In summary, it seems that the data files are authentic, but we cannot assess if all parts of East Timor have been covered. Parts of the data are of poor quality, while other sections appear better (see each chapter for an assessment).

Mission reports from NGOs and aid administrators

Mission reports that are written in conjunction with field trips or assessment missions are a particular form of rhetoric that may be as biased as any other source. Characteristic of such reports is that they have been written quickly with little time to control or assess the sources of information. They therefore often contain many errors, many of which would be obvious to the authors if they had time for reflection. For this reason they have seldom been useful for our work in terms of obtaining reliable data, but are often useful in that they present overviews of the situation based on experience from similar situations.

What should be done to provide better data for policy in East Timor?

This report makes clear that while there is much more information available on East Timor than one would perhaps expect, there are also several gaps. Moreover, the recent upheavals have made much of the available

data outdated. This pertains, sadly, especially to population figures (particularly to those that describe district distribution) and infrastructure.

There is therefore a need for a considerable effort in data collection in order to put policy planning for East Timor on a firmer footing. Such an effort should have two aims. The first should be to acquire the needed information, the second should be to establish a sustainable system for data collection and analysis in East Timor.

Data gathering could take place in several phases. The first phase in the immediate future, data are needed for immediate humanitarian assistance. We will not deal with that here. The second phase is the transition phase, when East Timor, hopefully, is settling down to a stable society. The main characteristic of this phase is that the situation will still be fluid, resettlement will go on and data will soon be outdated. In this phase the task will be to collect data that are urgently needed for policy planning and to begin building data collection structures for the future. The third is the initial development phase where the socio-economic situation has stabilized somewhat. In such a situation it is possible to consider data gathering initiatives that require more effort than in the transition phase, because while the cost of data gathering may be large, the data will be useful for a longer time than during the transition phase.

In the transition phase we believe that the following main initiatives should be taken:

1. A census of remaining infrastructure and personnel in public administration and service sectors to get an overview of physical and human resources available.
2. A household survey that would focus on demography, health and nutrition, income sources and access to infrastructure. The survey should have a sample size that would enable reporting on the (current) district level.
3. Establishment of a new or transformation of the existing statistical agency to serve as one central data gathering and dissemination institution. This will include training of personnel.
4. Beginning preparation for a census. The census itself should be postponed till the situation is more stable so as to ensure that the data can be used for planning for some time afterwards. However, since the preparation for a census will take 2-3 years (depending on how much work has been done and remains for the Indonesian 2000 census) preparations should start soon.
5. Establish a few “sentinel sites” that can be used to track developments in health and living conditions of the population. Such sites would be used to collect data regularly with fairly small panel samples so that developments in conditions can be tracked.
6. Establish procedures and guidelines for the different service providers and government agencies so that routine service statistics can be produced.
7. Develop procedures whereby the data producing agencies can disseminate data to policy planners as well as provide feed back to service providers.

In the development phase the following initiatives should be taken:

1. Carry out a census. The census should be a simple one that should focus on a short list of population and housing issues. This will ensure that it is possible to collect data with sufficient quality to be disseminated soon after collection. More detailed information should be collected by means of surveys that can be carried out once the census has established a good updated sampling frame.
2. An integrated survey that focuses on household income, expenditure, agriculture and other means of livelihood. Such a survey will provide basic inputs to national accounts, be the basis for constructing weights for price indices and

serve as a general planning tool for social and economic policies.

3. A price survey should be established in order to keep track of living costs.
4. A census of commercial establishments that provides an overview of the economic activities that are not based on households.

Project Participants

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Part II:
Additional Materials and Bibliography

1. Natural resources

Table 1.1: Strict Nature Reserves

	Sites	Area (Ha)	G/P	Elevation	Decrees	Source	Description And Threats
West Timor	Maubesi Swamp	3246 1830	G	sea level	SK.MENTAN, No.394/Kpts/Um/5/81	1,4	The least disturbed mangrove swamp in West Timor. Features: mud volcanoes and potential habitat for crocodiles. Threat: Dam project (on Benain River) could change water flow; increasing human pressure for firewood.
	Gunung Mutis	12000	G	1200-2427 m	SK.MENHUT, No.89/Kpts-ll/1983	1,5	Since 1993, this area has been the focus of a WWF, Indonesia Programme study. The forest is almost dominated by pure stands of Eucalyptus urophylla, except in the footlhills and abandoned gardens which are dominated by Casuarina spp. (Casu.). Contrary to MacKinnon et al.'s report (1982), there was no sign of the forest being protected. Rather, there is evidence of tree cutting, agriculture encroachment, and graffiti inside the reserve. There is also a large population of horses and cattle, owned by local people, which wander freely within the reserve, and signs of burning for pasture (Y. de Fretes pers. obs. 1992). It should not be given first priority for conservation, but should be managed as a protection forest. Features: pure stands of Eucalyptus urophylla (Myrt.) and an important water catchment area for vast agricultural land around Kefa village. (References available from WWF programme.) Threats: Animal husbandry (within the reserve), wildfire, agriculture expansion and poorly managed tourism. Soil compacting and soil erosion are other problems caused by animals and fires.
		40000	P			4	
East Timor	Tilomar Reserve	12800	G	0-1000 m	SK.GubTim Tim, No.SKG 1062, Tahun 1990	1	Open deciduous forests from lowlands to hills, originally established by the former Portuguese governor to control the cutting of sandalwood. Features: last significant stands of wild sandalwood Santalum album (Sant.). The reserve also contains deer and macaques, and crocodiles in the Tafora River. Threats: Cutting of native trees, introduction of exotic teak, hunting, fires and exotic animals, and lack of update information (which is essential for protection
	Danau Ira Lalora (Pulau Yaco)	25000	G	0-1000m	SK.GubTim Tim, No.SKG 1062, Tahun 1990	1	A wild area of moist deciduous lowland forest with some mixed evergreen forest on the hils. The area contains the interesting lake and swamps of Ira Lalora and the offshore island of Yaco. Pigs cross between the island and mainland and are the main prey of resident breeding crocodiles. The reserve contains a wealth of other wildlife including island endemics. Features: Excellent range of Timor's endemic fauna and flora, and population of crocodiles. Threats: Hunting and cutting of wood.
	Gunung Diatuto	15000	G	600-1792 m	SK.GubTim Tim, No.SKG 1062, Tahun 1990	1	Steep mountains and hills covered in rather stunted ultrabasic forest, disturbed in lower parts but quite well formed on summits. Features: rare ultrabasic habitat types and associated flora. Threats: Cutting and burning of lowland forests.

Table 1.2: Wildlife Sanctuaries

	Sites	Area (Ha)	G/P	Elevation	Decrees	Source	Description And Threats
West Timor	Hutan Musi	250	P	n.a.		5	No information
	Torong Padang	15000	P	n.a.		6	No information
	Teluk Kupang	50000	P	sea level		2	(May have been proposed as a strict nature reserve.) Listed by BKSDA VII (1992), without biophysical descriptions. Features: potential for marine tourism and coral reefs. Threats: Pollution, badly managed development.
	Gunung Katere	3299	G	300-500 m	SK.MENTAN, No.749/Kpts/Um/12/77, No.394/Kpts/Um/5/81	1	A mixed deciduous seasonal dry forest type on poor soils; little sign of disturbance, but species composition probably altered by constant cutting. Features: important water catchment area above Besikama Plain, includes Maubesi Swamp Strict Nature Reserve. Threats: No information
	Tanjung Oisina mangrove swamp	500	P	sea level		1	Relatively undistubed mangrove swamp. Threats: Firewood collection and charcoal making
	Pahatu Mangrove Swamp, or Baku Perhatu (Semau)	1000	P	sea level		1	Description: No information Threats: Firewood collection and charcoal making.
	Pulau Dana (Ndana)	1000	G	sea level	SK.MENHUT, No.83/Kpts-ll/1993	1	Description: No information Threats: Poaching and tree felling.
	Landu Mangrove Swamp (Roti)	1000	P	sea level		1	Description: No information Threats: Firewood collection, charcoal making and poaching.
	Gunung Timau	15000	P	500-1774m		1	Description: No information Threats: Fires, encroachment, and hunting.
East Timor	Gunung Tatamailau	20000	G	600-2972 m	SK.GubTim Tim, No.SKG 1062, Tahun 1990	1	The highest mountain in Timor with extensive forest cover. Features: good representation of montane Timor fauna, including several endemic species. Threats: Few, but no information for several years.
	Sungai Clere	30000	G	0-100m	SK.GubTim Tim, No.SKG 1062, Tahun 1990	1	This is one of the last forested lowland coastal areas left on Timor and includes lowland alluvial forest and savannah. Features: rare habitat types, area rich in wildlife, including crocodiles, deer, cuscus and many birds. Threats: Rural encroachment, fires, tree felling and hunting.
	Lore Reserve	11000	G	0-500 m	SK.GubTim Tim, No.SKG 1062,Tahun 1990	1	Rugged, hilly forest, one of the last surviving areas of mixed closed canopy forest containing some sandalwood, introduced teak Toona surenii (Meli.), and other important timber species. Features: said to be rich in wildlife, including Timor endemics. Threats: Human settlements, hunting and trapping of wildlife, and cutting timber.

Table 1.3: Hunting Parks

	Sites	Area (Ha)	G/P	Elevation	Decrees	Source	Description And Threats
West Timor	Dataran Bena	11000	*G*	sea level	SK.MENTAN, No.05/Kpts/Um/1/1978	1	A flat grassy plain on West Timor. About 5000 ha of the park is treeless, wet and grassy, another 5000 ha is slightly better drained and being invaded by trees. The remaining 1000 ha. is beach with Pandanus sp. (Pand.) and Spinifex grass (Gram.), mangrove and brackish/ freshwater pond. Features: high density of deer population and nesting beach for turtles. Threats: No information
		11370	*G*			3	

Table 1.4: Recreation Parks

	Sites	Area (Ha)	G/P	Elevation	Decrees	Source	Description And Threats
West Timor	Dataran Bena	11000	G	sea level	SK.MENTAN No.05/Kpts/Um/1 /1978	1	No information
East Timor	Kambing	4000	P			10	Local army group interested in setting up this site. Threats: No information
	Gunung Fatumasin	4000	G	800-1359 m	SK.GubTim Tim, No.SKG 1062, Tahun 1990	1	A small, well-forested mountain. The forests are on non-calcareous rock and are thus richer than and somewhat distinct from most other forest on the island. For this reason, it should be gazetted as a wildlife sanctuary or strict nature reserve rather than protection forest, as has been proposed. Features: important water catchment area. Threats: Cutting of wood and hunting.

There is a significant lack of essential up-to-date information with regard to the reserves in this province [East Timor]. Apparently the governor of East Timor issued a decree in 1990 (SK. Gub. TimTim No. SKG 1026, Tahun 1990) to gazette all reserves in the province. Almost all the reserves in the East Timor Province are larger than those in West Timor, with the exception of Gunung Mutis and Gunung Timau Reserves that have rather homogeneous forest types In addition, the reserves in East Timor encompass a wider altitudinal range than those in West Timor. These findings suggest that the reserves are essential to ensure protection of a whole range of Timor habitats and their associated flora and fauna.

Details of the protected areas of Nusa Tenggara and Maluku. These data are summarised or quoted mainly from MacKinnon and Artha (1981) and MacKinnon et al. (1982). Additional information is extracted from Petocz (1989), SBKSDA NTT (1991), WCMC (1991), plus first-hand information gathering from short visits to some reserves. We are trying to incorporate the most recently available information possible, an enormous task to fulfil. This list excludes all recreational parks, unless it has the potential to be upgraded to either wildlife sanctuary or strict nature reserve. It is important to note that several government institutions, as do conservation organisations, give different reserve size, protection category and status. (See also Robinson and Supriadi 1981b; Robinson et al. 1981; Salm 1982; Smiet et al. 1981a,b.)

1) From Monk et al. 1997 The Ecology of Nusa Tenggara and Maluku, Annexes 11.1, 11.2, 11.3 Sources: 1 MacKinnon and Artha 1981, MacKinnon et al. 1982; 2 Salm and Halim 1984; 3 WCMC 1991; 4 KLH 1992; 5 BKSDA VII 1992; 6 BKSDA VII 1992-93; '10 Pers. comm. from regional offices of PHPA.

Table 1.5: Vegetation and degradation typology

Climax vegetation	Degradation stage
Heath forest	If clear-felled, not burned or cultivated, then it regenerates. If cleared for agriculture and then abandoned, resam *Gleichenia linearis* (Glei.[1]) usually colonises the area, or possibly alang-alang *Imperata cylindrica* (Gram.). If it is degraded, then grassland and heath develop, but it is difficult to predict types (with grass and sedge cover), possibly secondary xero-phylic forest.
Tropical lowland evergreen rain forest	If repeatedly burnt, then alang-alang grassland develops. If cut and left (shifting agriculture), then secondary forest develops. If cut and grazed, then savanna or grassland may develop.
Forest over ultrabasic rocks	Unknown
Forest over limestone rocks	If burnt, the ground may remain bare for many years before succession through bryophytes and ferns. Pockets with deeper soil that would support scrub.
Seasonal lower montane forest	If burnt, *Casuarina junghuhniana* (Casu.) forest or savanna develop.
Seasonal upper montane forest	If burnt lightly, much regeneration from stumps. If heavily burnt, grasses increase and savanna develops.
Tropical semi-evergreen rain forest	If repeatedly burnt, alang-alang grassland or savanna.
Monsoon forest: Tropical moist deciduous forest Tropical dry deciduous forest Tropical dry evergreen forest Tropical thorn forest	 If burnt, alang-alang grassland or savanna, with scrub. Dry deciduous scrub, savanna, or grassland. Scrub or grassland. Scrub or grassland.

1 All family names are given in parenthesis after the first mention of a species

Source Monk et al. 1997: Table 4.2 original from Whitmore 1984; van Steenis unpublished.

Table 1.6: Indonesian government classification of forests in East Timor mid 1980s

Forest types of East Timor	Area (km^2)
Tidal forest (mangrove, nypa, or other palm)	0
Coastal forest	11
Swamp forest[1]	57
Peat swamp	0
Heath-like[2]	161
Moist primary lowland forest (<1000m asl)[3]	3,301
Riparian forest	0
Lowland wetland forest	0
Moist submontane forest (1000-2000m asl)	98
Moist montane forest	0
Forest on ultrabasic rock	0
Forest on limestone rock	400
Mixed savanna	1,707
Total forest[2]	5,735
Total forest cover %	41%
Total closed forest[4]	4,017
Total closed forest %	29%
Total land area	14, 103

From Monk et al. 1997: Table 4.3. Originbal from RePPProT 1989a, 1989b, 1990a.

Notes: [1] Swamp forest may include logging forest identified by logging roads on air photographs. [2] RePPProT (1989b) give heath forest data in the land-system descriptions, but they were not included in forest totals in RePPProT 1989a. They are included in the final forest-cover figures here. [3] RePPProT (1989a, 1990a) originally distinguished dry deciduous forest and bamboo forest but only used this category for Irian Jaya. [4] Forest cover excluding coastal forest and mixed savanna, to give forest cover based on same criteria as Collins et al. (1991).

2. Population

2.1 Population Size and Geographic Distribution

Table 2.1: Total population and historical development

Year	Population	Source
1920	397,875	Ranck, Stephen: recent Urban rural Migration to Dili (see Sherlock, 1981)
1927	451,604	Soesastro 1989
1930	472,221	Ranck, Stephen: recent Urban rural Migration to Dili (see Sherlock, 1981)
1936	436,996	Soesastro 1989
1946	403,232	Ranck, Stephen: recent Urban rural Migration to Dili (see Sherlock, 1981)
1948	420,430	Soesastro 1989
1950	442,378	Ranck, Stephen: recent Urban rural Migration to Dili (see Sherlock, 1981)
1960	517,076	Ranck, Stephen: recent Urban rural Migration to Dili (see Sherlock, 1981)
1970	609,497	Ranck, Stephen: recent Urban rural Migration to Dili (see Sherlock, 1981)
1973	646,155	Ranck, Stephen: recent Urban rural Migration to Dili (see Sherlock, 1981)
dec1973	674,550	Teixeira, Manuel 548 (Sherlock 1981)
1973	626,546	Soesastro 1989
1974	668,771	Aditjondro 1994:39
1978	329,271	Aditjondro 1994:39
1980	555,350	Census 1980 (Soesastro 1989)
1990	747,557	Census 1990 (Calculated from micro data)
1995	839,719	SUPAS95
1995	842,696	BPS 1998
1996	857,028	BPS 1998
1997	881,600	BPS 1998

Table 2.2: Geographical distribution

Regency	Square km	1990 census population	1990 persons/ square km	1990% of total	1995 SUPAS (p:4)	1990-1995 growth
Covalima	1,226	45,310	34	6.1	57,204	1.263
Ainaro	799	43,375	54	5.8	42,800	0.987
Manufahi	1,325	34,275	25	4.6	37,048	1.081
Viqueque	1,781	57,279	32	7.7	58,548	1.022
Lautem	1,702	48,390	27	6.5	51,006	1.054
Baucau	1,494	86,675	57	11.6	93,753	1.082
Manatuto	1,705	31,805	18	4.3	34,251	1.077
Dili	372	123,305	271	16.5	157,460	1.277
Aileu	729	24,657	32	3.3	29,697	1.204
Liquica	548	44,245	74	5.9	50,716	1.146
Ermera	746	77,570	100	10.4	85,170	1.098
Bobonaro	1,368	81,692	57	10.9	88,576	1.084
Ambeno	815	48,979	58	6.6	53,490	1.092
Total	14,609	747,557	48	100	839,719	1.123

Table 2.3a: Population born in East Timor 1990 Census

	Rural			Urban		
District	Male	Female	Total	Male	Female	Total
Covalima	20 569	20 886	41 455			
Ainaro	21 528	21 549	43 077			
Manufahi	17 051	16 480	33 531			
Viqueque	27 588	28 635	56 223			
Lautem	16 279	16 928	33 207	6532	5977	12 509
Baucau	44 275	41 395	85 670			
Manatuto	15 285	15 390	30 675			
Dili	37 142	31 991	69 133	17028	14433	31 461
Aileu	12 098	11 082	23 180			
Liquica	20 890	19 703	40 593			
Ermera	38 189	36 632	74 821			
Bobonaro	38 818	39 067	77 885			
Ambeno	23 920	23 535	47 455			
Total	333 632	323 273	656 905	23 560	20 410	43 970

Table 2.3b: Population not born in East Timor 1990 Census

	Rural			Urban		
District	Male	Female	Total	Male	Female	Total
Covalima	2 423	1 432	3 855			
Ainaro	179	119	298			
Manufahi	686	58	744			
Viqueque	777	279	1 056			
Lautem	819	132	951	1102	621	1 723
Baucau	745	260	1 005			
Manatuto	963	167	1 130			
Dili	6 348	3 835	10 183	7417	5111	12 528
Aileu	1 008	469	1 477			
Liquica	2 273	1 379	3 652			
Ermera	1 756	993	2 749			
Bobonaro	2 184	1 623	3 807			
Ambeno	889	635	1 524			
Total	21 050	11 381	32 431	8 519	5 732	14 251

Table 2.3c: Total population in East Timor 1990 Census

	Rural			Urban		
District	Male	Female	Total	Male	Female	Total
Covalima	22 992	22 318	45 310			
Ainaro	21 707	21 668	43 375			
Manufahi	17 737	16 538	34 275			
Viqueque	28 365	28 914	57 279			
Lautem	17 098	17 060	34 158	7 634	6 598	14 232
Baucau	45 020	41 655	86 675			
Manatuto	16 248	15 557	31 805			
Dili	43 490	35 826	79 316	24 445	19 544	43 989
Aileu	13 106	11 551	24 657			
Liquica	23 163	21 082	44 245			
Ermera	39 945	37 625	77 570			
Bobonaro	41 002	40 690	81 692			
Ambeno	24 809	24 170	48 979			
Total	354 682	334 654	689 336	32 079	26 142	58 221

2.2 Population Structure

Table 2.4: Population structure according to 1990 census

	Total				Born outside East Timor	
	Male	Female	Total	Sex ratio (men/ women)	Male	Female
0-4	69010	65379	134389	1.06	738	737
5-9	55929	51244	107173	1.09	1536	1265
10-14	37535	31268	68803	1.20	1961	1450
15-19	39390	34041	73431	1.16	2816	1831
20-24	35354	34797	70151	1.02	5282	3761
25-29	34231	34373	68604	1.00	7104	4010
30-34	28549	27298	55847	1.05	5021	2079
35-39	22026	19971	41997	1.10	2114	725
40-44	16384	17540	33924	0.93	1328	511
45-49	15176	13909	29085	1.09	893	310
50-54	11799	10258	22057	1.15	431	149
55-59	7643	7377	15020	1.04	103	102
60-64	5953	6071	12024	0.98	72	56
65-69	3852	3309	7161	1.16	62	62
70-74	2040	2428	4468	0.84	15	31
75+	1890	1533	3423	1.23	93	34
Total	386761	360796	747557	1.07	29569	17113

Table 2.5: Population structure according to 1995 intercensal survey

Age group	Males	Female	Married Male	Married female
0-4	71080	68223	0	0
5-9	67174	64220	0	0
10-14	47516	46919	0	0
15-19	35037	30894	302	2982
20-24	31320	33607	5857	16901
25-29	38506	38689	22917	30917
30-34	30711	29937	26432	26884
35-39	28184	27539	26042	24188
40-44	20520	19272	19089	16296
45-49	18495	15868	16817	12987
50-54	12939	10800	11105	7360
55-59	10875	12441	9470	6615
60-64	7353	7285	5428	3017
65-69	4041	3855	2972	1134
70-74	1791	1847	1113	440
75-79	848	852	588	124
80-84	259	298	129	63
85-89	148	179	126	18
90+	82	115	18	0

Table 2.6: Population structure according to 1997 Susenas

Age group	Males	Female	Married Male	Married female
0-4	64167	59074	0	0
5-9	74797	68511	0	0
10-14	56308	47588	199	0
15-19	35500	30961	382	1786
20-24	30015	35434	6511	18527
25-29	37806	40871	22936	32813
30-34	33145	33044	27909	29375
35-39	31629	28827	29422	25867
40-44	22752	20186	21188	16761
45-49	19749	16556	18157	12769
50-54	13241	13476	11327	8623
55-59	10014	8887	8474	5144
60-64	7427	7119	5247	3156
65-69	3754	4364	2288	903
70-74	2396	1869	1650	489
75-79	1497	1163	1134	285
80-84	453	437	333	152
85-89	238	52	84	0
90-94	188	70	117	20
95+	0	20	0	0

Table 2.7: Population structure according to 1998 Susenas

Age group	Males	Female	Married Male	Married female	Ever married male
0-4	64010	60281	0	0	0
5-9	75873	68683	0	0	0
10-14	58412	53774	77	0	117
15-19	36105	32572	156	2186	156
20-24	27827	32083	4278	15632	4364
25-29	37813	43899	22398	35158	22573
30-34	32795	30210	27833	26566	28589
35-39	32674	30329	30070	27138	30690
40-44	23835	20009	21837	17282	23031
45-49	19566	17344	17266	13205	18718
50-54	14066	14292	12281	9690	13717
55-59	12447	11281	10432	5994	12259
60-64	7994	8162	6039	2763	7863
65-69	4764	5953	3366	2111	4642
70-74	2568	1836	1687	359	2469
75-79	891	862	483	159	891
80-84	477	333	207	79	477
85-89	77	188	56	0	77
90-94	102	144	80	83	102
95+	49	56	18	0	49

2.3 Population Projections

Table 2.8: Alternative population projections (1000 persons)

	1990 Based		1997 Based		UNPD	Demographic Institute
Year	Total population	Primary school age	Total population	Primary school age	Total population	Total population
1997	899	152	874	158		
1998	922	154	897	158		
1999	945	156	920	156		
2000	968	157	944	151	884	974
2001	991	157	969	145		
2002	1015	158	994	138		
2003	1039	158	1019	137		
2004	1064	158	1046	138		
2005	1090	157	1073	139		1092
2006	1116	159	1101	141		
2007	1143	161	1129	144		
2008	1171	164	1159	148		
2009	1200	166	1188	153		
2010	1230	170	1218	160	1018	1221

2.4 Data Quality Tables

Table 2.9: Distribution of months lived for children who have died, SUPAS 1995

Months lived	Frequency	Percent
0	9746	12.92
1	3786	5.02
2	3704	4.91
3	2942	3.90
4	2070	2.74
5	1877	2.49
6	2502	3.32
7	1735	2.30
8	2080	2.76
9	2258	2.99
10	1235	1.64
11	1442	1.91
12	7432	9.85
13	1031	1.37
14	867	1.15
15	700	0.93
16	492	0.65
17	563	0.75
18	613	0.81
19	398	0.53
20	290	0.38
21	268	0.36
22	196	0.26
23	173	0.23
24	7210	9.56
36	5001	6.63
48	3060	4.06
60	2232	2.96
72	1360	1.80
84	1176	1.56
96	1023	1.36
108	753	1.00
120	1025	1.36
…	…	…
Total	75456	100.00

Table 2.10: Calendar year ratios for the SUPAS 1995 Birth history data

Calendar year of birth	Total births	Total births still alive	Total births now dead	Complete birth date %	Still alive with complete birth date	Dead with complete birth date	Sex ratio at birth	Live sex ratio at birth	Dead sex ratio at birth	Calendar year ratio	Calendar year ratio	Calendar year ratio dead
95	785	738	47	94.3	94.7	87.2	100.8	97.9	161.1	.	.	.
94	975	911	64	93.9	94.2	90.6	109.2	107.5	137.0	124.2	123.4	136.2
93	1009	923	86	90.7	92.7	68.6	99.4	96.8	132.4	103.5	101.3	134.4
92	1058	942	116	90.1	91.9	75.0	98.1	97.9	100.0	104.9	102.1	134.9
91	1005	918	87	85.2	87.3	63.2	112.9	111.5	128.9	95.0	97.5	75.0
90	1059	923	136	86.2	88.6	69.9	114.8	109.3	161.5	105.4	100.5	156.3
89	936	830	106	85.5	87.7	67.9	101.3	101.5	100.0	88.4	89.9	77.9
88	905	819	86	81.8	83.8	62.8	108.0	105.3	138.9	96.7	98.7	81.1
87	894	803	91	84.0	85.7	69.2	113.9	111.9	133.3	98.8	98.0	105.8
86	862	748	114	81.2	84.2	61.4	108.2	101.6	165.1	96.4	93.2	125.3
95 - 91	4832	4432	400	90.6	92.1	75.0	104.0	102.3	124.7	.	.	.
90 - 86	4656	4123	533	83.8	86.1	66.4	109.3	105.9	139.0	.	.	.
85 - 81	3421	2879	542	80.4	84.5	58.7	103.6	98.6	135.7	.	.	.
80 - 76	2159	1625	534	74.0	81.0	52.4	107.2	108.9	102.3	.	.	.
75 - 71	1406	1024	382	69.1	76.7	48.7	105.6	108.1	99.0	.	.	.
70 - 66	731	547	184	62.5	68.9	43.5	109.5	106.4	119.0	.	.	.
65 - 61	197	139	58	57.9	64.7	41.4	129.1	143.9	100.0	.	.	.
60 - 56	32	20	12	65.6	55.0	83.3	357.1	400.0	300.0	.	.	.
55 - 51	2	2	0	50.0	50.0	.	100.0	100.0	.	.	.	.
All	17436	14791	2645	81.4	85.5	58.7	106.5	104.3	119.9	.	.	.

3. Education, human capital and labor force

3.1 Historical Development of Education in East Timor

Table 3.1: The development of primary education (grade 1-6) in East Timor.

Year	Students	Classes	Schools	Teachers	School age population (7-12)	Pupils in school age (7-12)	Graduates	New Entrants
1946	1953							
1950	3429							
1960/61	6076			239				
1964/65	18455			295				
1967/68	23059			490				
1972	57574			513				
1976	13501		47	499				
1977/78	23041		107	614				
1978/79	41453		208	959				
1980/81	68709						2007	
1981/82							2714	
1982/83							4880	
1983/84							5518	
1984/85	100637	2396	410	2614			7051	31864
1985/86	111228	2648	497	2910			9264	31336
1986/87	126740	3017	540	3359			12488	31360
1987/88	129629	3085	559	3723			11426	27171
1988/89	105058	2694	565	4897	128502		10639	27946
1989/90	100443	2704	574	4739			11504	20933
1990/91	95088	2641	579	4680			8433	20872
1991/92	97008	2623	590	4798			8997	21087
1992/93	101935	3027	612	5016			7407	24089
1993/94	127989	4392	652	6656			7423	27394
1994/95	126549		677	6092			7537	31532
1995/96	132856		709	6511	145225	106568	9090	31090
1996/97	143956		736	6515			10561	32713
1997/98	155516		766	6392				
1998/99	167181		788	6672		132115		

Source: Lopez 1961; 1964/65, Sherlock 1995 and Saldanha 1995: 1960/61, 1967/68, H1: 1976-1980/81, 1984/85-1993/94, 1996: Brahanam and Emmanuel 1996.

1998/99: Carvalho 1999 and Sousa 1999

Table 3.2: The development of junior secondary education (grade 7-9) in East Timor.

Year	Students	Classes	Schools	Teachers	School age population (7-12)	Pupils in school age (7-12)	Graduates	New Entrants
1946	0							
1950	47							
1960	175			15				
1964/65	906			72				
1970	767							
1971/72	1275			45				
1976	315		2	10				
1977/78	926		9	17				
1978/79	1041		14	36				
1980/81	2474							
1984/85	9836	259	43	250			2436	7051
1985/86	11735	309	57	319			3667	7983
1986/87	22905	587	71	664			4650	11355
1987/88	26787	688	81	745			5988	12740
1988/89	28342	727	90	1173			7646	10889
1989/90	26787	688	90	1195	40812		7278	9065
1990/91	26088	709	94	1196			6907	9065
1991/92	24099	557	97	1238			6796	7356
1992/93	22122	532	101	1381			6366	7609
1993/94	21777	537	102	1436			5925	7961
1994/95	22651		107	1497			5251	8207
1995/96	24504		114	1547	55367	14195	5875	9809
1996/97	26445		114	1640			7083	10711
1997/98								
1998/99	32197		114	1963				

Source: Brahanam and Emmanuel 1996. 1998/99: Sousa 1999, 1965/65: Lopez 1961, other figures Portuguese period: Saldanha 1994 and Sherlock 1995. Somewhat inconsistent figures.

Table 3.3: The Development of senior secondary education in East Timor

Year	Students	Classes	Schools	Teachers
1976			1	
1977/78			1	
1978/79			1	
1980/81	286		3	
1984/85	1466		5	126
1985/86	3434		17	256
1986/87	4836		20	379
1987/88	7516		22	474
1988/89	8822		24	544
1989/90	11297		25	565
1990/91	12545		35	609
1991/92	14637		42	1010
1992/93	16697		46	1152
1993/94	16734		48	1321
1994/95	16121		51	1381
1995/96	16056		54	1452
1996/97	16099		54	1502
1997/98	16154		54	1566
1998/99	18973		54	1537

Note: The table cover Academic and Vocational, except teacher's training.

Source: Brahama and Emmanuel 1996
1998/99: Sousa 1999

3.2 Supply of Education in East Timor Prior to Indonesian Withdrawal

Table 3.4: Geographical distribution of primary schools by region. 1998/99.

	Schools	Pupils	Teachers	Students per teacher
Aileu	34	7214	223	32
Ainaro	50	9176	429	21
Ambeno	42	8963	391	23
Baucau	93	17540	877	20
Bobonaro	121	18679	780	24
Covalima	76	14279	581	25
Dili	58	27583	1019	27
Ermera	67	15409	368	42
Lautem	45	11131	439	25
Liquica	42	10597	361	29
Manatuto	46	7375	321	23
Manufahi	48	8517	385	22
Viqueque	56	10718	498	22
Total	722	167181	6672	25

Source: Carvalho 1999

Table 3.5: Senior secondary education: Schools, teachers and pupils by stream/course

	Academic			Vocational			
	Schools 1998/99	Teachers 1997/98	Students 1997/98	Schools 1998/99	Teachers 1997/98	Students 1997/98	Of which students in economics 1997/98
Aileu	2	29	269	1	24	236	110
Ainaro	2	43	580	0	0	0	0
Ambeno	2	31	527	1	24	202	263
Baucau	3	90	1211	3	61	515	364
Bobonaro	3	79	1112	0	0	0	0
Covalima	2	60	494	2	49	577	220
Dili	10	331	4404	6	274	2072	364
Ermera	3	74	724	0	0	0	0
Lautem	2	43	814	0	0	0	0
Liquica	2	44	321	1	23	175	175
Manatuto	2	42	301	1	25	251	262
Manufahi	1	28	300	1	21	227	206
Viqueque	3	61	611	1	22	163	223
Total	34	955	11668	16	523	4418	2187

Source Carvalho 1999 (schools) and BPS 1998

Table 3.6: Tertiary education 1998/99

	Institutions (all in Dili)	Students	Teachers
University	1	3498	46 (78?)
Polytechnic	1	450	160
Agricultural institute	1	260	16
School of economics	1	473	32
Institute for teacher's education	1	40	7
Health academy	1	400	18 (32?)
Total	6	5121	

Table 3.7: Primary school teachers (Timorese and non-Timorese) by qualification and region, December 1998.

	Primary school	Senior secondary C1/C2	Junior secondary, non-teaching	Senior high, religion / sport	Senior secondary non-teaching	Trained to teach junior secondary/ Diploma 2	Trained to teach senior secondary/ Diploma 3	B-2 S1 undergraduate	Total	Percent qualified
Aileu	1	4	3	206	1	4	4	0	223	4
Ainaro	4	9	4	399	3	7	3	0	429	3
Ambeno	0	2	4	380	1	4	0	0	391	1
Baucau	14	97	50	636	38	25	15	2	877	9
Bobonaro	15	18	4	715	12	11	5	0	780	4
Covalima	4	0	5	536	1	10	23	2	581	6
Dili	18	120	19	754	11	63	11	23	1019	11
Ermera	9	45	3	296	2	9	1	3	368	4
Lautem	1	10	3	413	1	11	0	0	439	3
Liquica	0	2	6	306	16	28	1	2	361	13
Manatuto	4	4	15	277	4	12	5	0	321	7
Manufahi	4	31	7	322	5	13	2	1	385	5
Viqueque	0	4	11	446	7	6	24	0	498	7
Total	74	346	134	5686	102	203	94	33	6672	6

Source: Carvalho 1999, based on Provincial department of education, December 1998. Translated by project.

Diploma 2 is the minimum requirement for teachers.

Table 3.8: Number of schools by district 1998

	Kindergarten	Special school (for the blind)	Primary	Junior Secondary	Academic Senior Secondary	Vocational Senior secondary	Tertiary
Aileu	3	0	34	5	2	1	0
Ainaro	2	0	50	8	2	0	0
Ambeno	2	0	42	5	2	1	0
Baucau	3	0	93	15	3	3	0
Bobonaro	6	0	121	10	3	0	0
Covalima	3	0	76	12	2	2	0
Dili	21	1	58	16	10	6	6
Ermera	9	0	67	6	3	0	0
Lautem	4	0	55	8	2	0	0
Liquica	3	0	42	5	2	1	0
Manatuto	3	0	46	8	2	1	0
Manufahi	4	0	48	7	1	1	0
Viqueque	3	0	56	9	3	1	0
Total	66	1	788	114	37	17	6

source: Sousa 1999, but corrected 45 to 55 primary schools in Lautem.

Table 3.9: Number of schools, students, teachers and East Timorese teachers. 1998 or 1999.

	Schools	Students	Teachers	Students per teacher	East Timorese teachers	Students per Timorese teacher
Kindergarten	66	2168	183	12	30	72
Special school (for the blind)	1	45	13	3	0	.
Primary	788	167181	6672	25	5172	32
Junior secondary	114	32197	1963	16	65	495
Academic Senior Secondary	37	14626	1059	14	87[1)]	168
Vocational secondary	17	4347	478	9	55	79
University	1	3498	78[2)]	45	36	97
Polytechnic	1	450	160	3	60	8
Agricultural institute	1	260	16	16	2	130
School of economics	1	473	32	15	17	28
Institute for teacher's education	1	40	7	6	1	40
Health academy	1	400	32[3)]	13	12	33
Total	1029	225685	10693	21	5537	41

source: Sousa 1999

3.3 Expenditures on Education (from SUSENAS98)

Table 3.10: Percent distribution of household expenditures for pupils in primary and secondary school. By government / private. 1998.

	Primary		Secondary	
	Gov	Priv	Gov	Priv
Registration fee	6	3	10	8
School fees	14	17	24	30
Examination	1	2	1	4
Supporting material	1	0	2	1
Uniforms	44	33	24	21
Text books	8	7	9	9
Stationary	15	18	10	12
Transportation	2	6	12	4
Related courses	0	0	0	4
Other expenses	8	13	6	7
Total	100	100	100	100
n	572	68	152	26

Table 3.11: Percent distribution of household expenditures for pupils in primary school. By household expenditure quintile. 1998.

	20 % poorest	2nd quintile	3rd quintile	4th quintile	5th quintile
Registration fee	3	5	6	5	7
School fees	13	15	14	14	15
Examination	0	1	1	1	2
Supporting material	0	0	2	1	1
Uniforms	51	49	45	44	34
Text books	9	5	6	6	12
Stationary	17	17	16	15	14
Transportation	0	0	0	2	6
Related courses	0	0	0	0	0
Other expenses	6	7	10	10	8
total educational expenses	100	100	100	100	100
Unweighted Count	88	130	140	150	132

Table 3.12: Person/institution who finance education expenses. Percent of students by level.

	Currently attending primary	Currently attending junior secondary	Currently attending senior secondary
Family	100	99	96
Other person	0	0	4
Self	0	0	0
Government	0	0	0
NGO	0	1	0
Total	100	100	100
n	640	116	62

3.4 International Comparisons

Table 3.13: Key education indicators compared. East and West Timor 1998, Other countries 1993 or 1994

		Indonesia	Philippines	Thailand	Cambodia	Viet Nam	Korea, Republic of	Malaysia	Fiji	Papua New Guinea	Samoa	Solomon Islands	Tonga	Mozambique	Angola	Cape Verde	Guinea-Bissau	East Timor	West Timor
School life expectancy (years)	MF	10.3					14.7							3.5				8	
Gross enrolment, first level	MF	114.4	110.8	91.4	121.7	112.8	97.7	91.4	132.2	80.4	103	97.3		57.8	79.8	134	63.8	90	112
	M	116.8	109.8	92.4	133.6	115.6	97.2	91	132.7	87.1	103	103.7		67.2	83.1	134.7	81.1	90	111
	F	112.1	111.9	90.3	109.5	109.9	98.3	91.7	131.6	73.4	103	90.3		48.5	76.5	133.3	46.7	90	112
Net enrolment, first level	MF	97	100				95.7	91.4			97			38.8				70	88
	M	99.2					95.2	91.1			97			44				71	86
	F	94.7					96.3	91.6			97			33.6				69	90
Gross enrolment, second level	MF	48.2	79.9	48	26.9	40.6	97.7	58.7	67.2	15.1	62.8	17.4			12.7	27	11.8	48	52
	M	51.9	78.8	48.3	33.7	41.4	97.6	55.9	66.8	17.7	55.7	20.9			15.3	28.1	16	50	52
	F	44.4	81	47.7	20	39.7	97.8	61.5	67.7	12.3	71	13.5			10.1	25.9	7.6	47	53
Net enrolment, second level	MF	42.3																39	44
	M	45.4																39	43
	F	39.2																39	45
Gross enrolment, third level	MF	11.1	27.5	19.4	1.6	2.8	47.7	10.6	12.9	3.2	3.8			0.4	0.6		0.5	4	20
	M	13.5	23.5	18.1	2.7	3.9	60.3	12	15.8	4.2	3.8			0.6	1.1		1	6	24
	F	8.6	31.6	20.7	0.5	1.8	34.4	9.2	9.7	2.1	3.7			0.2	0.2		0.1	2	17
Percentage repeaters, first level	MF	7.6			30.4		0	0		0		8.7		25.7				15	
	M	7.8			30.9		0	0		0				24.9					
	F	7.4			29.8		0	0		0				26.8					
Pupil-teacher ratio 1994/93	First level	23	34	20	45	35	33	20	31	33	24	24	22	58	32	29	24	20	
	Second level	14	36	22	18	25	25	19	18	23	18	18	18	34	31	23	9	14	
Public expenditure on education 1996	% of GDP	1.4	2.2	4.1	2.9		3.7	5.2						6					
	% of total gov expenditures	7.9		20.1			17.5							12				25	

Sources: East and West Timor: SUSENAS 1998, Other countries: UNESCO web-site.

…continued: Age specific enrolment 1994

	Level / age	Indonesia			Korea, Republic of			Malaysia			Mozambique			East Timor			West Timor		
		MF	M	F	MF	M	F	MF	M	F	MF	M	F	MF	M	F	MF	M	F
First level	6	51	57	46	89	87	90	91	91	91	10	10		27	23	31	38	41	33
	7	100	100	100	93	93	94	93	93	93	34	36	9	57	60	53	80	76	84
	8	100	100	100	94	94	94	95	94	95	40	44	31	64	65	63	92	89	94
	9	100	100	100	92	92	92	92	92	92	38	43	35	73	74	72	93	93	93
	10	95	98	93	100	99	100	88	88	89	44	52	33	79	81	77	97	94	99
	11	86	88	83	100	100	100	89	88	89	39	46	37	82	80	85	94	93	95
	12	69	72	67	10	10	10				39	48	32	69	68	71	76	75	77
	13	34	30	37							29	35	31	55	55	55	51	53	49
	14	18	17	20							19	24	22	38	35	41	29	33	24
	15	2	2	2							8	11	14	18	20	17	12	11	13
	16										3	4	6	12	14	10	5	5	4
	17										1	1	2	3	3	3	2	4	0
Second level	11										1	1	1	0	0	0	0	0	0
	12	20	21	19							3	4	2	7	7	8	16	13	19
	13	45	48	42							6	7	5	22	22	23	34	26	39
	14	55	63	47							9	11	7	37	40	34	42	42	42
	15	48	49	47							9	11	7	46	42	51	56	52	60
	16	42	44	40							7	9	5	46	45	46	54	52	55
	17	35	36	35							5	6	3	44	45	43	45	39	51
	18	28	32	24							4	5	2	40	41	39	30	42	20
	19	10	12	8							3	4	1	26	35	17	23	26	21
	20	4	4	3							1	1	0	13	17	10	10	19	3

Source: East and West Timor: SUSENAS 1998, Other: UNESCO web site.

3.5 Education Access and Efficiency

Table 3.14: Current enrolment by sex, age and region. Percent of children currently enrolled in school. East Timor 1998.

Age	East Timor	Cova-lima	Ain-aro	Manu fahi	Vique que	Laut-em	Bau-cau	Mana -tuto	Dili	Aileu	Li-quica	Erm-era	Bobo naro	Amb eno/ Oecu ssi
Boys and girls														
6	27	32	15	15	20	23	18	38	43	26	9	19	38	33
7	57	63	37	47	59	69	39	80	90	51	32	35	65	52
8	64	72	46	55	51	75	64	85	84	61	60	52	62	66
9	73	77	59	62	78	85	73	83	89	55	73	54	79	69
10	79	76	60	68	79	88	78	92	92	87	87	60	77	85
11	82	83	64	80	90	100	79	92	99	69	85	67	72	78
12	77	74	68	65	71	97	79	86	94	89	84	56	70	63
13	77	79	66	73	70	89	61	80	89	83	84	60	79	72
14	75	74	56	60	86	91	77	69	89	75	75	60	67	64
15	64	70	51	58	59	82	54	70	82	65	64	45	49	57
16	58	52	47	35	57	63	56	56	79	58	50	40	68	27
17	48	50	25	30	48	69	54	49	65	36	40	21	30	31
18	41	48	23	21	23	55	37	30	71	40	38	19	35	7
Boys														
6	23	29	21	17	16	23	10	23	42	23	6	17	30	33
7	60	63	40	58	69	74	41	74	92	50	22	34	69	63
8	65	73	42	70	44	78	65	83	84	65	67	47	61	76
9	74	75	57	76	79	73	71	75	89	60	77	51	87	72
10	81	74	61	67	85	88	83	83	92	84	87	63	81	86
11	80	81	67	81	77	100	83	88	98	73	78	65	60	68
12	75	73	69	56	75	97	78	76	93	90	91	46	60	58
13	76	74	56	77	67	84	57	86	89	86	86	55	82	74
14	75	57	57	65	79	95	82	65	90	72	89	59	70	65
15	61	56	27	64	76	84	50	63	79	77	50	39	50	43
16	59	56	47	50	40	73	50	64	80	50	45	33	65	35
17	49	61	18	18	47	71	56	43	66	29	33	18	39	38
18	43	67	32	24	14	59	32	31	74	50	50	19	26	0
Girls														
6	31	34	8	14	28	22	24	54	43	29	14	22	45	33
7	53	64	34	35	45	62	37	88	88	52	41	35	61	44
8	63	70	51	42	64	70	63	88	84	55	55	57	62	55
9	73	79	61	48	77	91	77	89	90	48	69	57	70	67
10	77	79	60	70	74	88	74	100	91	92	88	57	74	85
11	85	85	60	80	100	100	69	95	100	64	91	69	82	88
12	80	74	67	75	67	96	79	95	94	87	77	68	78	67
13	78	84	74	68	73	93	65	76	88	75	81	70	76	70
14	75	92	55	56	91	85	73	72	88	80	57	60	65	63
15	68	82	70	52	43	79	58	76	86	54	81	50	48	75
16	57	47	46	21	73	55	62	46	76	70	56	46	71	11
17	46	38	43	42	50	67	50	58	62	43	44	29	21	13
18	40	36	13	18	33	51	44	29	67	20	22	19	42	12
N	285205	20229	15444	12642	17422	16584	29756	11109	54232	10252	18224	28690	31220	19401
n	8850	613	702	602	562	730	692	529	1102	466	536	755	892	669

Table 3.15: Schooling and employment. Percent of children in age group.

	Boys and girls			Boys			Girls		
Age	10-11	12-14	15-18	10-11	12-14	15-18	10-11	12-14	15-18
In school, not employed	77	70	48	76	68	46	77	73	50
Not in school, employed in agricult.	4	11	26	4	12	30	4	9	21
Not in school, employed in non-agric	1	1	6	1	1	7	1	1	5
Combining school and employment	4	6	6	4	7	8	3	5	4
Not in school, doing housework	3	4	6	1	1	1	5	6	13
Not in school, not employed	13	8	8	14	10	9	11	6	7
Total	100	100	100	100	100	100	100	100	100
Persons	47762	64141	59041	24798	33536	31586	22964	30605	27455
n	1463	1992	1792	752	1045	955	711	947	837

Source: SUSENAS 1998 core

Table 3.16: Age distribution of pupils by grade, 1998. Percent of pupils in grade.

	Grade											
Age	1	2	3	4	5	6	7	8	9	10	11	12
5-6	28	2	0	0	0	0	0	0	0	0	0	0
7-8	55	50	15	2	0	0	0	0	0	0	0	0
9-10	12	37	57	42	18	3	0	0	0	0	0	0
11-12	3	8	21	39	49	44	14	6	0	0	0	0
13-14	1	3	7	14	26	35	51	39	16	0	0	0
15-16	0	0	1	3	6	16	27	42	52	39	14	1
17-18	0	0	0	0	1	2	6	12	27	47	53	29
19-20	0	0	0	0	0	0	2	1	2	12	19	43
21-22	0	0	0	0	0	0	0	0	2	1	10	14
23-26	0	0	0	0	0	0	0	0	0	1	3	11
Total	100	100	100	100	100	100	100	100	99	100	99	98
Students	31480	27613	26950	21857	19089	17426	10166	10886	9295	3997	6543	5392

Source: SUSENAS 1998 education module

Table 3.17: Availability of books. Percent of student who have books, by level.

	Currently attending primary	Currently attending junior secondary	Currently attending senior secondary
PMP	53	69	73
BAHASA	62	63	70
MATHS	54	66	68
SCIENCE	28	49	47
SOCIAL	30	57	56
ENGLISH	1	52	66
PHYSICS	0	32	37
CHEMISTRY	0	24	33
BIOLOGY	0	41	44
n	640	116	62

Source: SUSENAS 1998 education module

Table 3.18: Reasons for dropping out or leaving school (previously enrolled), not attending (never enrolled) or not wanting to continue (currently enrolled). Percent of persons in age group, and percent of persons aged 10-20 years by sex.

	Age group										Sex			
	0-9	0-9	0-9	10-19	10-19	20-29	20-29	30-39	30-39	30-39	Male 10-20		Female 10-20	
Reason:	Age	Economy	Motivation	Economy	Motivation	Economy	Motivation	Economy	Motivation	Distance	Economy	Motivation	Economy	Motivation
Never attended	53	25	14	51	37	51	31	49	29	8	50	40	52	34
Dropped out from primary	.	.	.	60	.	74	.	55	.	.	69	.	61	.
Currently attending primary	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Left with complete primary	.	.	.	.	.	71	.	61	.	.	.	.	.	.
Dropped out from junior secobdary	.	.	.	.	.	62	.	.	.	.	.	.	.	.
Currently attending junior secondary	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Left with complete jun.sec	.	.	.	.	.	65	.	.	.	.	.	.	.	.
Dropped out from senior secondary	.	.	.	.	.	62	.	.	.	.	.	.	.	.
Currently attending acad. sen. secondary	.	.	.	.	.	67	.	.	.	.	.	.	.	.
Currently attending voc. senior secondary	.	.	.	.	.	100	.	.	.	.	.	.	.	.
Left with complete acad.sen.sec	.	.	.	.	.	68	.	65	.	.	.	.	.	.
Left with complete voc.sen.sec	.	.	.	.	.	66	.	.	.	.	.	.	.	.

. : Not enough cases to report.

Source: SUSENAS 1998 education module

Table 3.19: Logistic regression of access to school.
Dependent variable is: Ever attended school (versus never attended).

	Boys and girls								Boys		Girls	
	7-12 years		13-15 years		16-18 years		7-18 years		7-18 years		7-18 years	
	Coef.	Z	Coef.	Z	Coef.	Z	Coef.	Z	Coef.	Z	Coef.	Z
Female (vs male)	-0.061	-0.84	-0.123	-0.81	-0.189	-1.13	-0.076	-1.22				
Age							1.199	16.63	1.170	11.47	1.229	11.96
Age squared / 100							-4.566	-15.50	-4.425	-10.67	-4.714	-11.17
Female headed household (vs male headed)	0.058	0.38	-0.233	-0.91	-0.286	-0.90	-0.146	-1.13	-0.277	-1.63	0.016	0.08
Head has attended school (vs not attended)	0.742	7.36	1.288	5.48	1.245	4.97	0.922	10.38	0.975	7.62	0.880	7.09
Head in agriculture (vs not employed)	-0.048	-0.26	-0.221	-0.64	-0.427	-1.39	-0.089	-0.61	0.006	0.03	-0.215	-0.98
Head non-agricultural occupation (vs not empl.)	0.576	2.82	0.230	0.60	0.387	1.05	0.539	3.24	0.600	2.62	0.446	1.83
(log of) Houshold expenditure per capita	0.974	9.44	0.486	2.71	0.423	1.94	0.805	9.61	0.829	7.19	0.788	6.38
Region (reference is Covalima):												
Ainaro	-1.116	-6.09	-0.992	-2.87	-1.539	-3.96	-1.175	-7.66	-1.003	-4.86	-1.375	-5.93
Manufahi	-0.685	-3.42	0.173	0.47	-0.550	-1.35	-0.582	-3.59	-0.077	-0.33	-1.063	-4.52
Viqueque	-0.262	-1.31	0.392	1.02	-0.201	-0.46	-0.175	-1.05	0.035	0.16	-0.417	-1.67
Lautem	0.208	1.02	0.827	1.96	0.458	0.98	0.313	1.83	0.351	1.56	0.272	1.03
Baucau	-0.334	-1.78	0.149	0.41	-0.035	-0.08	-0.243	-1.55	0.019	0.09	-0.543	-2.31
Manatuto	-0.078	-0.32	-0.151	-0.38	-0.469	-1.02	-0.192	-0.99	-0.395	-1.58	0.148	0.46
Dili	0.167	0.69	0.286	0.69	0.827	1.50	0.240	1.21	0.469	1.73	-0.040	-0.14
Aileu	-0.543	-2.73	0.725	1.54	0.169	0.33	-0.282	-1.64	0.127	0.55	-0.786	-2.96
Liquica	-0.692	-3.51	0.255	0.63	-0.207	-0.43	-0.514	-3.14	-0.379	-1.68	-0.684	-2.82
Ermera	-1.359	-7.45	-1.122	-3.26	-1.925	-4.63	-1.435	-9.33	-1.431	-6.89	-1.458	-6.31
Bobonaro	-0.369	-2.01	-0.243	-0.70	-0.846	-2.11	-0.458	-2.94	-0.178	-0.82	-0.751	-3.29
Ambeno/Oecussi		-1.93	-0.808	-2.32	-1.581	-3.91	-0.643	-3.97	-0.494	-2.18	-0.821	-3.47
Constant term	-8.904	-8.30	-3.059	-1.61	-2.123	-0.95	-13.98	-13.96	-14.30	-10.28	-13.94	-9.61

3.6 Human Resources, Education and the Labour Market

Table 3.20: Education attainment of working age population (10 years and above), and percent in capital district.

	East Timor		West Timor	
	Total	Of which in Dili (%)	Total	Of which in Kupang (%)
Currently attending	129000	29	262200	41
None	283800	10	153900	8
Incomplete primary	63100	15	173000	17
Primary	50800	29	287300	20
Junior secondary	30000	40	78300	33
Academic senior secondary	36700	51	87700	50
Vocational senior secondary	14400	32	39400	68
Tertiary	8000	61	31000	58
Population	615800	21	1112700	29
n	18907		10251	

Estimates from SUSENAS 1998.

Table 3.21: Percent distribution of education attainment of working age population by mother tongue[1)]. Estimates from SUSENAS 1998 education module.

	Tetum (East and West), other mainly ET	Kemak (ET), Helong (WT)	Bakinang, Galela etc. (Ambeno/Oecussi)	Rote (WT)	Bahasa	Other non-Timorese	Missing	Total
None	51	53	55	57	1	3	51	48
Incomplete primary	9	12	7	18	4	2	9	9
Primary	8	9	5	6	17	9	13	9
Junior secondary	4	2	5	5	8	11	1	4
Acad. sen. secondary	5	1	5	3	25	27	3	6
Voc. senior secondary	3	2	1	2	12	9	1	3
Tertiary	0	0	0	0	14	22	0	2
Currently attending	19	20	21	9	19	17	22	19
Total	100	100	100	100	100	100	100	100
n	1945	330	201	83	158	124	113	2954

[1)] The data provided by Indonesian statistics office did not identify separate languages, -only major groups (two digits). Hence, it is not possible to distinguish most Timorese languages by East and West Timor.

Table 3.22: Education attainment of population 10 years and above. Percent of age group

		East Timor			West Timor		
Age		Total	Male	Female	Total	Male	Female
10-19	Currently attending	68	68	68	70	70	70
	None	17	16	18	2	3	2
	Incomplete primary	9	10	9	8	9	8
	Primary	4	4	4	15	14	16
	Junior secondary	1	1	2	3	4	3
	Acad. senior secondary	1	1	0	1	1	2
	Voc. senior secondary	0	0	0	0	0	0
	Total	100	100	100	100	100	100
20-29	Currently attending	5	7	2	10	11	8
	None	33	26	38	3	2	4
	Incomplete primary	16	17	15	13	13	12
	Primary	15	15	15	37	32	41
	Junior secondary	11	12	11	11	13	10
	Acad. senior secondary	15	16	13	16	19	13
	Voc. senior secondary	5	5	5	7	6	8
	Tertiary	1	1	1	3	3	4
	Total	100	100	100	100	100	100
30-39	Currently attending	0	0	0	1	1	1
	None	56	43	70	9	7	11
	Incomplete primary	11	14	8	20	19	21
	Primary	10	13	8	35	31	39
	Junior secondary	6	7	5	9	9	8
	Acad. senior secondary	9	12	5	14	17	11
	Voc. senior secondary	5	7	2	6	8	4
	Tertiary	3	5	2	6	7	5
	Total	100	100	100	100	100	100
40-49	None	74	64	85	23	14	33
	Incomplete primary	8	11	4	21	23	19
	Primary	7	10	4	29	27	31
	Junior secondary	4	4	3	9	8	9
	Acad. senior secondary	4	6	2	10	13	6
	Voc. senior secondary	1	2	0	4	7	1
	Tertiary	2	3	1	4	7	1
	Total	100	100	100	100	100	100
50-59	None	87	81	94	39	29	49
	Incomplete primary	4	6	1	22	22	23
	Primary	5	6	3	23	25	20
	Junior secondary	1	3	0	7	10	4
	Senior secondary	2	4	1	6	8	3
	Tertiary	1	1	0	3	6	1
	Total	100	100	100	100	100	100
60-69	None	93	89	96	55	47	63
	Incomplete primary	4	5	3	25	24	25
	Primary	2	3	1	14	18	10
	Secondary or tertiary	1	3		6	11	1
	Total	100	100	100	100	100	100
70+	None	92	90	94	60	56	63
	Incomplete primary	5	6	4	24	22	25
	Primary	2	3	2	16	21	11
	Secondary or tertiary	1	1	0	1	2	1
Total		100	100	100	1112713	550717	561996
Population		615800	312500	303300	2782100	1329400	1452700
n		18907	9569	9338	10251	5079	5172

Source: Estimates from SUSENAS 1998.

Table 3.23: Labor market status of working age population (10 years and above), by highest education level completed. Percent.

	All	No education	Incomplete primary	Primary	Junior secondary	Acad. senior secondary	Voc. senior secondary	Tertiary	Currently attending
East Timor									
"Full" Employed	50	62	61	61	49	49	69	80	7
Underemployed	6	6	10	10	12	16	11	8	0
Unemployed	4	1	3	5	10	19	11	7	3
Inactive	40	31	26	25	29	16	8	5	89
Total	100	100	100	100	100	100	100	100	100
Working age population	615800	283800	63100	50800	30000	36700	14400	8000	129000
Activity rate[1)]	60	69	74	75	71	84	92	95	11
Unemployment rate[2)]	6	2	4	6	14	22	12	7	28
Underemployment rate[3)]	11	8	13	13	17	19	12	9	4
Labour force	367600	195800	46700	38300	21400	30800	13000	7600	13800
Agriculture	75	92	78	58	45	23	17	2	92
Mining, manufacturing	3	3	3	3	2	1	2	0	2
Construction/infrastructure[4)]	3	1	5	8	10	7	3	1	1
Private services[5)]	6	3	6	13	16	13	5	8	4
Public administration/defence	13	1	7	17	26	52	72	85	1
Social services[6)]	1	0	0	1	1	3	2	5	0
Total	100	100	100	100	100	100	100	100	100
Employed population	344400	192800	44700	35900	18500	23900	11600	7100	9900
n	18907	9025	2007	1565	844	971	441	216	3838
West Timor									
"Full" Employed	53	70	74	68	59	57	58	77	8
Underemployed	3	1	2	4	5	9	16	5	0
Unemployed	3	0	2	1	4	14	10	9	1
Inactive	40	28	22	27	32	20	16	8	91
Total population 10 years +	100	100	100	100	100	100	100	100	100
Working age population	1112700	153900	173000	287300	78300	87700	39400	31000	262200
Activity rate[1)]	60	72	78	73	68	80	84	92	9
Unemployment rate[2)]	5	0	2	2	6	17	12	10	13
Underemployment rate[3)]	6	2	3	5	7	11	19	6	0
Labor force	663200	110200	135400	208900	53000	69900	33000	28500	24400
Agriculture	68	93	85	76	54	22	8	3	76
Mining, manufacturing	4	2	4	5	5	5	6	0	2
Construction/infrastructure[4)]	5	3	2	6	13	8	11	5	2
Private services[5)]	13	2	10	11	20	34	32	24	10
Public administration/defense	7	0	0	2	5	24	27	51	10
Education, health, soc.services	3	0	0	0	3	8	17	16	0
Total	100	100	100	100	100	100	100	98	100
Employed population	630800	109800	132400	205400	49800	57800	28900	25600	21200
n	10251	1649	1706	2862	671	625	302	204	2232

1): Activity rate (or labor force participation rate) is the percent of working age population who are employed or actively seeking employment.

2): Unemployment rate is the percent of the labor force who are not employed, but who are actively seeking employment.

3): Underemployment rate is the percent of labor force who are employed but who work less than 40 hours and are actively seeking (more/other) employment.

4)Construction/infrastructure: Construction, energy/water, transport, communication

5)Private services: Trade hotels, restaurants, private business and household services

6): Social services: Education and health services, social work. The low number in East Timor may be caused by coding error (coded as public administration workers)

Table 3.24: Labour market status of working age population in East Timor 1998. (10 years and above), by highest education level completed and ethnicity (Timorese or from outside Timor). Percent.

	From Timor (East and West)			From outside Timor		
	All	Primary education or less	Above primary	All	Primary education or less	Above primary
"Full" Employed	50	61	49	51	59	64
Underemployed	5	5	15	2	0	3
Unemployed	3	1	18	10	0	14
Inactive	42	33	17	37	41	20
Total working age population	100	100	100	100	100	100
Activity rate[1)]	58	67	83	63	59	80
Unemployment rate[2)]	5	2	22	15	0	17
Underemployment rate[3)]	9	7	19	3	0	4
Agriculture	80	87	32	0	0	0
Mining, manufacturing	3	2	3	0	0	0
Construction/infrastructure[4)]	3	2	4	5	5	4
Private services[5)]	4	4	5	26	82	12
Public administration/defence	10	4	52	65	3	81
Social services[6)]	1	1	4	4	10	2
Total employed population	100	100	100	100	100	100
n	2559	1773	295	282	55	174

Notes: see table 3.25

Table 3.25: Private returns to education in “formal” sector.

	East Timor			West Timor		
	All	Men	Women	All	Men	Women
Mean hourly wage rate (Rupiahs 1998), employees						
None	12867	13627	.			
Incomplete primary	14586	14823	.			
Primary	17415	18094	.	6363	6628	
Junior secondary	21180	23054	.	12979	14782	
Acad. senior secondary	19795	20364	17292	10535	11092	8246
Voc. senior secondary	19625	20886	15767	11150	12147	9101
Tertiary	29007	27808	.	22056	24640	
All employees	19473	19867	17507	12076	12845	9789
Percent of employees working in government administration						
None	21	44	.	0	0	0
Incomplete primary	45	53	.	0	0	0
Primary	62	66	.	15	11	35
Junior secondary	63	70	.	18	19	12
Acad. senior secondary	85	83	82	48	46	56
Voc. senior secondary	95	90	89	40	41	37
Tertiary	90	93	.	55	64	36
All employees	75	74	79	36	39	35
Number of employees	57055	47390	9665	119522	89697	29825
n	1559	1310	249	883	676	207

. : cells based on less than 50 cases are not shown.

Table 3.26: Distribution of household income according to education level of household head. Percent of households by expenditure per capita quintile.

	Quintile	None	Incomplete primary	Primary	Junior secondary	Academic senior secondary	Vocational senior secondary	Tertiary	All households
East Timor	20 % poorest	26	22	14	11	4	5	1	20
	2nd quintile	25	23	15	13	6	7	1	20
	3rd quintile	23	19	22	17	9	11	5	20
	4th quintile	17	23	24	25	27	29	17	20
	20 % richest	10	13	25	35	55	48	77	20
	Total	100	100	100	100	100	100	100	100
	Households	108394	21818	19320	10727	14192	7161	4882	187164
	n	3370	670	585	294	361	218	131	5644
West Timor	20 % poorest	28	27	25	17	4	5	0	20
	2nd quintile	31	22	23	14	12	12	3	20
	3rd quintile	23	22	25	14	13	27	6	20
	4th quintile	15	17	18	33	35	28	30	20
	20 % richest	3	12	9	23	36	29	61	20
	Total	100	100	100	100	100	100	100	100
	Households	57955	72891	86865	25472	27836	18248	14237	320976
	n	665	656	849	224	235	131	121	2944

Note: Households where head is currently attending school are excluded.

Table 3.27: Estimation results from two-stage estimation of private returns to education. East Timor, SUSENAS 1998.

		Model 1: Years of education				Model 2: Education level completed[1)]			
Stage 1: Multilogit model of employment by sector (reference group is "not employed")		Men (Pseudo R^2=0.15)		Women (Pseudo R^2=0.13)		Men (Pseudo R^2=0.25)		Women (Pseudo R^2=0.13)	
		coef	Z	coef	Z	coef	Z	coef	Z
Probability of working in the wage sector	Years of formal education	0.019	0.888	0.292	11.646	.	.	.	.
	Incomplete primary	.	.	.	.	1.629	7.438	1.082	1.700
	Complete primary	.	.	.	.	1.437	7.369	3.151	6.948
	Junior secondary	.	.	.	.	1.289	5.754	3.328	7.337
	Academic senior secondary	.	.	.	.	1.366	6.935	4.105	9.192
	Vocational senior secondary	.	.	.	.	2.174	6.947	5.428	11.847
	Tertiary	.	.	.	.	2.377	5.654	6.214	12.289
	Age	0.476	13.109	0.134	3.821	0.426	18.431	0.124	7.797
	Age squared / 100	-0.604	-11.761	-0.166	-3.190	-0.547	-17.993	-0.147	-7.383
	Married[2)]	.	.	-0.579	-3.122	.	.	-0.684	-3.634
	Widowed	.	.	1.436	2.221	.	.	1.294	1.860
	Divorced	.	.	1.584	3.036	.	.	0.905	2.018
	Constant	-6.891	-13.444	-6.411	-11.064	-7.400	-19.723	-7.213	-13.255
Probability of working in the self-employment sector	Years of formal education	-0.234	-10.928	-0.143	-9.703	.	.	.	.
	Incomplete primary	.	.	.	.	0.032	0.170	-0.258	-2.850
	Complete primary	.	.	.	.	-0.896	-5.432	-0.449	-4.607
	Junior secondary	.	.	.	.	-1.446	-7.136	-1.256	-9.365
	Academic senior secondary	.	.	.	.	-2.341	-12.734	-1.931	-11.912
	Vocational senior secondary	.	.	.	.	-2.221	-6.930	-1.573	-5.901
	Tertiary	.	.	.	.	-3.390	-6.648	-1.225	-2.796
	Age	0.476	13.109	0.134	3.821	0.426	18.431	0.124	7.797
	Age squared / 100	-0.604	-11.761	-0.166	-3.190	-0.547	-17.993	-0.147	-7.383
	Married	.	.	-1.201	-9.012	.	.	-1.227	-12.512
	Widowed	.	.	-0.206	-0.521	.	.	-0.134	-0.577
	Divorced	.	.	0.011	0.032	.	.	-0.555	-4.048
	Constant	-4.553	-8.888	-1.207	-2.393	-4.264	-11.708	-1.224	-4.708
Stage 2: Wage equation: hourly wage rate	Dependent variable is log of	Men (R^2=0.31)		Women (R^2=0.38)		Men (R^2=0.32)		Women (R^2=0.45)	
		coef	t	coef	t	coef	t	coef	t
Wage sector employees	Selection effect	-0.271	-1.977	-0.319	-1.737	-1.763	-1.913	-0.717	-3.228
	Years of education	0.083	5.424	0.165	3.322	.	.	.	.
	Incomplete primary	.	.	.	.	2.763	2.067	0.691	1.062
	Complete primary	.	.	.	.	3.823	2.095	2.813	3.640
	Junior secondary	.	.	.	.	4.332	2.120	3.203	3.726
	Academic senior secondary	.	.	.	.	5.349	2.184	4.160	4.019
	Vocational senior secondary	.	.	.	.	5.817	2.177	4.755	3.890
	Tertiary	.	.	.	.	6.332	2.232	5.300	4.073
	Age	0.161	7.938	0.143	3.248	0.222	5.790	0.151	3.485
	Age squared / 100	-0.158	-6.035	-0.136	-2.077	-0.237	-4.823	-0.141	-2.169
	Constant	5.055	9.715	3.974	3.492	-1.240	-0.344	0.972	0.644

The reference group for the education variable "never attended school".

Reference group is "never married"

3.7 Recommendations from the Georgetown University- University of East Timor Partnership for Excellence Project:

The following recommendations are for UNTIM and future sponsors who wish to build on the accomplishments of this project.

A. Financial Management

Provide further training of finance department staff in management skills, leadership, and effective communication.

Provide additional training in accounting and encourage financial staff to pursue formal academic training in accounting.

When hiring new finance department staff, select individuals who already have formal bookkeeping and accounting educational backgrounds.

Assist UNTIM develop a university-wide budgeting process.

B. Student Affairs Department

Provide additional computer language training programs to increase staff capacity on an on-going basis.

C. The Teaching Farm

Purchase a hand-tractor to lessen the need for a large number of people needed to prepare land for planting vegetables.

Provide additional technical assistance and training for the Animal Husbandry faculty in implementing their plan to increase the sustainability of the farm.

D. The English Study Center

Fund the planned extension of the ESC which involves construction costs and equipment.

Provide on-going technical assistance and training for the ESC staff in the areas of self-directed learning, leadership, team-building, and communication.

Provide technical assistance to UNTIM leadership to increase the profitability of the ESC by developing an English-language program for community members.

E. Library Development

Develop a modern cataloging system for the library and plan for acquiring Indonesia-Bahasa texts and resources to support specific UNTIM department curriculum. Focus on acquiring texts to support students' need for information and resources to complete research projects for graduation.

F. Personal Leadership, Management, and Professional Development

UNTIM leadership, faculty, and staff would benefit from an institution-wide training program in personal leadership, including taking initiative, interpersonal communications, planning, time-management, and team building. Such a program would only be advisable in an environment where the probability for unity is high and partisanship is low.

A human resource development program to create professional position descriptions, and development objectives and standards would benefit UNTIM faculty and staff and result in clearer expectations of roles, performance objectives, and performance measures.

Human development programs are needed to increase the self-esteem of UNTIM faculty and staff.

4. Health Data in SUSENAS98

There seems to be severe under-reporting of health problems in the SUSENAS survey. Rather than a consequence of data manipulation, it can be a result of inadequate fieldwork or reluctance of the respondents to report complaints (or both). The lack of relationship between income and morbidity suggest that under-reporting is common among poor people (in East and West, but there are more poor people in East).

Table 4.1: Morbidity for children less than 5 years of age in East and West Timor previous month

	West Timor	East Timor
Fever	28%	11%
Cough	22%	10%
Flu/Cold	21%	11%
Asthma	0%	0%
Breath Difficulty	1%	0%
Diarrhoea	10%	4%
Measles	1%	0%
Ears Discharge	0%	0%
Liver/Jaundice	0%	0%
Headache	4%	1%
Convulsion	0%	0%
Paralyse	0%	0%
Senile	0%	0%
Accident	0%	0%
Toothache	0%	0%
Other	6%	4%

Table 4.2: Prevalence of acute respiratory infections, diarrhoea and other illnesses in children less than 5 years of age in West and East Timor previous month

	West-Timor	East-Timor
ARI	36%	18%
Diarrhoea	10%	4%
Other illnesses	11%	5%

Table 4.3 Prevalence of illness in children less than 5 years of age in Dili compared to the rest of East Timor by sex

	Non-Dili		Dili	
	M	F	M	F
ARI	20%	21%	5%	6%
Diarrhoea	5%	5%	2%	1%
Other illnesses	6%	6%	2%	3%

Table 4.4 Prevalence of illnesses last month for children less than 5 years of age by expenditure in the households in East Timor

	Expenditure quintile, per capita				
	Poorest 20 %	2. quintile	3. quintile	4. quintile	Richest 20 %
ARI	18%	17%	19%	17%	16%
Diarrhoea	4%	3%	5%	5%	5%
Other illnesses	5%	3%	7%	5%	7%

Table 4.5: Treatment of children < 5 years of age who have been reported ill last month in West and East Timor

	West-Timor	East-Timor
No treatment	12%	25%
Self-treatment	29%	21%
Outpatient	42%	45%
Self-treatment and outpatient	18%	9%

Table 4.6: Treatment of children < 5 years of age who have been reported ill last month Dili compared to other East Timor

	Non-Dili	Dili
No treatment	26%	19%
Self-treatment	20%	23%
Outpatient	45%	38%
Self-treatment and outpatient	9%	20%

Table 4.7: Prevalence of health complaints by age in West and East Timor

	West-Timor					East-Timor				
	Age in years					Age in years				
	0-4	5-9	10-14	15-59	60->	0-4	5-9	10-14	15-59	60->
Health complaints	42%	32%	25%	34%	53%	22%	14%	12%	13%	31%

Table 4.8: Morbidity for adults (15-59 years of age) in East and West Timor previous month

	West-Timor	East-Timor
Fever	17%	6%
Cough	16%	7%
Flu/Cold	16%	6%
Asthma	1%	0%
Breath Difficulty	2%	1%
Diarrhoea	4%	2%
Measles	0%	0%
Ears Discharge	0%	0%
Liver/Jaundice	0%	0%
Headache	10%	3%
Convulsion	1%	0%
Paralyse	0%	0%
Senile	0%	0%
Accident	0%	0%
Toothache	2%	1%
Other	8%	4%

Table 4.9: Reported treatment for adults (15-59 years of age) for the ones with health complaints last month in West and East Timor

	West Timor	East Timor
No treatment	17%	31%
Self-treatment	35%	25%
Outpatient	32%	30%
Self-treatment and outpatient	16%	15%

Table 4.10: Reported treatment for all age groups in East Timor by expenditure group

	Expenditure quintile, per capita				
	Poorest 20 %	2 quintile	3 quintile	4 quintile	Richest 20 %
No treatment	36%	28%	34%	27%	24%
Self-treatment	25%	25%	22%	28%	21%
Outpatient	32%	33%	33%	32%	38%
Self-treat + outpatient	8%	14%	11%	14%	17%

Table 4.11: Medicine used for self-treatment

	West-Timor	East-Timor
Modern	75%	60%
Traditional	18%	30%
Modern and traditional	5%	3%
Other	2%	7%

Table 4.12: Medicine used for self-treatment in East Timor by expenditure group

	Expenditure quintile, per capita				
	Poorest 20 %	2 quintile	3 quintile	4 quintile	Richest 20 %
Modern	51%	56%	54%	68%	70%
Traditional	38%	31%	36%	26%	22%
Mod + Trad	1%	3%	5%	3%	3%
Other	10%	10%	5%	4%	5%

5. Agriculture and Fisheries

Table 5.1: Production of Crops in East Timor, 1994 - 1998 (Tons)

	1995	1996	1997	1998
Paddy	46696	52607	37968	36848
Wetland Paddy	41993	48835	34938	33968
Dryland Paddy	4703	3772	3030	2880
Corn	103039	106616	99204	58931
Cassava	75644	53781	41379	32092
Sweet Potatoe	18246	15681	14997	11989
Groundnut	3811	3335	3302	4669
Soybean	915	1244	783	690
Potatoes	576	131	450	364
Banana	6763	4612	4258	3215
Chilli	367	230	581	287
Munngbean	2437	3642	3326	2962
Pineapple	2836	248	250	141

Source : Directorate General of Food Crops and Horticulture.

Table 5.2: Production of Crops by Province, 1997 (Tons)

	Wetland Paddy	Dryland Paddy	Corn	Cassava	Sweet Potatoes
	1997	1997	1997	1997	1997
Timor-timur	34938	3030	99204	41379	14997
Sumatera	10140223	944190	1868634	2918301	407884
J a w a	26942418	936516	4841838	9059084	757829
NTB + Bali	2019548	66131	178097	340378	103920
NTT	314451	148703	557457	922383	81145
Kalimantan	2259640	563943	83840	486682	70190
Sulawesi	4842178	104881	1115411	920336	140648
Maluku+Irja	38478	17786	26370	445478	270879
INDONESIA	46591874	2785180	8770851	15134021	1847492

Source : Directorate General of Food Crops and Horticulture. Note: Preliminary Figures

Table 5.3: Harvested Area by Province, 1997 (Ha)

	Wetland Paddy	Dryland Paddy	Corn	Cassava	Sweat Potatoes
	1997	1997	1997	1997	1997
Timor-timur	12400	1798	53429	10319	3855
Sumatera	2475538	421529	714234	257107	46405
J a w a	5018453	362523	1748536	687191	69461
NTB + Bali	413489	29195	80260	29651	9017
NTT	99071	76419	250460	96050	11105
Kalimantan	764617	305748	53514	40532	8603
Sulawesi	1084655	53013	437640	84361	17333
Maluku+Irja	13541	8605	17151	38155	29657
INDONESIA	9881764	1258830	3355224	1243366	195436

Table 5.4: Productivity by province, 1997 (Ton/Ha)

	Wetland Paddy	Dryland Paddy	Corn	Cassava	Sweat Potatoes
Timor-timur	2.8	1.7	1.9	4.0	3.9
Sumatera	4.1	2.2	2.6	11.4	8.8
J a w a	5.4	2.6	2.8	13.2	10.9
NTB + Bali	4.9	2.3	2.2	11.5	11.5
NTT	3.2	1.9	2.2	9.6	7.3
Kalimantan	3.0	1.8	1.6	12.0	8.2
Sulawesi	4.5	2.0	2.5	10.9	8.1
Maluku+Irja	2.8	2.1	1.5	11.7	9.1
INDONESIA	4.7	2.2	2.6	12.2	9.5

Table 5.4: Approximate crop production per capita by region, 1997 (kg per capita)

	Wetland Paddy	Dryland Paddy	Maize	Cassava	Sweet Potatoes
Timor-Timur	40	3	113	47	17
Sumatera	248	23	46	71	10
J a w a	235	8	42	79	7
NTB + Bali	309	10	27	52	16
NTT	88	42	156	258	23
Kalimantan	216	54	8	46	7
Sulawesi	353	8	81	67	10
Maluku+Irja	10	4	7	111	67
INDONESIA	239	14	45	78	9

Table 5.6: Labor, production and productivity in fisheries 1987-1999

	Number of Fishermen			Production (Ton)			Productivity (kg per fisherman)
Year	Marine	In land	Total	Marine	In land	Total	
1987	5 581	1 959	7 540	580	38	618	82
1988	5 620	2 445	8 065	637	73	710	88
1989	6 410	2 671	9 081	645	82	727	80
1990	6 918	2 879	9 797	803	129	932	95
1991	7 152	2 976	10 128	944	248	1 192	118
1992	7 944	3 059	11 003	1 358	277	1 635	149
1993	8 284	3 089	11 373	1 851	357	2 208	194
1994	8 631	3 195	11 826	2 002	395	2 397	203
1995	8 580	3 295	11 875	2 165	401	2 566	216
1996	8 742	3 394	12 136	2 315	373	2 688	221
1997	9 066	3 415	12 481	2 423	379	2 802	225

Source: BPS 1998

Table 5.7: Fishing, catches 1992-1997 (tons)

Year	Marine	Shrimp	In land	Inland open water	Freshwater pond fisheries
1992	1 358				
1993	1 358	6	305	22.00	184
1994	2 017	9	442	37.00	224
1995	2 165	13	297	44.00	219
1996	2 315	2	373	30.00	200
1997		7	381	29.00	204

Source: Dept. Pertanian web site

6. Aid

6.1 List and Contact Addresses of Governments, Mulitlateral Organizations, Local and International NGOs and Corporations Involved in East Timor

Table 6.1: Governments and Multilateral Organizations Involved in Development Assistance in East Timor

Organization	Role in East Timor	Operational Links	Sectors of Focus	**Comment**
Australian Agency for International Development (AusAID) Http://www.ausaid.gov.au **Tel: 61-2- 6206 4006** Tracey Newbury: Fax: 61-2-6206 4242 Tracey_Newbury@ausaid.gov.au	**Provides funding to NGOs.** **Implements bilateral projects through managing contractors**	**International NGOs** AFAP APHEDA CAA CCF ICRC Opportunity International Aust. East Timorese NGOs Dili Diocese Commission on Justice and Peace Institute for Policy Research and Advocacy Yayasan BIA HULA Yayasan HAK Yayasan Timor Aid Managing Contractors ACIL Australia CMPS&F Environmental Coffey MPW NSW Dept of Agriculture	**Education & Training** Health Water Supply and Sanitation Agriculture and Rural Dev. Capacity Building Humanitarian Relief Other	Conducted research mission early 1999
Canadian Agency for International Development (CIDA) http://www.acdi-cida.gc.ca Jeffrey Bender Tel: 1-819-997 4755 Jakarta Post (Canada Fund for Local Initiatives): Norm MacDonnall: Jkrta@jkrta01.x400.gc.ca	Provides funding to NGOs.	International NGOs World Vision East Timorese NGOs ETADEP Many other organizations through CFLI	Capacity Building Other	
British Department for International Development (DFID) http://www.dfid.gov.uk Phyllis Turnbull Programme Support Officer	Provides funding to NGOs.	International NGOs CAFOD ICRC Oxfam GB	Capacity Building Humanitarian Relief	

Organization	Role in East Timor	Operational Links	Sectors of Focus	**Comment**
p-turnbull@dfid.gtnet.gov.uk				
New Zealand Overseas Development Agency (NZODA) http://www.mft.govt.nz/nzoda Nazla Carmine nazla.carmine@mfat.govt.nz Contact Jakarta Embassy for the Social and Community Development Fund (SCDF)	Implements projects. Provides funding to NGOs.	International NGOs CAA Caritas Christian World Service ICRC Oxfam NZ East Timorese NGOs Yayasan Dian Desa Salesians of Don Bosco Yayasan Bina Swadaya Timor Timur Yayasan HAK Yayasan Tatoli Naroman Many other organizations through SCDF	Agricultural and Rural Dev. Governance and Law Humanitarian Relief Other	
Norwegian Agency for Development Cooperation (NORAD)	Provides funding to NGOs	International NGOs Caritas Norway Norwegian Church Aid	Education Health Governance and Law Humanitarian Relief	
Portugal, Government of Isabella Valente Tel: 35-11-393 2657 Isabel_portugal@hotmail.com (Assistant to Commissioner for Transition in ET: Father Vitor Melicias)	Provides funding for East Timor related activities outside of Indonesia	International NGOs International Rescue Committee	Humanitarian Relief	No diplomatic relations with Indonesia. Planning program of activities. Produced report on aid to East Timor in the event of a vote against autonomy, precipitating independence.
Swedish International Development Agency (SIDA) **Tel: 46-8-698 5000** **Amandio Lopes** **Amandio.lopes@sida.se**	Provides funding to NGOs	International NGOs Caritas Sweden	Education	
Swiss Agency for Development and Co-operation (SDC) **Http://www.sdc-gov.ch**	Provides funding to NGOs	International NGOs Timor Aid		

Organization	Role in East Timor	Operational Links	Sectors of Focus	**Comment**
Email: infor@deza.admin.ch				
United States Agency for International Development (USAID) http://www.info.usaid.gov Carolyn Redmond: Desk officer: **Tel: 1-202-712 1574**	Provides funding to NGOs and church organizations.	International NGOs The Asia Foundation CARE Church World Service CRS ICRC NCBA Salesian Missions East Timorese NGOs Diocese of Dili ETADEP KOMNAS HAM Tatoli Naroman Foundation Yayasan Bina Sejahtera Lestari Yayasan Bina Swadaya Yayasan HAK University of Timor	Education Health Water Supply and Sanitation Agriculture and Rural Dev. Governance and Law Capacity Building Humanitarian Relief Other	Also provides loan funding to the Indonesian Govt for financing urban infrastructure.
Multilateral				
European Union - Commission on Economic Cooperation (CEC) Info@dg8.cec.be Www.europa.eu.int/comm/dg08 Claudia Iudica claudia.iudica@dg8.cec.be	Provides funding to NGOs.	International NGOs Caritas Sweden ICRC Timor Aid	Education Health Sanitation	
International Migration Organisation (IOM) http://www.iom.ch Jurgen Olesen: jurgeno@iom.int	Does not implement projects. Receives funding from governments and public donations.			Originally suggested the mapping of East Timorese human resources in Australia that is now being carried out by AVI.
UNICEF (Indonesia) **Tel: 62-21-570 5816** Fax: 62-21-571 1326 http://www.unicef.org	Implements Projects. Receives funding from governments and public donations.	Governments AusAID NZODA Works through UNICEF Indonesia	Health Water Supply and Sanitation Humanitarian Relief	
UNHCR **(Indonesia)** Email: insja@unhcr.ch http://unhcr.ch			Humanitarian Relief	

Table 6.2: International NGOs Involved in Development Assistance in East Timor

Organization	Role in East Timor	Operational Links	Sectors of Focus	**Comment**
Asia Foundation, The (TAF) Erin McDevitt, Assistant Representative (Indonesia) mcdevitt@tafindo.org http://www.asiafoundation.com info@asiafound.org	Implements Projects Receives funding from governments and public donations.	Governments USAID East Timorese NGOs Tatoli Naroman Foundation Yayasan HAK	Governance and Law Capacity Building Other	
Australian Council for Overseas Aid (ACFOA) http://www.acfoa.asn.au Pat Walsh: acroahr@acfoa.asn.au/ 61-3-94177505	Does not implement projects.	Governments AusAID International NGOs Most Australian NGOs		Umbrella lobby group. Maintains an East Timor network for disseminating information and facilitating cooperation on aid issues, including East Timor.
Australian Education Union (AEU) Robert Durbridge / Susan Hopgood 61-2-9254 1800 Susanh@edunions.labor.net.au	Receives funding from governments, Australian trade unions and public donations. Provides funding to East Timorese NGOs.	Governments AusAID International NGOs APHEDA MMIETS Also works with Indonesian Workers Union (SPSI) Part of ACFOA ET network	Education and Training Capacity Building	
Australian Foundation for Peoples of Asia and the South Pacific (AFAP) Kurt Koomen Jaga@mpx.com.au **Tel: 61-2-9906 3792**	Receives funding from governments and public donations. Provides funding to East Timorese NGOs.	Governments AusAID International NGOs Timor Aid Part of ACFOA ET network	Health	Planning larger program in Timor in future, focusing on health and rehabilitation of health facilities.
Australian People for Health Education and Development Abroad (APHEDA) http://www.APHEDA.org.au Apheda@labor.net.au Alison Tate: alisont@actu.asn.au Tel: 61-2-9264 9343	Implements Projects. Receives funding from governments, Australian trade unions and public donations. Provides funding to East Timorese NGOs.	Governments AusAID International NGOs AEU MMIETS Also works with Indonesian Workers Union (SPSI) Part of ACFOA ET network	Education and Training Health Capacity Building Humanitarian Relief	Australian Council of Trade Unions' development agency.
Australian Volunteers International **(AVI, formerly Overseas Services Bureau)** http://www.osb.org.au Maree Keating mkeating@ozvol.org.au	No projects (volunteers) in East Timor Receives funding from governments and public donations.	Governments AusAID Part of ACFOA ET network.		Compiling skills register of East Timorese community in Australia.

Organization	Role in East Timor	Operational Links	Sectors of Focus	**Comment**
CAFOD Stephanie O'Connell Soconnel@cafod.org.uk Tel: 44-171-733 7900	Implements projects. Receives funding from governments and public donations. Provides funding to East Timorese Catholic church organizations.	Governments DFID International NGOs Caritas International Trocaire (Ireland) East Timorese NGOs Caritas East Timor	Health	
CARE Email: CARE Canada: info@care.ca Canada: http://www.care.ca Telephone: 1-613-228 5635 CARE Canada Project Manager in Indonesia: Brenda Cupper Tel: 1-613-228 5655	Implements Projects. Provides funding from public donations.	Governments CIDA USAID	Capacity Building Humanitarian Relief	CARE Canada is the lead CARE. CARE Indonesia is the partner organization. CARE Australia has also provided humanitarian assistance
Caritas Australia: Tel: 61-2-9956 5799 Fax: 61-2-9956 5782 caritas@caritas.org.au http://www.caritas.org.au Ann Wigglesworth (East Timor Coordinator) Annw@caritas.org.au	Implements Projects. Receives funding from governments, the Catholic church and public donations. Provides funding to East Timorese NGOs and church organizations.	Governments Australia Multilateral UNICEF International NGOs Caritas network CAFOD MMIETS East Timorese Catholic church organizations Perdhaki	Agriculture and Rural Devt Humanitarian Relief Education	Started supporting Caritas East Timor as a major focus in 1997. Prior to this also funded relief work and undertook advocacy work in Australia. Planning a major health management program commencing 1999, to support Caritas East Timor's Health Unit.
Caritas Norway: Http://www.caritas.org) Tel: 47-22- 60 77 75; Fax: +4722) 56 83 0 Caritas@caritas.no Caritas East Timor Mr. Ernst Basil Rolandsen No88050@ibm.net	Implements Projects. Receives funding from governments, the Catholic church and public donations. Provides funding to East Timorese NGOs and church organizations.	Governments Norway International NGOs CAFOD Caritas Australia Caritas East Timor Caritas Sweden Trocaire (Ireland) East Timorese NGOs	Education Health Humanitarian Relief Other	Caritas Norway works closely with, and provides funding to, Caritas East Timor

Organization	Role in East Timor	Operational Links	Sectors of Focus	**Comment**
		Catholic church organizations		
Caritas Sweden Amandio Lopes Amandio@caritas.se Tel: 46-855-602 021	Implements Projects. Receives funding from governments, the Catholic church and public donations. Provides funding to East Timorese NGOs and church organizations.	Governments European Union SIDA International NGOs Caritas network East Timorese NGOs Dioceses of Dili and Baucau Catholic organizations	Education	
Catholic Relief Services (CRS) (HQ in USA) Http://www.catholicrelief.org	Previously implemented Projects. Currently none in East Timor. Receives funding from governments and public donations.	Governments USAID International NGOs Caritas East Timorese NGOs YASSKA	Health Humanitarian Relief	Two projects in West Timor: Supplemental Feeding (Kabuna) and Food Security (Atambua);
Christian Children's Fund (USA) Tel: 1-800-776 6767 Michelle Poulton: (International programs director) Http://christianchildrensfund.org CCF Indonesia Tri Budiardjo (National Director) ccfina.@pacific.net.id **CCF Australia** Jane Edge (National	Implements Projects. Receives funding from governments and public donations. Provides funding to East Timorese NGOs.	Governments AusAID International NGOs CCF Australia CCF New Zealand East Timorese NGOs Cinta Kaum Wanita Foundation Hati Kudus Yesus Foundation Keluarga Balibo Sejahtera Social Foundation	Education Health Water Supply and Sanitation Agriculture and Rural Dev. Humanitarian Relief Multisector	CCF USA is the major implementing CCF organization. Commenced its program in East Timor in the early 80s by affiliating with 11 local foundations. Has 2 year ARI prevention project with PERDHAKI

Organization	Role in East Timor	Operational Links	Sectors of Focus	**Comment**
Director) Ccfa@gedko.net.au David Payne, Program Officer Ccfa@geko.net.au		Keluarga Maria Ratu Damai Social Foundation Naroman Social Foundation PERDHAKI Santa Maria Fatima Foundation Vincentius Foundation		
Community Aid Abroad (Oxfam in Australia) Bu Wilson: buw@caa.org.au Tel: 61-3-9289 9444 Fax: 61-3-9419 5318	Receives funding from governments and public donations. Provides funding to East Timorese NGOs.	Governments AusAID NZODA International NGOs Oxfam GB Oxfam NZ East Timorese NGOs Fokupers POSKO Dili Yayasan HAK Also Atambua Diocese (West Timor) Part of ACFOA ET network	Governance and Law Other	Officially banned from Indonesia, but works through partner organizations.
East Timor Relief Association **(Australia)** http://www.pactok.net.au Agio Pereira: etra@pactok.net Tel: 61-2-9891 5861 Fax: 61-2-9891 2876	Implements Projects. Receives funding from governments and public donations. Provides funding to East Timorese NGOs.	Governments AusAID Part of ACFOA ET network		
Fastenopfer (Swiss Catholic Aid)	Receives funding from governments, the Catholic church and	**International NGOs** **Caritas Network**	Education Health	

Organization	Role in East Timor	Operational Links	Sectors of Focus	**Comment**
Director of Indonesia Program Tel: 41-41-210 7655	public donations. Provides funds international and East Timorese NGOs	**Timor Aid** **East Timorese NGOs** **Catholic church organizations** **Yayasan Timor Aid**	Agriculture and Rural Dev. Humanitarian Relief Other	
International Committee of the Red Cross/Red Crescent, ICRC http://www.icrc.org	Implements Projects. Receives funding from governments, and public donations.	Governments AusAID CIDA DFID European Union NZODA USAID Works with Indonesian ICRC	Water Supply and Sanitation Governance and Law Humanitarian Relief	
International Rescue Committee (USA) http://www.intrescom.org/index.html webmaster@intrescom.org Tel: 1-877-REFUGEE Jerry Martone 1-212-551 3061	Implements Projects. Receives funding from governments, and public donations.	Governments Portugal	Humanitarian Relief	Received funding to commence a program of humanitarian relief, followed by expanded program of development assistance. Will conduct research mission August 1999.
Jesuit Order	Implements Projects. Receives funding from Catholic church and public donations.		Education	Planning to a program of education scholarships.
Mary MacKillop Institute of East Timorese Studies (MMIETS) Susan Connelly Mmiets@nareg.com.au Tel: 61-2-9623 2847	Implements Projects. Receives funding from governments, the Catholic Church and public donations.	Governments AusAID International NGOs Caritas Australia APHEDA	Education Humanitarian	

Organization	Role in East Timor	Operational Links	Sectors of Focus	**Comment**
		Part of ACFOA ET network		
Misereor – Bischofliches Hilfswerk **(Germany)** http://www.misereor.de Franz Pils: pils@misereor.de Tel: 49-241-442 173 Fax: 49-241-442 188	Receives funding from governments, the Catholic Church and public donations. Provides funding to Catholic NGOs and East Timorese Catholic church organizations.	Governments Gtz (Germany) International NGOs Caritas Norway	Education and Training Health Water Supply and Sanitation Agriculture and Rural Dev. Humanitarian Relief Other	Founded in 1958 as the overseas development agency of the Catholic Church in Germany.
Missio presse@missio-aachen.de Raimund Kern Tel: 49-241-750 700 Fax: 49-241-7507 508	Receives funding from the Catholic Church and public donations. Provides funding to East Timorese Catholic church organizations.	East Timorese NGOs East Timorese Catholic church organization	Other	German organization that funds Catholic Church projects only.
Norwegian Church Aid **Tel: 47-22 09 27 00** **Fax: 47-22 09 27 20** **http://www.nca.no** **Email: nca-oslo@online.no**	Receives funding from the Norwegian government, Catholic church and public donations. Provides funding to East Timorese Catholic church organizations, and other organizations involved with East Timor.	Governments NORAD International NGOs Norwegian Human Rights Fund Also the East Timor Human Rights Centre (Australia)	Governance and Law	Provides funds to the East Timor Human Rights Centre (Australia).
Norwegian Human Rights Fund	Receives funding from the Norwegian government, Catholic church and public donations. Provides funding to organizations involved with East Timor.	Governments NORAD International NGOs Norwegian Human Rights Fund Also the East Timor	Governance and Law	Provides funding to the East Timor Human Rights Centre (Australia)

Organization	Role in East Timor	Operational Links	Sectors of Focus	**Comment**
		Human Rights Centre (Australia)		
National Cooperative Business Association Http://www.cooperative.org/ncba.cfm ncba@ncba.org Sam Filiaci Clusa@elang.idola.net.id	Implements projects. Receives funding from governments and donations from Association members.	Governments USAID	Agriculture and Rural Dev. Health (component of Agriculture project)	Worked in Indonesia for 23 years. First ET activities commenced in 1994. (Works in Aileu, Ermera, Ainaro)
Nusa Tenggara Association				
OIKOS **(Portugal)** Dr Jeremias Carvalho Tel: 351-1-882 3630 Fax: 351-1-882 3635 Oikos@oikos.pt Oikos@telepac.pt	Implements projects, including volunteers. Receives funding from governments and public donations.	International NGOs VSO GB East Timorese NGOs Catholic church organizations		Considering establishing a volunteer program following the referendum.
Opportunity International Australia	Implements projects. Receives funding from governments and public donations.	Governments AusAID East Timorese NGOs Bina Sejahtera Lestari	Health Humanitarian Relief	
Oxfam GB oxfam@oxfam.org.uk http://www.oneworld.org/oxfam **Tel: 44-1865-311 311**	Implements Projects. Receives funding from governments and public donations. Provides funding to East Timorese NGOs	Governments DFID International NGOs CAA Oxfam NZ	Capacity Building Humanitarian Relief	Received funding to commence a program of capacity building for East Timorese NGOs. Conducted research mission

Organization	Role in East Timor	Operational Links	Sectors of Focus	**Comment**
Oxfam NZ	and church organizations.	Oxfam NZ has received funding from NZODA for humanitarian relief.		
Salesian Missions **(US-based)**	Implements projects Receives funding from governments and the Catholic church.	Governments USAID	Education Agriculture	**Also orphans, including education for orphans.**
The American Center for International Labor Solidarity acils@acils.org David Welker: dwelker@acils.org Tel: 1-202-778 4500	No direct projects. Receives funding from governments and AFL-CIO network.	Governments USAID Previously worked with Indonesian Workers' Union (SPSI)	Capacity Building	Part of AFL-CIO. Previously received USAID funding for trade union education projects in ET.
Timor Aid **Tel: 61-8-8985 5529** Fax: 61-8-8948 4498 Email: info@timoraid.org Juan Federer (CEO) Etisc@ibm.net Maria Federer buibere@ozemail.com.au	Implements Projects. Receives funding from governments, multilateral organizations, corporations and public donations. Provides funding to East Timorese NGOs.	Governments AusAID Austrian Government DFID European Union NORAD SDC International NGOs AFAP Fastenopfer Worldview Rights (Norway) East Timorese NGOs Yayasan Timor Aid	Education Health Water Supply and Sanitation Agriculture and Rural Dev. Humanitarian Relief Other	Primarily works through East Timorese affiliate, Yayasan Timor Aid. Channels funding for many small projects from donors to East Timorese NGOs. Established and commenced funding projects in East Timor in 1998.
Trocaire **Irish Catholic Church Agency** **Tel. 00 353 1 288 5385,** **Fax 00 352 1 283 6022** **Fionnula Gilsenan**	Receives funding from governments, the Catholic church and public donations. Provides funding to other International NGOs.	Governments Ireland European Union International NGOs CAFOD	Humanitarian Relief	Considering establishing a program Conducted research mission

Organization	Role in East Timor	Operational Links	Sectors of Focus	**Comment**
gilsenan@trocaire.ie Camila Comas Camila@trocaire.ie		Caritas network		
Voluntary Service Overseas (VSO) GB http://www.vso.org.uk Michaele Hawkins: mhawkins@vso.org.uk	Funds volunteers in developing countries. Receives funding from governments and public donations.	International NGOs OIKOS (Portugal)		OIKOS is considering establishing a volunteer program after the referendum. VSO GB works in partnership with OIKOS.
World Vision Canada. Iris Lohrengel iris_lohrengel@worldvision.ca Jim Carrie 1-905-821 3033 ext. 2719 World Vision Australia Http://www.wva.org.au Andrew Newmarch newmarcha@wva.org.au	Implements Projects. Receives funding from governments and public donations. WV Australia also received a once-off donation from BHP Petroleum.	Governments AusAID CIDA International NGOs World Vision Australia World Vision Indonesia Corporate BHP Petroleum (WV Australia)	Multisector	World Vision Canada is the lead World Vision. Implementation partner is World Vision Indonesia which has an office in Dili. World Vision Australia is considering commencing a program.
Worldview Rights www.worldviewrights.org worldview@worldview.org Geir Andreassen Geir@worldview.no	Implements Projects. Receives funding from governments, corporations, and public donations. Provides funding to East Timorese NGOs.	International NGOs Timor Aid Corporate Statoil (Norway)	Education, Media	

Table 6.3: East Timorese NGOs Involved in Development Assistance in East Timor

Organization	Role in East Timor	Operational Links	Sectors of Focus	**Comment**
Atambua Diocese (West Timor)	Implements projects using funds from governments and international NGO partners.	International NGOs CAA Catholic church	Humanitarian Relief	CAA
Baucau Diocese	Implements projects using funds from the Catholic church and international NGO partners.	Governments SIDA International NGOs Caritas Sweden Catholic organizations	Education	
Balibo Sejahtera, Yayasan (Balibo, Bobonaro)	Implements projects using funds from governments and international NGO partners.			
BIA HULA, Yayasan, (Dili, Suai) Director: Alexia de Cruz Antonia de Costancia	Implements projects using funds from governments and international NGO partners.	Government AusAID International NGOs Worldview Rights Corporate ACIL Australia	Health Capacity Building	AusAID
Bina Mitra Sejahtera, Yayasan (West Timor: Kobalima, Malaka Tengah, Malaka Barat)	Implements projects using funds from governments and international NGO partners.			
Bina Sejahtera Lestari, **Yayasan**, BSL (Ermera, Lospalos)	Implements projects using funds from governments and international NGO partners.	Government AusAID USAID International NGOs	Health Humanitarian Relief Other	Established in 1994 by Duta Bina Bhuana (a national NGO based in Bali) as a counterpart NGO in East Timor. Activities include micro-enterprise and practical business skill training.
Bina Swadaya Timor Timur, Yayasan (Jakarta-based. East Timor branch: Dili HQ, Balibo, - Bobonaro, Suai - Ambeno)	Implements projects using funds from governments, the Catholic church and international NGOs.	Government AusAID NZODA USAID Also works with BAPPENAS – Indonesian Government development agency	Agriculture and Rural Dev. Capacity Building Other	A national Indonesian NGO, with a branch in East Timor.
Bobonaro Catholic Parish (Bobonaro)	Implements projects using funds from governments and international NGO partners.	Catholic church organizations	Education Health Water supply and sanitation Agriculture and Rural Dev.	
Canossa, Yayasan	Implements projects		Health	Focuses on young

Organization	Role in East Timor	Operational Links	Sectors of Focus	**Comment**
(Through East Timor)	using funds from governments and international NGO partners.		Education	women.
Caritas East Timor (Dili)	Implements projects using funds from governments and international NGO partners.	International NGOs CAFOD Caritas Trocaire	Health Agriculture and Rural Dev Humanitarian Relief	
Carmelite Sisters (Throughout East Timor)	Implements projects using funds from governments, the Catholic church and international NGO.	Government AusAID International NGOs Catholic church organizations MMIETS	Health Education	Operate the Motael Clinic in Dili.
CARE International (Dili, Aileu, Ainaro)	Implements projects using funds from governments and international NGO partners.	Government AusAID CIDA International NGOs CARE Australia/Canada	Capacity Building Humanitarian Relief	
Catholic Technical College (Dili)	Implements projects using funds from governments, the Catholic church and international NGOs.	International Catholic church	Education	
Cinta Kaum Wanita Foundation (Manatuto)	Implements projects using funds from governments, and international NGOs.	International NGOs CCF	Multisector	
Dian Desa (Dili)	Implements projects using funds from governments, and international NGOs.	Governments CIDA NZODA	Water Supply and Sanitation Humanitarian Relief	National NGO based in Yogyakarta, Central Java. Established in 1972 to promote and fund safe and reliable water supplies to rural areas.
Dili Diocese, Commission on Justice and Peace. (Dili, Baucau)	Implements projects using funds from governments, the Catholic church and international NGOs.	Governments AusAID SIDA USAID International NGOs Caritas Sweden	Education Governance and Law Other	The Commission on Justice and Peace (Komisi Keadilan dan Perdamaian Diosis) is a committee of this Diocese. Also owns and manages the radio station: Radio Kmanek.
East Timor International Support Center (Darwin,	Provides information and coordination resources to organizations interested in			

Organization	Role in East Timor	Operational Links	Sectors of Focus	**Comment**
Australia)	East Timor.			
ETADEP – Erna Mata Dalan Ba Progresso, Road to Progress Foundation. (Dili–Motael, Liquica, Viqueque) Established in 1987 with USAID grant to CRS. Oldest ET NGO.	Implements projects using funds from governments, the Catholic church and international NGOs.	Governments AusAID CIDA NZODA USAID International NGOs Catholic organizations	Water Supply and Sanitation Agriculture and Rural Dev. Governance and Law Other	
Fokupers – **Forum Pereumpuan Solidaritas (Dili)** Partner organization to CAA	Implements projects using funds from governments and international NGOs.	International NGOs CAA	Other	Gender
Fundacao Sao Jose				
GERTAK – **Gerakan Wanita Anti Kekerasaan (Dili)**	Implements projects using funds from governments and international NGOs.	International NGOs CAA	Other	Gender
Gratia Deo Foundation (Suai Kota, Covalima)	Implements projects using funds from international NGOs.	International NGOs CCF	Multisector	
Grupo Sanak Liurai **(Dili)**			Other	Preservation and promotion of indigenous culture
Grupo Pronto Atu Serbi – **'Ready to Serve' (Dili).**	Implements projects using funds from international NGOs.		Health	
HAK, Yayasan - **Hukum Hak Asasi dan Keadilan. (Dili)** Aniceto Guterres	Implements projects using funds from international NGOs.	Governments USAID International NGOs TAF CAA	Governance and Law	
Halarai, Yayasan – **Hadia Lale Ita Rain, (Maliana)**	Implements projects using funds from international NGOs.		Agriculture and Rural Dev.	
Hanai Malu, Yayasan - Puskopdit (Throughout ET)			Capacity Building	Business cooperatives
Hati Kudus Yesus Foundation (Becora, East Dili)	Implements projects using funds from international NGOs	International NGOs CCF	Multisector	
Indonesian Legal Aid Foundation, LBH (Dili)	Implements projects using funds from governments and international NGOs.	Governments AusAID	Governance and Law	

Organization	Role in East Timor	Operational Links	Sectors of Focus	**Comment**
Institute for Policy Research and Advocacy	Implements projects using funds from governments and international NGOs.	Governments AusAID	Governance and Law	
Instituto Maun Alin Iha Kristu (Though out East Timor)	Implements projects using funds from governments and international NGOs.		Education Other	
Kalyanamitra Foundation (Liquica, Bobonaro, Covalima, Manufahi, Ermera, Belu)	Implements projects using funds from governments and international NGOs.		Humanitarian Relief	
Kanosian Foundation (Ermera)	Implements projects using funds from international NGOs.	International NGOs CCF	Multisector	
Keluarga Balibo Sejahtera Social Foundation (Balibo and Maliana, Bobonaro)	Implements projects using funds from international NGOs.	International NGOs CCF	Multisector	
Keluarga Maria Ratu Damai Social Foundation (Motael, Dili)	Implements projects using funds from international NGOs.	International NGOs CCF	Multisector	
KOMNAS HAM, National Commission Human Rights (Dili)	Implements projects using funds from governments.	<u>Governments</u> AusAID CIDA USAID	Governance and Law Humanitarian Relief	Also funded by the Indonesian government, but has autonomy in decision-making.
MaryKnoll Sisters (Aileu)			Education Health Other	Leprosy
PERDHAKI Timor Timur (Throughout East Timor)		<u>International NGOs:</u> CCF Indonesia	Health Humanitarian Relief	Has 2 year ARI prevention project with CCF
Poskos Dili	Implements projects using funds from governments and international NGOs.	<u>Governments</u> NZODA USAID <u>International NGOs</u> CAA Oxfam NZ	Capacity Building Humanitarian Relief	
Poskopdit Hanai Malu				
POSKUD – **Pusat Koperasi Kredi**			Other	
PPSDM Maubara Supported by Satya Wacana University, Java.	Implements projects Funding from governments and international NGOs?		Agriculture and Rural Dev.	Most funding is from the Satya Wacana University (Java) which received money from a European source (not sure if

Organization	Role in East Timor	Operational Links	Sectors of Focus	**Comment**
				Government or NGO).
Pronto a Servir				
Puslawita			Other	Gender
Pusat Wira Swasta Tani **(Dili, Aileu, Same)**	Implements projects using funds from international NGOs.		Agriculture and Rural Dev. Other	
Putri Hati Kudus Foundation (Ailiu Kota, Ailiu, Viqueque)	Implements projects using funds from international NGOs.	International NGOs CCF	Multisector Other	
Sadep, Yayasan **(Suai)**			Agriculture and Rural Dev.	
Salesian Santo Yohanes Bosco Foundation **(Lospalos, Lautem)**	Implements projects using funds from international NGOs.	International NGOs CCF	Multisector	
Sao Jose**,** Yayasan Catholic Foundation	Implements projects using funds from the Catholic church.	International NGOs Catholic organizations	Education	
Santa Maria Fatima Foundation (Liquica)	Implements projects using funds from international NGOs.	International NGOs CCF	Multisector	
Tatoli Naroman, Yayasan (Dili, Same, Lospalos)	Implements projects using funds from governments and international NGOs.	<u>Governments</u> NZODA USAID <u>International NGOs</u> TAF CCF	Health Governance and Law Multisector Other	Publishes Suara Timor Timur newspaper.
Timor Aid, Yayasan **(Dili)**	Implements projects using funds from governments and international NGOs.	Governments AusAID Austrian government. International NGOs AFAP Fastenopfer Timor Aid	Education Health Humanitarian Relief Other	
University of Timor (Dili)	Implements projects using funds from governments and international NGOs	Governments USAID Also works with Georgetown University, Washington DC, USA.	Education	
Vincentius Foundation (Lahame, East Dili)	Implements projects using funds from international NGOs.	International NGOs CCF	Multisector	
YASSKA	Implements projects using funds from church organizations and international NGOs.	International NGOs CRS	Health	Located in West Timor. Church organization.

Table 6.4: Corporations and other organizations involved in development assistance in East Timor

Organization	Role in East Timor	Operational Links	Sectors of Focus	**Comment**
ACIL Australia Pty Ltd Tel: 011-61-3-9819 2877 Fax: 011-61-3-9819 4216 Contact: Helen Moriarty: helen.moriarty@acil.com.au	Managing Contractor for agriculture project and rural development project.	Governments AusAID East Timorese NGOs Yayasan BIA HULA	Capacity Building Agriculture and Rural Dev.	1988-0ngoing 1993-1998
CMPS&F Environmental (Australia) Contact: Dr Peter Nadebaum Tel: 61-3-9272 6666 http://www.emiaa.org.au/emiaaw/cmpsf.html	Provided project director for completed Water Supply and Sanitation Project.	Governments AusAID Corporate Coffey MPW	Water Supply and Sanitation	Asia Pacific headquarters of the French-based multi-national Group EGIS.
Coffey MPW Pty Ltd (Australia) Tel: 61-2-9888 7444 Fax: 61-2-9888 9977 Email: sydney@coffey.com.au http://www.coffey.com.au	Managing Contractor for completed Water Supply and Sanitation Project.	Governments AusAID Corporate CMPS&F Environmental	Water Supply and Sanitation	1992-1999
BHP Petroleum **(Australia)** Tel: 61-3-9609 3333 Fax: 61-3-9609 3015 **Alana Birchall, Email:** birchall.alana.af@bhp.com.au	Donated funds	International NGO World Vision Australia	Health	Once-off donation of $65,000 in 1998 to Suai hospital, through joint venture with World Vision Australia.
Bioglobal Consultancy Ltd **(New Zealand)** Tel: 64-9-480 6026 Fax 64-9-480 6266	Conducted feasibility study in for project to enhance smallholder coffee production	Government New Zealand	Agriculture	1997
Georgetown University (Washington, DC, USA)	Implemented project with University of Timor, using USAID funds.	Government USAID East Timorese NGOs University of Timor	Education	Focuses on English language training and animal husbandry.
New South Wales Department of Agriculture **(Australia)** Tel: 61-2-6391 3100 Fax: 61-2-6391 3336 nsw.agriculture@agric.nsw.gov.au	Managing Contractor for completed veterinary services project.	Governments AusAID	Agriculture and Rural Dev.	1989-1999
Statoil **(Norway)** Tel: 47-51-99 00 00 Fax: 47-51-99 00 50 Email statoil@statoil.com	Donated funds	International NGOs Timor Aid Worldview Rights	Education	Once-off donation in 1998 of $400,000 for university scholarships.

6.2 Development Assistance and Post-Conflict Recovery

Table 6.5: Checklist matching development assistance with essential elements for post-conflict recovery

Notes:

This table was adapted from one included in the paper "Meeting Essential Needs in Societies Emerging from Conflict", prepared by the Center on International Cooperation (CIC) at New York University, USA. The original table also suggests a phased schedule for the activities listed in this table. This schedule is organized around the themes of crisis, settlement and long-term reconstruction. The paper is available on the internet at: http://www.nyu.edu/pages/cic or can be obtained by writing to the CIC at 418 Lafayette Street, suite 543, New York, NY 10003. Tel: (212) 998 3680.

Given that projects and programs vary enormously in scale and scope, column three - "Scale of Activity" – has been included as a composite measure of such factors as levels of funding, geographical coverage, and coverage relative to need.

Essential Elements	Sector / Activities	Scale of Activity[b] • small •• medium ••• large	Implementing Agencies B – Bilateral M – Multilateral N – NGO L – Local Organization B M N L	Sources of Funding B M N
1. Repatriation and Resettlement	Transport assistance for return of IDPs			
	Shelter and reconstruction materials			
	Community reconciliation and counseling			
	Family tracing and reunification	•	ICRC	• • •
	Property claims arbitration			
2. Public Safety	2.1 Mine clearance and awareness			
	2.2 Demobilization, reintegration and alternative employment projects			
	2.3 Small arms control/buy-backs			
	2.4 Restructuring/retraining security forces (police, armed forces, paramilitary, intelligence)			

Essential Elements	Sector / Activities	Scale of Activity[b] • small •• medium ••• large	Implementing Agencies B – Bilateral M – Multilateral N – NGO L – Local Organization B M N L	Sources of Funding B M N
	2.5 Human rights monitoring	•••	AusAID NZODA NORAD USAID CAA ICRC NCA OxfamNZ TAF Yay. Hak	• •
	2.6 Conflict prevention and resolution training	••	UN	• •
3. Governance and Civil Society	3.1 Public administration and civil service rehabilitation			
	3.2 Public expenditure and expenditure management			
	3.3 Civil service rehabilitation			
	3.4 NGO capacity building	••	AusAID CIDA DFID USAID AEU OxfamGB CARE TAF ETADEP Pikul Yay. Bia Hula	• •
	3.5 Electoral process and institutions	•••	AusAID DFID Japan Portugal NORAD NZODA USAID UN	• •
	3.6 Voter education and participation	•••	UN	• •
	3.7 Elections monitoring	•••	AusAID DFID Japan Portugal NORAD NZODA USAID UN	• •
	3.7 Free media training and legal advocacy	•	NORAD USAID Caritas ET Misereor Tatoli Naroman	• •

Essential Elements	Sector / Activities	Scale of Activity[b] • small •• medium ••• large	Implementing Agencies B – Bilateral M – Multilateral N – NGO L – Local Organization B M N L	Sources of Funding B M N
			TAF Found. Yay. Hak	
	3.8 Judicial reform			
	3.9 Civilian oversight and monitoring of security forces			
4. Infrastructure Recovery	4.1 Water and sanitation	••	AusAID EU CCF Catholic ICRC church Misereor	• • •
	4.2 Transportation			
	4.3 Power generation			
	4.4 Housing	••	USAID / GOI	•
	4.5 Solid waste disposal	•	AusAID	•
	4.6 Telecommunications	•	NORAD Caritas Radio Misereor Kmanek	• •
5. Food Security and Agricultural Rehabilitation	5.1 Targeted food distribution	•••	AusAID EU CARE Catholic CIDA UNICEF Caritas Church DFID CCF Komnas NORAD ETRA Ham NZODA ICRC Bina USAID Misereor Sejahtera MMIETS Lestari OxfamNZ Trocaire Timor Aid	• • •
	5.2 Seeds and tools distribution			
	5.3 Livestock/veterinary projects	••	AusAID CRS Bina	• •

Essential Elements	Sector / Activities	Scale of Activity[b] • small •• medium ••• large	Implementing Agencies B – Bilateral M – Multilateral N – NGO L – Local Organization B M N L	Sources of Funding B M N
			NZODA USAID NCBA Misereor Timor Aid Swadaya Timor ETADEP Catholic Church	
	5.4 Land use planning	•	NZODA OxfamNZ	•
	5.5 Land tenure issues			
	5.6 Agricultural Production	••	AusAID NZODA USAID CRS NCBA	•
6. Basic Needs: Planning and Services	6.1 Provision of essential health services	••	AusAID NORAD NZODA USAID UNICEF AFAP APHEDA CARE CAFOD Caritas CCF ICRC Misereor OxfamNZ Timor Aid Catholic Church Bina Sejahtera Lestari Yay. Bia Hula	• • •
	6.2 Medical facilities rehabilitation: reconstruction/material assistance	•	World Vision	•
	6.3 Public health sector capacity building and priority programming	•	AusAID NORAD NZODA UNICEF Caritas Norway CAFOD CCF Catholic Church Perdhaki Yay. Bia Hula	• • •
	6.4 Educational facilities rehabilitation	••	AusAID SIDA USAID Caritas Sweden Salesians Catholic Church	• •

Essential Elements	Sector / Activities	Scale of Activity[b] • small •• medium ••• large	Implementing Agencies B – Bilateral M – Multilateral N – NGO L – Local Organization B M N L	Sources of Funding B M N
	6.5 Teacher Training and Curriculum Development	•	AusAID EU NORAD SIDA USAID APHEDA Caritas Norway Caritas Sweden MMIETS Salesians	• •
	6.6 Cultural and linguistic revitalization	•	AusAID APHEDA MMIETS Catholic Church	•
	6.7 Employment, including food-for-work rehabilitation projects	•	AusAID SIDA Caritas Sweden Christian World Service Misereor	• •
7. Economic Planning and Stabilization	7.1 Provision of credit and banking	•	AusAID CIDA USAID Opp. Int'l Australia Bob'naro Catholic Parish ETADEP	•
	7.2 Enterprise development	•	AusAID CIDA USAID Fastenop-Fer Opp. Int'l Australia Timor Aid ETADEP Yayasan Timor Aid Yay.Bina Sejahtera Lestari Yay.Bina Swadaya	•
	7.4 Restoration of markets	•	USAID NCBA	•
	7.5 Planning for targeted sector development			
	7.6 Currency stabilization			

Essential Elements	Sector / Activities	Scale of Activity[b] • small •• medium ••• large	Implementing Agencies B – Bilateral M – Multilateral N – NGO L – Local Organization B M N L	Sources of Funding B M N
	7.7 Financial institutions restoration			
	7.8 Debt relief/arrears clearance			

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